

清华经济学系列英文版教材

# 宏观经济学

Macroeconomics Fourth Edition

(美) Olivier Blanchard 著

第4版

清华大学出版社

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北京



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# 出 版 说 明

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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的管理经验和掌握经济理论的前沿动态,清华大学出版社与国外著名出版公司合作影印出版一系列英文版经济管理方面的图书。我们所选择的图书,基本上是已再版多次、在国外深受欢迎、并被广泛采用的优秀教材,绝大部分是该领域中较具权威性的经典之作。

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科学的发展能有所帮助,对我国经济管理专业的教学能有所促进。

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

清华大学出版社

2008. 11



世纪之交,中国与世界的发展呈现最显著的两大趋势——以网络为代表的信息技术的突飞猛进,以及经济全球化的激烈挑战。无论是无远弗界的因特网,还是日益密切的政治、经济、文化等方面的国际合作,都标示着 21 世纪的中国是一个更加开放的中国,也面临着一个更加开放的世界。

教育,特别是管理教育总是扮演着学习与合作的先行者的角色。改革开放以来,尤其是 20 世纪 90 年代之后,为了探寻中国国情与国际上一切优秀的管理教育思想、方法和手段的完美结合,为了更好地培养高层次的“面向国际市场竞争、具备国际经营头脑”的管理者,我国的教育机构与美国、欧洲、澳洲以及亚洲一些国家和地区的大量的著名管理学院和顶尖跨国企业建立了长期密切的合作关系。以清华大学经济管理学院为例,2000 年,学院顾问委员会成立,并于 10 月举行了第一次会议,2001 年 4 月又举行了第二次会议。这个顾问委员会包括了世界上最大的一些跨国公司和中国几家顶尖企业的最高领导人,其阵容之大、层次之高,超过了世界上任何一所商学院。在这样高层次、多样化、重实效的管理教育国际合作中,教师和学生与国外的交流机会大幅度增加,越来越深刻地融入到全球性的教育、文化和思想观念的时代变革中,我们的管理教育工作者和经济管理学习者,更加真切地体验到这个世界正发生着深刻的变化,也更主动地探寻和把握着世界经济发展和跨国企业运作的脉搏。

我国管理教育的发展,闭关锁国、闭门造车是绝对不行的,必须同国际接轨,按照国际一流的水准来要求自己。正如朱镕基同志在清华大学经济管理学院成立十周年时所发的贺信中指出的那样:“建设有中国特色的社会主义,需要一大批掌握市场经济的一般规律,熟悉其运行规则,而又了解中国企业实情的经济管理人才。清华大学经济管理学院就要敢于借鉴、引进世界上一切优秀的经济管理学院的教学内容、方法和手段,结合中国的国情,办成世界第一流的经管学院。”作为达到世界一流的一个重要基础,朱镕基同志多次建议清华的 MBA 教育要加强英语教学。我体会,这不仅因为英语是当今世界交往中重要的语言工具,是连接中国与世界的重要桥梁和媒介,而且更是中国经济管理人才参与国际竞争,加强国际合作,实现中国企业的国际战略的基石。推动和实行英文教学并不是目的,真正的目的在于培养学生——这些未来的企业家——能够具备同国际竞争对手、合作伙伴沟通和对抗的能力。按照这一要求,清华大学经济管理学院正在不断推动英语教学的步伐,使得英语不仅是一门需要学习的核心课程,而且渗透到各门专业课程的学习当中。

课堂讲授之外,课前课后的大量英文原版著作、案例的阅读对于提高学生的英文水平也是非常关键的。这不仅是积累相当的专业词汇的重要手段,而且是对学习者思维方式的有效训练。

