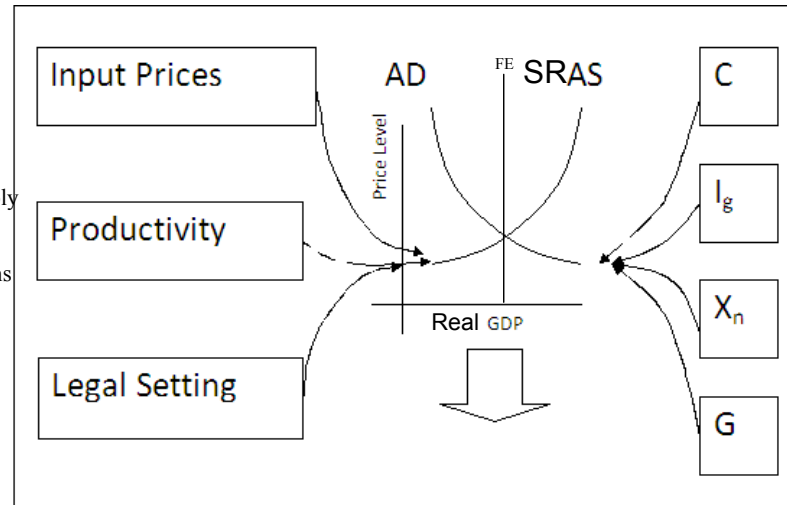


Mechanisms underlying supply echo themes of the cost structure of firms



See 33.6  
page 681

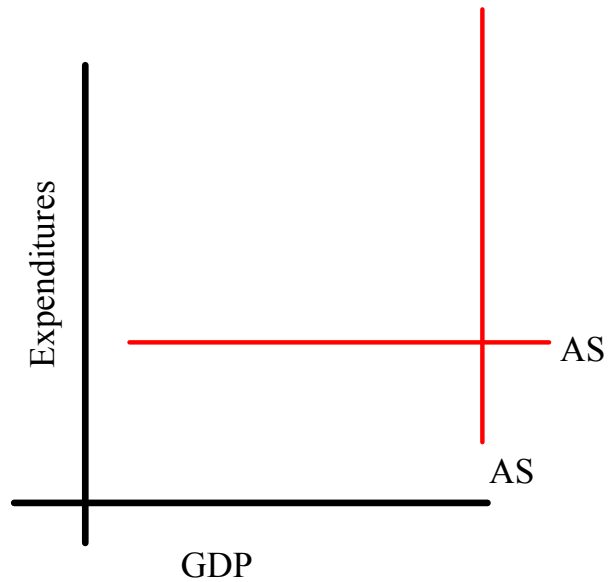
Demand is established by the influence on  $C + I_g + X_n + G$

Brief version of 33.6: Establish a model that uses dangerously familiar supply and demand logic to analyze the whole economy.

- Allowing us to discuss price action in relation to GDP
- Allowing us to understand how the market changes and equilibrates.
- Allowing us to understand sequences of initial shifts and reactions
- Allowing us to understand the impact of government actions.
- Allowing us to distinguish short run and long run results.

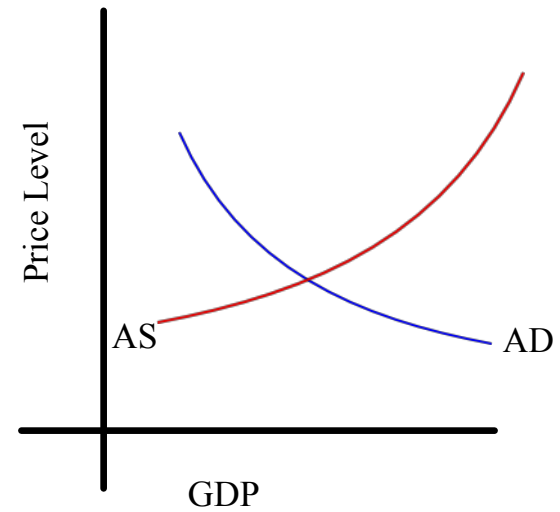
Big shift

NOT



Entirely different stories,  
not stories of  
how flow finds  
equilibrium.

BUT  
AD/AS Model



The Keynesian cross has no sense of capacity  
No pressures of excess production or  
a society far off capacity to bring you to  
full employment.

New curves, but same story as every other curve,

say it one more time, but we also are not as good at this perspective as we should be.

Two parts to understanding a curve:

- 1) Moving along: Why does the curve slope up (down)?  
What moves us along the curve?

Answers: Its all about the axis

GDP drives price level

We talk AD and AS

- 2) What shifts the curve up and down?

Everything else that goes into it (see 15.4)

**MUST GET THIS RIGHT AGAIN: Shifts of the curve vs. shifts along the curve**

What is the aggregate demand curve?

It shows the amount of real GDP that is associated with any price level.

Why would higher price levels be associated with less output? How do higher prices effect the players?

Underlying AD are

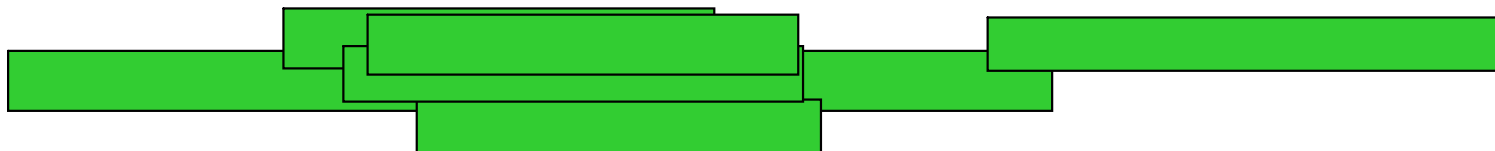
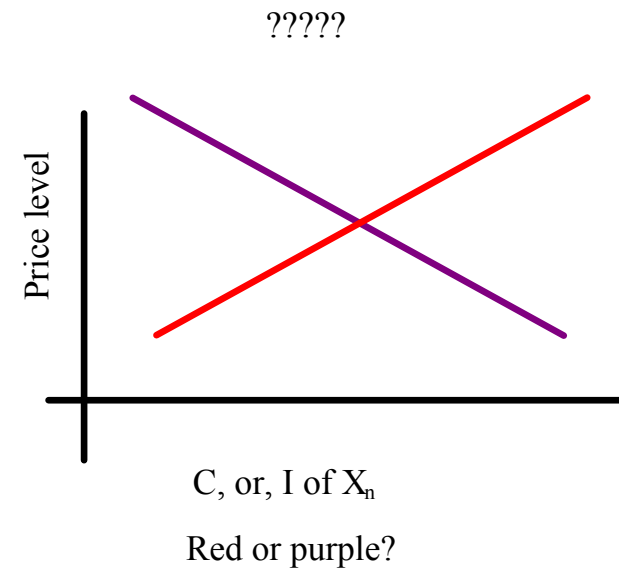
C curve (C vs. Price level)

I curve (I vs. Price level)

$X_n$  curve ( $X_n$  vs. Price level)

G no curve, no relation to price level

How might they look? Why?



# C SHAPE OF THE CURVE - THINKING MACRO

Real-balance effect: like but not the same as income effect;

As prices rise, fixed assets (i.e. saving and wealth) are worth less  
RELATIVE to  
newly made goods=> Consumption falls

$$P \uparrow \Rightarrow W \downarrow \Rightarrow C \downarrow$$

So, the underlying consumption curve is down sloping (C vs. price level slopes down)

# X<sub>n</sub>

Foreign purchase effect: like but not the same as substitution effect;

As prices rise, US stuff gets more expensive  
RELATIVE to  
foreign goods, import instead.

$$P_d \uparrow \Rightarrow M \uparrow$$

So, the underlying X<sub>n</sub> curve is downsloping (X<sub>n</sub> vs. Price level is downsloping)

Interest-rate effect: We will spend more time with this, it is more complex than this. But, roughly

**1)** "All else equal" assumes only a certain amount of money in the system.

If price go up, people need to get there paws on more cash for every purchase, but with a fixed amount of cash there is simply less to go around. Everybody wants/needs some of the supply.

&c

$P^{\wedge} \Rightarrow D$  for money up  $\Rightarrow$  price for money up

PRICE FOR MONEY?

If you don't have money the "price for money" is the interest rate you borrow at.

If you do have money the "price for money" is the interest rate not earned by not lending it (saving)

Higher prices  $\Rightarrow$  higher demand for fixed money supply  $\Rightarrow$  interest rates  $\wedge \Rightarrow$

a) SEE investment curve  $\Rightarrow r \wedge \Rightarrow I \searrow$

So, the underlying investment curve is down sloping (I vs. price level slopes down)

**2)** also

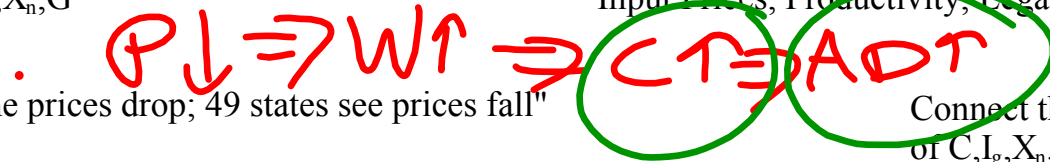
a) borrowing less attractive  $\Rightarrow$  spending less

b) lending more attractive  $\Rightarrow$  spending less

So, again, the underlying consumption curve is downsloping (C vs. price level slopes down)

C, I<sub>g</sub>, X<sub>n</sub>, G

Input Prices, Productivity, Legal Structure



"Home prices drop; 49 states see prices fall"

Connect the headlines to the element of C, I<sub>g</sub>, X<sub>n</sub>, and G and tell the story of what happens to AD.

