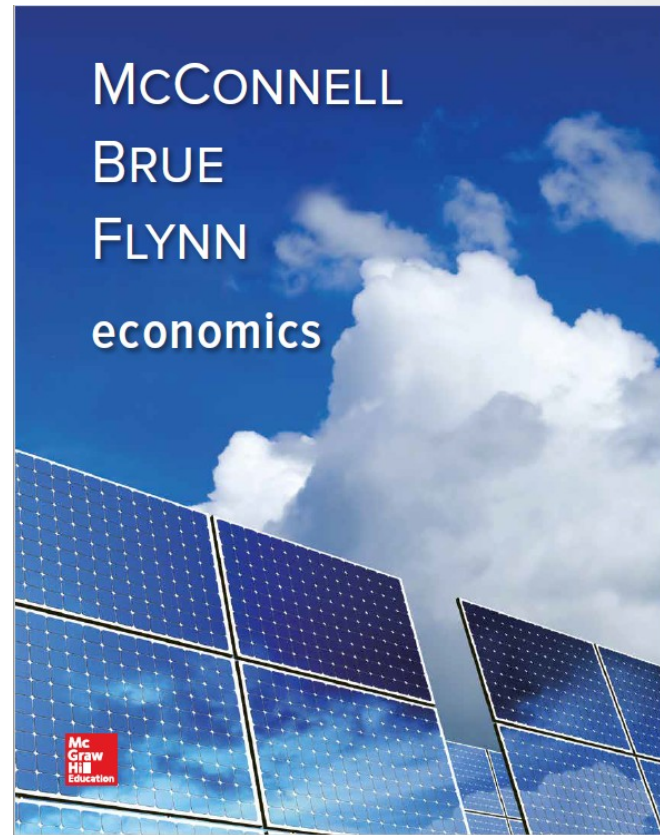


Chapter 30

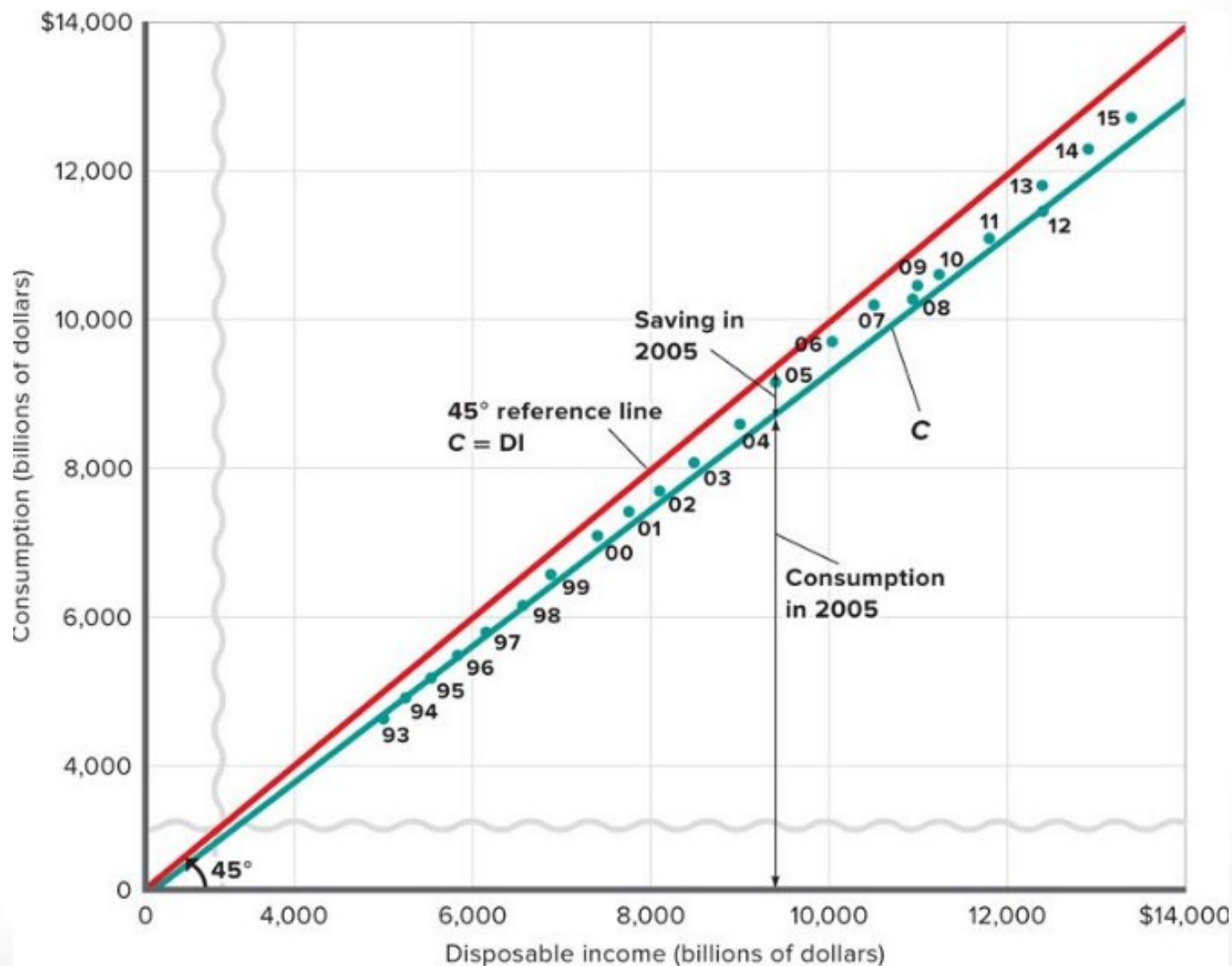
Basic Macroeconomic Relationships



Income, Consumption, and Saving

- Consumption and saving
 - Primarily determined by DI
 - Direct relationship
- Consumption schedule