我们知道,就阅读而言,学习和借鉴国外先进的管理经验和掌握经济理论动态,或是阅读翻译作品,或是阅读原著。前者属于间接阅读,后者属于直接阅读。直接阅读取决于读者的外文阅读能力,有较高外语水平的读者当然喜欢直接阅读原著,这样不仅可以避免因译者的疏忽或水平所限而造成的纰漏,同时也可以尽享原作者思想的真实表达。而对于那些有一定外语基础,但又不能完全独立阅读国外原著的读者来说,外文的阅读能力是需要加强培养和训练的,尤其是专业外语的阅读能力更是如此。如果一个人永远不接触专业外版图书,他在获得国外学术信息方面就永远会比别人差半年甚至一年的时间,他就会在无形中减弱自己的竞争能力。因此,我们认为,有一定外语基础的读者,都应该尝试一下阅读外文原版,只要努力并坚持,就一定能过了这道关,到那时就能体验到直接阅读的妙处了。

在掌握大量术语的同时,我们更看重读者在阅读英文原版著作时对于西方管理者或研究者的思维方式的学习和体会。我认为,原汁原味的世界级大师富有特色的表达方式背后,反映了思维习惯,反映了思想精髓,反映了文化特征,也反映了战略偏好。知己知彼,对于跨文化的管理思想、方法的学习,一定要熟悉这些思想、方法所孕育、成长的文化土壤,这样,有朝一日才能真正“具备国际战略头脑”。

以往,普通读者购买和阅读英文原版还有一个书价的障碍。一本外版书少则几十美元,多则上百美元,一般读者只能望书兴叹。随着全球经济合作步伐的加快,目前在出版行业有了一种新的合作出版的方式,即外文影印版,其价格几乎与国内同类图书持平。这样一来,读者可以不必再为书价发愁。清华大学出版社这些年在这方面一直以独特的优势领先于同行。早在1997年,清华大学出版社敢为人先,在国内最早推出一批优秀商学英文版教材,规模宏大,在企业界和管理教育界引起不小的轰动,更使国内莘莘学子受益良多。

为了配合清华大学经济管理学院推动英文授课的急需,也为了向全国更多的MBA试点院校和更多的经济管理学院的教师和学生提供学习上的支持,清华大学出版社再次隆重推出与世界著名出版集团合作的英文原版影印商学教科书,也使广大工商界人士、经济管理类学生享用到最新最好质优价廉的国际教材。

祝愿我国的管理教育事业在社会各界的大力支持和关心下不断发展、日进日新;祝愿我国的经济建设在不断涌现的大批高层次的面向国际市场竞争、具备国际经营头脑的管理者的勉力经营下早日中兴。

赵纯钧 教授

清华大学经济管理学院

# About the Author



Olivier Blanchard is the Class of 1941 Professor of Economics at MIT. He did his undergraduate work in France, and received a Ph.D. in economics from MIT in 1977. He taught at Harvard from 1977 to 1982, and has taught at MIT since 1983. He has frequently received the award for best teacher in the department of economics.

He has done research on many macroeconomic issues, from the effects of fiscal policy, to the role of expectations, to price rigidities, to speculative bubbles, to unemployment in Western Europe, transition in Eastern Europe, and more recently, on labor market institutions. He has done work for many governments and many international organizations, including the World Bank, the IMF, the OECD, the EU commission and the EBRD. He has published over 150 articles and edited or written over 15 books, including *Lectures on Macroeconomics* with Stanley Fischer.

He is a research associate of the National Bureau of Economic Research, a fellow and a council member of the Econometric Society, a member of the American Academy of Arts and Sciences, and a past vice president of the American Economic Association. He is also a member of the French Council of Economic Advisers.

He lives in Cambridge, Massachusetts, with his wife, Noelle. He has three daughters, Marie, Serena, and Giulia.





# Focus Boxes

I have made sure never to present a theoretical result without relating it to the real world. In addition to discussions of facts in the text itself, I have written a large number of *Focus* boxes, which discuss particular macroeconomic events or facts, from the United States or from around the world . . . My belief is that these boxes not only convey the “life” of macroeconomics, but also reinforce the lessons from the models, making them more concrete and easier to grasp.