"US consumer confidence hits a five year low"

Bad news  $\Rightarrow$  Neg. exp.  $\Rightarrow$   $IL \Rightarrow AD \downarrow$

"4 in 10 Americans are Worried about Their Debt"

Box p 195

$D \uparrow \Rightarrow W \downarrow \Rightarrow C \downarrow \Rightarrow AD \downarrow$

"Editorial: More tax relief for Florida"

$T \downarrow \Rightarrow C \uparrow \Rightarrow AD \uparrow$

"Rate cut hopes and better credit tone lift equities"

"Construction activity down, rates blamed"

$r \downarrow \Rightarrow I \uparrow \Rightarrow AD \uparrow$   $r \uparrow \Rightarrow I \downarrow \Rightarrow AD \downarrow$

"China's Purchasing Manager's Index Descends to 55 in January"

"Excess capacity, main reason for aviation sector losses"

"Mining industry seeks tax relief to boost mineral exploration"

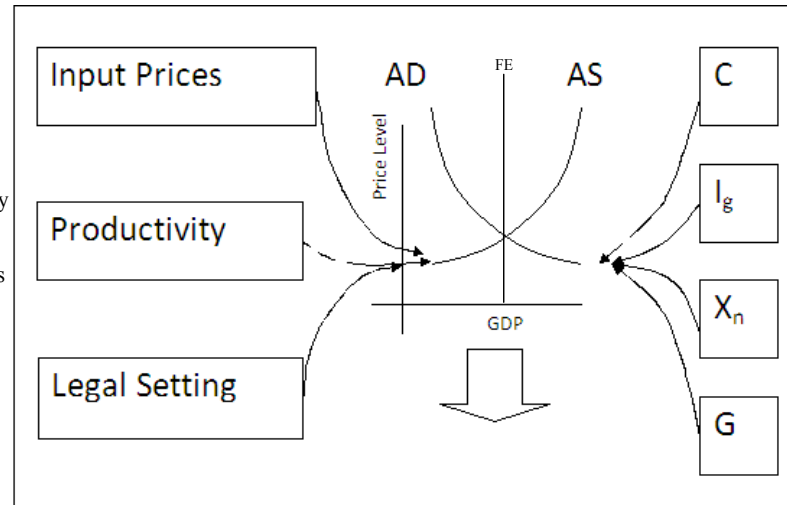
"Govt not keen on spending freeze suggestions"

"IMF head sees China GDP up 10pct, urges yuan rise"

"Taiwan's Export Orders May Have Slowed on Weaker US Demand"

C	wealth expectations debt taxes
I	r expected returns Exp. bus. environ. tech Exc. capacity taxes
G	
X <sub>n</sub>	NI abroad FX rates

Mechanisms underlying supply echo themes of the cost structure of firms



See 15.4

Demand is established by the influence on  $C + I_g + X_n + G$

Brief version of 15.4: Establish a model that uses dangerously familiar supply and demand logic to analyze the whole economy.

- Allowing us to discuss price action in relation to GDP
- Allowing us to understand how the market changes and equilibrates.
- Allowing us to understand sequences of initial shifts and reactions
- Allowing us to understand the impact of government actions.
- Allowing us to distinguish short run and long run results.



Recap:

Shape of the AD curve:

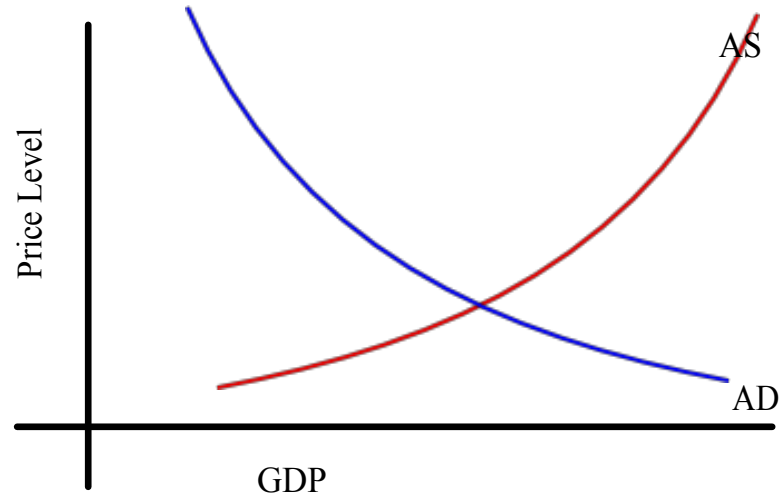
The aggregate quantity demand is lower at higher price levels and higher at lower price levels because:

C: Real balance effect  
(and interest rate effect)

I: Interest rate effect

Xn: Foreign purchase effect

These are the reasons AD acts as it does when AS shifts:



Moving the AD:

The aggregate quantity demand at every price level will change due to the following influences.

Consumption:

wealth:  $W^{\wedge} \Rightarrow$  Consume more at each PL

expectations:  $E^{\wedge} \Rightarrow$  Consume more at each PL

debt  $D^{\wedge} \Rightarrow$  Consume less at each PL

taxes  $T^{\wedge} \Rightarrow DI \downarrow \Rightarrow$  Consume less at each PL

Investment:

$r \Rightarrow r^{\wedge} \Rightarrow$  Less investment at each PL

Expected returns  $\Rightarrow E^{\wedge} \Rightarrow$  More inv. at each PL

Expected bus. environ.

Technology

Excess capacity

Taxes

Government:  $G^{\wedge} \Rightarrow$  More AD at each level of PL

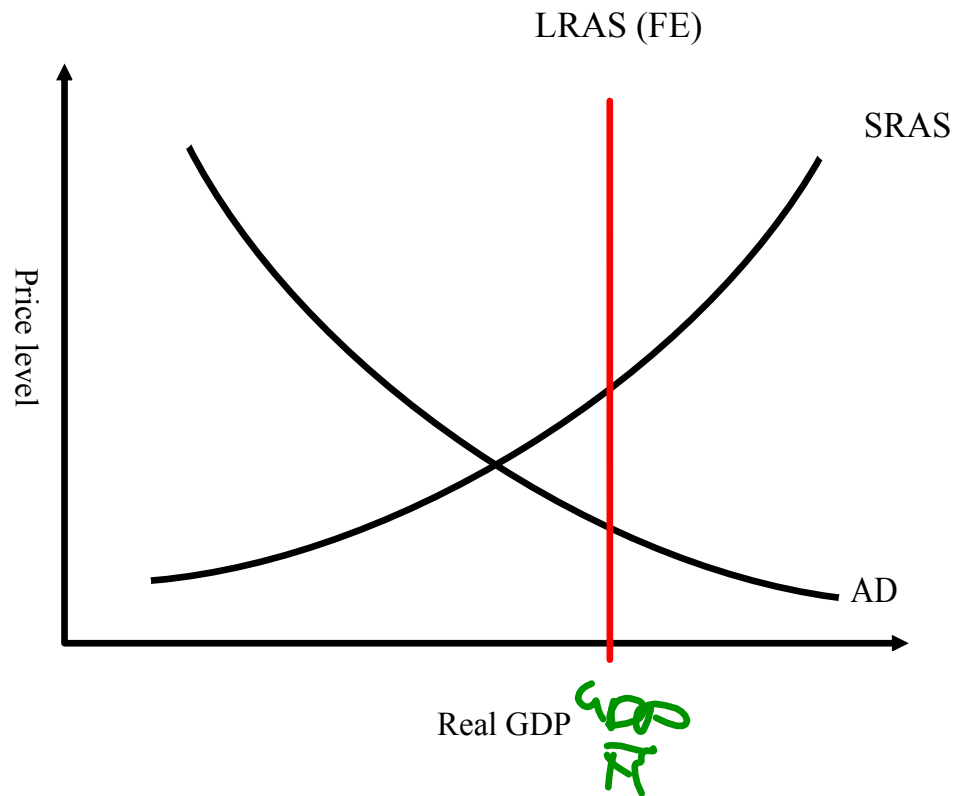
$X_n$

NI abroad

- See our C, they have more they spend more

FX rates

- For. Cur. price of \$  $\downarrow \Rightarrow X_n^{\wedge}$  at each



LRAS=> Think PPF

This is what we can produce when we are on the PPF.

