

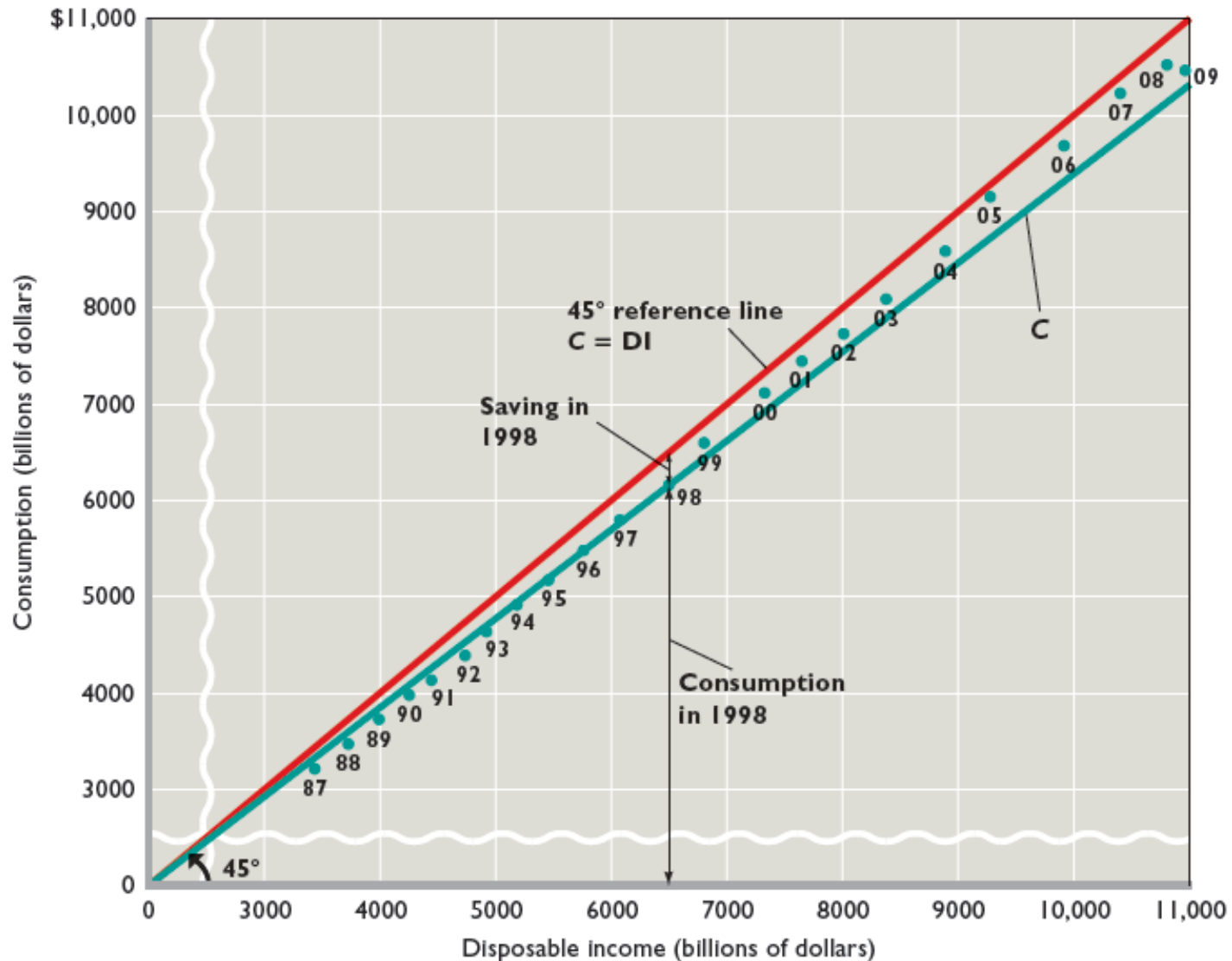


Basic Macroeconomic Relationships

Income Consumption and Saving

- Consumption and saving
 - Primarily determined by disposable income (DI)
- Consumption schedule
 - Planned household spending (in our model)
- Saving schedule
 - Disposable income minus consumption
 - Dissaving can occur

