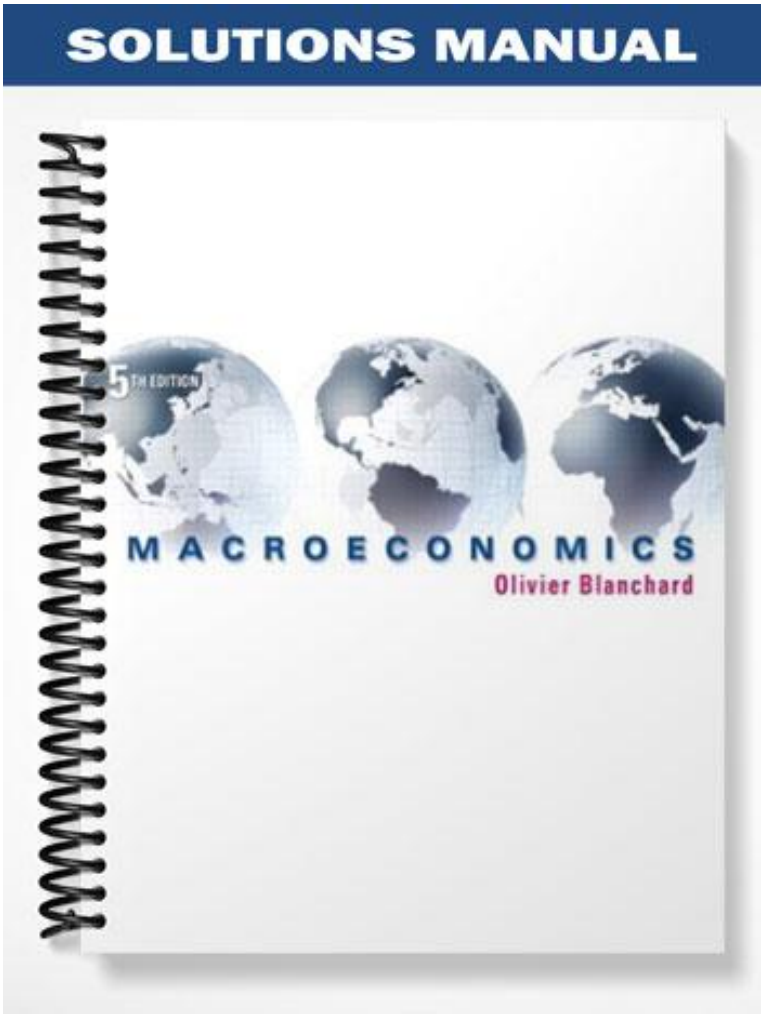
SOLUTIONS MANUAL



ANSWERS TO END-OF-CHAPTER PROBLEMS

CHAPTER 1

Quick Check

1. a. True.
   b. True.
   c. False.
   d. False/uncertain. The rate of growth was higher during the decade beginning in 1996 than during the previous two decades, but it is probably unrealistic to expect productivity to continue to grow at such a fast pace.
   e. False. There are problems with the statistics, but the consensus is that growth in China has been high.
   f. False. The European "unemployment miracle" refers to the relatively low European unemployment rate in the 1960s and the early 1970s.
   g. True.
   h. True.

2. a. More flexible labor market institutions may lead to lower unemployment, but there are questions about how precisely to restructure these institutions. The United Kingdom has restructured its labor market institutions to resemble more closely U.S. institutions and now has a lower unemployment rate than before the restructuring. On the other hand, Denmark and the Netherlands have relatively low unemployment rates while maintaining relatively generous social insurance programs for workers.

   In addition, some economists argue that tight monetary policy has at least something to do with the high unemployment rates in Europe.

   b. Although the Euro will remove obstacles to free trade between European countries, each country will be forced to give up its own monetary policy.

Dig Deeper

3. a. The Chinese government has encouraged foreign firms to produce in China. Since foreign firms are typically more productive than Chinese firms, the presence of foreign firms has lead to an increase in Chinese productivity. The Chinese government has also encouraged joint ventures between foreign and Chinese firms. These joint ventures allow Chinese firms to learn from more productive foreign firms.

   b. The recent increase in U.S. productivity growth has been a result of the development and widespread use of information technologies.

   c. The United States is a technological leader. Much of U.S. productivity growth is related to the development of new technologies. China is involved in technological catch-up. Much of Chinese productivity growth is related to adopting existing technologies developed abroad.

   d. It's not clear to what extent China provides a model for other developing countries. High investment seems a good strategy for countries with little capital, and encouraging foreign firms to produce (and participate in joint ventures) at home seems a good strategy for countries trying

to improve productivity. On the other hand, the degree to which China's centralized political control has been important in managing the pace of the transition and in protecting property rights of foreign firms remains open to question.

4. a. 10 years: $(1.018)^{10}=1.195$ or 19.5 % higher
20 years: 42.9% higher
50 years: 144% higher

b. 10 years: 31.8 % higher
20 years: 73.7 % higher
50 years: 297.8% higher

c. Take output per worker as a measure of the standard of living.
10 years: 1.195/1.318=1.103, so the standard of living would be 10.3% higher;
20 years: 21.6 % higher
50 years: 63% higher

d. No. Labor productivity growth fluctuates a lot from year to year. The last few years may represent good luck. It is too soon to tell whether there has been a change in the trend observed since 1970.

5. a. $13.2(1.034)^t=2.8(1.088)^t$
$t = ln(13.2/2.8)/[ln(1.088/1.034)]$
$t \approx 30.5$ yrs

This answer can be confirmed with a spreadsheet, for students unfamiliar with the use of logarithms.

b. No. At current growth rates, Chinese output will exceed U.S. output within 31 years, but Chinese output per person (the Chinese standard of living) will still be less than U.S. output per person.