"Long run" in the "Long run" things can change

PPF shifts due to  
 new resources,  
 technological progress,  
 trade dynamics  
 capital investment

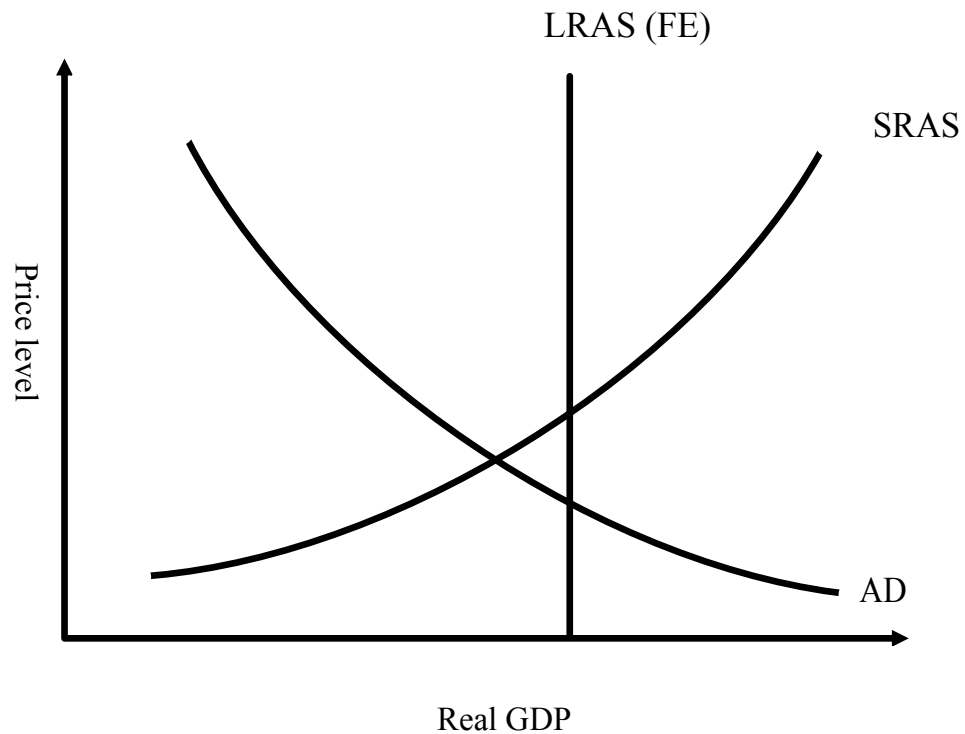
So, long run does not mean permanent.

Rather:

"all else equal, this is the supply curve that will be realized over time."

or

"barring unforeseeable change, this is the supply curve that will be realized over time."



The rough and ready story,  
over time two things happen:

(we will review the mechanisms more)

- Price level effects on revenue and costs for the  
producer drive to a balance.

Producers produce based on

MRP

----- = 1 across products

MRC

If both change by the same %, producer's product  
calculations will not shift.

- The profit motive allocates resources optimally  
(0 economic profit).

But in the short run....

## Short Run AS

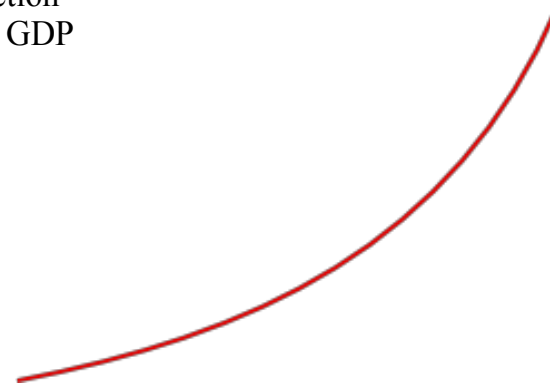
### 1) Shape of the curve:

Why does Real GDP move up with Price level?

- As you move to higher levels of GDP you are moving closer too or, temporarily, past FE GDP (capacity, LRAS).  
=> Higher price levels are required for higher GDP
- The closer you get to capacity the more higher prices are required to justify
  - o employing assets with dimishing returns
  - o dragging all the resources into active production  
=> Higher price levels are required for higher GDP

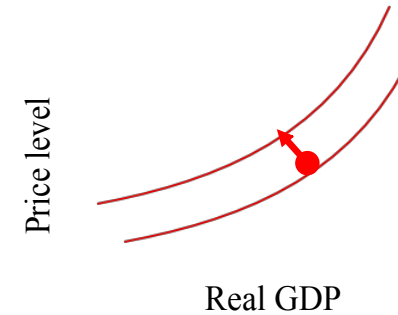
CAN YOU TELL THE OPPOSITE STORY?

### 2) The determinants - what shifts the curve



2) The determinants - what shifts the curve

Input prices - if input prices uniformly shift then  
the price level required for each level of REAL GDP rises  
or  
the REAL GDP at each price level falls



A) Domestic resources

This is generally about the cost per unit of each of the four basic resources:

- Labor
- Land
- Capital/Durable goods
- Entrepreneurial ability

CAREFUL: Don't say AS is shifting because of price changes in *intermediate* goods and products.  
(don't say all products got more expensive because some did, explain the some with the 4)

B) Imported resources

C) Market power (see struggle with unions):

Market power of suppliers increases, what happens to supply curve?  
Walmart

Productivity, multiplier and slope

B) Productivity

$$\text{per unit production cost} = \frac{\text{total input costs}}{\text{units of output}}$$

If this ratio goes \_\_\_\_\_ then the AS curve \_\_\_\_\_.

If this ratio goes \_\_\_\_\_ then the AS curve \_\_\_\_\_.

We already talked about half of the fraction. Which half?

How can the bottom change?

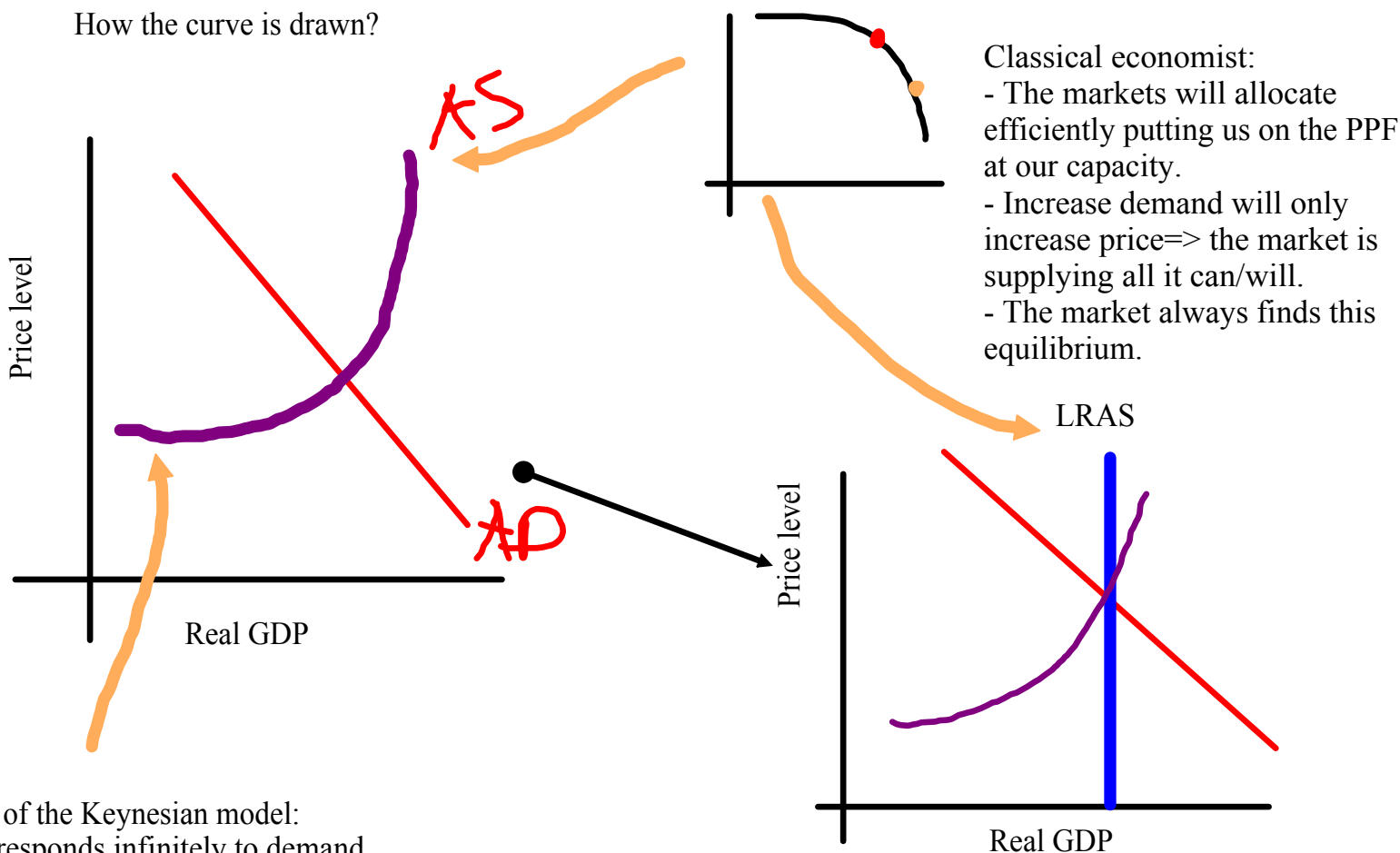
### C) Legal-institutional Environment

- Taxes and subsidies

- Regulation



How the curve is drawn?



Classical economist:

- The markets will allocate efficiently putting us on the PPF at our capacity.
- Increase demand will only increase price=> the market is supplying all it can/will.
- The market always finds this equilibrium.

The view of the Keynesian model:

- Supply responds infinitely to demand, maintaining the balanced flows of the economy.
- Equilibrium is not related to capacity; price pressures are not easily described.

Why discuss this?

You should know the difference between classical and Keynesian:

- Classical: An economy is determined by the resources available to it and market forces, will drive to allocative and productive efficiency. Government interference will only lead to inefficiency.

- Keynesian: The actors in an economy (cons., investors, for.) drive aggregate demand which determines the level of GDP around which the economy equilibrates. The government, as a very significant actor, can influence aggregate demand and GDP.

