Aggregate Expenditure and Equilibrium Output

Part 3

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The Saving/Investment Approach to Equilibrium

- $Y \equiv C + S$, which is an identity. The equilibrium condition is $Y = C + I$, but this is not an identity because it does not hold when out of equilibrium.
- By substituting $C + S$ for Y in the equilibrium condition:

$$C + S = C + I$$

$$S = I$$

- Equilibrium occurs only when planned investment equals saving.

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The Saving/Investment Approach to Equilibrium

$$S = I$$

- Equilibrium occurs only when planned investment equals saving.

$$S = -100 + 0.25Y$$

$$I = 25$$

$$25 = -100 + 0.25Y$$

$$125 = 0.25Y$$

$$Y = 500$$

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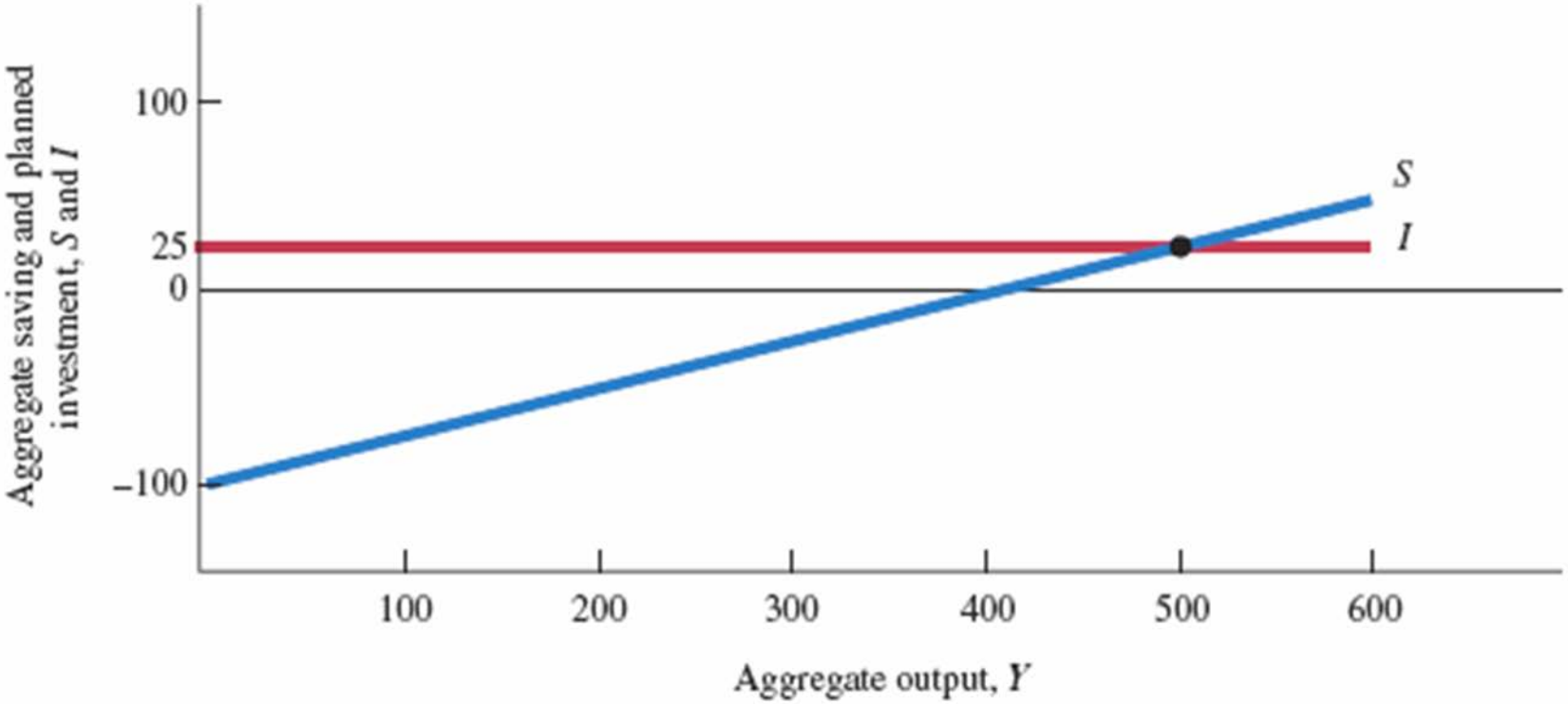
The *S* = *I* Approach to Equilibrium



Aggregate output is equal to planned aggregate expenditure only when saving equals planned investment (*S* = *I*).

