Chapter 27: Expenditure Multiplier

The Keynesian model describes the economy in the very short run when prices are fixed.

Because each firm's price is fixed, for the economy as a whole:

1. The *price level* is fixed.

2. A*ggregate demand* determines real GDP.

What determines aggregate expenditure plans?

The components of aggregate expenditure sum to real GDP.

That is,

$$Y = C + I + G + X - M.$$

- Two components of aggregate expenditure, consumption and imports, are also influenced by real GDP.

- So there is a two-way link between aggregate expenditure and real GDP.

Two-Way Link Between Aggregate Expenditure and Real GDP

Other things remaining the same,

- An increase in real GDP increases aggregate expenditure.
- An increase in aggregate expenditure increases real GDP.

Disposable income (*YD)* is aggregate income or real GDP, *Y*, minus net taxes, *T*. That is,

$$YD = Y - T$$

- Disposable income changes when either real GDP changes or net taxes change.
- Disposable income, *YD*, is either spent on goods and services, *C*, or saved, *S*.

$$YD = C + S.$$

Consumption

Consumption expenditure is influenced by many factors but the most direct one is disposable income.

The relationship between consumption expenditure and disposable income, other things remaining the same, is the consumption function.

Let us write the consumption function as:

$$C = C_a + MPC \cdot YD = C_a + MPC \cdot (Y - T)$$

where C_a denotes the autonomous consumption

MPC is the marginal propensity to consume

The **marginal propensity to consume** (*MPC*) is the fraction of a change in disposable income spent on consumption.

That is, $MPC = \frac{\Delta C}{\Delta YD}$

Saving

We know that $YD = C + S$

Rearranging the above equation: $S = YD - C$

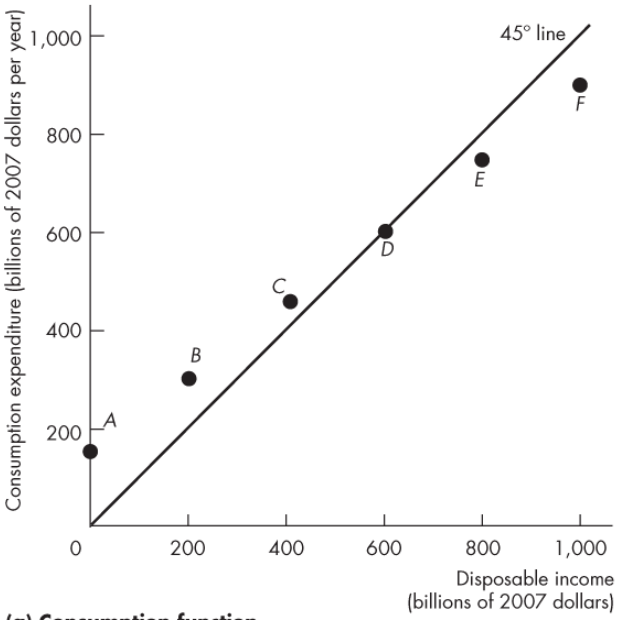
From the previous slide, we also know that $C = C_a + MPC \cdot YD$

The relationship between saving and disposable income, other things remaining the same, is the saving function.

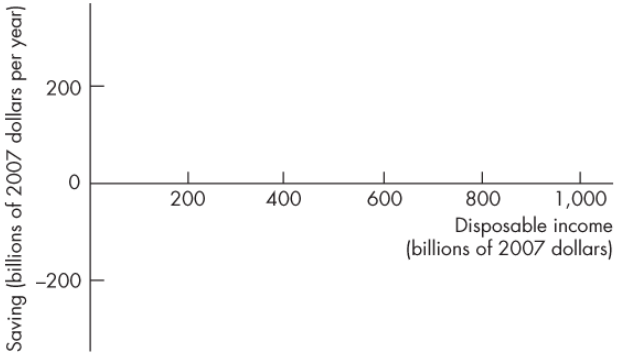
$$S = -C_a + (1 - MPC) \cdot YD$$

The marginal propensity to save (*MPS*) is the fraction of a change in disposable income that is saved.