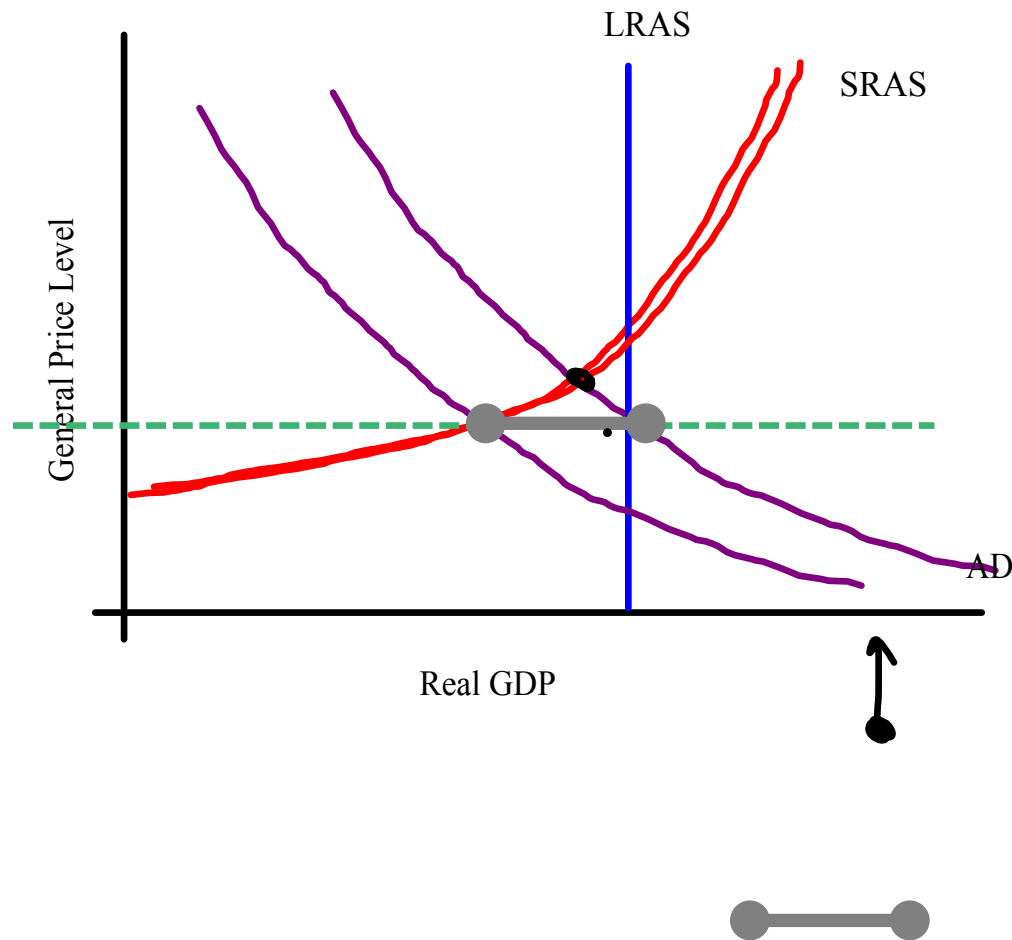
Also, discuss it because

the multiplier is driven by the Keynesian model

The AD/AS model is a hybrid between Keynesian and classical so:

the multiplier happens, but not the same.

Demand pull inflation



Let's say G goes up by \$10  
how far right does AD move.

In a pure Keynesian world:

- \$10  $1/mps =$

Why do we move up the supply curve  
and have less GDP growth?

- If we were in equilibrium then to respond to change, the supplier must bid to bring out more workers => per unit costs rise
- which they must pass through to product prices => product prices rise
- at that price consumers do not demand as much
- => actual  $\Delta$  is less than multiplier

Multiplier:

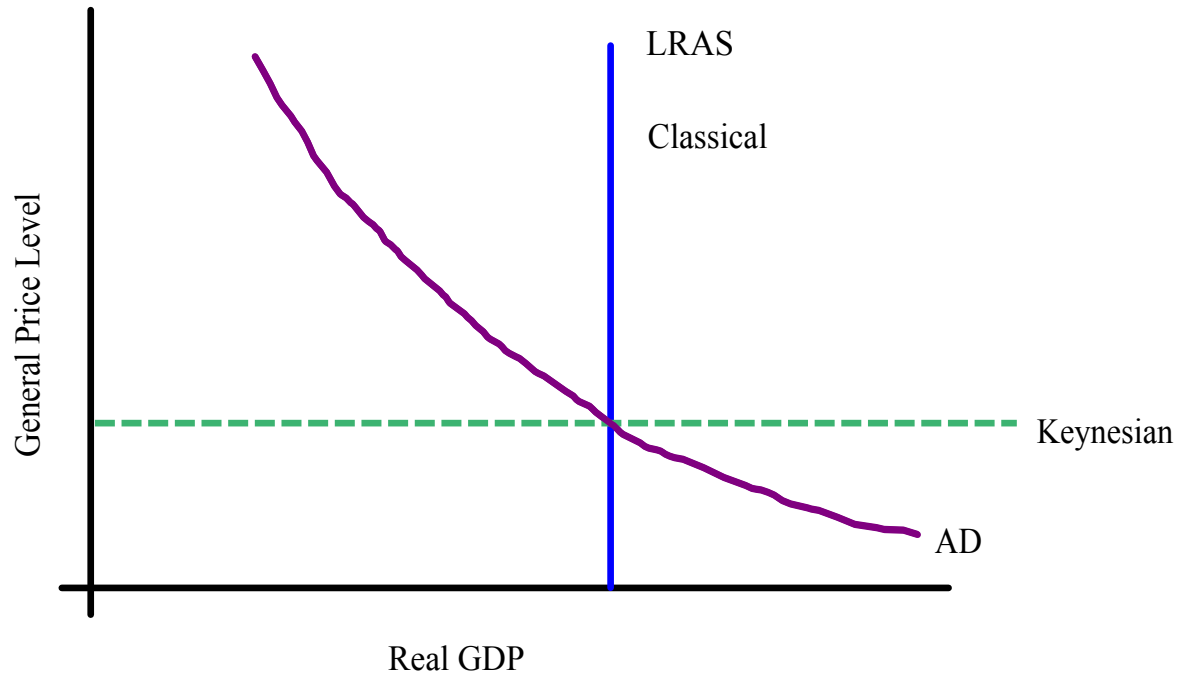
Relevant idea, but idealized given price/capacity effects

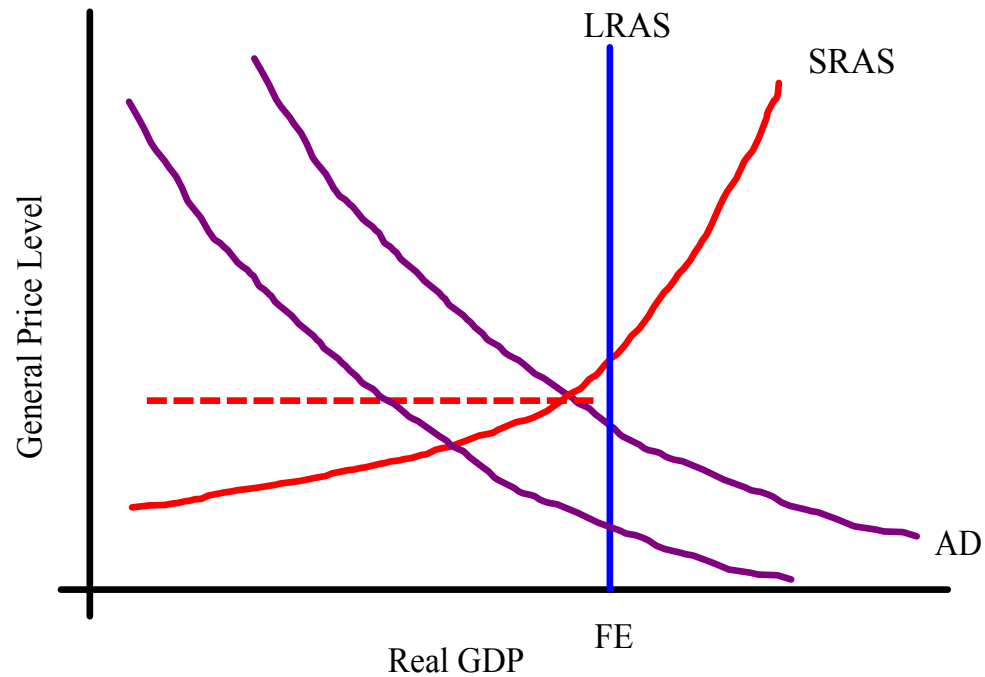
**The greater the slope AS the less then multiplier effect**

The multiplier exists but varies:

- By how far we are from capacity
- By product (mix of savings rates of consumers who buy it & other factors).

