Solutions for Macroeconomics 8th Edition by Dornbusch

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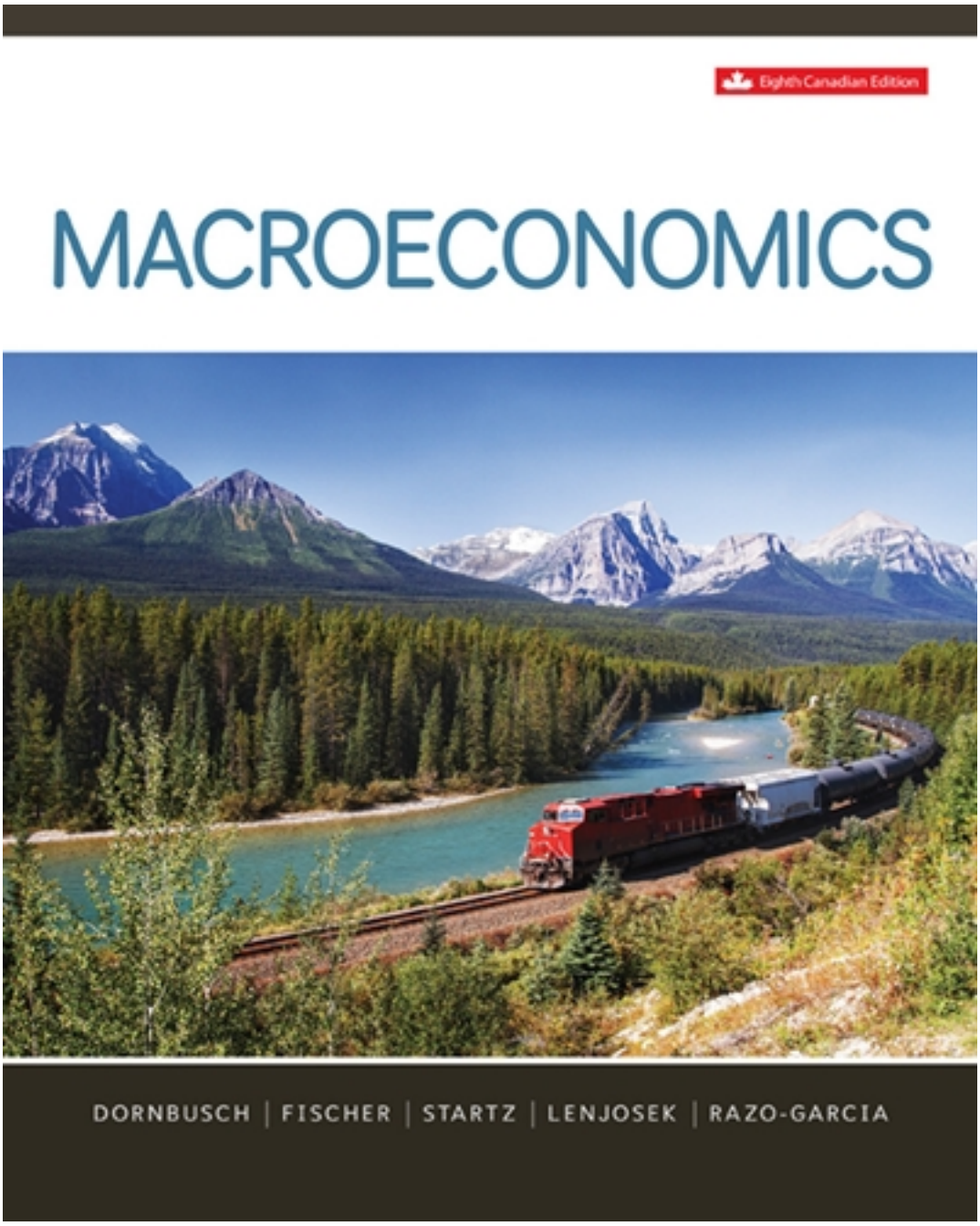

Solutions

Chapter 1
INTRODUCTION

Introduction

Macroeconomics is concerned with the structure, operation, and performance of the *economy as a whole*:

- with booms and recessions, the economy's total output of goods and services, the growth of output, the rates of inflation and unemployment, the balance of payments, and exchange rates.
- with economy-wide events arising from the short-run fluctuations that constitute the business cycle to long-run economic growth.
- with the economic behaviour and policies that affect consumption and investment, the dollar and trade balances, the determinants of changes in wages and prices, monetary and fiscal policies, the money stock, the federal budget, interest rates, and the national debt.