Income, Consumption, and Saving



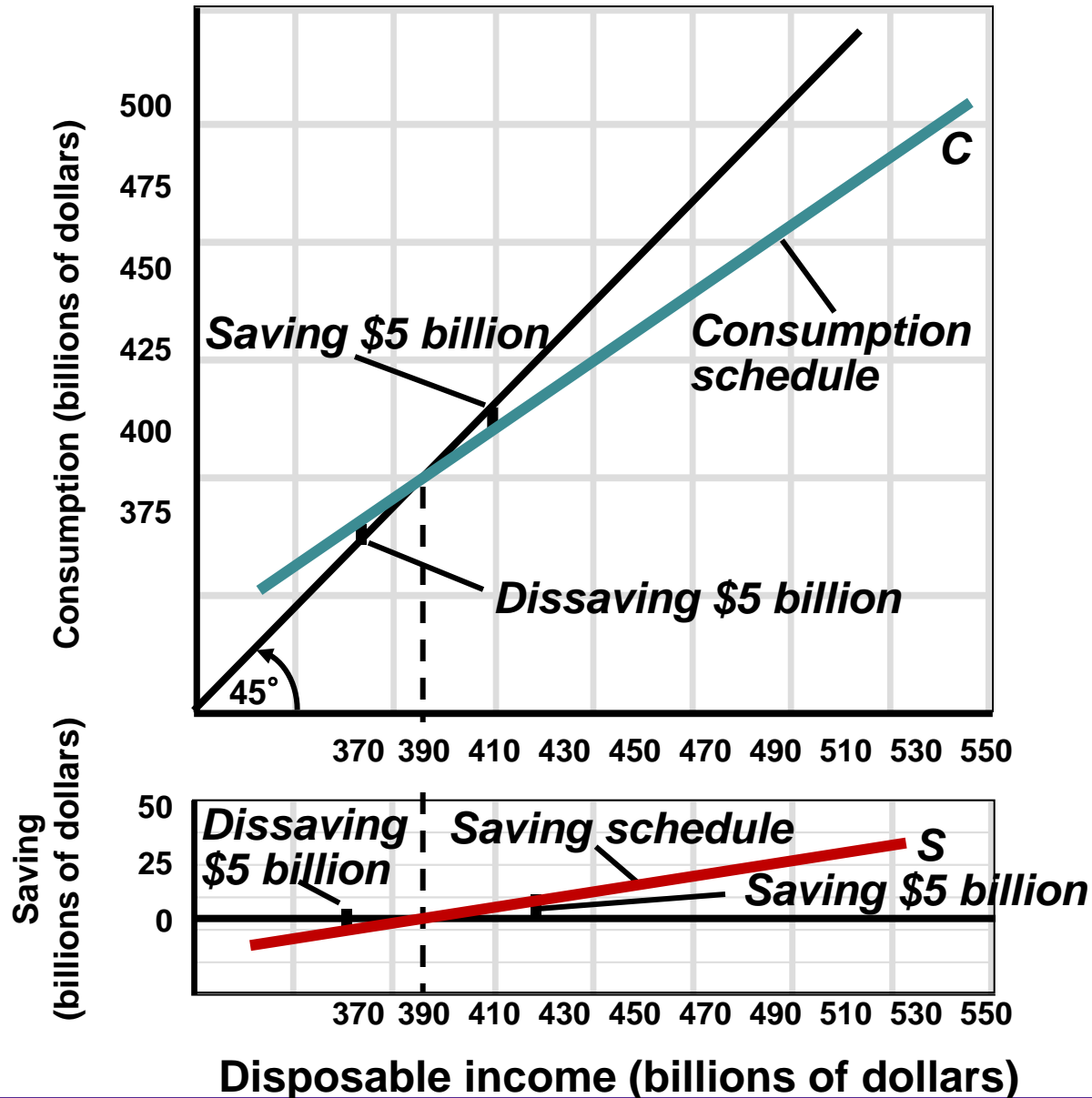
Source: Bureau of Economic Analysis, www.bea.gov.