Implication: Multiplier more relevant in under producing economy, less relevant at FE).  
(Can be supported by review of history)





Bit qualification:  
The effects differ on  
down side,

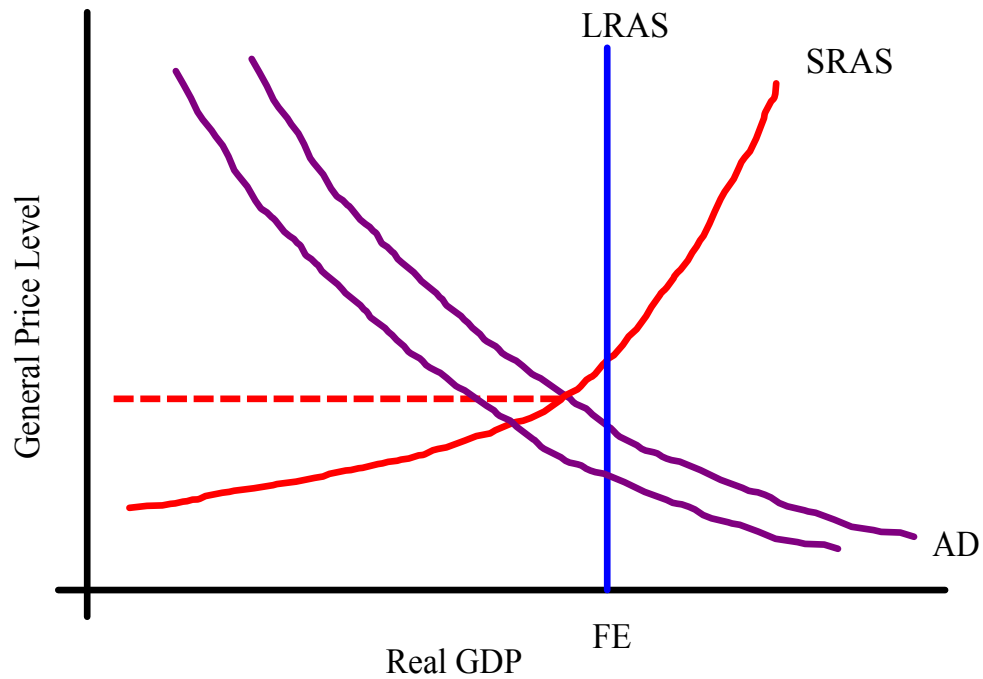
The multiplier is reduced when  
suppliers must raise prices as a result of  
increased costs.

Do costs decrease as easily?

Assumption: prices are sticky  
downwards, WHY?

Some mix of:

- Contracts
- Morale, efficiency wages,  
productivity.
- Minimum wage
- "Menu costs" (overhead of change)
- Oligarchic conservatism



Tell the reverse story:

The multiplier is reduced when suppliers must raise prices as a result of increased costs.

Do costs decrease as easily?

Assumption: prices are sticky downwards, WHY?

Some mix of:

- Contracts
- Morale, efficiency wages, productivity.
- Minimum wage
- "Menu costs" (overhead of change)
- Oligarchic conservatism

Multiplier:

Relevant idea, but idealized given price/capacity effects

**The greater the slope AS the less then multiplier effect**

The multiplier exists but varies:

- By how far we are from capacity
- **In trying to increase or slow down the economy.**
- By product (mix of savings rates of consumers who buy it & other factors).

Now we have a long list of how the world is not that simple and exceptions, it is hard to verify with history.

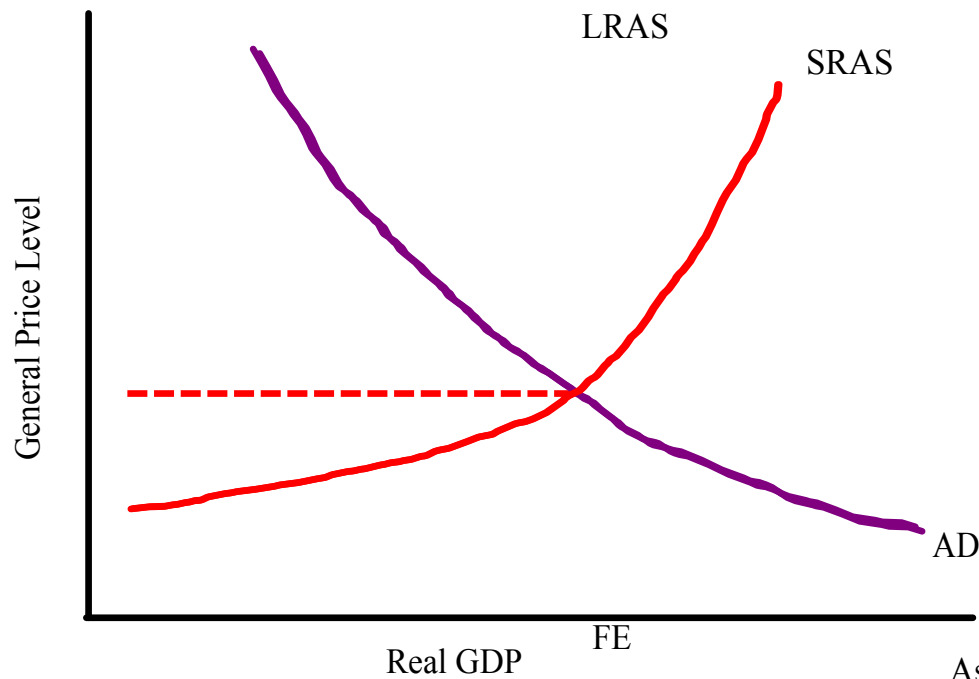
How should  
policy makers  
think about these  
strategies?

	Injecting to stimulate	"Leaking" to slow
Not Near capacity	Small-mid. M, P <sup>^</sup> , G <sup>^(^^)</sup>	Highest M, P <sub>v</sub> , G <sub>vvvvvv</sub>
	A solid plan	Not done on purpose
At or above capacity	Small M: P <sup>^^^</sup> , G <sup>^</sup>	Small M: P <sub>vvv</sub> , G <sub>v</sub>
	Bad plan	Easy anti-inflation plan

AD



Real GDP



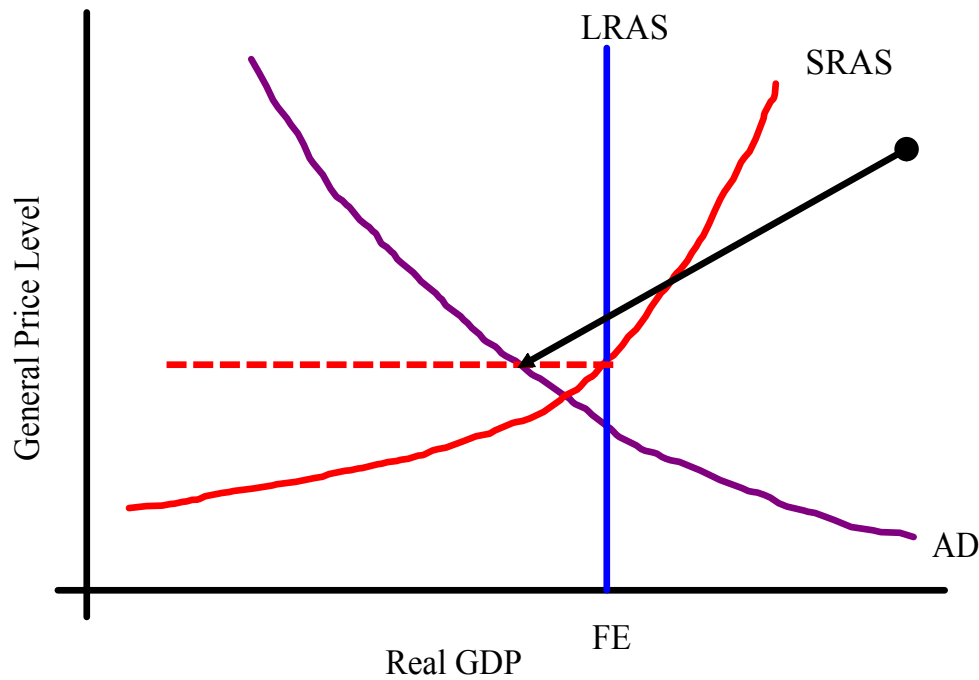
- Demand pull
- recession
- cost push
- nirvana: increasing GDP at lower prices

For things we already discussed, use better words:  
 AD shock: Specify C, I, G, XN.  
 AD panic: talk about C vs S and wealth.  
 AS input prices:  
 - Inflationary spiral:  
 - Hyperinflation:

Assumption: prices are sticky downwards, WHY?

- Some mix of:
- Contracts
  - Morale, efficiency wages, productivity.
  - Minimum wage
  - "Menu costs" (overhead of change)
  - Oligarchic conservatism



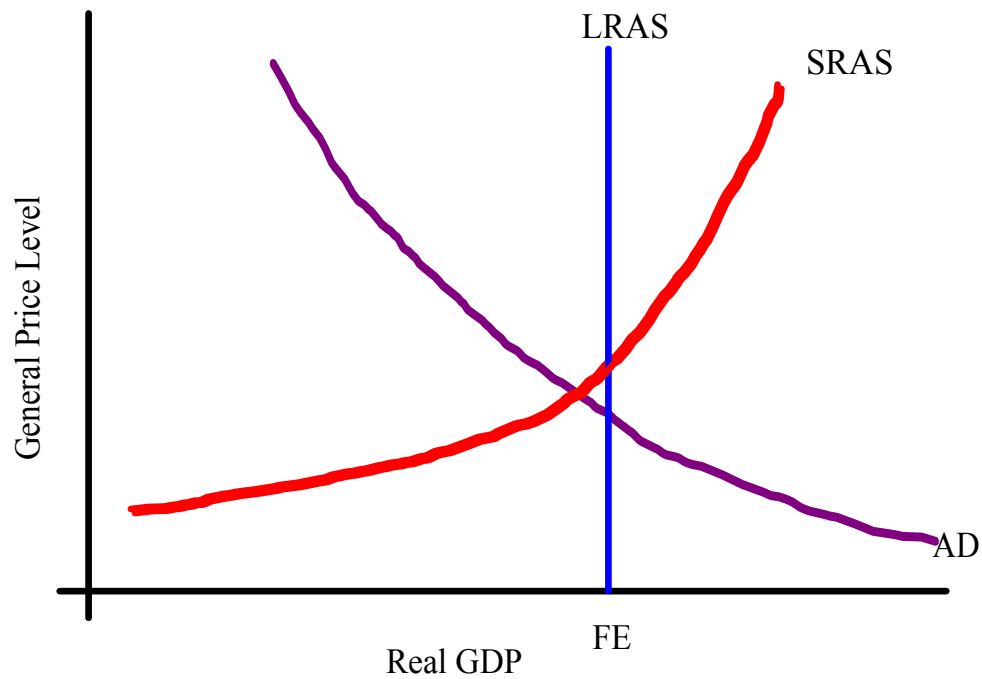


A real effect?

