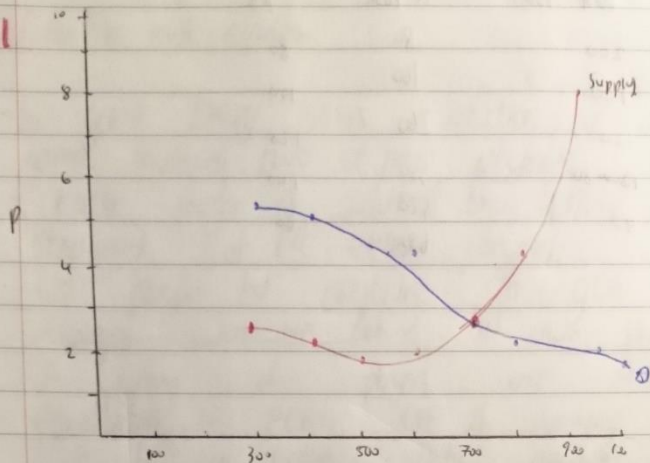


2012 econ

Q1



Q.

a. Where supply and demand intersect. price 2.91 quantity 700

b. Output is 700 units at equilibrium

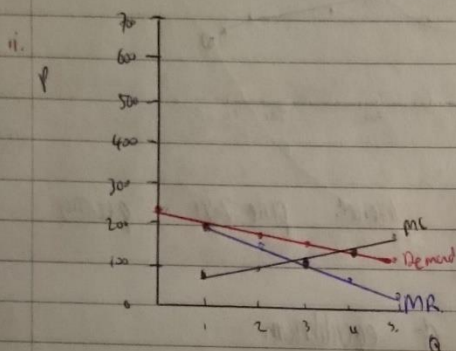
c. Each firm sells 7 widgets  $700 \div 100 = 7$  each

d.  $(P - ATC) \times Q$   
 $(2.91 - 4.34) \times 700 = -1001 \text{ loss} \div 100 = \text{each firm loses } 10.01 \text{ each}$

TR - TC

2.

| total revenue | unit marginal revenue | TC cost | MR  |
|---------------|-----------------------|---------|-----|
| 0             | 200                   | 80      | 80  |
| 200           | 160                   | 160     | 100 |
| 360           | 120                   | 260     | 120 |
| 480           | 80                    | 380     | 140 |
| 560           | 40                    | 520     | 160 |
| 600           |                       | 680     |     |



iii. Profit Maximize at  $MR = MC$   
 $MR = MC = £120$  at 3 rides per hour.  
 Profit  $TR - TC = 160 \times 3 - 380$   
 $480 - 380 = £100$  profit

iv. Consumer Surplus is the monetary gain obtained by consumers because they are able to purchase product for a price that is less than the higher price that they would be willing to pay

$$= \frac{1}{2} (3)(60) = £90$$

3c - Also known as a duopoly

- Perfect substitutes for each other

- Two strategies to pursue

1. Comply

- four outcomes:

2. Cheat

1. Both comply

2. Both cheat

3. A complies B cheats

4. B complies A cheats

- Agree to fix output and push up price

- Find themselves in prisoners dilemma to cheat/comply

- Regardless of A's initial decision, it is in both interests of Ryan or to cheat.

If A complies B cheats both get 0 extra

If A complies B complies Ryan can make profit

Same for A's initial

- Nash equilibrium if both firms cheat.



## Economics 2012

### Q7a Define a Nash equilibrium

- In game theory it is a solution of a non-cooperative game involving two or more players
- Each player is assumed to know the equilibrium strategies of the other players
- No player has anything to gain by changing strategy while the others hold their strategy constant
- A group of players are in a Nash equilibrium if each one is making the best decision that he can, taking into account the decisions of others

b

|            |                                                                            |                                                                            |   |    |   |   |
|------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|---|----|---|---|
|            | A Strategy                                                                 |                                                                            |   |    |   |   |
|            | confess                                                                    | Deny                                                                       |   |    |   |   |
| B Strategy | confess                                                                    | <table><tr><td>3</td><td>13</td></tr><tr><td>3</td><td>1</td></tr></table> | 3 | 13 | 3 | 1 |
| 3          | 13                                                                         |                                                                            |   |    |   |   |
| 3          | 1                                                                          |                                                                            |   |    |   |   |
| Deny       | <table><tr><td>1</td><td>2</td></tr><tr><td>10</td><td>2</td></tr></table> | 1                                                                          | 2 | 10 | 2 |   |
| 1          | 2                                                                          |                                                                            |   |    |   |   |
| 10         | 2                                                                          |                                                                            |   |    |   |   |

