Answers to Exercises Chapter 6

1. a. sink b. resource c. sink d. resource (enters human production as it is harvested) e. environmental service f. environmental service

2. a. Natural capital depreciation should be subtracted in calculating eaNNP and genuine saving
b. The reduction in environmental production could be estimated two ways. The damage cost approach would calculate this as the value of lost fish and tourist spending, and damage to wildlife. The maintenance cost approach would calculate this as the cost of preventing or containing the spill—e.g. thicker hulls on oil tankers or spill-cleanup efforts.

3. a. Natural capital depreciation should be subtracted in calculating eaNNP and genuine saving
b. The release of CO_2 probably has both current and long-term impact. The long term impact can be seen as a degradation of the environmental "sink" function, and counted like a depreciated asset. The current impact can be seen as a loss of climate stabilization for the year, resulting in lost crops or flooding. According to the damage cost approach, this might be calculated as the value of lost crops and flood damage. According to the maintenance cost approach, this might be calculated as the cost of stabilizing the climate by, say, preventing greenhouse gas emissions with new combustion technology.
c. This is the loss of an environmental service. By the damage cost, a value might be calculated by surveying how much people value the lost scenery and reduced activity.

(You might go beyond the reading to explain the use of "contingent valuation" surveys to try to estimate people's "willingness to pay" for a nonmarketed good.) By the maintenance cost approach, the value of this loss might be calculated as the cost of pollution control devices to prevent the smog.

4. a. eating and drinking, nonproductive. b. working and work-related activities, productive. c. leisure and sports, nonproductive d. organizational, civic, and religious activities, (probably) productive e. household/food preparation and cleanup, productive f. primary: purchasing goods and services. secondary: caring for and helping people. productive.

5. In current GDP: the cost of the machine and flour are "personal consumption" expenditures. The machine would be a "consumer durable," while the flour would be a "nondurable good." The time spent would not be counted anywhere. In an expanded account: the machine would be "household investment," and the flour would be an intermediate good. Your time shopping and your time cooking and supervising the children would be productive household services, valued either at replacement or opportunity cost.

6. Some products reduce well-being, tobacco being a specific additional example. Some outputs reflect defensive expenditures. Increased buying of sump pumps to counteract flooding would be an additional example. Measures of output do not account for the loss of leisure. Standard measures of output do not count education or community building activities as investments; time spent in these activities are seen as time not spent on "productive" activities. Some methods of production reduce well-being. Measures of output alone do not reflect the distribution of incomes. Students may think of more examples, as well as more entire categories.

7. Page: 41
a. Bad things subtracted from Personal Consumption Expenditures in the GPI: unequal income distribution, net foreign borrowing, and all the social and environmental costs.
b. Defensive expenditures: all government spending except for services of highways and streets, are not included. Differences in accounting methods: (business) investment, consumer durables.

8. a. Measures of national assets and output could be improved by including environmental and household production activities b. GPI and HDI. (See reading for descriptions)

9. a-vi; b-x; c-vii; d-v; e-i; f-ii; g-iii; h-ix; i-xi; j-iv; k-viii.

Web Resources

For the status of the Kyoto Protocol, see http://unfccc.int/resource/convkp.html.
The definition of eaNDP can be found at Integrated Environmental and Economics Accounting 2003, pp. 62-63, httP://unstats.un.org/unsd/envAccounting/seea2003.pdf.
For more on accounting for household production, see http://unstats.un.org/unsd/sna1993/handbooks.asp, Handbook of National Accounting: Household Accounting Experience.

Answers to Exercises Chapter 7

1. a. **10** (= population – under age 16 – employed –not in labor force = 350 – 70 – 190 – 80)
   b. **200** (= employed + unemployed = 190 + 10)
   c. **5.0%** (= unemployed/labor force = 10/200 ×100)
   d. **71.4%** (= labor force/adult population × 100= (200/(350 – 70)) × 100)