Less than in the past, but some SO

1) Watch for an assumption of wage flexibility. without this assumption.

2) AD down  $\Rightarrow$  GDP down, with a possibility of price reductions.



What can happen to AS?

- Worry: cost push inflation.

- Possibility:

Firms gain power

Productivity increases

Laws more favorable

can move down

Like AD=> no symmetry.

Turn to page 229

1) You will get a word. I will ask you to come up and explain it 7 minutes from now.

2) I will ask you which word should come next and why

Proportional tax system

Full employment Budget

Expansionary fiscal policy

Budget surplus

Contractionary fiscal policy

Budget deficit

Progressive tax system

Fiscal policy

Regressive tax system

Cyclical deficit

Fiscal policy

Expansionary fiscal policy

Contractionary fiscal policy

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Full employment Budget

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Budget deficit

Budget surplus

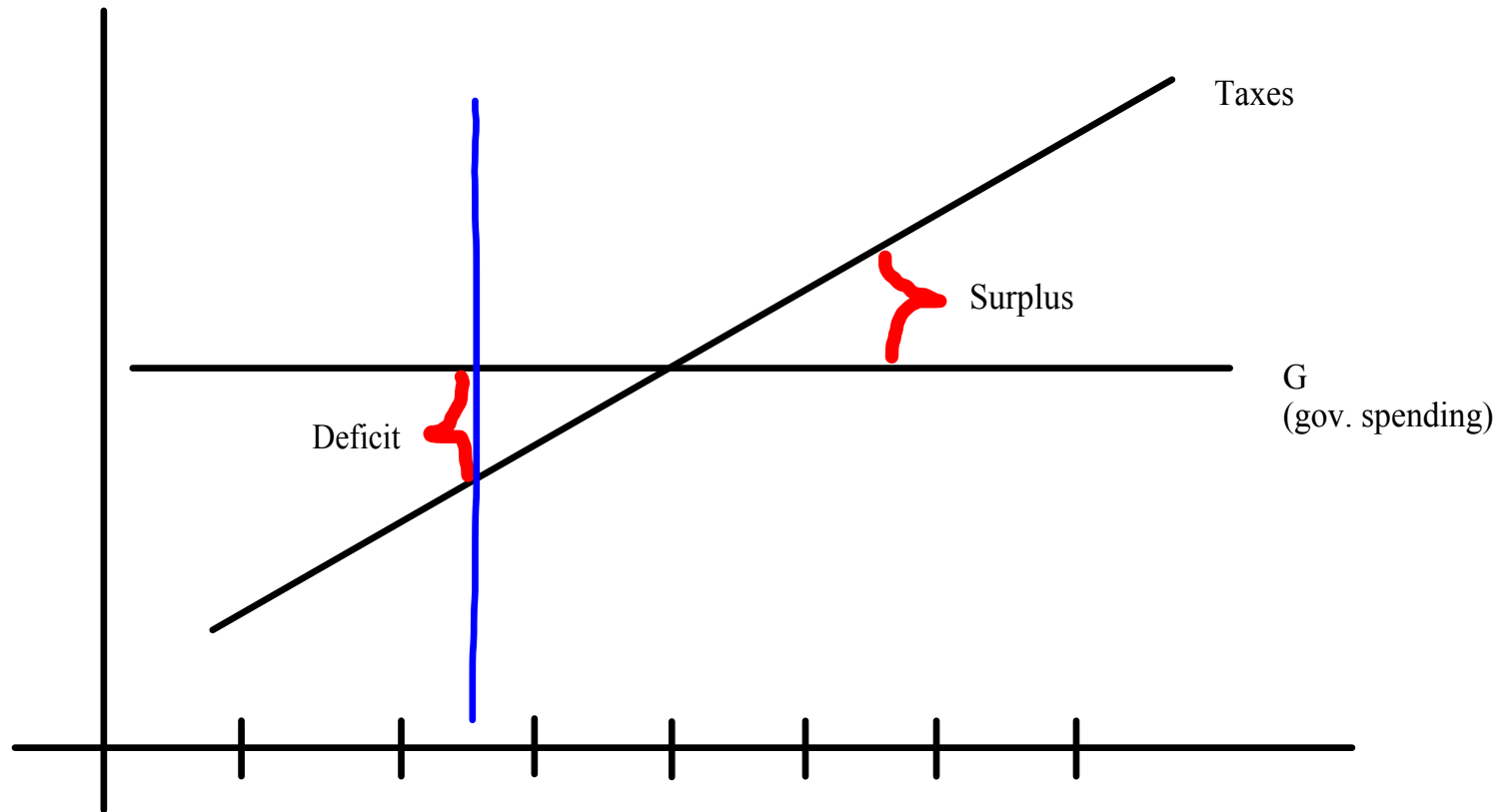
Progressive tax system

Proportional tax system

Regressive tax system

Full employment Budget

Cyclical deficit



Do not tie stimulation to spending or contractionary policy to taxes rather:

Contractionary policy is consistent with \_\_\_\_\_

Expansionary policy is consistent with \_\_\_\_\_

Is a balanced budget neutral?

So, take care.

Either policy is some combination of

a change in spending

a change in taxes

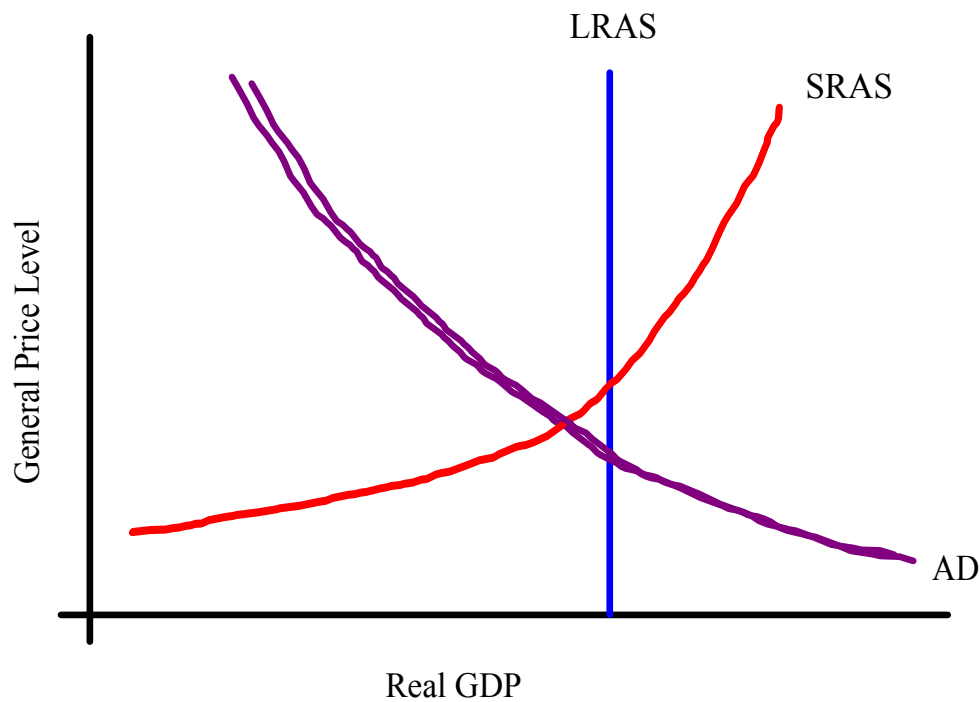
or

some of both

Shifting AD up or down why would you want to do it?

up => GDP? , P ?

down => GDP? , P ?



If the multiplier is 4 what is the effect of a \$15 m cut in spending?

AD moves \$60 million left

Where does GDP and PL end up?

Beats us, but something less.

In the same scenario, what happens with a \$15 m cut in tax revenues?

AD moves \$45 million right

Where does GDP and PL end up?

Beats us, but something less.

Can we calculate the AD shift for any combination?

Can we calculate the GDP impact?

Financing the government:

The government has to get the money from somewhere  
(No action without an opposite reaction)

We will cover this in more depth later.