— Olivier Blanchard

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# Preface

I had two main goals in writing this book:

- To make close contact with current macroeconomic events.

What makes macroeconomics exciting is the light it sheds on what is happening around the world, from the introduction of the euro in Western Europe, to the recent U.S. recession, to the long Japanese economic slump, to the inflation crisis in Argentina. These events—and many more—are described in the book, not in footnotes, but in the text or in detailed boxes. Each box shows how you can use what you have learned to get an understanding of these events. My belief is that these boxes not only convey the “life” of macroeconomics, but also reinforce the lessons from the models, making them more concrete and easier to grasp.

- To provide an integrated view of macroeconomics.

The book is built on one underlying model, a model that draws the implications of equilibrium conditions in three sets of markets: the goods market, the financial markets, and the labor market. Depending on the issue at hand, the parts of the model relevant to the issue are developed in more detail while the other parts are simplified or lurk in the background. But the underlying model is always the same. This way, you will see macroeconomics as a coherent whole, not a collection of models. And you will be able to make sense not only of past macroeconomic events, but also of those that unfold in the future.

## Organization

The book is organized around two central parts: A core, and a set of three major extensions. An introduction precedes the core. The set of extensions is followed by a review of the role of policy. The book ends with an epilogue. A flowchart on the front endpaper makes it easy to see how the chapters are organized, and fit within the book's overall structure.

- Chapters 1 and 2 introduce the basic facts and issues of macroeconomics. Chapter 1 offers a tour of the world, from the United States, to Europe, to Japan. Some instructors will prefer to cover Chapter 1 later, perhaps after Chapter 2, which introduces basic concepts, articulates the notions of short run, medium run, and long run, and gives the reader a quick tour of the book.

While Chapter 2 gives the basics of national income accounting, I have put a detailed treatment of national income accounts to Appendix 1 at the end of the book. This decreases the burden on the beginning reader, and allows for a more thorough treatment in the appendix.

- Chapters 3 through 13 constitute the **core**.

Chapters 3 through 5 focus on the **short run**. These three chapters characterize equilibrium in the goods market and in the financial markets, and they derive the basic model used to study short-run movements in output, the *IS-LM* model.

Chapters 6 through 9 focus on the **medium run**. Chapter 6 focuses on equilibrium in the labor market and introduces the notion of the natural rate of unemployment. Chapters 7 through 9 develop a model based on aggregate demand and aggregate supply, and show how that model can be used to understand movements in activity and movements in inflation, both in the short and in the medium run.

Chapters 10 through 13 focus on the **long run**. Chapter 10 describes the facts, showing the evolution of output across countries and over long periods of time. Chapters 11 and 12 develop a model of growth, and describe how capital accumulation and technological progress determine growth. Chapter 13 focuses on the effects of technological progress not only in the long run, but also in the short run and in the medium run. This topic is typically not covered in textbooks but is important. And the



chapter shows how one can integrate the short run, the medium run, and the long run—a clear example of the payoff to an integrated approach to macroeconomics.

- Chapters 14 through 24 cover the three major **extensions**.

Chapters 14 through 17 focus on the role of **expectations** in the short run and in the medium run. Expectations play a major role in most economic decisions, and, by implication, play a major role in the determination of output.

Chapters 18 through 21 focus on the implications of **openness** of modern economies. Chapter 21 focuses on the implications of different exchange rate regimes, from flexible exchange rates, to fixed exchange rates, currency boards, and dollarization.

Chapters 22 and 23 focus on **pathologies**, times when (macroeconomic) things go very wrong. Chapter 22 looks at depressions and slumps, including the Great Depression in the United States before World War II, and the Japanese economic slump of the 1990s. Chapter 23 looks at episodes of hyperinflation.