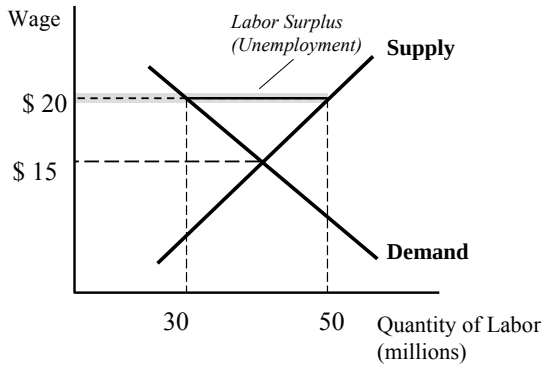
under age 16	70		LF=	200
employed	190		unemp rate	5.0
not in the labor force	80		LFP overall	71.4
unemployed	10			
population	350			
Adult pop	280			

2. a. See first two columns of table:

			adult pop =	5
Luis	employed		pop =	6
Robin	employed			
Sheila	not LF		LF=	2
Shawna	not LF		lfp=	40.0
Bob	not LF(discouraged)		unemp=	0
Ana	not surveyed			

   b. **40.0%** (labor force/adult population × 100= (2/5) × 100)
   c. **0%** (no one is unemployed)

3. a.



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b. Assumed to be a single, static market characterized by perfect competition, spot transactions, and institutions for double-auction bidding.

4. This could be a case of "efficiency wages." The company may find that paying a higher wage provides it with more productive workers, who are less likely to quit or shirk, than if it just pays the minimum it has to. According to "sticky wage" theories, wages that are above the market clearing level can cause unemployment by creating a labor surplus situation.

5. a→xiv; b→xii; c→xi; d→x; e→ix; f→viii; g→vi; h→i; i→iv; j→v; k→iii; l→vii; m→xiii; n→ii

6. Consult the BLS website. News Releases have their own section.

Web Resources

See http://www.bls.gov/news.release/pdf/empsit.pdf for current reports on employment and unemployment.

See http://www.bls.gov/cps/cps_htgm.htm for details on labor force definition.

See http://www.bls.gov/news.release/pdf/jolts.pdf for info on job vacancies.

For definitions of recessions, see http://www.nber.org/cycles/cyclesmain.html

For a review of the literature and controversy concerning the minimum wage, see http://www.epinet.org/content.cfm/briefingpapers_bp150

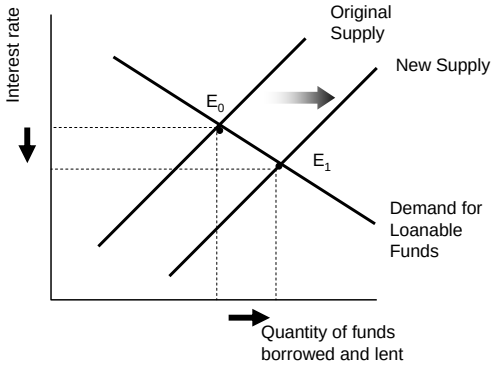
Answers to Exercises

Chapter 8

1. a→iii; b→vii; c→ ii; d→v; e→viii; f→i; g→vi; h→iv.
2. Students should be able to locate plenty of articles quoting politicians claiming to be able to halt the flow of jobs overseas.
3. The Statistical Abstract is located at http://www.census.gov/statab/www/.
4. a→vi; b→iii; c→vii; d→ii; e→iv; f→v; g→viii; h→i.

Answers to Exercises Chapter 9

1. a. Households now save more, so the supply curve shifts to the right:



b. Quantity of loanable funds rises
c. interest rate falls
d. investment rises

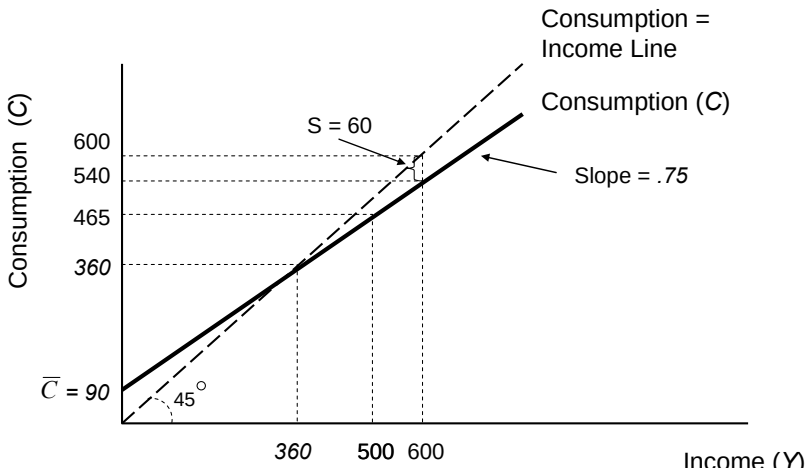
2. No, that is *intended* investment. Inventories are only "excessive" if they build up *un*intentionally.