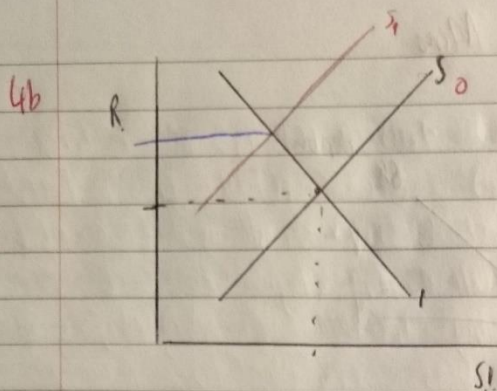
- From A's point of view If B confess best action is confess  
If B denies best action is to confess

- From B's point of view If A confess, best action is confess  
If A deny, action is confess

- Because each player's best action is to confess both do confess and get 3-year term.

This is the Nash equilibrium of the game

- Bad outcome because they could get a 2 year or less term instead



1. real interest rate would rise as the supply of savings would decrease because of budget deficit.  
 - Increased demand for savings decreased demand for higher rate
2. level of investment - level of investment decreased with greater demand for investment investment has decreased
3. Value of dollar - Higher interest rate could cause US dollar to appreciate as foreign <sup>investor</sup> investment would be attracted to US capital
4. Current account balance - it could be negative depending on how large the budget deficit and exports - imports  
exports less, fall in balance
5. US net foreign assets - will decrease in value as the US budget is in deficit and seems with current account decrease  
US net foreign assets decrease

Econ 2012

Q5 a1.

$$MV = PY$$

Quantity theory of money

money (velocity) = Price (quantity)

$$\text{growth}(\text{money}) + \text{growth}(V) = G_p + G_y$$

assuming growth of velocity is zero

$$\text{Growth price} = \text{Growth money} - \text{Growth output}$$

When  $G_m$  is greater than growth in output inflation occurs. Therefore money growth is highest or highest inflation at output growth is constant

- highest in US - 1980 (money growth)

- highest Japan = 1975

ii PPP says  $\text{Price}(\text{good in 1}) = \frac{\text{Price}(\text{good in 2})}{\text{exchange rate}}$

exchange rate adjusts until this equation holds

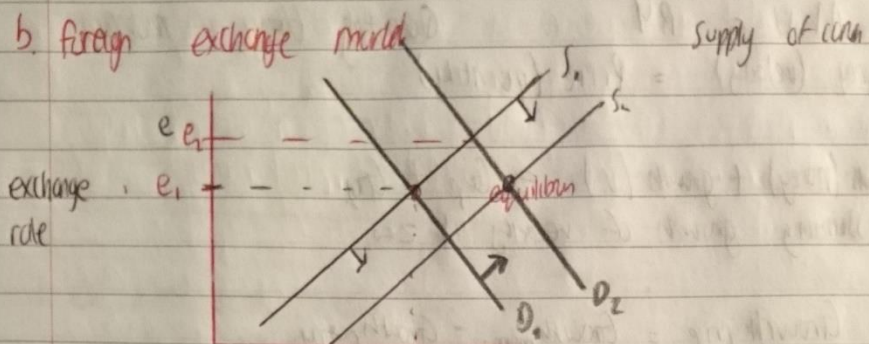
i Nominal - number of units of the domestic currency that can buy one unit of a foreign currency decreased slightly or remained the same over the period peaked in 1980

ii Real  $\Rightarrow$  Started off high with bigger gap in inflation but dropped as US inflation dropped and Japan inflation rose.

• Nominal  $= e =$  US dollar stronger than yen

Real  $= \frac{P}{e}$  real interest rate adjusts until  $P = \frac{P^*}{e}$



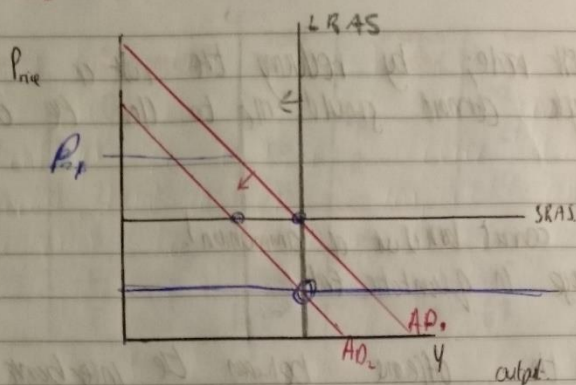


i. Demand increase - represented by shift rightward in demand curve  
equilibrium now  $e_2$ .

ii. Central bank would print more of domestic currency to increase supply and retain fixed exchange rate.  
Equilibrium now  $e_2$ .