In brief, macroeconomics deals with the major economic issues and problems of the day. To understand these issues, we have to reduce the complicated details of the economy to manageable essentials. *Those essentials lie in the interactions among the goods, labour, and assets markets of the economy, and in the interactions among national economies that trade with each other.*

In dealing with the essentials, we go beyond details of the behaviour of individual economic units, such as households and firms, or the determination of prices in particular markets, which are the subject matter of *microeconomics*. In macroeconomics, we deal with the market for goods as a whole, treating all the markets for different goods as a single market. Similarly, we deal with the labour market as a whole, abstracting from differences between the markets for, say, unskilled labour and skilled labour. We deal with the assets market as a whole, abstracting from differences between the markets for Microsoft shares and for Rembrandt paintings. The benefit of the abstractions is that it facilitates increased understanding of the vital interactions among the goods, labour, and assets markets. The cost of the abstractions is that omitted details sometimes matter.

It is only a short step from studying how the macroeconomy works to asking how it might work better. Fundamental questions are, *can* the government, *should* the government, and *how should* the government intervene in an economy to improve its performance? The great macroeconomists have always enjoyed a keen interest in the application of macro theory to policy. Differences of opinion, including on how active a role the government should take, often engender strong views and vigorous debates on policy issues.

Because macroeconomics is closely related to the economic problems of the day, it does not yield its greatest rewards to those whose primary interest is abstract. Macro theory is a little untidy at the edges, but then the world is a little untidy around the edges. This book uses macroeconomics to illuminate economic events from the Great Depression of the 1930s through

to the economic events of today. We refer continually to real-world events to elucidate the meaning and the relevance of the theoretical material. Macroeconomics is an applied science. It is rarely beautiful, but it is overwhelmingly important to the well-being of nations and peoples.

Sections and Key Findings

- Macroeconomics Encapsulated in Three Models
  - Models are simplified depictions that attempt to capture just the essential elements of how the world works.
  - We use a variety of models to focus on a variety of economic questions.
  - In this chapter, we emphasize three linked models that collectively describe the macroeconomy.

- To Reiterate …
  - We use the concepts of growth theory, aggregate supply (AS) and aggregate demand (AD) to focus our discussion.
  - Growth theory explains the *very-long-run* behaviour of the economy by focussing on the growth of productive capacity: the amount of output the economy can produce when resources (capital and labour) are fully employed. The AS curve is vertical, but moves over time, typically to higher output levels.
  - In the *long run*, the productive capacity of the economy is treated as fixed. Output depends on aggregate supply: the AS curve is vertical and stationary. Prices depend on fluctuations in aggregate demand. Large-scale inflation is almost always the result of changing aggregate demand. Output and the price level are determined at the intersection of the AS and AD curves.
  - In the *short run*, the price level is treated as fixed: the AS curve is horizontal. Changes in aggregate demand generate changes in output, resulting in economic expansions and contractions.

- Outline and Preview of the Text
  - Chapter 2: National income and expenditure accounting.
  - Chapters 3 and 4: Growth accounting (labour, capital, natural resources, human capital, technical change), neoclassical growth theory, and endogenous growth theory.
  - Chapter 5: The AS-AD framework, and the determination of real GDP and the price level.
  - Chapter 6: Aggregate supply and the Phillips curve.
  - Chapter 7: Unemployment.
  - Chapter 8: Inflation.
  - Chapter 9: Monetary policy: machinery and rules.
  - Chapters 10, 11, and 12: Aggregate demand, the IS-LM model, and monetary and fiscal policies.
  - Chapter 13: International trade and capital flows.
  - Chapters 14 and 15: Consumption and investment theories.
  - Chapters 16 and 17: Demand for money theories and the monetary policy framework.

- Chapter 18: The challenges of implementing macroeconomic policies.
- Chapter 19: Financial markets and asset prices.
- Chapter 20: The size of government debt.
- Chapters 21 and 22 Great economic events and (hyper)inflations.
- Chapter 23: International interdependence and exchange rate regimes.
- Chapter 24: Theories that have revolutionized macroeconomics.

- Prerequisites and Recipes
  - Some advice on how to use this book including mathematics, optional material, active learning, important publications and data sets.

Solutions to the Problems in the Textbook

Empirical Problem

Empirical Problems provide an excellent in-class activity for discussing chapter topics, familiarizing students with data sources, and motivating learning.

1. The table below provides the data from Table 36-10-0369-01 and Table 17-10-0005-01, and the calculations, to show that Canadian per capita real income increased by 18.2 percent between 2000 and 2019.