3. a. They save \$.25, and spend \$.75.

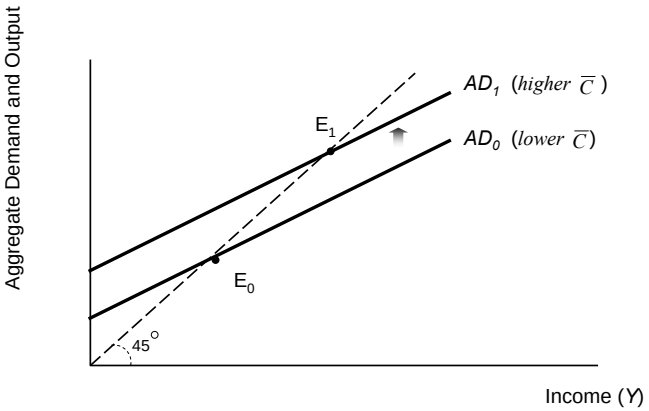
b and c:

Income (Y)	Autonomous Consumption	.75 times col (1)	C	S
0	90	0	**90**	**-90**
360	90	270	**360**	**0**
500	90	375	**465**	**35**
600	90	450	**540**	**60**

d. Consumption rises by \$75. $mpc = \Delta C / \Delta Y = 75/100 = .75$.
e. The intercept is 90 and slope is .75. The two lines cross at Y=C=360. Savings is the vertical distance between the consumption function and the 45-degree line.



4. a. The AD shifts up:



b. There is unexpected inventory depletion (or negative unintended investment). Firms will increase production.
c. Production rises, income rises, and spending rises.

5. ("Paradox of Thrift")
   a. This is essentially the same graph as in Figure 9.14 of the text. The corresponding aggregate demand levels are 80, 320, 400, and 480. (See AD_0 in the completed graph below).

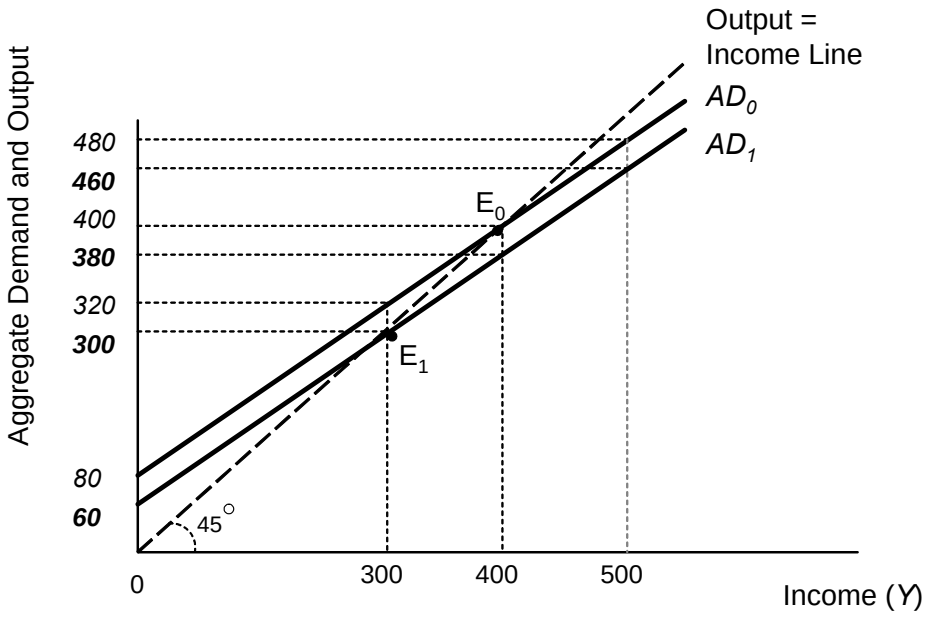
   b. $Y = 400$. $S = 60$.

   c.