- Chapters 24 through 26 return to macroeconomic **policy**. Although most of the first 23 chapters constantly discuss macroeconomic policy in one form or another, the purpose of Chapters 24 through 26 is to tie the threads together. Chapter 24 looks at the role and the limits of macroeconomic policy in general. Chapters 25 and 26 review monetary policy and fiscal policy. Much of Chapter 26 is devoted to recent developments in monetary policy, from inflation targeting to interest rate rules. Some instructors may want to use parts of these chapters earlier. For example, it is easy to move forward the discussion of the government budget constraint in Chapter 26.

- Chapter 27 serves as an **epilogue**; it puts macroeconomics in historical perspective by showing the evolution of macroeconomics in the last 70 years and discussing current directions of research.

## Changes from the Third to the Fourth Edition

The structure of the fourth edition is the same as that of the third edition. The major changes are in the presentation of some of the topics, and the introduction of a number of new boxes.

The main changes are in Chapters 18 through 21. It is customary to define the exchange rate as the price of

foreign currency in terms of domestic currency. This implies that a decrease in the exchange rate corresponds to an appreciation of the currency, and that an increase in the exchange rate corresponds to a depreciation. I adopted this definition in previous editions, but found it to be a source of confusion for students and teachers alike. In this edition, the exchange rate is defined as the price of domestic currency in terms of foreign currency: An increase in the exchange rate corresponds to an appreciation, and a decrease corresponds to a depreciation. Having tried it in the classroom, I know that this definition makes the treatment of the open economy much easier for students. I realize that teachers who used previous editions will suffer a switching cost, but I am convinced they will find it worth it.

A large part of Chapter 9 in the third edition was devoted to a study of disinflation. The issue is less topical today than it was in the past. I have rewritten the chapter to focus on the interactions between inflation, output and unemployment more generally. In the process, I have substantially simplified the chapter.

Let me also mention a change I gave much thought to, but did not make in the end. Some teachers have suggested I give up the traditional derivation of the *LM* curve and replace it by an interest rate rule. I do not think this is a desirable change: While it simplifies the presentation of the *IS-LM*, it makes it more difficult to integrate the *IS-LM* and the *AS-AD* models and to discuss the long run neutrality of money. I have introduced however in Chapter 4 a discussion of whether we should think of the central bank as choosing the money stock or the interest rate. And I have expanded the discussion of inflation targeting and interest rate rules in Chapter 25.

Recent events, and recent research, have naturally led to a number of new—or largely new—boxes and discussions. Let me mention in particular the box on the U.S. recession of 2001 in Chapter 5, the box on Social Security in Chapter 11, the box on the Stability and Growth Pact in the Euro area in Chapter 24, the discussion of U.S. budget deficits in Chapter 26, the box on happiness and growth in Chapter 10, and the box on institutions and growth, looking at North and South Korea, in Chapter 12.

## Alternative Course Outlines

Within the book's broad organization, there is plenty of opportunity for alternative course organizations. I have made the chapters shorter than is standard in textbooks, and, in my experience, most chapters can be covered in an hour and a half. A few (Chapters 5 and 7 for example) might require two lectures to sink in.

### ■ Short courses. (15 lectures or less)

A short course can be organized around the two introductory chapters and the core. Omitting Chapters 9 and 13 gives a total of 11 lectures. Informal presentations of one or two of the extensions, based for example on Chapter 17 for expectations (which can be taught as a standalone), and on Chapter 18 for the open economy, can then follow, for a total of 13 lectures.

A short course might leave out the study of growth (the long run). In this case, the course can be organized around the introductory chapters, and Chapters 3 through 8 in the core; this gives a total of 8 lectures, leaving enough time to cover, for example, Chapter 17 on expectations, chapters 18 through 20 on the open economy, and Chapter 22 on depressions and slumps, for a total of 13 lectures.

### ■ Longer courses (20 to 25 lectures)

A full-semester course allows more than enough time to cover the core, plus at least two extensions, and the review of policy.