	2000	**2019**
Real GDP ($ million)	1,461,314	2,115,265
Population (million)	30.7	37.6
Per capita real GDP ($)	47,600	56,257
Percentage increase in real GDP	18.2	

Conceptual Problems

1. The AD-AS framework is a simplified representation of the real world that describes the behaviour of people and firms as a whole. Output and prices are determined by the interaction of aggregate demand and aggregate supply. A change in aggregate demand will affect output and prices differently depending on the slope of the AS curve, which varies depending on the time frame.

In the long run and very long run, output is determined by the vertical AS curve, while the price level is determined by the level of aggregated demand relative to the level of output the economy can supply. In the short run, the AS curve is horizontal and output is determined by the AD curve, while the price level is fixed and unaffected by changes in output. The AS curve slopes upwards in the medium run and fluctuations in either aggregate supply or aggregate demand can determine the actual output and price levels.

Because potential output tends to grow from year to year, the long-run AS curve tends to shift incrementally to the right. Therefore, if the AD curve were to remain fixed, the price level would change, that is, decline over time.

Technical Problems

1. The textbook defines the output gap as the difference between actual GDP and potential GDP. Therefore the output gap in this hypothetical economy is -$36 billion. Because actual output falls short of potential output, we should expect the unemployment rate to be higher than usual.

2. As measured by the CPI, prices increased by 150.7 [= (54.9/21.9 – 1) x 100] percent from 1972 to 1982, so that an item that cost $1 in 1972 cost $2.51 in 1982. Prices increased by 21.7 [= (121.7/100 – 1) x 100] percent between 2002 and 2012; an item that cost $1 in 2002 therefore cost $1.22 in 2012. It is clear that prices rose much more in the 1970s than the 2000s.

3. Using the CPI data from the previous problem in Equation 1-1, the average annual rate of inflation from 1972 to 1982 was:

$$g = \left(\frac{54.9}{21.9}\right)^{\frac{1}{10}} - 1 = 9.6\%.$$

An item that cost $1 in 1972 cost $(1 + 0.096)^{10} = \$2.51$ in 1982.

The average annual rate of inflation from 2002 to 2012 was:

$$g = \left(\frac{121.7}{100}\right)^{\frac{1}{10}} - 1 = 2.0\%.$$

An item that cost $1 in 2002 cost $(1 + 0.02)^{10} = \$1.22$ in 2012.

There is no difference in the cost of the item in 1982 or 2012 in this question compared to the previous question.

Additional Problems

1. If the long-run AS curve is vertical, can we then conclude that the real output of a nation cannot grow in the long run?

The AD-AS framework is a static framework that assumes a fixed level of potential GDP. However, the potential GDP of a nation grows over time as the amount of available resources or the efficiency with which those resources are used increases. Therefore, the long-run (vertical) AS curve tends to move incrementally to the right each year.

2. Can economic growth be studied by ignoring the reasons for business cycles?

Growth theory focuses primarily on the accumulation of inputs and the improvements in technology that allow for an increased standard of living over time. Because growth theory

tries to explain the average growth rate of an economy over many years, it ignores the short-run fluctuations (recessions and booms) that occur over the course of business cycles.

3. Is it true that in the short run, increases in aggregate demand will affect only the price level, but leave the quantity of goods and services produced in an economy unchanged?

The short-run AS curve is horizontal based on the assumption that prices are constant in the short-run. An increase in aggregate demand will, therefore, increase the level of output, but not affect the price level. This implies that the level of output is solely determined by aggregate demand in the short run. The statement is not true.

4. Is a country's rate of economic growth determined solely by the amount of resources it has available?

Increases in the availability of resources, such as labour and capital, used in the production of goods and services account for only part of a nation's economic growth. The efficiency with which these factors of production are used also affects economic growth. Increases in the production efficiency result from increases in the education and skill levels of the labour force, and from newer and more efficient technology. Furthermore, factors of production are not fully employed all the time. During an expansion or a recovery, the use of the factors of production increases, which leads to higher production and output.

5. In the 1960s, increases in the unemployment rate were associated with decreases in the inflation rate and vice versa. However, in the 1970s and 1980s, unemployment and inflation often moved in the same direction. Can you explain this by applying the model of aggregate demand and supply to the medium run?

In the medium run, a shift in aggregate demand causes the unemployment rate and the inflation rate to move in opposite directions, whereas a shift in aggregate supply causes unemployment and inflation to move in the same direction. Consequently, disturbances in the 1960s must have come from changes in aggregate demand, while many disturbances in the 1970s and 1980s must have come from the supply side.