 - Planned household spending (in our model)
- Saving schedule
 - $DI - C$
 - Dissaving can occur

Consumption and Disposable Income



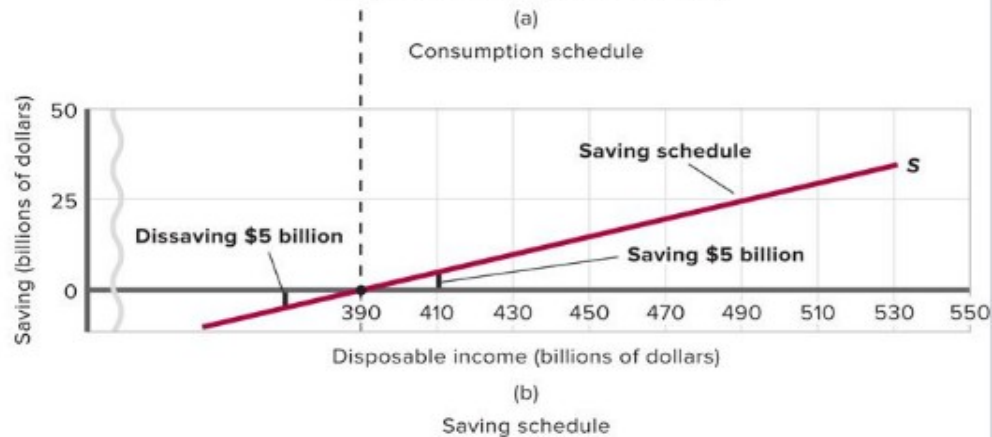
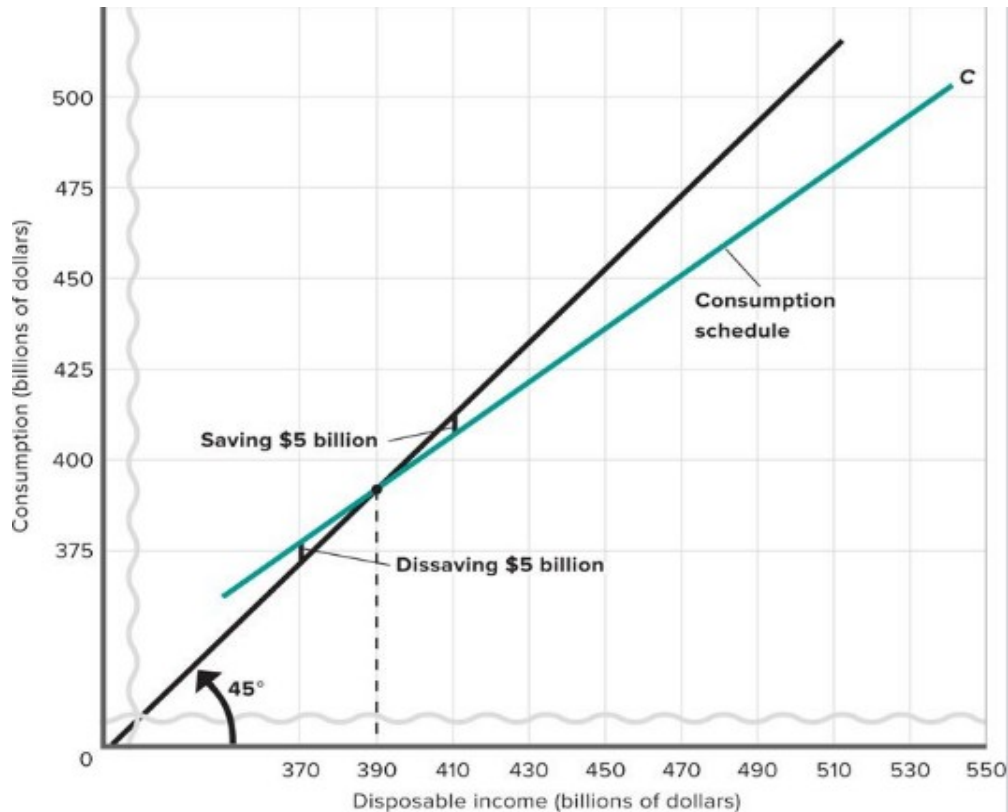
Consumption and Saving Schedules