Saving and planned investment are equal at *Y* = 500.

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Adjustment to Equilibrium

- If firms react to unplanned inventory reductions by increasing output, an economy with planned spending greater (less) than output will adjust to equilibrium, with Y higher (lower) than before.

- The Keynesian Cross shows that at any level of output above (below) $Y = 500$, output will fall (rise) until it reaches equilibrium at $Y = 500$.

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ECONOMICS IN PRACTICE

General Motors' Silverado

In 2011, GM increased production of its most profitable pickup truck, the Silverado. But the economy did not recover as fast as business people had expected.

As a result, the inventory of Silverados rose to the level equivalent to 122 days of sales, compared with the normal inventory levels of about 90 days.

THINKING PRACTICALLY

Do you expect inventory turns for the average firm in the economy to increase or decrease as we enter a recession?

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The Multiplier

- **multiplier** The ratio of the change in the equilibrium level of output to a change in some exogenous variable.
- Suppose variable *x* changes by 1 unit, which causes another variable *y* to change by *M* units. Then the multiplier is *M.*
- The size of the multiplier depends on the slope of the planned aggregate expenditure line. The steeper the slope of this line, the greater the change in output, i.e. larger multiplier, for a given change in investment.

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The Multiplier Equation

- Recall:

$$MPS = \frac{\Delta S}{\Delta Y}$$

- Because ΔS must be equal to ΔI for equilibrium to be restored, we can substitute ΔI for ΔS and solve:

$$MPS = \frac{\Delta I}{\Delta Y}$$

- Therefore:

$$\Delta Y = \Delta I \times \frac{1}{MPS}$$

$$\text{Multiplier} \equiv \frac{1}{MPS} \quad , \quad \text{or} \quad \text{Multiplier} \equiv \frac{1}{1 - MPC}$$

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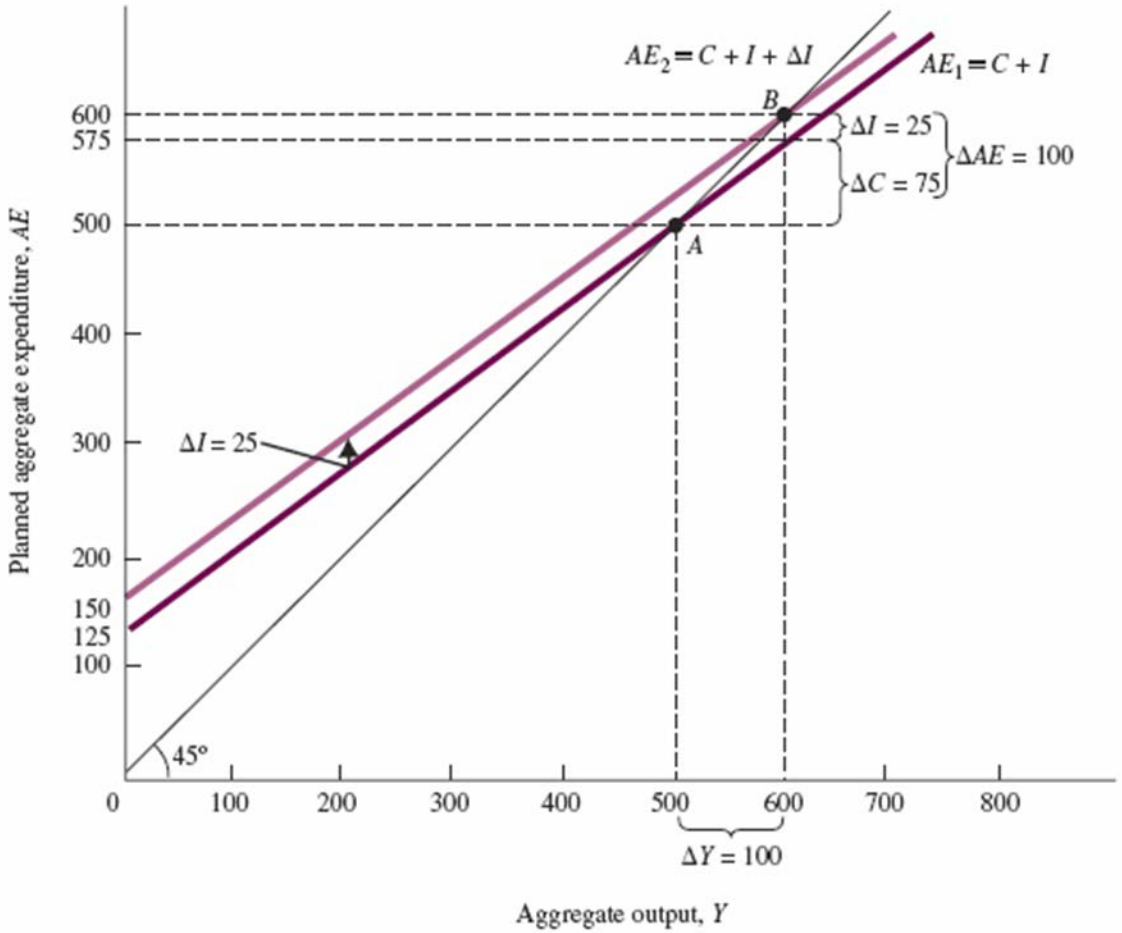
The Multiplier as Seen in the Planned Aggregate Expenditure Diagram

