


Macroeconomics: Principles & Applications

CHAPTER 8

The Classical Long-Run Model

Robert E. Hall
& Mark Lieberman



PowerPoint slides prepared by:
Andreea Chiritescu
Eastern Illinois University

© 2010 Cengage Learning. All Rights Reserved. May not be scanned, copied or duplicated, or posted to a publicly accessible Web site, in whole or in part.

Macroeconomic Models: Classical vs. Keynesian

- **Classical model**
 - Macroeconomic model that explains the long-run behavior of the economy
 - Market forces drive the economy toward full employment
- **Great Depression**
 - Output was stuck far below its potential for many years

© 2010 Cengage Learning. All Rights Reserved. May not be scanned, copied or duplicated, or posted to a publicly accessible Web site, in whole or in part.

Macroeconomic Models: Classical vs. Keynesian

- **1936, John Maynard Keynes**
 - Keynesian model
 - Classical model might explain the economy's operation in the long run
 - Long run could be a very long time in arriving
 - Production – stuck below its potential

© 2010 Cengage Learning. All Rights Reserved. May not be scanned, copied or duplicated, or posted to a publicly accessible Web site, in whole or in part.

Macroeconomic Models: Classical vs. Keynesian

- Keynes's ideas
 - And their further development
 - Help us understand economic fluctuations
- Classical model
 - Proven more useful in explaining the long-run trend itself
- Assumption in classical model
 - Markets clear:
 - The price in every market will adjust
 - Until quantity supplied = quantity demanded

How Much Output Will We Produce?

- Labor market
 - Labor supply
 - Labor demand
 - Wage rate
 - Number of workers

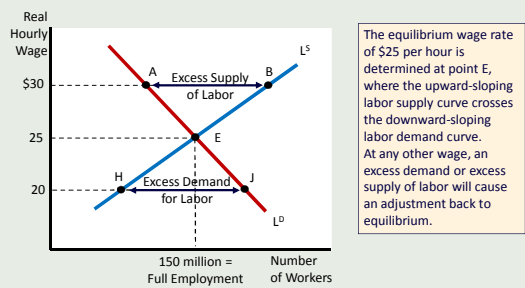
How Much Output Will We Produce?

- Labor supply curve
 - How many people will want to work at various real wage rates
 - Slopes upward
 - As the wage rate increases
 - More and more individuals are better off working than not working

How Much Output Will We Produce?

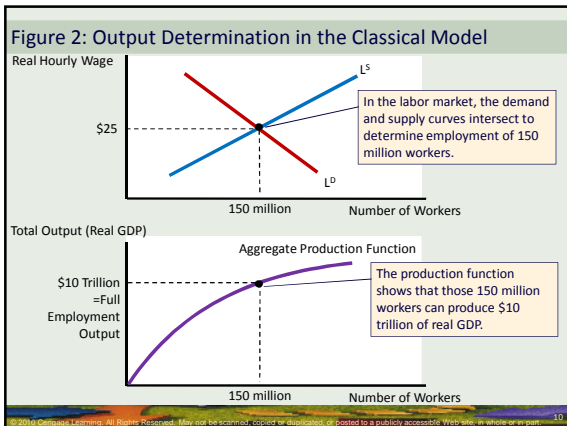
- **Labor demand curve**
 - How many workers firms will want to hire at various real wage rates
 - Downward sloping
 - As the wage rate increases
 - Firms in the economy – to maximize profit – employ fewer workers than before
 - Decrease the quantity of labor demanded in the economy

Figure 1: The Labor Market



How Much Output Will We Produce?