The extensions assume knowledge of the core, but are otherwise mostly self-contained. Given the choice, the order in which they are best taught is probably the order in which they are presented in the book. Having studied the role of expectations first helps students to understand the interest parity condition, and the nature of exchange rate crises.

One of the choices facing instructors is likely to be whether or not to teach growth (the long run). If growth is taught, there may not be enough time to cover all three extensions and have a thorough discussion of policy. In this case, it may be best to leave out the study of pathologies. If growth is not taught, there should be time to cover most of the other topics in the book.

## Features

I have made sure never to present a theoretical result without relating it to the real world. In addition to discussions of facts in the text itself, I have written a large number of *Focus* boxes, which discuss particular macroeconomic events or facts, from the United States or from around the world.

I have tried to recreate some of the student-teacher interactions that take place in the classroom by the use of **margin notes**, running in parallel to the text. The margin notes create a dialogue with the reader, to

smooth the more difficult passages, and to give a deeper understanding of the concepts and the results derived along the way.

For students who want to explore macroeconomics further, I have introduced the following two features:

- **Short appendixes** to some chapters, which expand on points made within the chapter.

- A **further readings** section at the end of most chapters, indicating where to find more information, including a number of key Internet addresses.

Each chapter ends with three ways of making sure that the material in the chapter has been digested:

- A **summary** of the chapter's main points.

- A list of **key terms**.

- A series of **end-of-chapter exercises**. "Quick Check" exercises are easy. "Dig Deeper" exercises are a bit harder, and "Explore Further" typically require either access to the Internet or the use of a spreadsheet program.

A list of symbols on the back endpapers makes it easy to recall the meaning of the symbols used in the text.

## The Teaching and Learning Package

The book comes with a number of supplements to help both students and instructors.

### For instructors

- **Instructor's Manual.** Written by Mark Moore, of the University of California-Irvine, the Instructor's Manual discusses pedagogical choices, alternative ways of presenting the material, and ways of reinforcing students' understanding. For each chapter in the book, the manual has 7 sections: objectives, in the form of a motivating question; why the answer matters; key tools, concepts, and assumptions; summary; pedagogy; extensions; and observations and additional exercises. The Instructor's Manual also includes the answers to all end-of-chapter questions and exercises.

- **Test Bank.** Written by David Findlay, of Colby College, the Test Bank is completely revised with 33% new multiple-choice questions for each chapter.

- **TestGen-EQ Software:** The printed test banks are designed for use with the TestGen-EQ test-generating software. This computerized package allows instructors to custom-design, save, and

generate classroom tests. The test program permits instructors to edit, add, or delete questions from the test banks; edit existing graphics and create new graphics; analyze test results; and organize a database of tests and student results. This new software allows for greater flexibility and ease of use. It provides many options for organizing and displaying tests, along with a search-and-sort feature. The software as well as the four test banks are available for download here at [www.prenhall.com/blanchard](http://www.prenhall.com/blanchard).

- **Digital Image Library.** We have digitized the complete set of figures, graphs, and charts from the book. These files can be downloaded from our password-protected faculty resources Web site at [www.prenhall.com/blanchard](http://www.prenhall.com/blanchard). Contact your local Prentice Hall representative for an instructor username and password.
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Olivier Blanchard  
MIT, Cambridge, Mass.  
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# Appendices

## APPENDIX 1 An Introduction to National Income and Product Accounts

This appendix introduces the basic structure and the terms used in the national income and product accounts. The basic measure of aggregate activity is gross domestic product, or GDP. The **national income and product accounts** (NIPA, or simply **national accounts**) are organized around two decompositions of GDP:

One decomposes GDP from the *income side*: Who receives what?

The other decomposes GDP from the *production side* (called the *product side* in the national accounts): What is produced, and who buys it?

### The Income Side

Table A1-1 looks at the income side of GDP—who receives what.

The top part of the table (Lines 1–8) goes from GDP to national income—the sum of the incomes received by the different factors of production.