Consumption and Saving Schedules (in Billions) and Propensities to Consume and Save

(1) Level of Output and Income GDP = DI	(2) Consumption (C)	(3) Saving (S), (1) - (2)	(4) Average Propensity to Consume (APC), (2)/(1)	(5) Average Propensity to Save (APS), (3)/(1)	(6) Marginal Propensity to Consume (MPC), $\Delta(2)/\Delta(1)^*$	(7) Marginal Propensity to Save (MPS), $\Delta(3)/\Delta(1)^*$
(1) \$370	\$375	\$-5	1.01	-.01	.75	.25
(2) 390	390	0	1.00	.00	.75	.25
(3) 410	405	5	.99	.01	.75	.25
(4) 430	420	10	.98	.02	.75	.25
(5) 450	435	15	.97	.03	.75	.25
(6) 470	450	20	.96	.04	.75	.25
(7) 490	465	25	.95	.05	.75	.25
(8) 510	480	30	.94	.06	.75	.25
(9) 530	495	35	.93	.07	.75	.25
(10) 550	510	40	.93	.07	.75	.25

Consumption and Saving Schedules

Cont'd



Average Propensities

- Average propensity to consume (APC)
 - Fraction of total income consumed
- Average propensity to save (APS)
 - Fraction of total income saved

$$APC = \frac{\text{consumption}}{\text{income}}$$

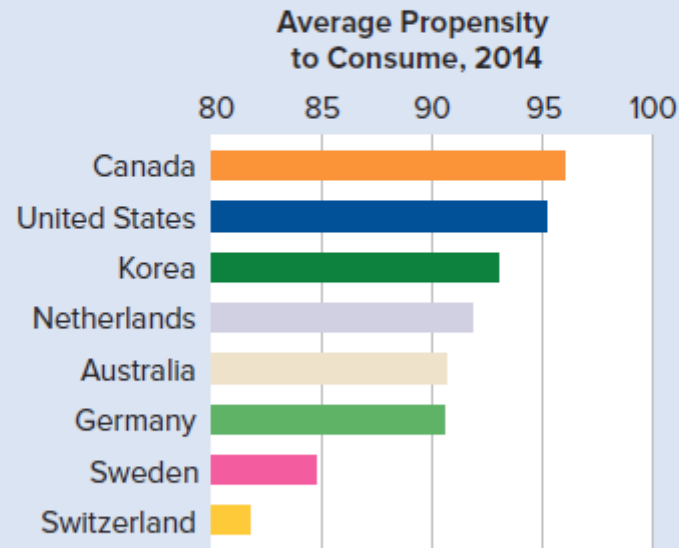
$$APS = \frac{\text{saving}}{\text{income}}$$

$$APC + APS = 1$$

Global Perspective 1

Title to come

There are surprisingly large differences in average propensities to consume (APCs) among nations. In 2014, Korea, the United States, Canada, and the Netherlands in particular had substantially higher APCs, and thus lower APSs, than several other advanced economies.



Source: Organization for Economic Cooperation and Development, OECD, www.oecd.org. Derived from OECD household saving rates as percentages of disposable income. Econ Outlook 98, Annex Table 23, extracted April 2016.