- **Equilibrium total employment**
 - Market clears
 - Full employment
 - No cyclical unemployment
- **Aggregate production function**
 - How much total output can be produced
 - With different quantities of labor
 - With quantities of all other resources held constant

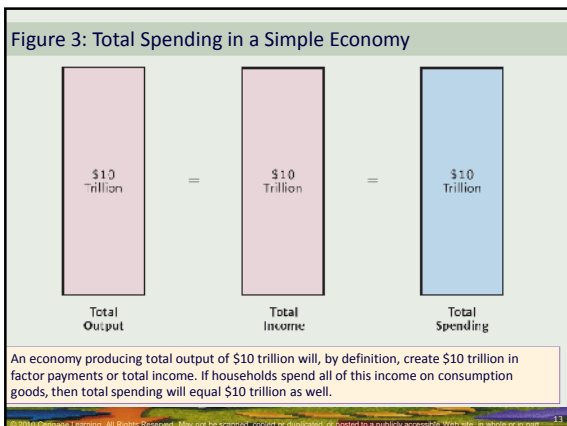


How Much Output Will We Produce?

- **Aggregate production function**
 - Declining slope – diminishing returns to labor
 - Output rises when another worker is added
 - The rise is smaller and smaller with each successive worker
- **Equilibrium real GDP**
 - In the classical, long-run view
 - Economy reaches its potential output automatically

The Role of Spending

- **Simple economy**
 - Domestic households
 - Spend all income on domestic output
 - No saving
 - Domestic business firms
 - Total spending = total output



The Role of Spending

- **Say's law**
 - Total spending will be sufficient to purchase the total output produced
 - By producing goods and services
 - Firms create a total demand for goods and services equal to what they have produced
 - Supply creates its own demand
 - Full-employment can be maintained

©2010 Cengage Learning. All Rights Reserved. May not be scanned, copied or duplicated, or posted to a publicly accessible Web site, in whole or in part.

Total Spending in a More Realistic Economy

- **Assumptions**
 - Closed economy
 - No economic dealings with the rest of the world
 - Government
 - Collects taxes and purchases goods and services
 - Households
 - Consumption, Taxes, Savings
 - Business firms
 - Purchase capital goods (investment spending)

©2010 Cengage Learning. All Rights Reserved. May not be scanned, copied or duplicated, or posted to a publicly accessible Web site, in whole or in part.

Table 1: Flows in the Economy of Classica, 2010

Actual and Potential Output (GDP)	\$10 trillion
Total Income	\$10 trillion
Consumption Spending (C)	\$7 trillion
Planned Investment Spending (I ^P)	\$1 trillion
Government Purchases (G)	\$2 trillion
Net Taxes (T)	\$1.25 trillion
Disposable Income	\$8.75 trillion
Household Saving (S)	\$1.75 trillion

Total Spending in a More Realistic Economy

- **Planned investment spending (I^P)**
 - Business purchases of plant and equipment
 - Total investment (I) minus change in inventories
 - $I^P = I - \Delta \text{inventories}$
- **Net taxes (T)**
 - Total government tax revenue minus government transfer payments

Total Spending in a More Realistic Economy

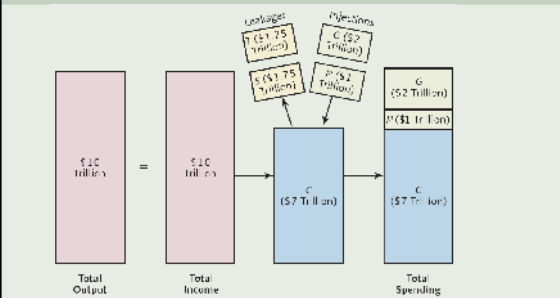
- **Disposable income**
 - Household income minus net taxes
 - Either spent or saved
- **Household saving (S)**
 - Portion of after-tax income that households do not spend on consumption
 - = Disposable Income – C

Total Spending in a More Realistic Economy

- **Total Spending in Classical**
 - Sum of the purchases made by
 - Household sector (C)
 - Business sector (I^P)
 - Government sector (G)
- Total spending = C + I^P + G**

© 2010 Cengage Learning. All Rights Reserved. May not be scanned, copied or duplicated, or posted to a publicly accessible Web site, in whole or in part.

Figure 4: Leakages and Injections



By definition, total output equals total income. Leakages—net taxes (T) and saving (S)—reduce consumption spending below total income. Injections—government purchases (G) plus planned investment spending (I^P)—contribute to total spending. When leakages equal injections, total spending equals total output.

© 2010 Cengage Learning. All Rights Reserved. May not be scanned, copied or duplicated, or posted to a publicly accessible Web site, in whole or in part.