That is, $MPS = \frac{\Delta S}{\Delta YD}$

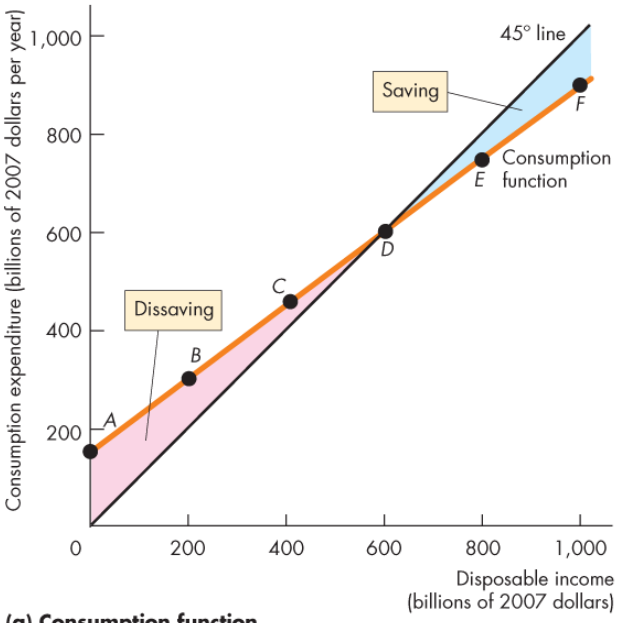


(a) Consumption function

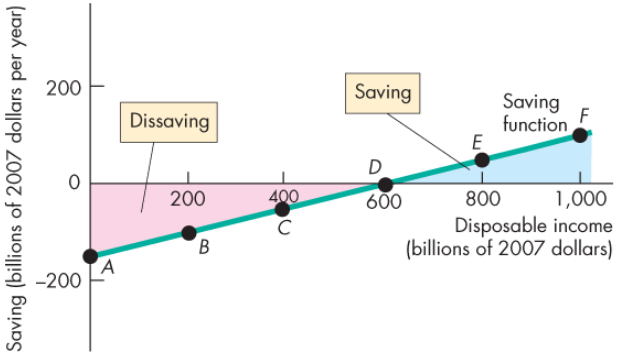


(b) Saving function

	Disposable income	Planned consumption expenditure	Planned saving
	(billions of 2007 dollars)		
A	0	150	
B	200	300	
C	400	450	
D	600	600	
E	800	750	
F	1,000	900	



(a) Consumption function



(b) Saving function

	Disposable income	Planned consumption expenditure	Planned saving
	(billions of 2007 dollars)		
A	0	150	–150
B	200	300	–100
C	400	450	–50
D	600	600	0
E	800	750	50
F	1,000	900	100

When consumption expenditure *exceeds* disposable income, saving is negative (dissaving).

When consumption expenditure is *less than* disposable income, there is saving.

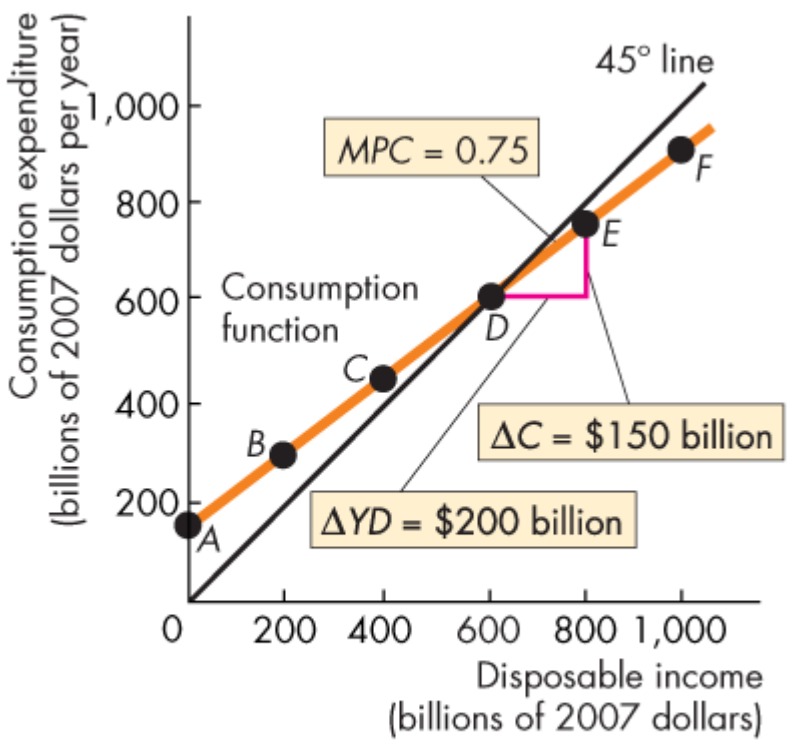
MPC is the slope of the consumption function.

When disposable income increases by $200 billion,

consumption expenditure increases by $150 billion.

then

$$MPC = \frac{\Delta C}{\Delta YD} = \frac{150}{200} = 0.75$$



(a) Consumption function

Import Function

In the short run, Canadian imports are influenced primarily by Canadian real GDP.

The import function can be written as:

$$M = MPI \cdot YD$$

The *marginal propensity to import* (MPI) is the fraction of an increase in real GDP spent on imports.

If an increase in real GDP of $100 billion increases imports by $25 billion,

then the marginal propensity to import is

MPI = $\frac{\Delta M}{\Delta YD} = \frac{25}{100} = 0.25$

Real GDP with a Fixed Price Level

When the price level is fixed, aggregate demand is determined by aggregate expenditure plans.

Aggregate planned expenditure is *planned* consumption expenditure plus *planned* investment plus *planned* government expenditure plus *planned* exports minus *planned* imports.

Again, planned consumption expenditure and planned imports are influenced by real GDP. In particular, when real GDP increases, planned consumption expenditure and planned imports increase.

Planned investment plus planned government expenditure plus planned exports are not influenced by real GDP.

In other words,

$$C = C_a + MPC \cdot YD$$
$$I = I_a$$
$$G = G_a$$
$$X = X_a$$
$$M = MPI \cdot YD$$

The relationship between aggregate planned expenditure and real GDP can be described by an *aggregate expenditure schedule*, which lists the level of aggregate expenditure planned at each level of real GDP.

The relationship can also be described by an *aggregate expenditure curve*, which is a graph of the aggregate expenditure schedule.