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



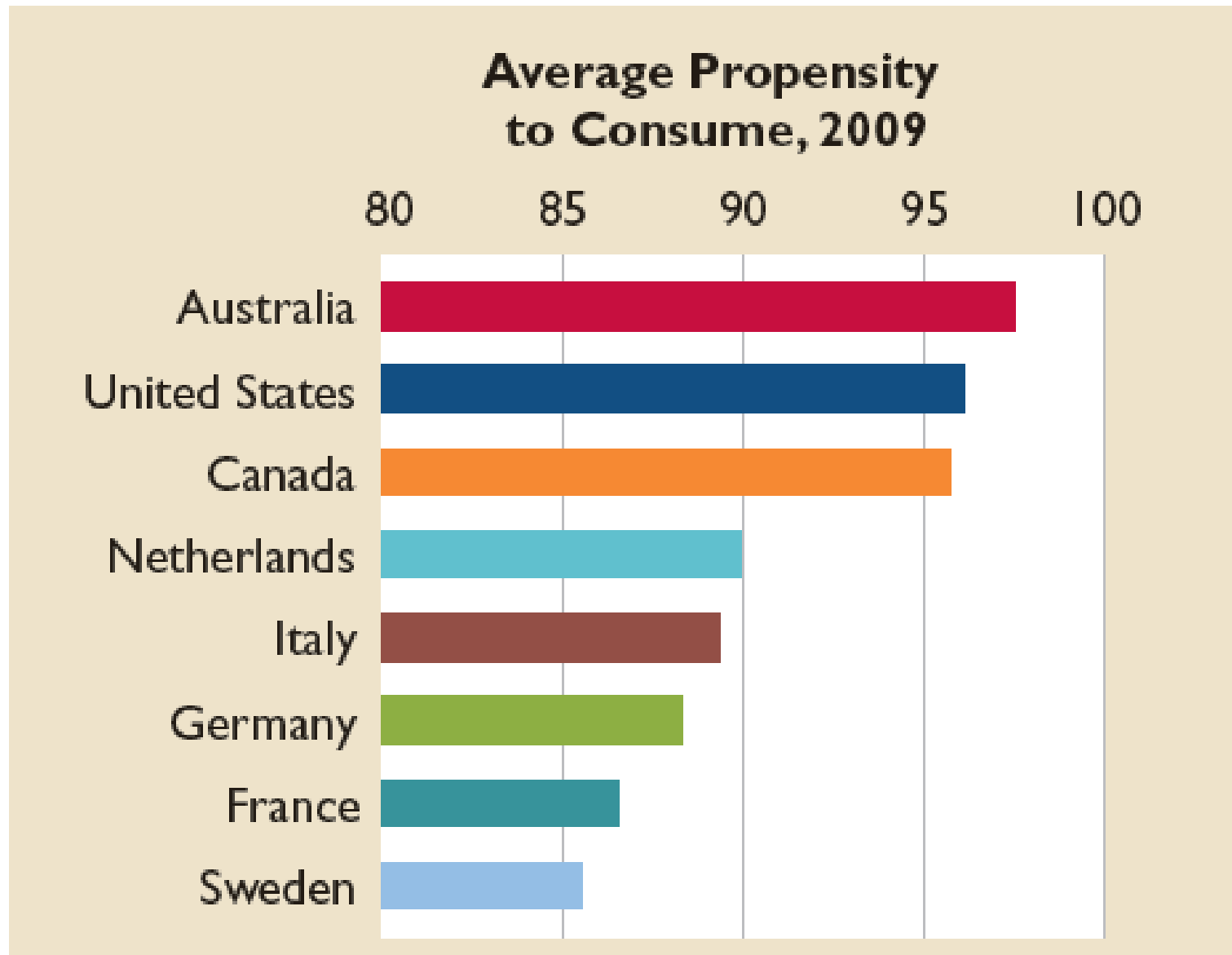
Average Propensities

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

$$APC = \frac{\text{consumption}}{\text{income}} \quad APS = \frac{\text{saving}}{\text{income}}$$