- The starting point, in Line 1, is **gross domestic product, GDP**. GDP is defined as *the market value of the goods and services produced by labor and property located in the United States*.
- The next three lines take us from GDP to **GNP**, the **gross national product** (Line 4). GNP is an alternative measure of aggregate output. It is defined as *the market value of the goods and services produced by labor and property supplied by U.S. residents*.

Until the 1990s, most countries used GNP rather than GDP as the main measure of aggregate activity. The emphasis in the U.S. national accounts shifted from GNP to GDP in 1991. The difference between the two comes from the distinction between “located in the United States” (used for GDP) and “supplied by U.S. residents” (used for GNP). For

example, profit from a U.S.-owned plant in Japan is not included in U.S. GDP, but is included in U.S. GNP.

So, to go from GDP to GNP, we must first add **receipts of factor income from the rest of the world**, which is income from U.S. capital or U.S. residents abroad (Line 2). Then subtract **payments of factor income to the rest of the world**, which is income received by foreign capital and foreign residents in the United States (Line 3).

In 2003, payments from the rest of the world exceeded receipts to the rest of the world by \$55 billion, so GNP was larger than GDP by \$55 billion.

- The next step takes us from GNP to **net national product, or NNP** (Line 6). The difference between GNP and NNP is the depreciation of capital, called **consumption of fixed capital** (Line 5) in the national accounts.
- Finally, Line 7 takes us from NNP to **national income** (Line 8). National income is defined as *the income that originates in the production of goods and services supplied by residents of the United States*. In theory, national income and net national product should be equal. In practice, they typically differ, because they are constructed in different ways.

Net national product is constructed from the top down, starting from GDP and going through the steps we have just gone through in Table A1-1. National income is constructed, instead, from the bottom up, by adding the different components of factor income (compensation of employees, corporate profits, and so on). If we could measure everything exactly, the two measures should be equal. In practice, the two measures differ, and the difference between the two is called the “statistical discrepancy.” In 2003, national income computed from the bottom up (the number in Line 8) was less than the net national product (the number in line 6)

**Table A1-1 GDP: The Income Side, 2003 (billions of dollars)**

From gross domestic product to national income:		
1	<b>Gross domestic product (GDP)</b>	11,004
2	Plus: receipts of factor income from the rest of the world	+329
3	Minus: payments of factor income to the rest of the world	-274
4	<b>Equals: Gross national product</b>	11,059
5	Minus: consumption of fixed capital	-1,354
6	<b>Equals: Net national product</b>	9,705
7	Minus: Statistical discrepancy	-26
8	<b>Equals: National income</b>	9,679
The decomposition of national income:		
9	<b>Indirect taxes</b>	751
10	<b>Compensation of employees</b>	6,289
11	Wages and salaries	5,103
12	Supplements to wages and salaries	1,185
13	<b>Corporate profits and business transfers</b>	1,108
14	<b>Net interest</b>	543
15	<b>Proprietors' income</b>	834
16	<b>Rental income of persons</b>	154

Source: Survey of Current Business, November 2004, Tables 1-7-5, and 1-12.

computed from the top down by \$26 billion. The statistical discrepancy is a useful reminder of the statistical problems involved in constructing the national income accounts.

The bottom part of the table (Lines 9–16) decomposes national income into different types of income:

- **Indirect taxes** (Line 9): Some of the national income goes directly to the state in the form of sales taxes. (Indirect taxes are just another name for sales taxes.) The rest goes either to employees, or to firms.
- **Compensation of employees** (Line 10), or labor income, is what goes to employees. It is, by far, the largest component of national income, accounting for 65% of national income. Labor income is the sum of wages and salaries (Line 11) and of supplements to wages and salaries (Line 12). These range from employer contributions for social insurance (by far the largest item) to such exotic items as employer contributions to marriage fees to justices of the peace.
- **Corporate profits and business transfers** (Line 13): Profits are revenues minus costs (including interest payments) and minus depreciation. (Business transfers, which account for \$80 billion out of

\$1,108 billion, are items such as liability payments for personal injury, and corporate contributions to nonprofit organizations.)