Covering a deficit:

- 1) Borrow from the public
- 2) Print money

Dealing with a surplus

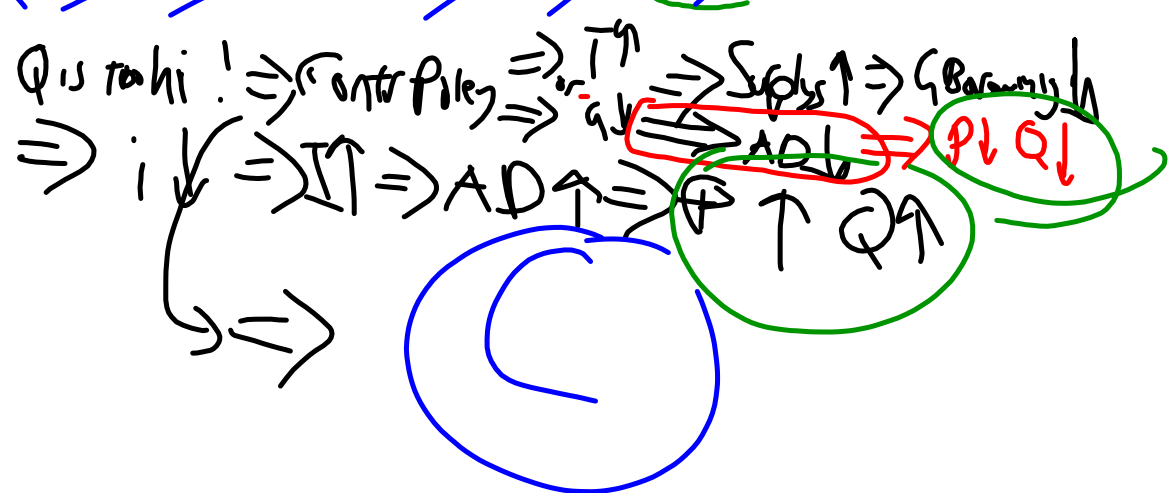
- 1) Pay down debt
- 2) Stick it in the mattress / impound the cash.

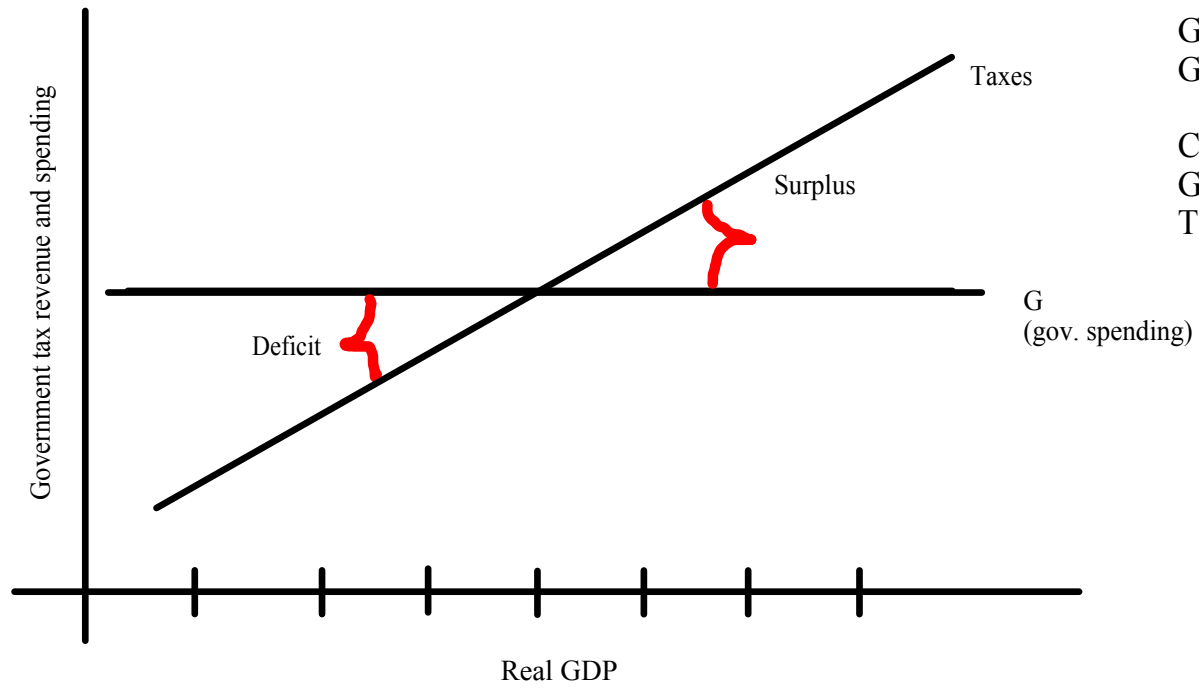
Second cut consequence from borrowing from the public to implement expansionary policy  
interest rates up =>?

Second cut consequence from printing money to implement expansionary policy  
more money chasing fewer goods =>

Second cut consequence from paying down debt to implement contractionary policy  
interest rates down =>?

Second cut consequence from impounding to implement contractionary policy  
less money chasing fewer goods =>





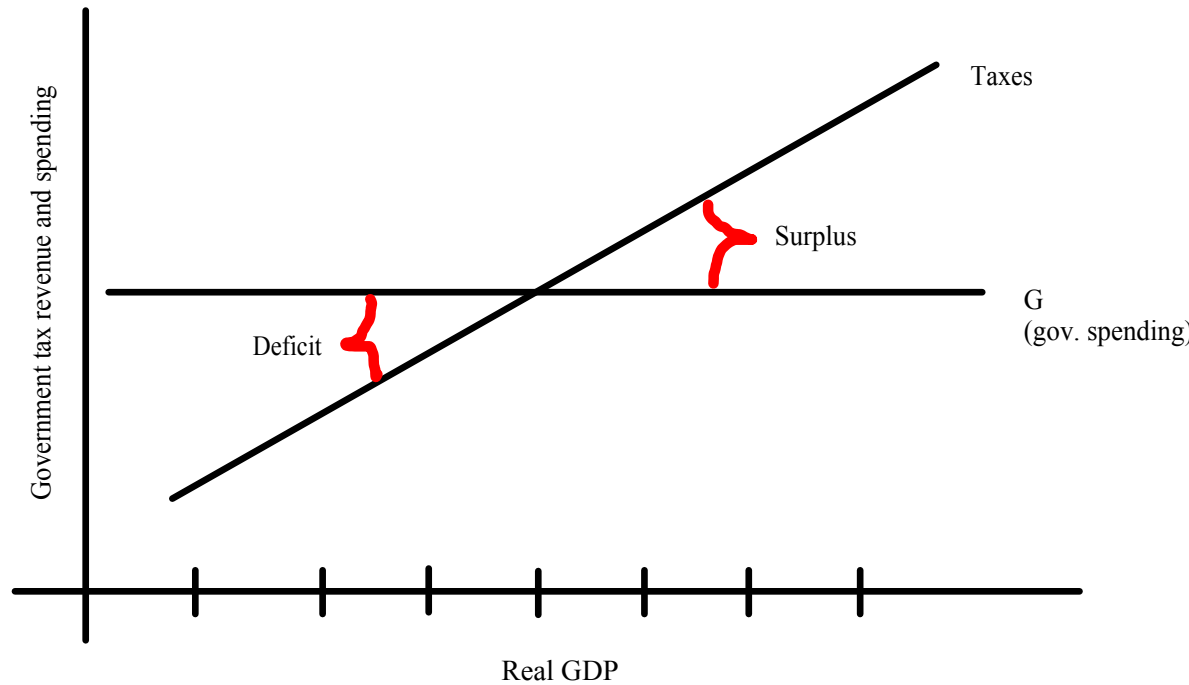
Government picks G.  
Government tries to pick T

Cannot  
 $GDP = \text{income}$   
Taxes are proportional to income.



### Built in stabilizers:

How the business cycle's impact on the government's budget helps dampen the business cycle.



Why does the tax line slope up?

GDP up => ?

GDP up => PI up =>  
Taxes paid up => tax revenue up =>  
surplus =>  
contractionary influence

GDP down => ?

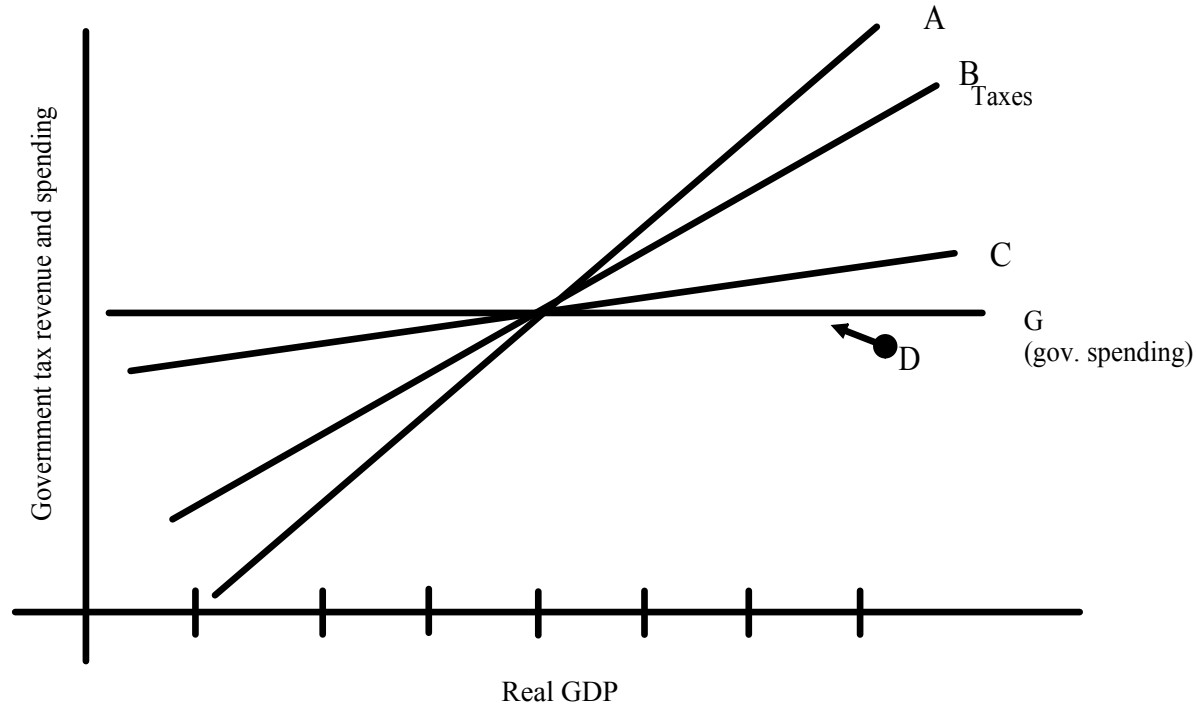
GDP down => PI down =>  
Taxes paid down =>  
tax revenue down =>  
deficit =>  
expansionary influence

- 1) the balanced budget reverts to balance
- 2) the economy's fluxuations are smoothed

Inflation and recession are mitigated

Built in stabilizers:

How the business cycle's impact on the government's budget helps dampen the business cycle.