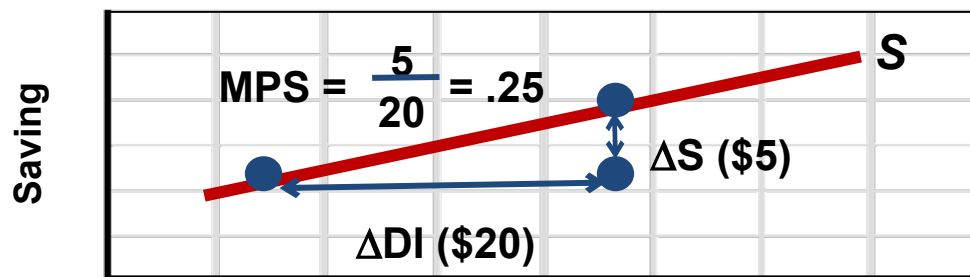
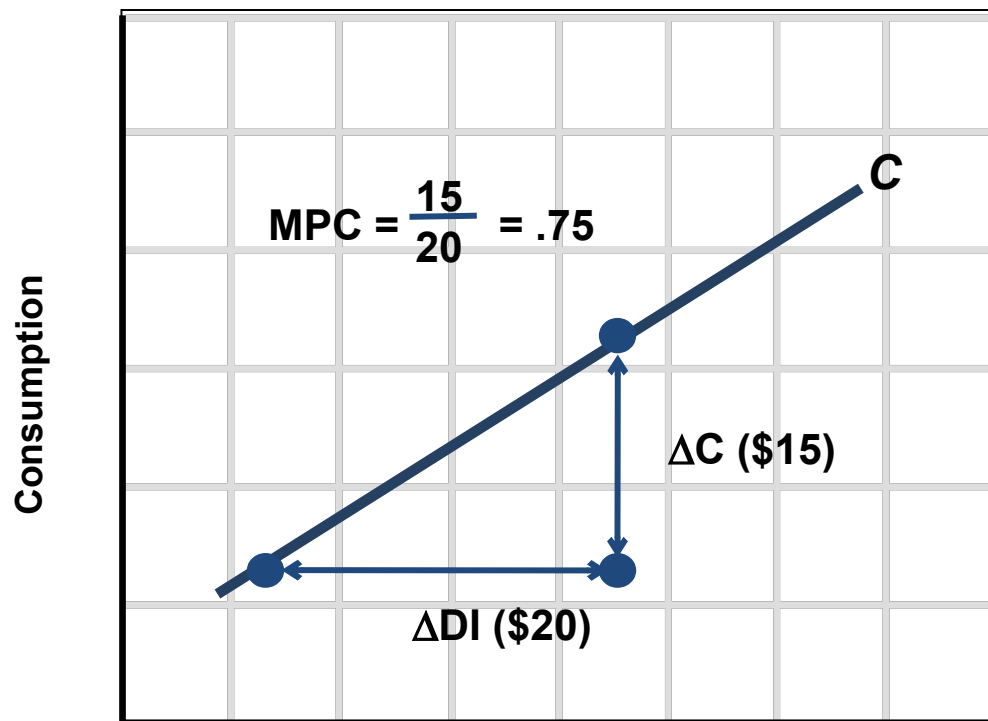
Marginal Propensities

- Marginal propensity to consume (MPC)
 - Proportion of a change in income consumed
- Marginal propensity to save (MPS)
 - Proportion of a change in income saved

$$\text{MPC} = \frac{\text{change in consumption}}{\text{change in income}} \quad \text{MPS} = \frac{\text{change in saving}}{\text{change in income}}$$

