Lecture Notes for Chapter 11 of

Macroeconomics: An Introduction

Keynesian Fiscal Policy and the Multipliers

03/04/2008

In this chapter we will discuss -

- *Keynes' prescription for Depression - it's not Prozac*
- *Fiscal policy multipliers*
  - *for spending and taxes*
  - *how big are the multipliers?*
- *A key: the consumption function*
- *Keynesian Expenditure Model of GDP*

The Great Depression of the '30s

- *Stock market crashed in 1929*
- *Waves of bank failures followed*
- *The Fed did little to help*
- *Money supply contracted, leading to:*
  - *high unemployment*
  - *deflation*
  - *nominal interest rates close to zero*

What could monetary policy do?

- *Real interest rates were high*
- *Nominal interest rates close to floor*
- *How does monetary policy work?*
- *Why is it powerless in a deflation?*
- *What was the alternative?*

Keynes' prescription for ending the Great Depression of the 30s:

- *More government spending.*
- *Cut taxes.*
- *Even if it creates a budget deficit.*
- *Motivation: higher disposable income boosts demand, raising employment.*
- *Challenged idea that deficits are bad.*
- *Influenced thinking, not policy in '30s.*

"Keynesian" fiscal policy.

- *Employment Act of 1946 requires fiscal policy to promote "full employment."*
- *"Discretionary" fiscal policy*
- *By 1960s many economists believed we could "fine tune" the economy*
- *No more recessions!*
- *High point was the Kennedy tax cut.*

Disillusionment followed ...

- *Congress acts too late to be effective*
- *Chronic deficit argues against tax-cuts*
- *None were proposed in 90-91 recession*
- *Concern is that deficit drains savings, hurting investment & long term growth*
- *But income tax remains an "automatic stabilizer" since taxes fall in recession*

Government spending multiplier:

- *Government spending adds to aggregate demand.*
- *Keynes argued it <u>also</u> sets off a cascade of added demand.*
- *Key: Marginal Propensity to Consume*
- *<u>MPC</u> is <u>additional</u> consumption spending that results from one additional dollar of income.*

If the gov't spends $1 on pencils

- *Adds $1 to aggregate demand directly.*
- *Pencil producer's income rises $1*
- *& spends MPC•$1 more, say on a CD*
- *CD maker has MPC•$1 more income,*
- *spends MPC •MPC•$1 more on coffee,*
- *and so on.*

Adding all these up:

- *1+MPC + MPC•MPC + MPC• MPC• MPC + ... + etc*
- *that is a geometric series*
- *which equals 1/(1-MPC)*
- *called the Gov't Expenditure Multiplier!*
- *Larger is MPC, larger is the multiplier*
- *if MPC is .5 multiplier is 1/(1-.5) = 2*
- *if MPC is .9 multiplier is 1/(1-.9) = 10.*

The tax cut multiplier

- *The effect of a $1 tax cut is the same, except the initial $1 of government expenditure is missing, so*
- *Tax cut multiplier =*
  spending multiplier minus 1
  = [1/(1-MPC)]-1
  = [MPC/(1-MPC)]

Balanced budget multiplier

- *Effect of increase in spending paid for by new taxes?*
- *Result:*
  spending multiplier <u>minus</u>
  tax cut multiplier
- *= one!*
- *Always.*

How large are these multipliers?

- *First, how can we measure the MPC?*
- *Americans consume .96 of income*
- *Average propensity to consume or APC.*
- *Is MPC also .96?*
- *No, MPC is the additional amount spent, not the average.*
- *Estimating MPC is more subtle problem!*

The Consumption Function

- *A linear relationship between income and consumption expenditure is:*
- *C = a + b • Y*
- *"C" is consumption, "Y" is income*
- *"a" and "b" are constant coefficients.*
- *If income increases by $1 consumption increases by $b, so "b" is the MPC:*
- *"a" is consumption when income is zero*

Average propensity to consume

- *Fraction of income consumed: APC = C/Y = b + a/Y*
- *We can measure APC, divide C by Y.*
- *We want to measure MPC, or b.*
- *Can we infer "b" from APC?*
- *So, APC depends on both a and b*
- *One equation, two unknowns!*

Here is the problem:

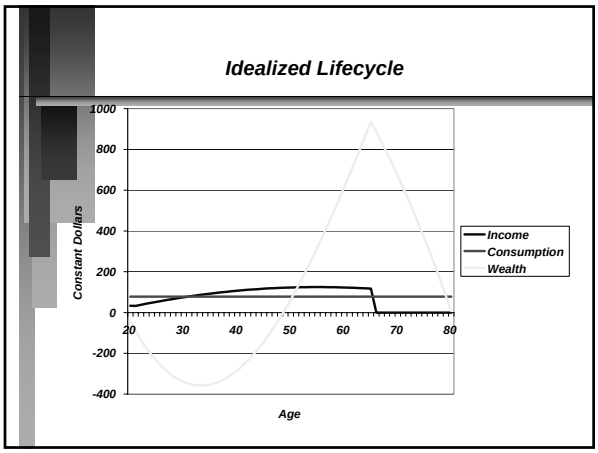
- *In 1996 Disposable Income was about $5,550billion,*
- *Consumption about $5320 billion*
- *APC was C/Y = 5320/5550 = .96*
- *So, APC = C/Y = b + a/Y = .96*
- *That could be result of b = .96 & a = 0, or b = 0 and a = $5320, or ?*
- *A classic problem in econometrics.*

Solution discovered in the 1950s

- *Friedman's "permanent income theory," Modigliani-Brumberg "life-cycle theory"*
- *Basic idea: people seek to smooth consumption over time*
- *Steady consumption is preferred to feast & famine*
- *So people adjust consumption to their long run expected income.*

What does the 'Life-Cycle' look like?