$$APC + APS = 1$$

Global Perspective



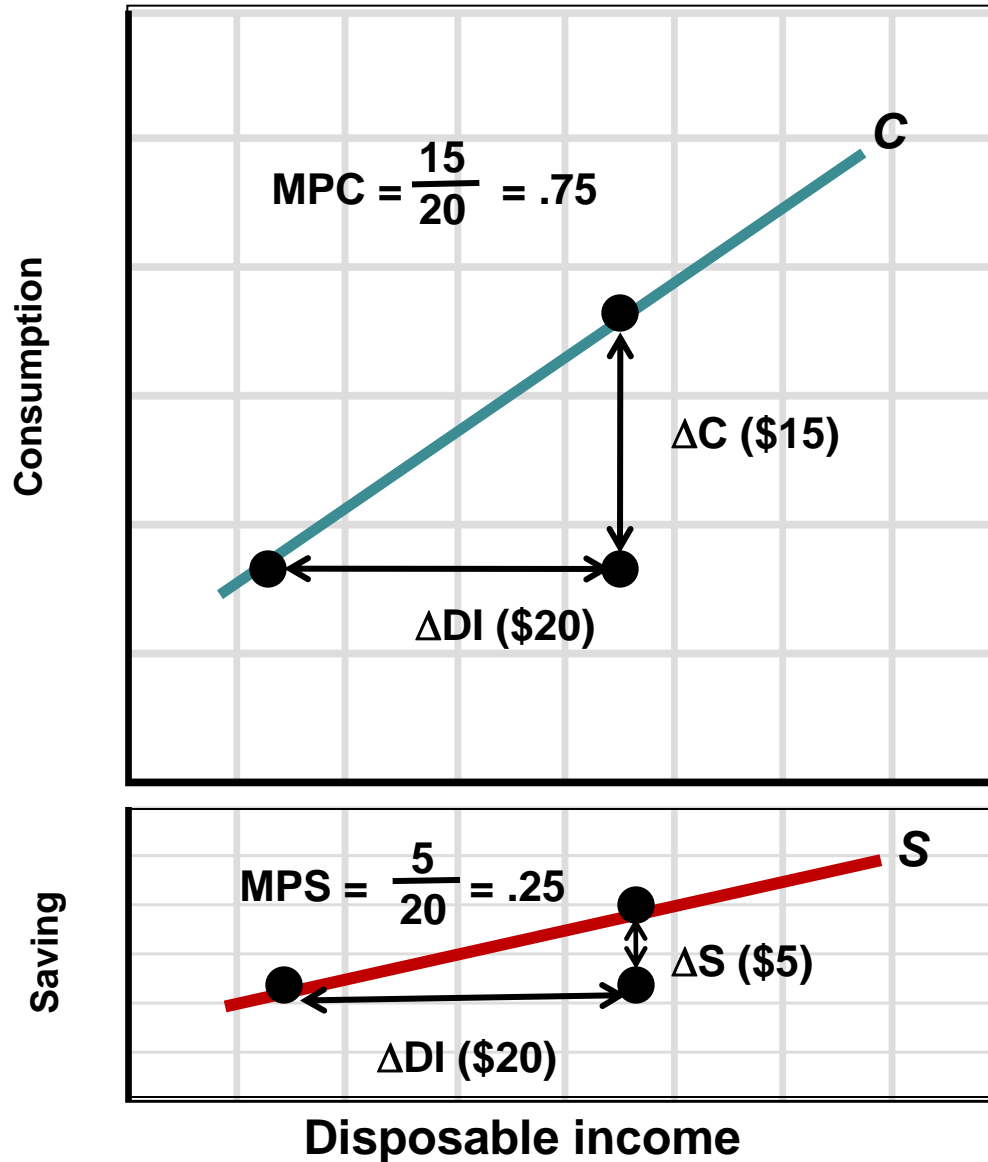
Marginal Propensities

- 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



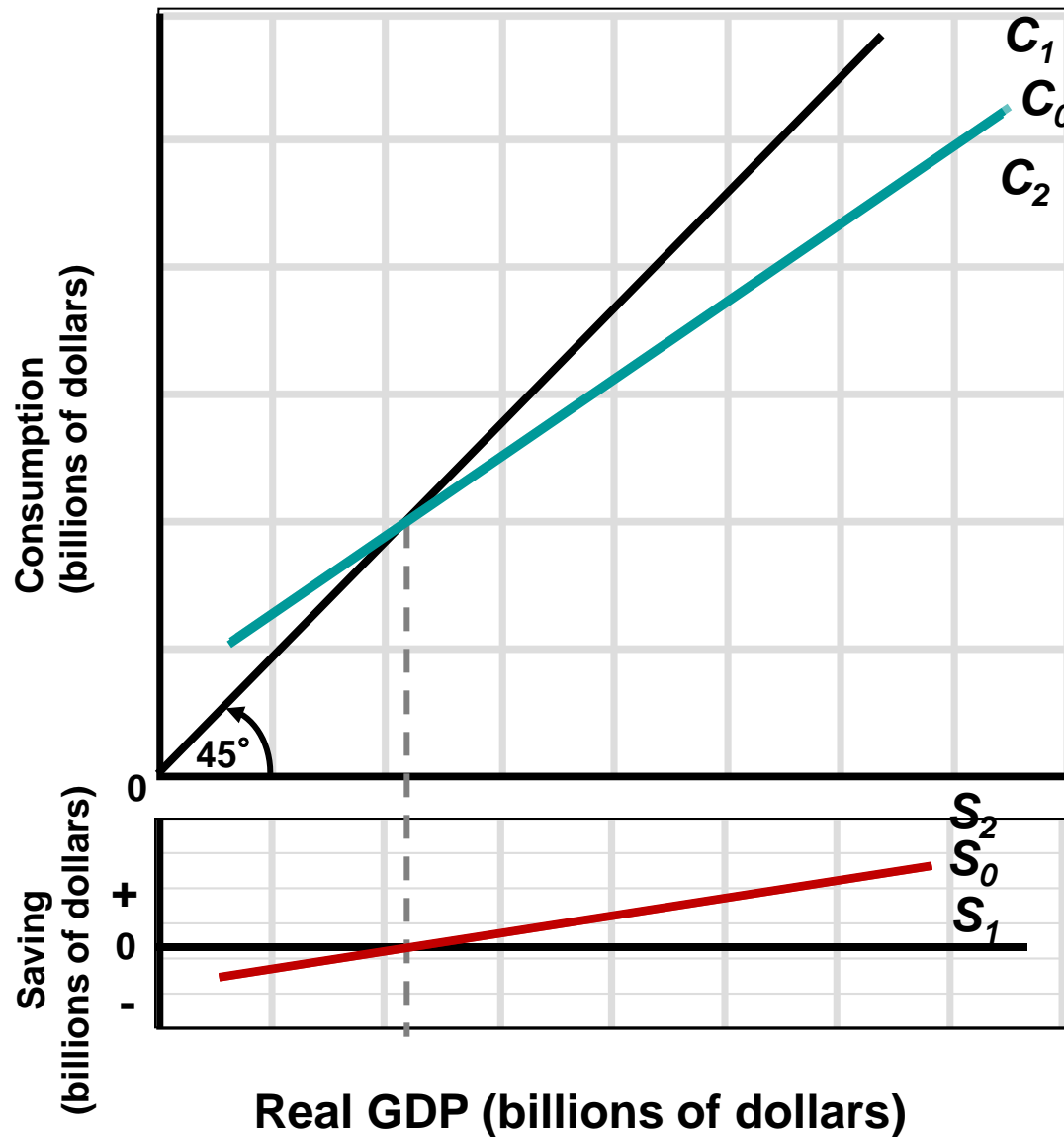
Nonincome Determinants

- Amount of disposable income is the main determinant
- Other determinants
 - Wealth (wealth drives C up)
 - Expectations (inflation drives C up)
 - Real interest rates (decrease drives C up)
 - Household debt (increase drives C up)

Other Important Considerations

- Switching to real GDP (see x-axis)
- Simultaneous shifts (C up, S down)
- Taxation (C and S move together)
- Stability (consumption and saving schedules are relatively stable unless altered by major tax changes).