- **Net interest** (Line 14) is the interest paid by firms minus the interest received by firms, plus interest received from the rest of the world minus interest paid to the rest of the world. In 2003, most of net interest represented net interest paid by firms. The United States received about as much in interest from the rest of the world as it paid to the rest of the world. So, the sum of corporate profits plus net interest paid by firms was approximately \$1,108 billion + \$449 billion = \$1,557 billion, or about 16% of national income.
- **Proprietors' income** (Line 15) is the income received by persons who are self-employed. It is defined as *the income of sole proprietorships, partnerships, and tax-exempt cooperatives*.
- **Rental income of persons** (Line 16) is the income from the rental of real property, minus depreciation on this real property. Houses produce housing services; rental income measures the income received for these services.

If the national accounts counted only actual rents, rental income would depend on the proportion of



**Table A1-2** From National Income to Personal Disposable Income, 2003 (billions of dollars)

1	National income	9,679
2	Minus: indirect taxes	-751
3	Minus: corporate profits	-1,108
4	Minus: net interest	-543
5	Plus: income from assets	+1322
6	Plus: personal transfers	+1335
7	Minus: contributions for social insurance	-773
8	Equals: Personal income	9,161
9	Minus: personal tax and non-tax payments	-1,002
10	Equals: Personal disposable income	8,159

Source: Survey of Current Business, April 2003, Table 1-7-5, and 1-12.

apartments and houses that were rented versus those that were owner occupied. For example, if everybody became the owner of the apartment or the house in which he or she lived, rental income would go to zero, and thus, measured GDP would drop. To avoid this problem, national accounts treat houses and apartments as if they were all rented out. So, rental income is constructed as actual rents plus *imputed* rents on those houses and apartments that are owner occupied.

Before we move to the product side, Table A1-2 shows how we can go from national income to personal disposable income—the income available to persons after they have received transfers and paid taxes:

- Not all national income (Line 1) is distributed to persons.

Some of the income goes to the state in the form of indirect taxes, so the first step is to subtract indirect taxes. (Line 2 in Table A1-2—equal to Line 9 in Table A1-1).

Some of the corporate profits are retained by firms. Some of the interest payments by firms go to banks, or go abroad. So the second step is to subtract all corporate profits (Line 3—equal to Line 13 in Table A1-1) and all net interest payments (Line 4—equal to Line 14 in Table A1-1), and add back all income from assets (dividends and interest payments) received by persons (Line 5).

- People receive income not only from production, but also from transfers (Line 6). Transfers accounted for \$1,335 billion in 2003, of which all but \$33 billion came from the government. From these transfers

must be subtracted personal contributions for social insurance, \$773 billion (Line 7).

- The net result of these adjustments is **personal income**, the income actually received by persons (Line 8). **Personal disposable income** (Line 10) is equal to personal income minus personal tax and non-tax payments (Line 9). In 2003, personal disposable income was \$8,159 billion, or about 74% of GDP.

## The Product Side

Table A1-3 looks at the product side of the national accounts—what is produced, and who buys it.

Start with the three components of domestic demand: consumption, investment, and government spending:

- Consumption, called **personal consumption expenditures** (Line 2) is, by far, the largest component of demand. It is defined as *the sum of goods and services purchased by persons resident in the United States*.

In the same way that national accounts include imputed rental income on the income side, they include imputed housing services as part of consumption. Owners of a house are assumed to consume housing services, for a price equal to the imputed rental income of that house.

Consumption is disaggregated into three components, purchases of **durable goods** (Line 3), **nondurable goods** (Line 4), and **services** (Line 5). Durable goods are commodities that can be stored and have an average life of at least 3 years; automobile purchases are the largest item here. Nondurable