- *Youth – acquiring human capital through education and work experience.*
- *Middle age – saving labor income to build financial capital.*
- *Inheritance from previous generation.*
- *Retirement – human capital gone, financial capital only.*



Pattern of savings and consumption:

- *Youth – consumption limited by ability to borrow against future income.*
- *Middle age – income high, so is savings in anticipation of retirement.*
- *Puzzle: Why people still save in retirement?*
- *May relate to uncertainty of life span.*

Lesson of Permanent Income – Life-Cycle Theory:

- *A change in income that is viewed as temporary will be mostly saved.*
- *So the short run MPC is not very large,*
- *The multiplier is not very large either,*
- *A change in income that is viewed as permanent will be mostly consumed*
- *The long run MPC is close to the APC*

The Keynsian Expenditure Model

- *Aggregate Demand, AD, is the sum of demand from the 4 sectors:*
- *AD = C + I + G + X*
- *Aggregate Supply, AS, is actual GDP:*
- *AS = GDP*
- *Setting AS equal to AD, we get GDP = C + I + G + X*
  - *accounting identity from Chap 2.*
  - *says GDP is "demand determined."*

Solving for GDP:

- *The consumption function is:*
- *C = a + b • Y = a + b • (GDP - T)*
- *since disposable income is GDP - Taxes*
- *Substituting for C in the GDP equation: GDP = a + b • (GDP - T) + I + G + X GDP = [a+I+G+X]/(1-b) - T•b/(1-b)*
- *Tells how GDP changes in response to a $1 change in: a, I, G, X, or T*

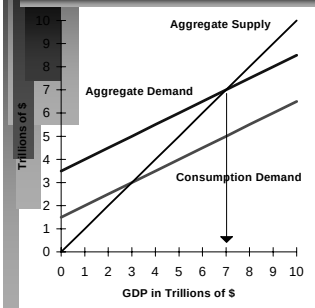
GDP = [a+I+G+X]/(1-b) - T•b/(1-b)

- *If a, I, G, or X increases by $1, GDP increases by 1/(1-b) dollars.*
- *The multiplier again!*
- *a, I, G, & X are "autonomous"*
- *That means they do not depend on Y*
- *The tax cut multiplier is b/(1-b).*
- *Balanced budget multiplier is????*

A hypothetical example

- *C = 2 + 0.5 • Y in $ trillions*
- *taxes are a $1 trillion lump sum*
- *so Y = GDP - 1*
- *C = 2 + 0.5 • (GDP-1) = 1.5 + 0.5 • GDP*
- *I = $1 trillion investment demand by firms,*
- *G = $1.1 t demand by government sector,*
- *X = -$.1 t net demand from the ROW*
- *a trade deficit of $100 billion.*

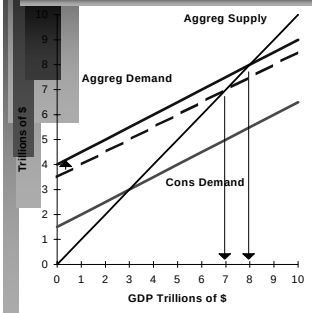
Let's graph the model:



- *C = $1.5 trillion + 0.5•GDP*
- *Adding I, G, and X we get AD*
- *AS is just GDP*
- *AD and AS intersect at GDP of $7 trillion*
- *that is the equilibrium*

That is the value obtained by plugging the values for a, b, I, G, and X into the equation for GDP.

Fiscal Stimulus: G jumps by $0.5 trillion



- *Multiplier 1/(1-.5) = 2*
- *Implies GDP will rise by $1 trillion*
- *AD line is shifted up by $0.5 trillion.*
- *New AD line intersects AS at $8t*
- *GDP rises by $1t, change in G times the multiplier*

The same change in GDP would occur if the shift in AD came from -

- *Investment*
  - *due to new technology*
  - *or what Keynes called "animal spirits"*
- *Net exports*
  - *due to a weak dollar as in 1995, & 2008?*
  - *due to weak demand from Asia in 1998*
- *Consumption if "a" changes*
  - *consumer optimism*

Implies unlimited GDP simply by government spending!

- *What is the catch?*
- *Assumption that the economy will produce as much as is demanded, that supply is "infinitely elastic."*
- *Keynes was analyzing a depression.*
- *Today, more G "crowds out" private purchases in an economy near full employment, as in Chapter 2.*

Economic problem today is not lack of demand but -

- *Low household savings, slow growth*
- *Rapidly aging populations,*
- *Soaring social welfare costs,*
- *Social disfunction, drugs, crime, etc.*
- *Radical changes in skills needed*
- *Transformation of formerly socialist economies.*
- *Very different from the 1930s!*

The legacy of J. M. Keynes:

- *The progressive income tax as an automatic stabilizer.*
- *Concept that government has responsibility for full employment.*
- *Fiscal policy is the policy tool of deep recession.*
- *Analytical framework of aggregate supply and aggregate demand.*

The End!