Shifts of C & S Schedules

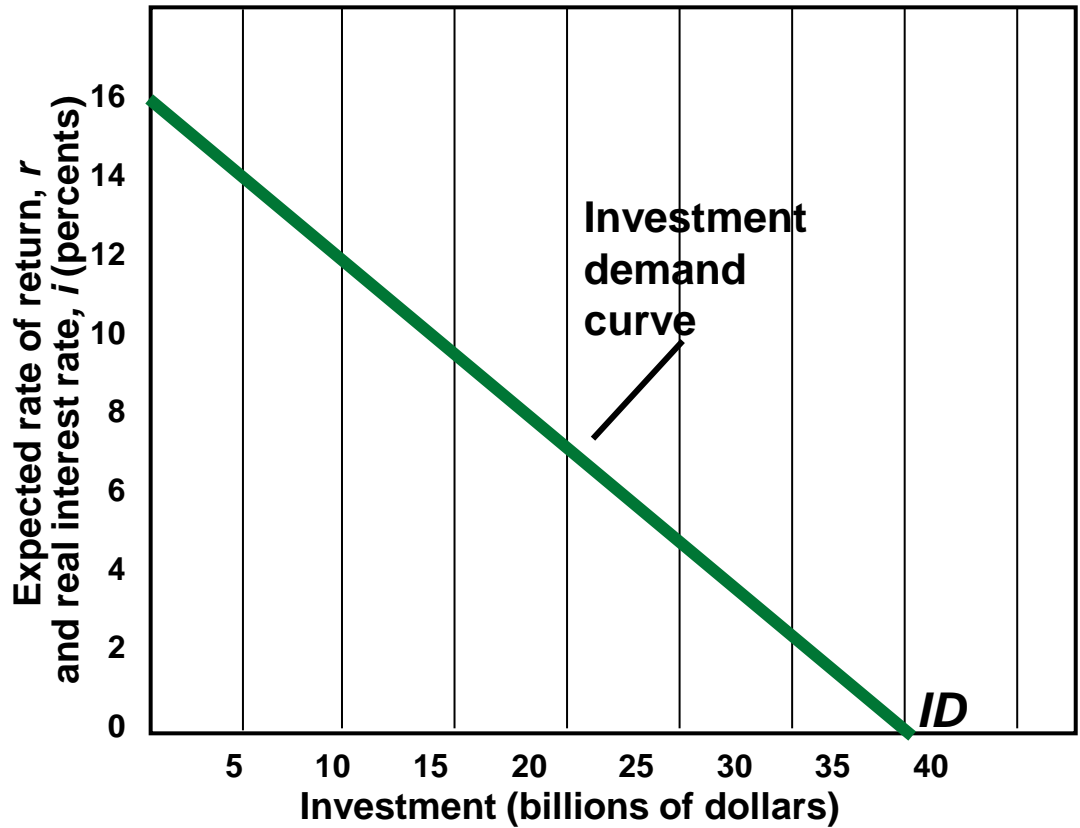


Interest-Rate-Investment

- Expected rate of return (r)
- The real interest rate (i)
- Investment demand curve

Investment Demand Curve

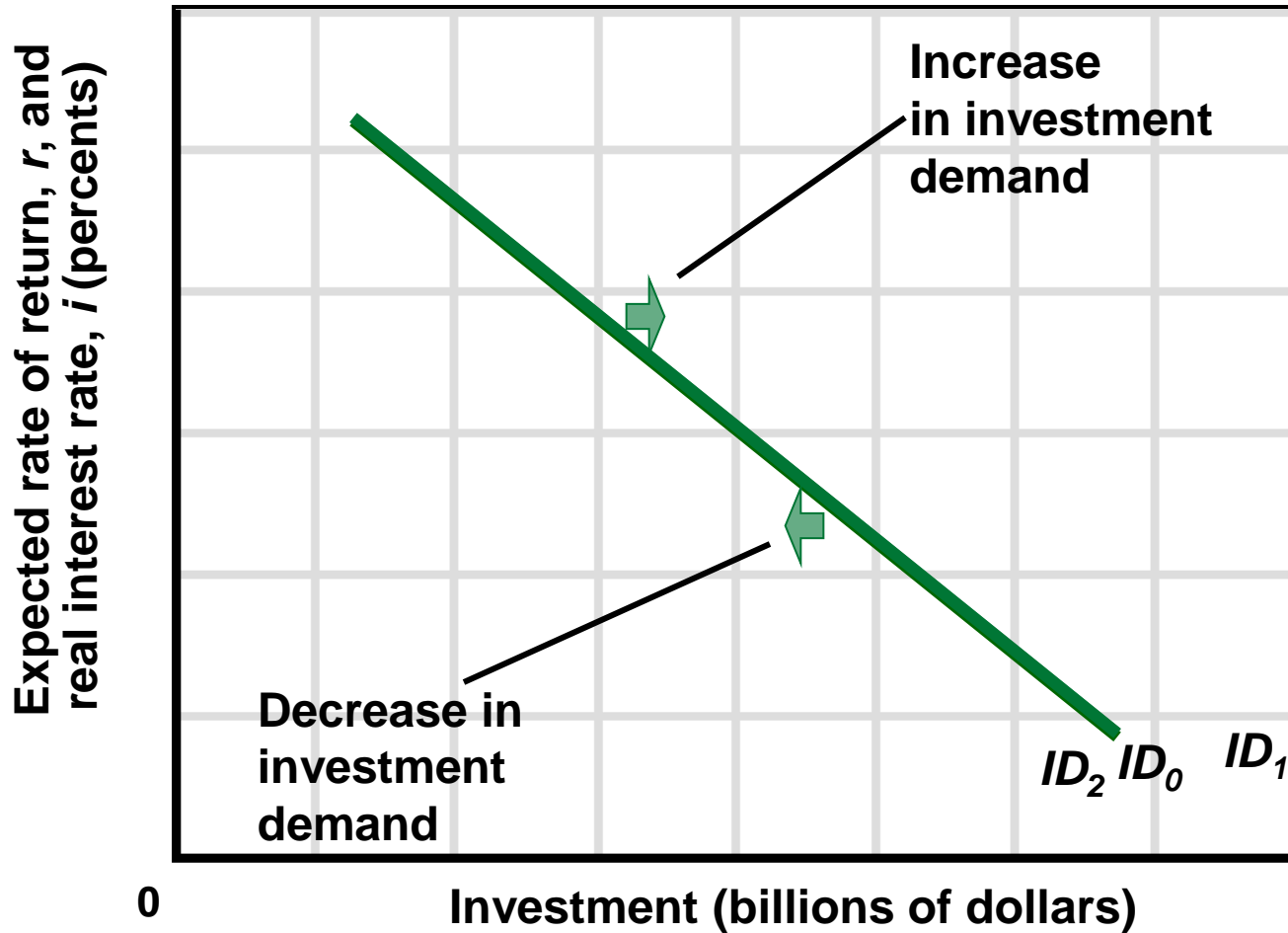
(r) and (i)	Investment (billions of dollars)
16%	\$ 0
14	5
12	10
10	15
8	20
6	25
4	30
2	35
0	40