At point *A*, the economy is in equilibrium at *Y* = 500. When *I* increases by 25, planned aggregate expenditure is initially greater than aggregate output.

As output rises in response, additional consumption is generated, pushing equilibrium output up by a multiple of the initial increase in *I*.

The new equilibrium is found at point *B*, where *Y* = 600.

Equilibrium output has increased by 100 (600 – 500), or *four times* the amount of the increase in planned investment.



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The Size of the Multiplier in the Real World

- The size of the multiplier is reduced when:
  1. Tax payments depend on income
  2. We consider Fed behavior regarding the interest rate
  3. We add the price level to the analysis
  4. Imports are introduced
- In reality, the size of the multiplier is about 2.

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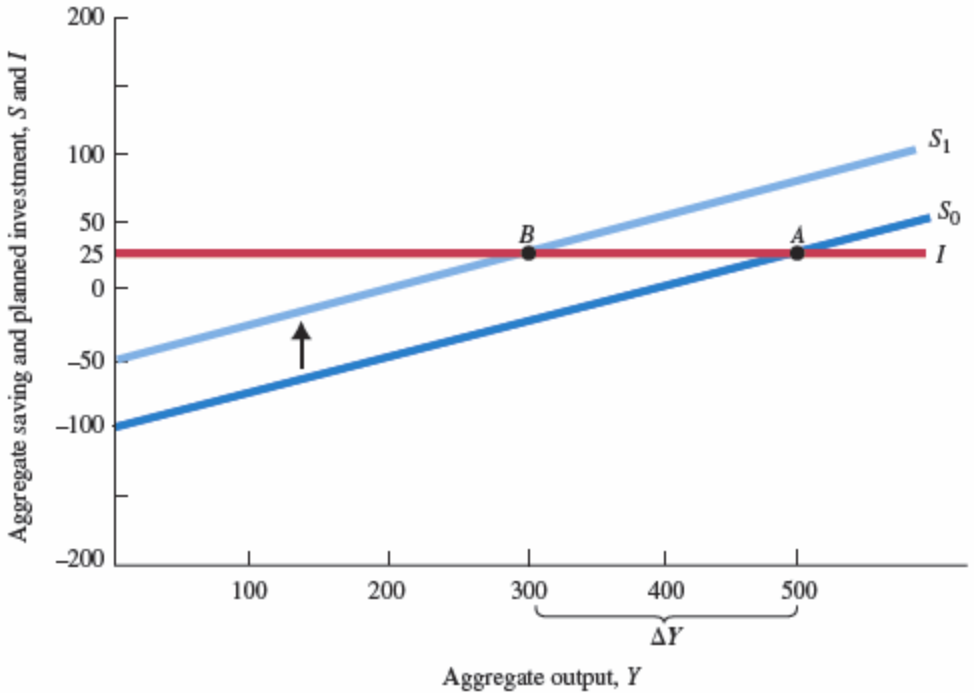
ECONOMICS IN PRACTICE

The Paradox of Thrift

An increase in planned saving from S_0 to S_1 causes equilibrium output to decrease from 500 to 300.

The corresponding decreased consumption leads to a reduction of income.

Increased efforts to save have caused a drop in income but no overall change in saving.



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The Paradox of Thrift

- The paradox states that an increase in autonomous saving leads to a decrease in aggregate demand and thus a decrease in gross output which will in turn lower *total* saving.

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