Income (Y)	Consumption (C)	Intended Investment (II)	Aggregate Demand $AD = C + II$
0	**0**	60	**60**
300	**240**	60	**300**
400	**320**	60	**380**
500	**400**	60	**460**

d. The initial equilibrium *Y* was 400, *C* at an income level of 400 now equals 320, and $S = Y - C$. So saving would be equal to 80. **Yes**, this is **20 more** than the original 60.

e. The important parts of this graph to note are that the intercept of AD_0 is 80 and the corresponding equilibrium income is 400, while the intercept of AD_1 is 60 and the corresponding equilibrium income is 300. (Other values have been noted, to correspond to the chart above.)



f. Y = 300, S = 60. Income is lower and saving is the same.

g. People *intend* to save more, but end up saving *exactly the same amount*. In the Keynesian model, *income* rises or falls to keep saving and investment in line. Since investment hasn't changed, income has to adjust to get saving to stay at 60.

6. a.

Income (*Y*)	*C*	*II*	*AD*
0	**90**	35	**125**
500	**465**	35	**500**
600	**540**	35	**575**

b. Unintended inventory investment = $Y - AD$, so at *Y*= 600 and *AD* = 575 this would be +25. Inventories would be excessive.

c. No unintended inventory investment.

d. **500**

e. mult = 1/(1-mpc) = 1/(1-.75) = 1/.25 = **4**.

f. $\Delta Y = mult \Delta \overline{II} = 4(25) = \mathbf{100}$.

7. a. $\boldsymbol{AD} = (\overline{C} + \overline{II}) + mpc\ Y = \mathbf{100 + .9\ Y}$

b. $Y = \frac{1}{1 - mpc} (\overline{C} + \overline{II}) = 10\ (100) = \mathbf{1000}$

c. $mult = 1/(1-.9) = 10$. $\Delta \overline{II} = 10$. So $\Delta Y = mult\ \Delta \overline{II} = (10)(10) = \mathbf{100}$

8. a→ vii; b→x; c→ix; d→ii; e→viii; f→iv; g→i; h→v; i→vi; j→iii

Web Resources

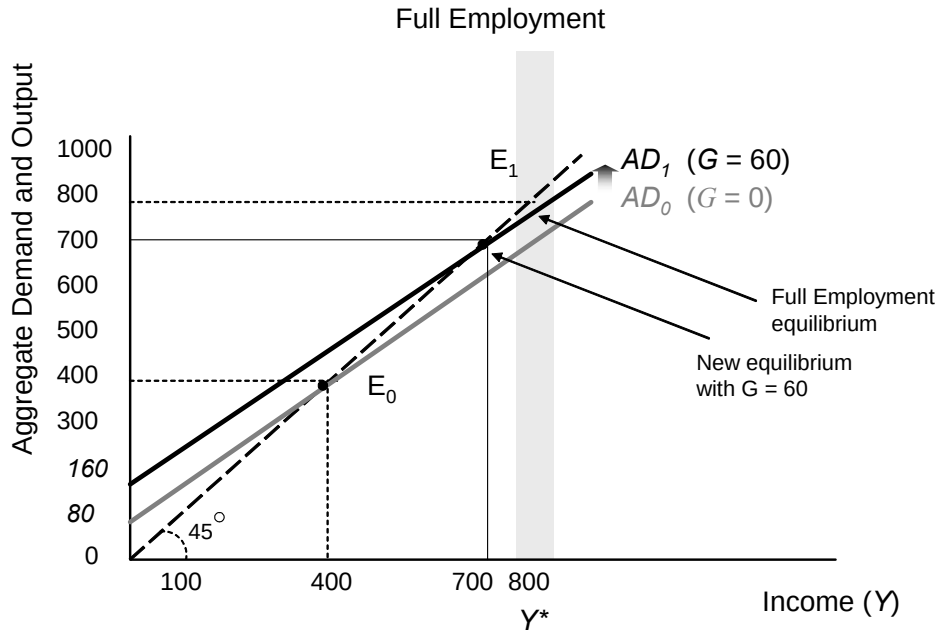
National Bureau of Economic Research business cycle page:
http://www.nber.org/cycles.html

Answers to Exercises

Chapter 10

1. Government spending of 60 gives a new $C + II + G$ line which intersects the 45º line at 700. This is the new equilibrium. This equilibrium is below full employment, but above the equilibrium of 400 without government spending. This is shown in the table and graph below.