Total Spending in a More Realistic Economy

- **Leakages = T + S**
 - Income earned, but not spent, by households during a given year
 - **Injections = G + I^P**
 - Spending from sources other than households
 - **Total spending will equal total output**
 - If and only if: total leakages = total injections
- S + T = I^P + G**

© 2010 Cengage Learning. All Rights Reserved. May not be scanned, copied or duplicated, or posted to a publicly accessible Web site, in whole or in part.

The Loanable Funds Market

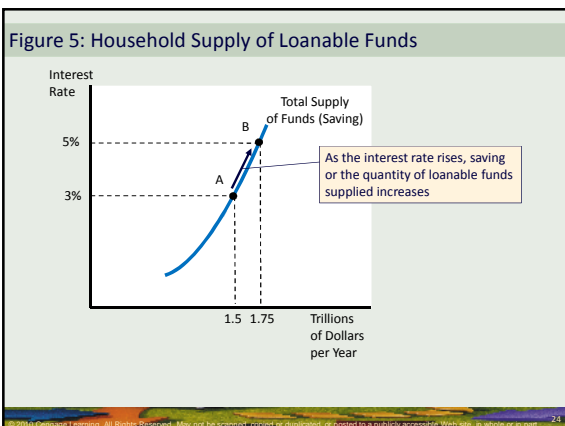
- **Loanable funds market**
 - Savers make their funds available to borrowers
- **Total supply of loanable funds**
 - Is equal to household saving
 - Funds supplied are loaned out
 - Households receive interest payments on these funds

© 2010 by Cengage Learning. All Rights Reserved. May not be scanned, copied or duplicated, or posted to a publicly accessible Web site, in whole or in part. 22

The Loanable Funds Market

- **Supply of funds curve**
 - Level of household saving at various interest rates
 - Slopes upward
 - Quantity of funds supplied to the financial market depends positively on the interest rate

© 2010 by Cengage Learning. All Rights Reserved. May not be scanned, copied or duplicated, or posted to a publicly accessible Web site, in whole or in part. 23



The Loanable Funds Market

- **Demand of loanable funds**
 - By business firms and government agencies
- **Businesses' demand for loanable funds**
 - Is equal to their planned investment spending
 - Funds obtained are borrowed
 - Firms pay interest on these funds

© 2010 Cengage Learning. All Rights Reserved. May not be scanned, copied or duplicated, or posted to a publicly accessible Web site, in whole or in part. 25

The Loanable Funds Market

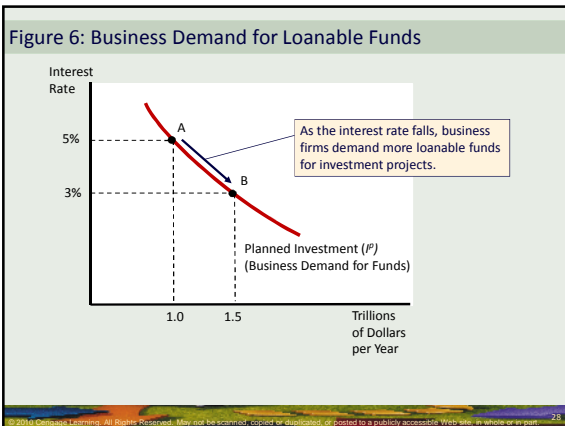
- **Budget deficit, $G - T$**
 - Excess of government purchases over net taxes
- **Government's demand for loanable funds**
 - Is equal to its budget deficit
 - Funds are borrowed
 - Government pays interest on its loans

© 2010 Cengage Learning. All Rights Reserved. May not be scanned, copied or duplicated, or posted to a publicly accessible Web site, in whole or in part. 26

The Loanable Funds Market

- **Budget surplus, $T - G$**
 - Excess of net taxes over government purchases
- **Business demand for funds curve**
 - Level of investment spending firms plan at various interest rates
- **Interest rate falls**
 - Investment spending rise
 - Business borrowing rise

© 2010 Cengage Learning. All Rights Reserved. May not be scanned, copied or duplicated, or posted to a publicly accessible Web site, in whole or in part. 27