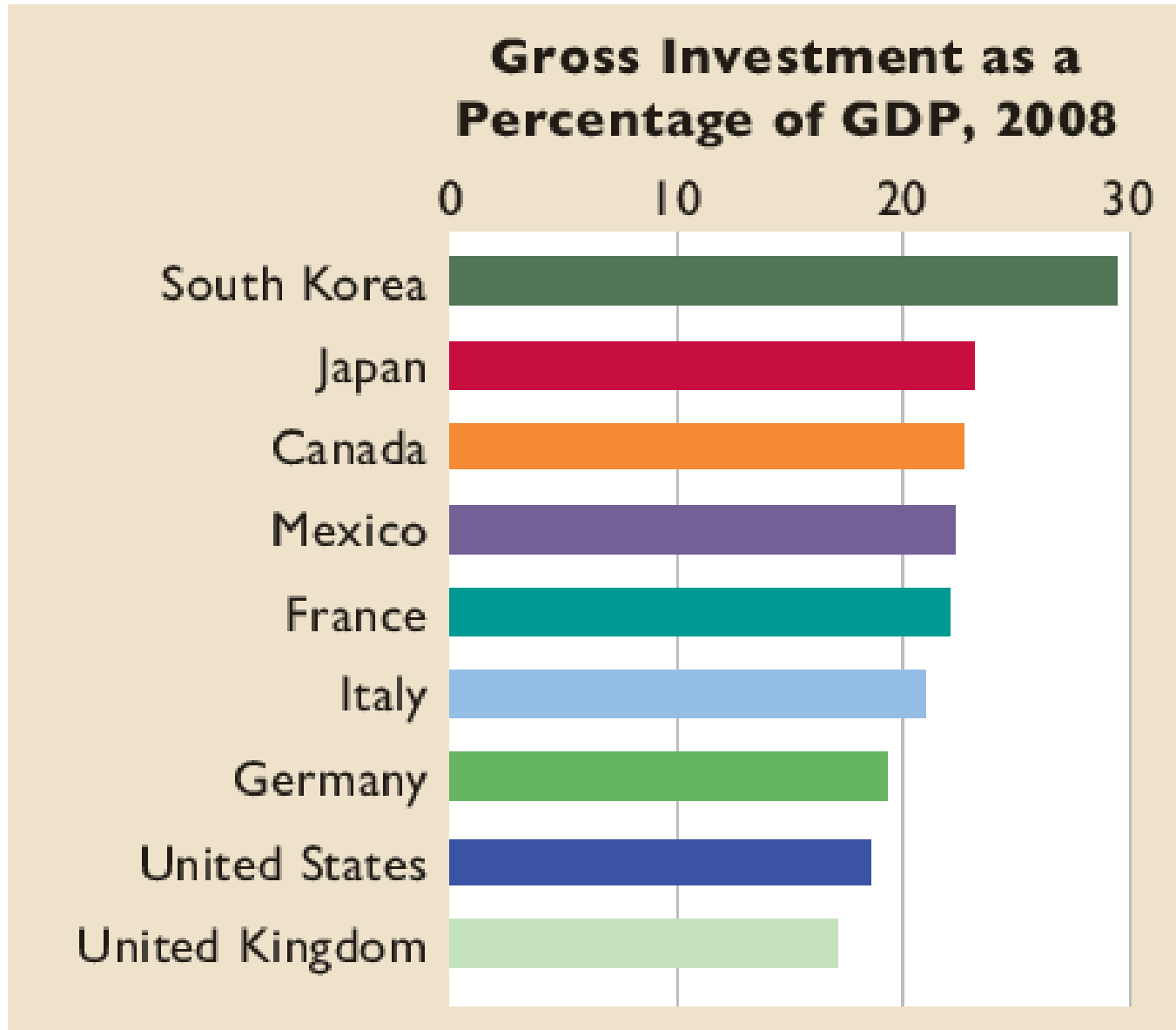
Shifts of Investment Demand

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

Shifts of Investment Demand



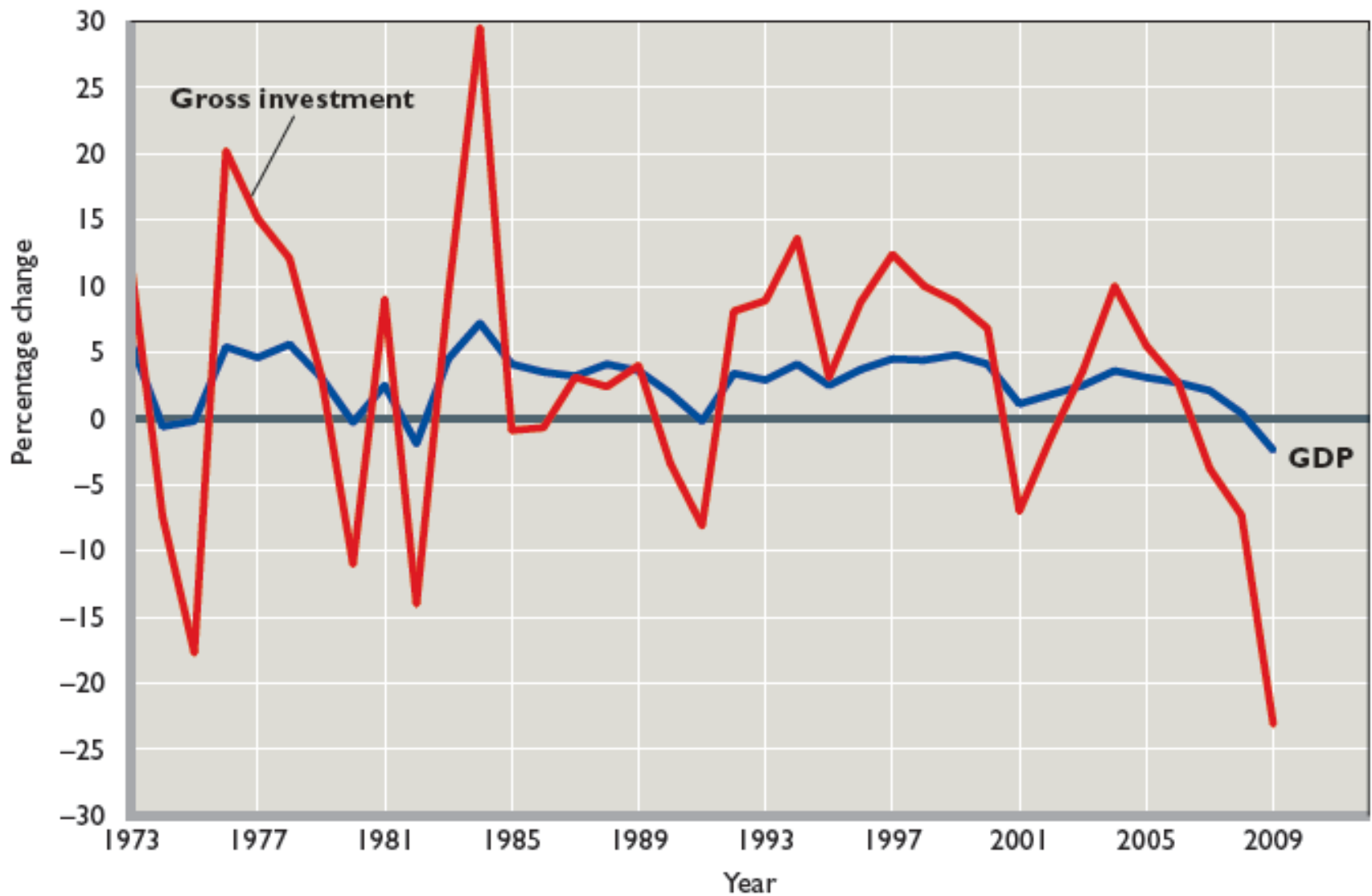
Global Perspective



Instability of Investment

- Investment is unstable, rising and falling quite often.
 - Durability
 - Irregularity of innovation
 - Variability of profits
 - Variability of expectations

Instability of Investment



Source: Bureau of Economic Analysis, <http://www.bea.gov>.