$$\text{MPC} + \text{MPS} = 1$$

Marginal Propensities Continued



Disposable income

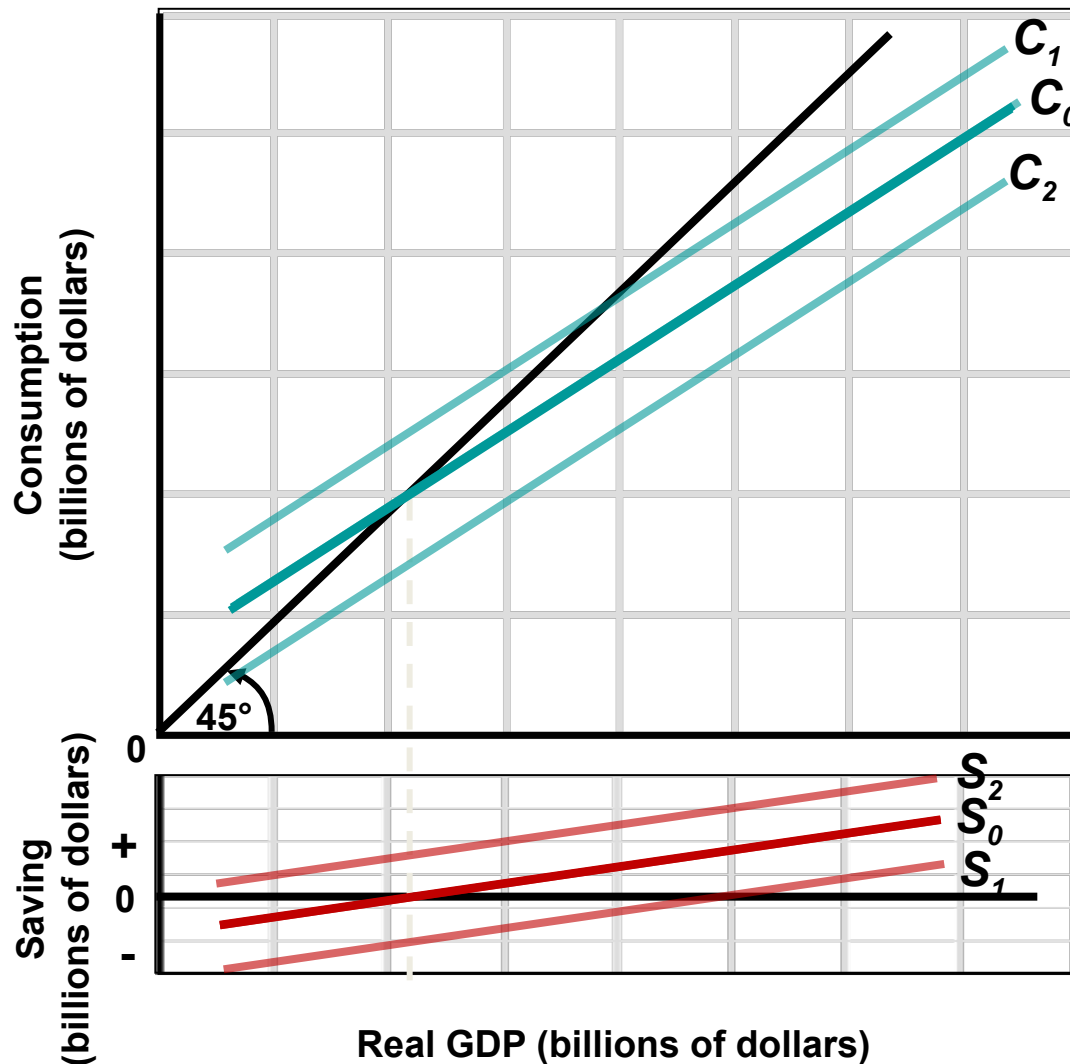
Nonincome Determinants

- Amount of disposable income is the main determinant
- Other determinants
 - Wealth
 - Borrowing
 - Expectations
 - Real interest rates

Other Important Considerations

- Switching to real GDP
- Changes along schedules
- Simultaneous shifts
- Taxation
- Stability