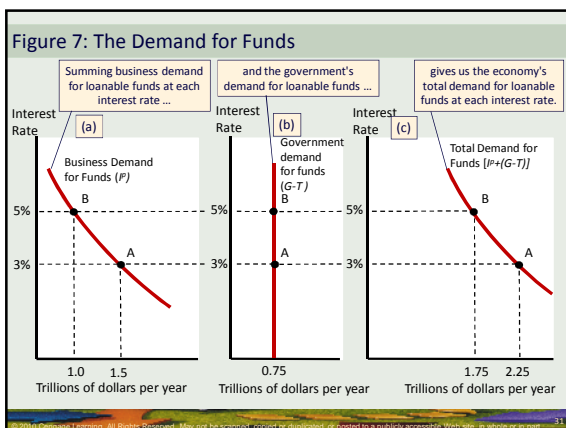


The Loanable Funds Market

- **Government demand for funds curve**
 - Amount of government borrowing at various interest rates
- **Independent of the interest rate**
 - Government sector's deficit
 - Government demand for funds

The Loanable Funds Market

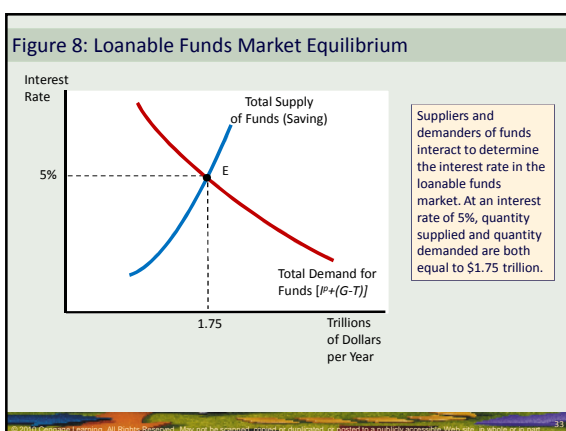
- **Total demand for funds curve**
 - Total amount of borrowing
 - At various interest rates
- **Interest rate decreases**
 - Total quantity of funds demanded rises
 - Quantity of funds demanded by business firms increases
 - Quantity demanded by the government remains unchanged



The Loanable Funds Market

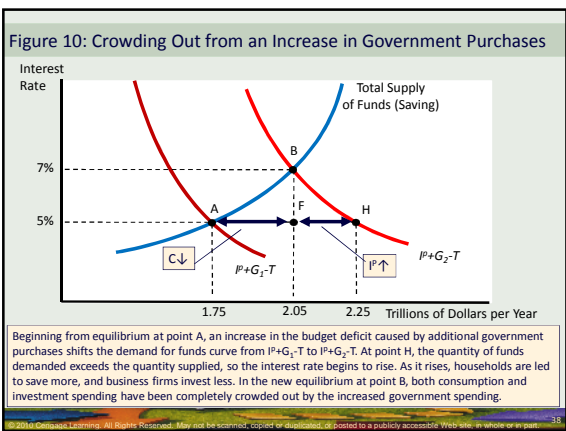
- **Loanable funds market**
 - Assumed to clear
 - Interest rate
 - Rise or fall
 - Until the quantities of funds supplied and demanded are equal
 - Say's law holds: Total spending = total output

© 2010 Cengage Learning. All Rights Reserved. May not be scanned, copied or duplicated, or posted to a publicly accessible Web site, in whole or in part.



Fiscal Policy in the Classical Model

- **Increase G:**
 - Government borrow the additional funds
 - Interest rate increases
 - Decrease in planned investment spending
 - Decrease in consumption spending (increase in savings)
- **Government's purchases**
 - Have crowded out the spending of households (C) and businesses (I^P)