The Multiplier Effect

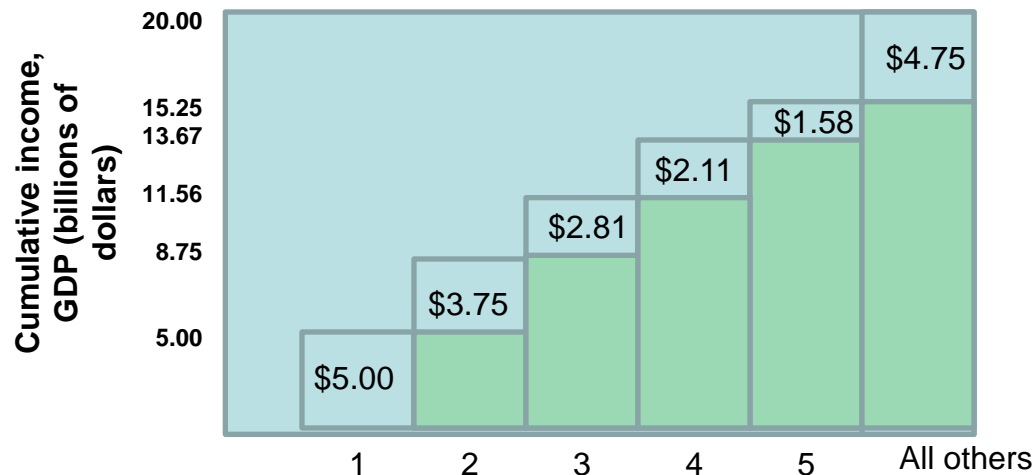
- A change in spending changes real GDP more than the initial change in spending

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

Change in GDP = multiplier x initial change in spending

The Multiplier Effect

	(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



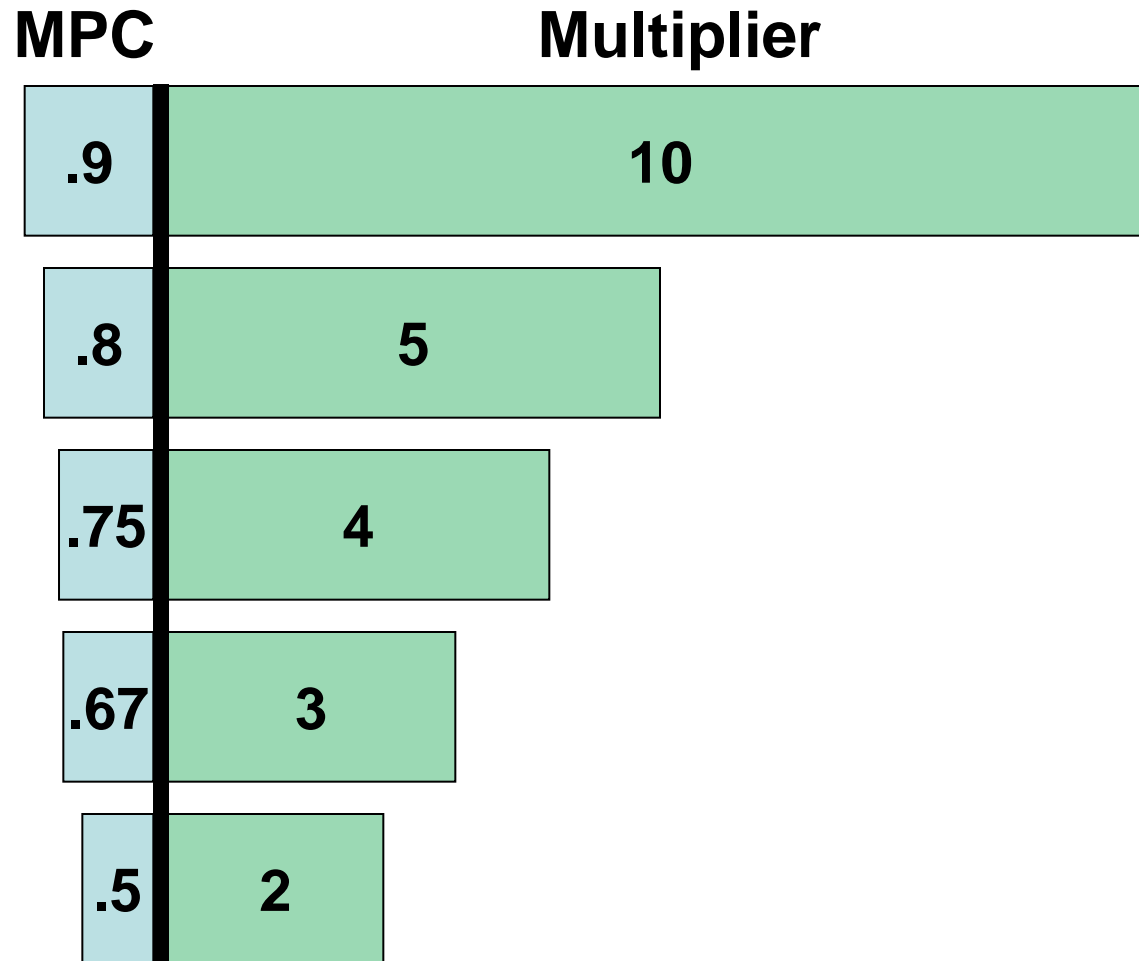
Multiplier and Marginal Propensities

- 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



The Actual Multiplier Effect?

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