(1) Income (Y)	(2) Consumption (C)	(3) Intended Investment (II)	(4) Original Aggregate Demand ($AD = C + II$)	(5) Government Spending (G)	(6) New Aggregate Demand ($AD_1 = C + II + G$)
300	260	*60*	**320**	***60***	**380**
400	340	*60*	**400**	***60***	**460**
500	420	*60*	**480**	***60***	**540**
600	500	*60*	**560**	***60***	**620**
700	580	*60*	**640**	***60***	**700**
800	660	*60*	**720**	***60***	**780**



2. The government spending multiplier is 5, so the effect of a government spending level of 100 on the economy is 100 x 5 = 500.

The tax multiplier is equal to $-$ *(mult) (mpc)* $= -(5)(0.8) = -4$. Thus the effect of a tax level of 100 (assuming this is a lump-sum tax) is $(-4)(100) = -400$.

The combined effect is 500 − 400 = 100. Thus the economic equilibrium level would increase by 100.

We can say that the **balanced budget multiplier** = 5 – 4 = 1. The impact of a balanced budget on economic equilibrium is positive, and exactly equal to the original change in government spending (and taxes). The two effects do not cancel out, since the government spending multiplier is more powerful. The reason for this is that government spending adds directly to aggregate demand, and also has induced consumption effects, while the effect of a tax increase is felt only through induced consumption effects.

3. Gross Domestic Product for 2004: $11,734 billion
Personal Consumption Expenditures: $8,214 billion
Gross Private Domestic Investment: $1,928 billion
Fixed Investment (= Intended Investment): $1,872 billion

Consumption as %GDP = 70%
Fixed Investment as %GDP = 15%

(Partial) Aggregate Demand $C + II$ = $10,036 billion

4. Government Spending for 2004: $2,216 billion

Government Spending as % GDP = 18%

$C + II + G$ = $12,252 billion
$(X - M)$ = −$617 billion
Aggregate Demand $C + II + G + (X - M)$ = $11,635 billion

5. (a) automatic stabilizer – occurs with no change in government budget policy.
(b) discretionary policy – requires specific government budgetary action.
(c) discretionary policy – requires specific government budgetary action.
(d) could be either automatic stabilizer (if payments increase simply because farm income declines) or discretionary policy (if government budget specifies increased farm support payments).
(e) automatic stabilizer – payments rise automatically as the number of unemployed grows. If government acts specifically to extend or increase unemployment payments, this would be discretionary policy.

6. $mult = \frac{1}{1-mpc} = 1/(1-0.75) = 1/0.25 = 4$

$mult\ \Delta X = 4(120) = 480$
$-mult\ \Delta X = -4(200) = -800$

Net $\Delta Y = 480 - 800 = -320$

7. a → ix; b → iii; c → i; d → vi; e → v; f → ii; g → vii; h → iv; i → viii

8. The formula for the multiplier with proportional taxes and imports dependent on income is:

$$\frac{1}{1-mpc(1-t)+mpim}$$

$= 1/(1 - (0.75)(1 - 0.2) + 0.1)$

$= 1/(1 - (0.75)\ (0.8) + 0.1)$

$= 1/(1 - 0.6 + 0.1)$

$= 1/(0.5)$

$= 2$

The effect of an increase in G of 150 is thus:

$\Delta Y = mult\ \Delta G$

$= 2\ (150)$

$= 300$

This multiplier is significantly lower than the basic multiplier, which for this *mpc* would equal 1/(1-0.75) = 1/0.25 = 4. This is because the aggregate demand curve is flatter (both the proportional tax and the import leakage have a flattening effect). As result, the economy responds less to a fiscal stimulus. In this case equilibrium shifts up by 300, while with a basic multiplier of 4 it would shift up by 150 x 4 = 600. We can say that the economy is less dynamic due to the stabilizing and leakage effects, but also less volatile (more stable).

Web Resources

Economic Report of the President, 2006:
http://www.gpoaccess.gov/eop/

U.S. Office of Management and Budget "Analytical Perspectives, Budget of the United States Government, Fiscal Year 2006"
http://www.whitehouse.gov/omb/budget/fy2006/pdf/spec.pdf