Shifts of Consumption and Saving Schedules

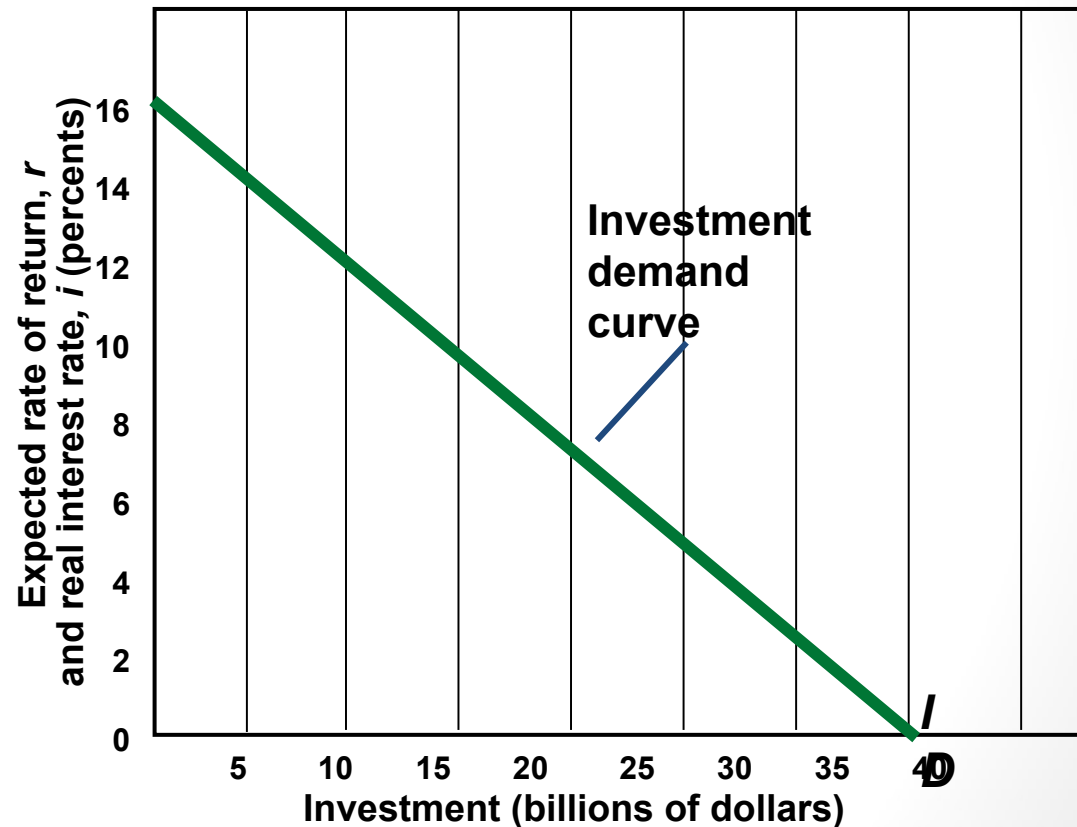


Interest-Rate-Investment Relationship

- Expected rate of return
- The real interest rate
- Investment demand curve

Investment Demand Curve

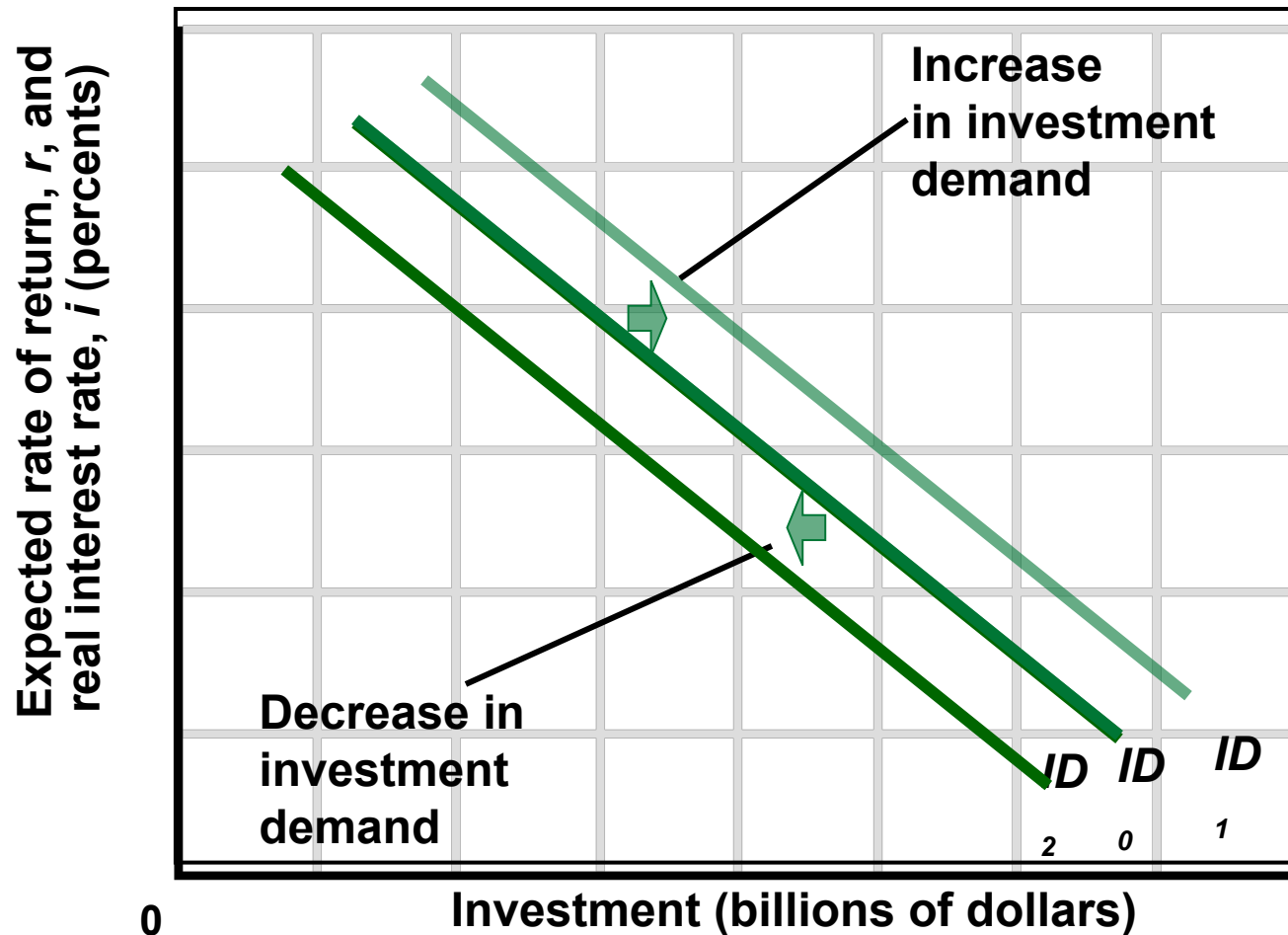
(r) and (i)	Cumulative Amount at this ROR (billions of dollars)
16%	\$ 0
14	5
12	10
10	15
8	20
6	25
4	30
2	35
0	40



