

## Ch 11: Income Expenditure Model

# Goals

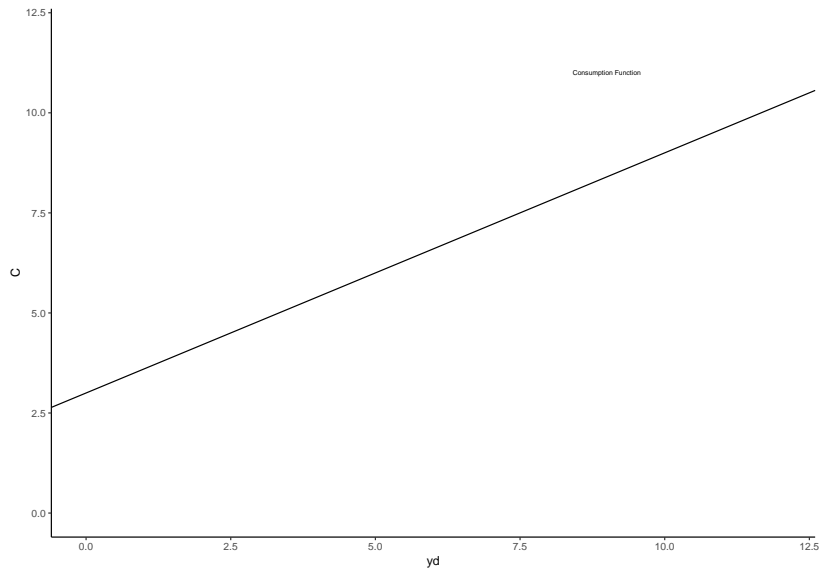
- ▶ Look at the simple income-expenditure model
- ▶ Talk about some limitations
- ▶ Examine one of the many multipliers

## A Simple Idea

- ▶ People get disposable income,  $y_d$ .
- ▶ They spend some money just because,  $a$ . This is called autonomous consumption.
- ▶ They save some fraction, the marginal propensity to save ( $MPS$ ), of each additional dollar of disposable income and spend other fraction, the marginal propensity to consume, ( $MPC$ ),  $MPC = 1 - MPS$ .

$$C = a + MPC * y_d$$

# Picture



## Of Note

- ▶ MPC, the slope, does not tell you the average savings rate  $\frac{yd-C}{yd}$  but the fraction of each additional dollar of income that you save.
- ▶ At low levels of income, you spend more than you earn.
- ▶ At high levels of income, you spend less than you earn.
- ▶  $a$  is the intercept and  $MPC$  is the slope

# What Moves the Consumption Function?

- ▶ Beliefs about the future
  - ▶ If you think your income will be higher in the future, spend more now and save less, i.e., shift up.
  - ▶ If you think your income will be lower in the future, spend less now and save more, i.e., shift down.
- ▶ Wealth
  - ▶ Adequate or inadequate wealth depends on where you are in your earning years.
  - ▶ Booming stock market often indicates an increase in wealth, and an increase, shift up, in the expenditure function.

# Massive Simplifications

- ▶ Why are you saving?
- ▶ Why linear?
- ▶ When do I die/retire/have my rainy day?

# Lets Build an Economy

- ▶  $C$  is as described,  $C = a + MPC * yd$
- ▶ No government or international sector
- ▶  $I$  is the same for all  $yd$  but can move based on the interest rate.
  - ▶ It has two components, planned ( $I_{planned}$ ) and unplanned ( $I_{unplanned}$ )
- ▶ The aggregate expenditure function ( $AE$ ) is the sum of  $C$  and  $I_{planned}$ .

$$AE = a + MPC * yd + I_{planned}$$

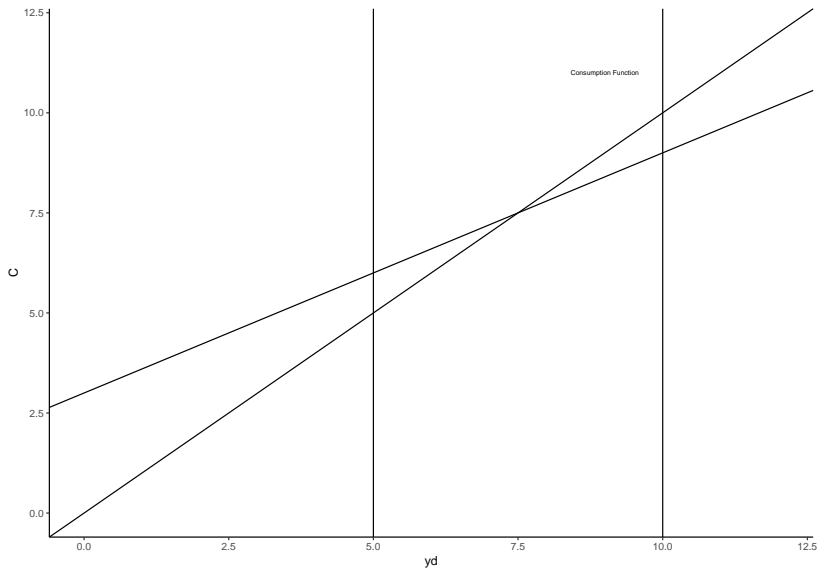


# A Principle Returns

Principle #10: One person's spending is another person's income.

- ▶ We need to have expenditures,  $AE$ , equal to income,  $yd$ .
- ▶ If  $AE$  is higher than  $yd$ , then inventories shrink,  $I_{unplanned} < 0$
- ▶ If  $AE$  is lower than  $yd$ , then inventories expand,  $I_{unplanned} > 0$

# On the Graph



## Note

- ▶ If  $AE > yd$ , i.e, when  $yd$  is low, inventories shrink
- ▶ if  $AE < yd$ , i.e, when  $yd$  is high, inventories build
- ▶ Inventory change is what makes the income expenditure equilibrium stable.
- ▶ Often called the “Keynesian Cross”

So, what is the equilibrium

$$y_d = a + y_d(MPC) + I_{planned}$$

$$(1 - MPC)y_d = a + I_{planned}$$

$$y_d = \frac{a + I_{planned}}{(1 - MPC)}$$

## (One of the) Multiplier(s)

$$\frac{1}{1 - MPC}$$

- ▶ This is one of many ‘multipliers’ in introductory macroeconomics.
- ▶ Often goes by, “Fiscal Policy Multiplier”. You will see why in later chapters.

## Numerical without Investment

$$yd = 3 + yd(.6) + 0$$

$$(1 - .6)y d = 3$$

$$y d = \frac{3}{(1 - .6)} = 7.5$$

## Here is where it gets odd

Lets start saving more because we think the economy is going to tank.  $a$  drops from 3 to 2.

$$yd = 2 + yd(.6) + 0$$

$$(1 - .6)yd = 2$$

$$yd = \frac{2}{(1 - .6)} = 5$$

Equilibrium GDP dropped from 7.5 to 5. This is called the paradox of thrift.

# The Paradox of Thrift

- ▶ If you believe the economy will be worse, lower GDP, in the future
- ▶ You act like it and save more now.
- ▶ When you save more now, GDP falls.



## Next Up

Getting the Price Level and GDP to talk to each other. The next two chapters are very graph heavy.