Explore Further

6. a/c. As of February 2008, there had been 5 recessions (according to the traditional definition) since 1960. Seasonally-adjusted annual percentage growth rates of GDP (in chained 2000 dollars) are given below.

1969:4	-1.9	1981:4	-4.9
1970:1	-0.7	1982:1	-6.4
1974:3	-3.8	1990:4	-3.0
1974:4	-1.6	1991:1	-2.0
1975:1	-4.7		
1980:2	-7.8		
1980:3	-0.7		

With respect to the note on 2001, the growth rates for 2001 are given below.

2001:1	-0.5%

2001:2	1.2%
2001:3	-1.4%
2001:4	1.6%

7. a-b. % point increase in the unemployment rate for the 5 recessions

1969-70	0.7	1981-82	1.1
1974-75	3.1	1990-91	0.9
1980	0.6		

The unemployment rate increased by 1.5 percentage points between January 2001 and January 2002.

CHAPTER 2

Quick Check

1. a. True.
   b. True/Uncertain. Real GDP increased by a factor of 25; nominal GDP increased by a factor of 21. Real GDP per person increased by a factor of 4.
   c. False.
   d. True.
   e. False. The level of the CPI means nothing. The rate of change of the CPI is one measure of inflation.
   f. Uncertain. Which index is better depends on what we are trying to measure—inflation faced by consumers or by the economy as a whole.
   g. False. The underground economy is large, but by far the majority of the measured unemployed in Spain are not employed in the underground economy.

2. a. No change. This transaction is a purchase of intermediate goods.

   b. +$100: personal consumption expenditures

   c. +$200 million: gross private domestic fixed investment

   d. +$200 million: net exports

   e. No change. The jet was already counted when it was produced, i.e., presumably when Delta (or some other airline) bought it new as an investment.

3. a. The value of final goods =$1,000,000, the value of the silver necklaces.

   b. 1st Stage: $300,000. 2nd Stage: $1,000,00-$300,000=$700,000.
   GDP: $300,000+$700,000=$1,000,000.

   c. Wages: $200,000 + $250,000=$450,000.
   Profit: ($300,000-$200,000)+($1,000,000-$250,000-300,000)
   =$100,000+$450,000=$550,000.
   GDP: $450,000+$550,000=$1,000,000.

4. a. 2006 GDP: 10($2,000)+4($1,000)+1000($1)=$25,000
   2007 GDP: 12($3,000)+6($500)+1000($1)=$40,000

Nominal GDP has increased by 60%.

b. 2006 real (2006) GDP: $25,000
2007 real (2006) GDP: 12($2,000)+6($1,000)+1000($1)=$31,000
Real (2006) GDP has increased by 24%.

c. 2006 real (2007) GDP: 10($3,000)+4($500)+1,000($1)=$33,000
2007 real (2007) GDP: $40,000.
Real (2007) GDP has increased by 21.2%.

d. The answers measure real GDP growth in different units. Neither answer is incorrect, just as measurement in inches is not more or less correct than measurement in centimeters.

5. a. 2006 base year:
Deflator(2006)=1; Deflator(2007)=$40,000/$31,000=1.29
Inflation=29%

b. 2007 base year:
Deflator(2006)=$25,000/$33,000=0.76; Deflator(2007)=1
Inflation=(1-0.76)/0.76=.32=32%

c. Analogous to 4d.

6. a. 2006 real GDP = 10($2,500) + 4($750) + 1000($1) = $29,000
2007 real GDP = 12($2,500) + 6($750) + 1000($1) = $35,500

b. (35,500-29,000)/29,000 = .224 = 22.4%

c. Deflator in 2006=$25,000/$29,000=.86
Deflator in 2007=$40,000/$35,500=1.13
Inflation = (1.13 -.86)/.86 = .31 = 31%.

d. Yes, see appendix for further discussion.

Dig Deeper

7. a. The quality of a routine checkup improves over time. Checkups now may include EKGs, for example. Medical services are particularly affected by this problem since there are continual improvements in medical technology.

b. The new method represents a 10% quality increase.

c. There is a 5% true price increase. The other 10% represents a quality increase. The quality-adjusted price of checkups using the new method is only 5% higher than checkups using the old method last year.

d. You need to know the relative value of pregnancy checkups with and without ultra-sounds in the year the new method is introduced. Still, since everyone chooses the new method, we can say that the quality-adjusted price of checkups has risen by less than 15%. Some of the observed 15% increase represents an increase in quality.

8. a. Measured GDP increases by \$10+\$12=\$22. (Strictly, this involves mixing the final goods and income approaches to GDP. Assume here that the \$12 per hour of work creates a final good worth \$12.)

b. No. The true value of your decision to work should be less than \$22. If you choose to work, the economy produces the value of your work plus a takeout meal. If you choose not to work, presumably the economy produces a home-cooked meal. The extra output arising from your choice to work is the value of your work plus any difference in value between takeout and home-cooked meals. In fact, however, the value of home-cooked meals is not counted in GDP. (Of course, there are other details. For example, the value of groceries used to produce home-cooked meals would be counted in GDP. Putting such details aside, however, the basic point is clear.)

Explore Further

9. a. Quarters 2000:III, 2001:I, and 2001:III had negative growth.

b. The unemployment rate increased after 2000, peaked in 2003, and then began to fall. The participation rate fell steadily over the period—from 67.1% in 2000 to 66% in 2004. Presumably, workers unable to find jobs became discouraged and left the labor force.

c. Employment growth slowed after 2000. Employment actually fell in 2001. The employment-to-population ratio fell between 2000 and 2004.

d. It several years after the recession for the labor market to recover.

CHAPTER 3