Shifts of Investment Demand

- Acquisition, maintenance, and operating costs
- Business taxes
- Technological change
- Stock of capital goods on hand
- Planned inventory changes
- Expectations

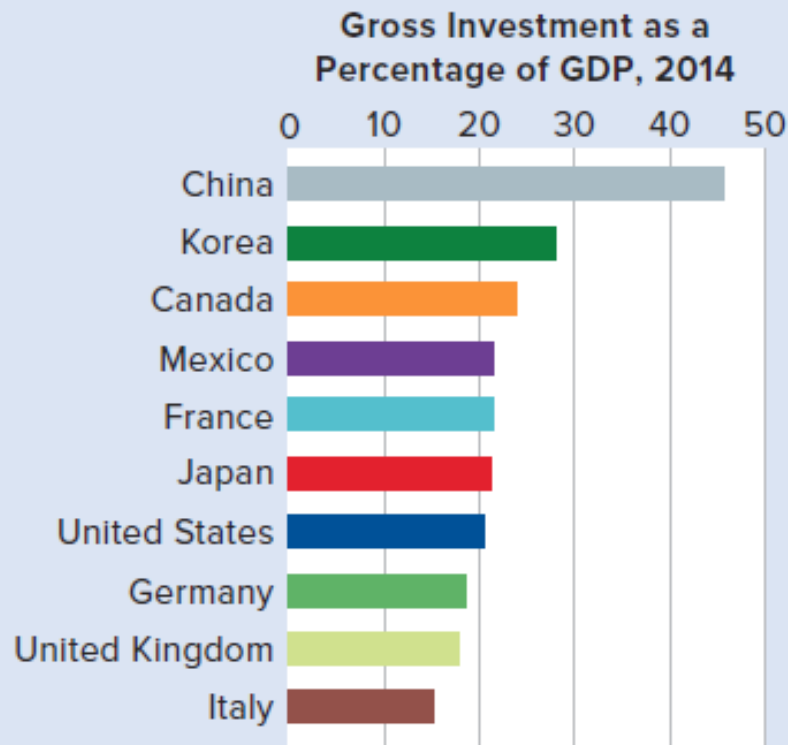
Shifts of Investment Demand Curve



Global Perspective 2

Gross Investment Expenditures as a Percentage of GDP, Selected Nations

As a percentage of GDP, investment varies widely by nation. These differences, of course, can change from year to year.