What do A,B,C, D represent?

What do we conclude?

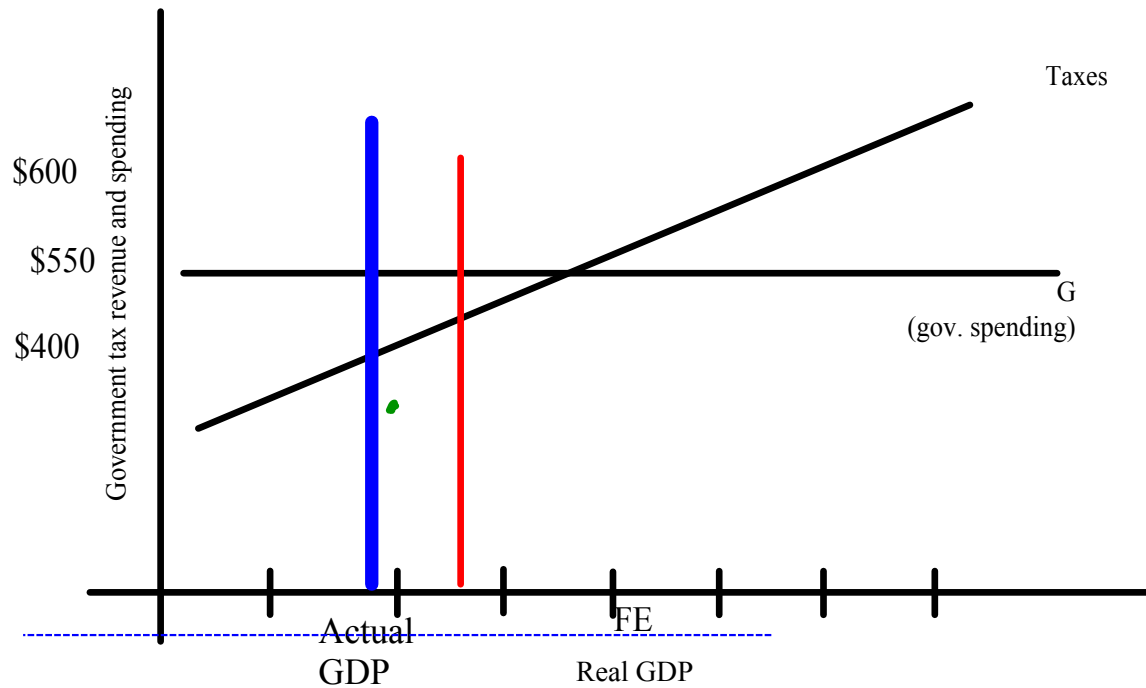
The more progressive the tax structure the more effective the automatic stabilizers

Will the government be expansionary or contractionary?  
 NO ONE KNOWS, BECAUSE WE DON'T KNOW WHERE GDP IS.

But we can, at least, build a consistent HYPOTHETICAL reference.

Would fiscal policy be expansionary or contractionary policy **ASSUMING THE ECONOMY ACHIEVES FE GDP**

Below: Act GDP provides government taxes at blue line. FE would provide red line.



What was the government's intention?

a \_\_\_\_\_ policy

a full-employment budget \_\_\_\_\_ of \_\_\_\_\_

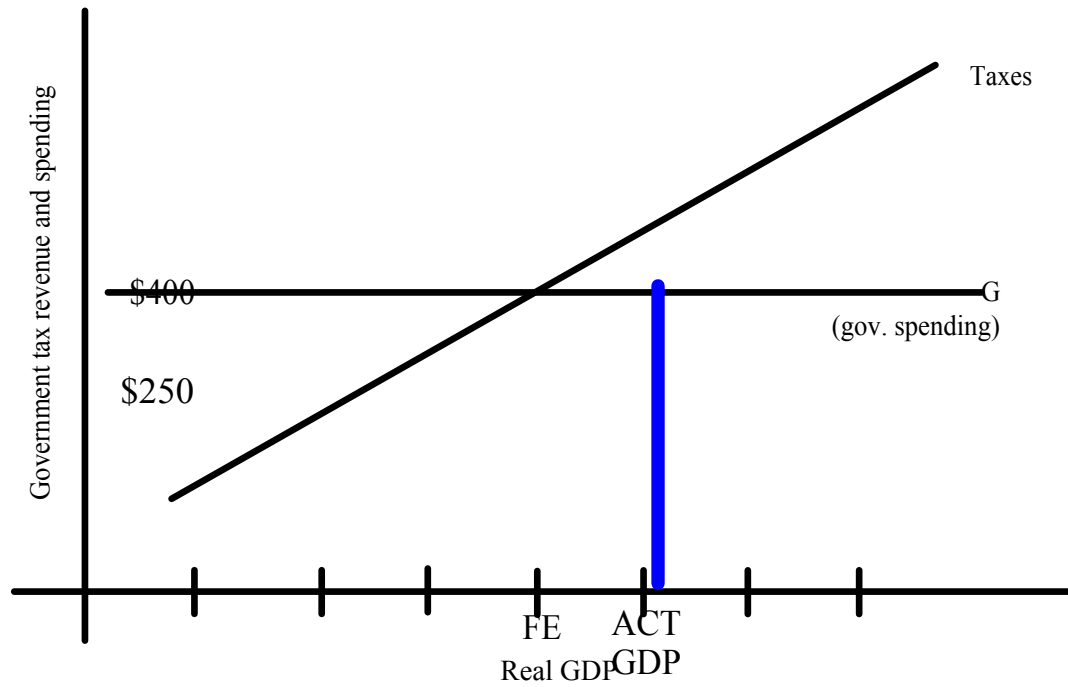
What was the realized budget circumstance?

Why would the government create FE?

If it was experiencing inflation.



Is the government being expansionary or contractionary?



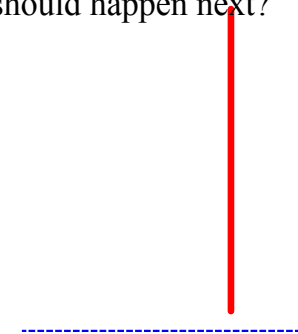
Tell this story:

The government tried for a balanced full employment budget.

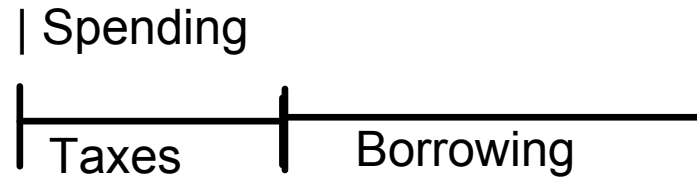
The economy experienced recession.

The government experienced a cyclical deficit.

What should happen next?



### Crowding out effect



Partially,  
counteracts  
by  $(M-1)$ , the  
spending

Partial  
counteracts  
spending because  
 $i^{\wedge} \Rightarrow I_g v \Rightarrow ADv$   
This the crowding  
out effect.  
(Note:  
 $i^{\wedge} \Rightarrow S^{\wedge} C v \Rightarrow ADv$ )

Three schools of  
thought:

- 1) These effects (AND OTHERS) overwhelm the actual multiplier effect. Government spending does not cause growth.
- 2) These are small offsets and the multiplier works.
- 3) Far from capacity spending brings growth, nearer capacity it does not.

## FX - Net Export Effect

Expansionary Policy => Higher domestic interest rates => Dollars investments more attractive =>

demand for dollars increases => foreign currency price of dollars increases =>

a) foreign currency price of US goods increases => quantity of US goods sold decreases =>

b) dollar price of foreign goods decreases => quantity of foreign imports increases =>

Xn down => AD down => contractionary effect

Why fiscal policy is NOT the government's primary tool for effecting change in the economy:

- Recognition lag: By the time you act you are acting on old data. But your policy change will take effect now or later. What is going on now.
- Administrative lag: By the time you design a change, pass a change, implement it, you are too late.
- Politically institutions are corruptable.
- Possible policy reversal undermine strong expectations:  
(Why did George Bush want his tax cut permanent?)
- Feds cut, do people just live without services? See state and local
- \*\*\* Crowding out effect
- Unpredictable impacts from trading partners  
Net export effect
- \*\*\* Predictable impacts form trading partners