Fiscal Policy in the Classical Model

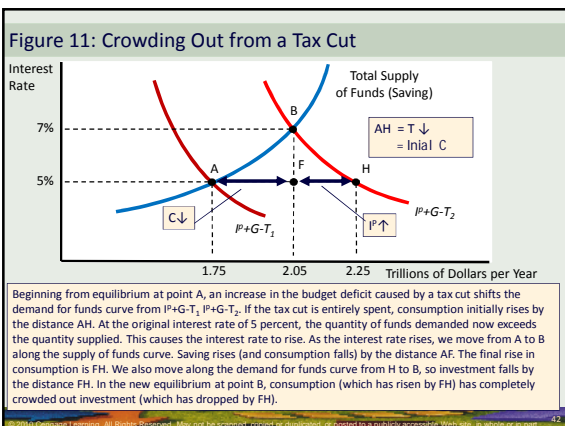
- **Crowding out**
 - A decline in one sector's spending
 - Caused by an increase in some other sector's spending
- **Complete crowding out**
 - A dollar-for-dollar decline in one sector's spending
 - Caused by an increase in some other sector's spending

Fiscal Policy in the Classical Model

- Rise in G, classical model
 - Completely crowds out private sector spending
 - Total spending remains unchanged
 - No demand-side effects on total output or total employment

Fiscal Policy in the Classical Model

- Increase G:
 - Government cuts net taxes (T)
 - Households – spend the entire tax cut
 - Increase in government demand for funds
 - Interest rate increase
 - Decrease in planned investment spending
 - Decrease in consumption spending (increase in savings)



Fiscal Policy in the Classical Model

- **Cut in net taxes, classical model**
 - Raises consumption
 - Which completely crowds out planned investment
 - Total spending remains unchanged
 - No demand-side effects on total output or employment

The Classical Model: A Summary

- **General conclusions:**
 - Government needn't worry about employment
 - Economy will achieve full employment on its own
 - Government needn't worry about total spending
 - Economy - generate just enough spending on its own to buy the output that a fully employed labor force produces
 - Fiscal policy has no demand-side effects on output or employment

APPENDIX

The Classical Model in an Open Economy

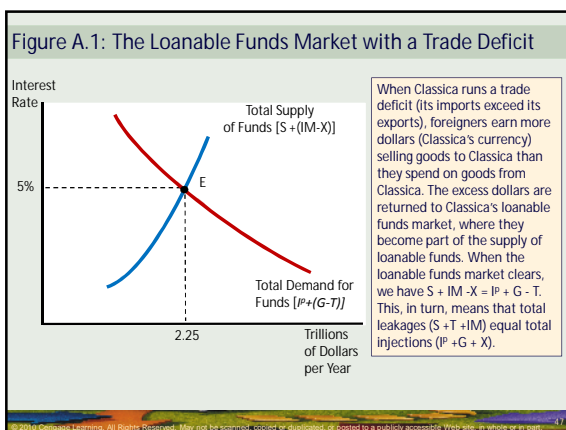
- **Leakages = $IM + S + T$**
 - Imports, saving, taxes
- **Injections = $X + I^p + G$**
 - Exports, planned investment, government purchases
- **Total spending = $C + I^p + G + (X-IM)$**
- **Balanced trade: Exports = Imports**
 - Say's law holds
 - Total spending on the country's output will be equal in value to its total output

APPENDIX

The Classical Model in an Open Economy

- **Unbalanced trade: Imports > Exports**
 - Trade deficit = $IM - X$
 - Foreigners - supply loanable funds to that country = its trade deficit ($IM - X$)
 - Total supply of funds = $S + (IM - X)$
 - Total demand for funds = $I^p + (G - T)$
 - Equilibrium: $S + (IM - X) = I^p + (G - T)$
 - $S + T + IM = I^p + G + X$
 - Leakages = Injections
 - Say's law holds

© 2010 by Cengage Learning. All Rights Reserved. May not be scanned, copied or duplicated, or posted to a publicly accessible Web site, in whole or in part.



APPENDIX

The Classical Model in an Open Economy

- **An increase in government purchases in one country**
 - May not cause complete crowding out in that country
 - But worldwide, crowding out will be complete
 - The rise in government purchases in one country
 - Will be matched by an equal drop in global consumption and investment spending

© 2010 by Cengage Learning. All Rights Reserved. May not be scanned, copied or duplicated, or posted to a publicly accessible Web site, in whole or in part.