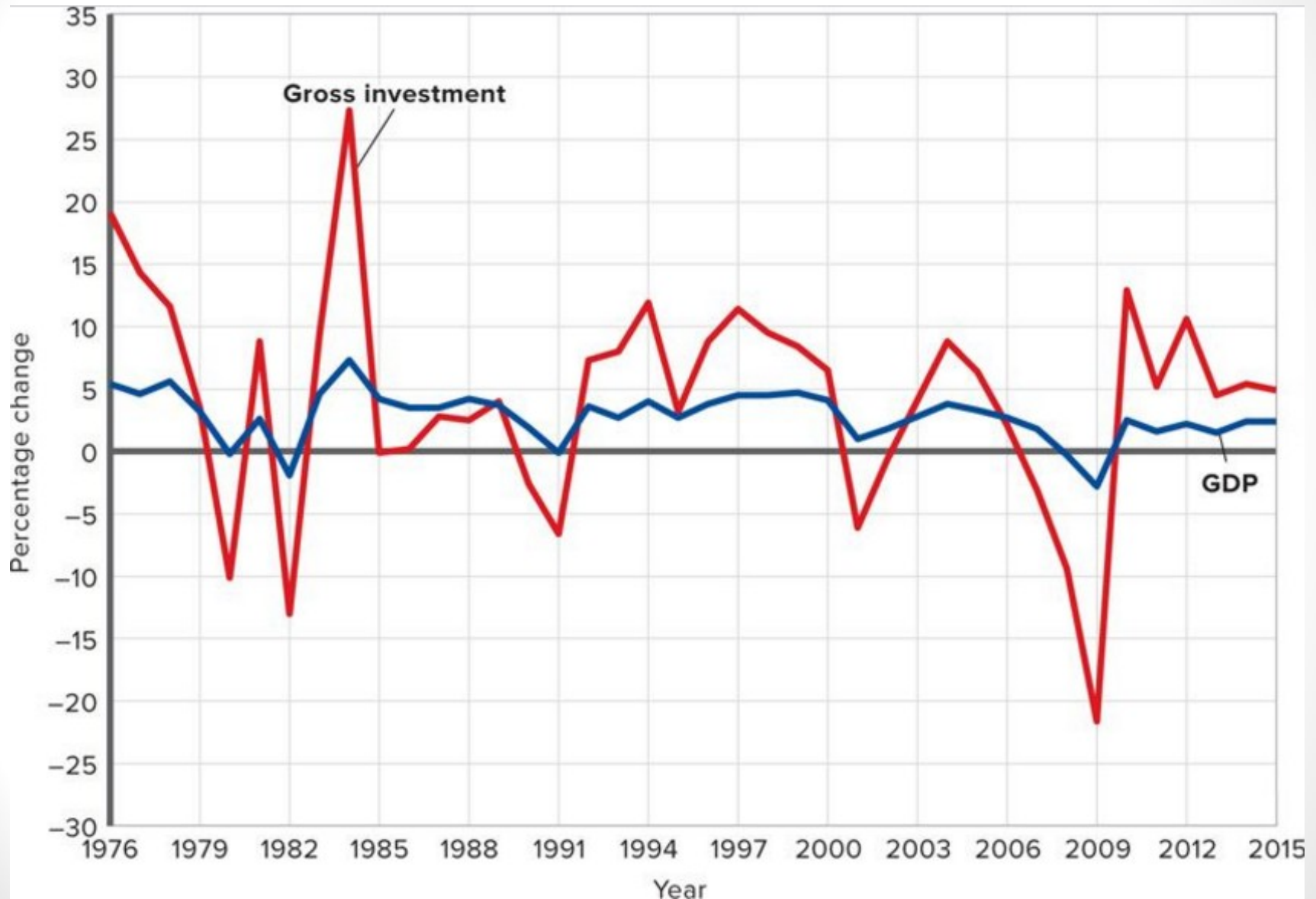


Source: Gross fixed capital formation data from International Financial Statistics, International Monetary Fund, www.imf.org.

Instability of Investment

- Variability of expectations
- Durability
- Irregularity of innovation
- Variability of profits

Volatility of Investment



The Multiplier Effect

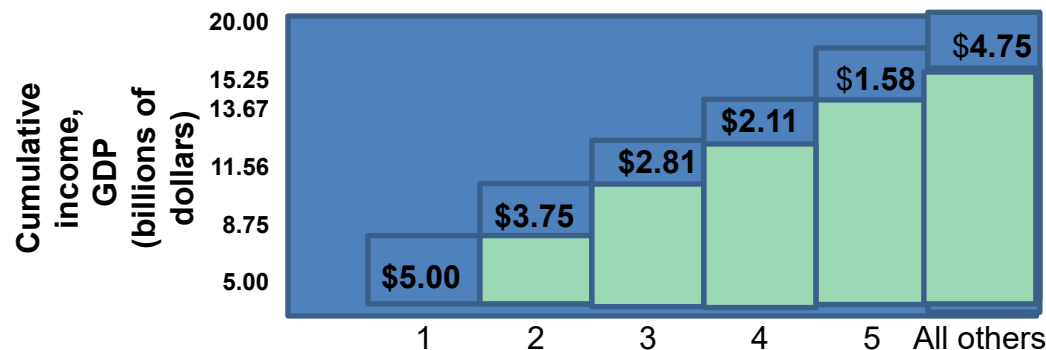
- A change in spending changes real GDP more than the initial change in spending

$$\text{Multiplier} = \frac{\text{change in real GDP}}{\text{initial change in spending}}$$

$$\text{Change in GDP} = \text{multiplier} \times \text{initial change in spending}$$

The Multiplier Effect Continued

	(1) Change in Income	(2) Change in Consumption (MPC = .75)	(3) Change in Saving (MPS = .25)
Increase in investment of \$5.00	\$5.00	\$3.75	\$1.25
Second round	3.75	2.81	.94
Third round	2.81	2.11	.70
Fourth round	2.11	1.58	.53
Fifth round	1.58	1.19	.39
All other rounds	4.75	3.56	1.19
Total	\$20.00	\$15.00	\$5.00



Multiplier and Marginal Propensities

- Multiplier and MPC directly related
 - Large MPC results in larger increases in spending
- Multiplier and MPS inversely related
 - Large MPS results in smaller increases in spending

$$\text{Multiplier} = \frac{1}{1 - \text{MPC}}$$

$$\text{Multiplier} = \frac{1}{\text{MPS}}$$

Multiplier and Marginal Propensities Continued

MPC	Multiplier
.9	10
.8	5
.75	4
.67	3
.5	2

The Actual Multiplier Effect?

- Actual multiplier is lower than the model assumes
- Consumers buy imported products
- Households pay income taxes
- Inflation
- Multiplier may be 0

Squaring the Economic Circle

- Humorous small town example of the multiplier
- One person in town decides not to buy a product
- Creates a ripple effect of people not spending, following the first decision
- Ultimately the entire town experiences an economic downturn