Econ 2012

Q6.a



i. Decrease in aggregate demand

ii. Permanent income hypothesis: People will adjust their spending in comparison to their long run income. In this case long run income has dropped so spending will decrease to compensate

Keynesian rather than price adjusting output adjusted instead. Accrual to theory prices are "sticky" take time to change equilibrium  
 c) demand-determined

iii. The economy is now producing below potential. With a lower demand price will drop to compensate. People have less money to spend and therefore less taxes are taken in.

iv. LRAS will shift leftward to meet AD. LRAS will do to a large fall in consumption demand and a contraction in the money supply. Reduction in SRAS.  
 Decreased spending = fall in demand.

v. Taylor rule:  $i^* = y + \pi + 0.5(\pi - \pi^*) + 0.5(y - y_n)$   
 $y$  = current  $\pi$  inflation  $\pi^*$  inflation target

If output is below potential ( $y < y_n$ ) then the Taylor rule dictates that the central bank should



lower the interest rate; by reducing the rate of borrowing, aggregate demand should rise to close the output gap

If  $r=0$ , the central bank out of ammunition!  
It must engage in quantitative policy

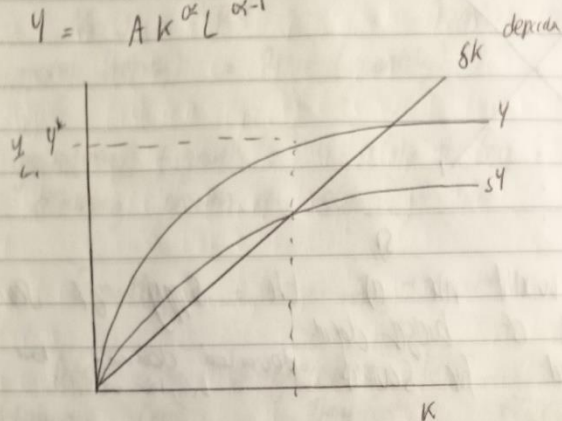
TED Spread is the difference between the interbank rate and the rate on risk free short term bond

## 2012 MCG

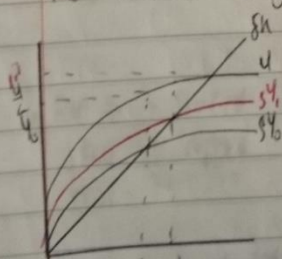
- 1 B 21 D 41 ?
- 2 D 22 B 42 A
- 3 A 23 C 43 ?
- 4 C 24 A 44 ?
- 5 C 25 C 45 C
- 6 D 26 A 46 B
- 7 D 27 A 47 C
- 8 A 28 A 48 A
- 9 C 29 ? 49 D
- 10 D? 30 A 50 A
- 11 A? 31 B
- 12 A 32 B
- 13 C 33 C
- 14 A 34 E?
- 15 D 35 B
- 16 A 36 A
- 17 A 37 B
- 18 D 38 C
- 19 A 39 D
- 20 ? 40 D?

## 2012 economics Memo

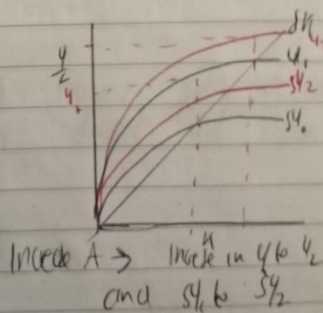
Q4 a.  $y = A k^{\alpha} L^{1-\alpha}$



- Growth rate is attributed to  $A$  - Total factor productivity
- In developed countries they have already been through all the technological advances and are reaching their steady state  $y^*$
- With a higher output, a greater amount of money / saved resulting in an increase in GDP per capita
- These countries with higher growth rates are far from their steady state
- This is one reason why they grow so quickly
- The other reason is an increase in  $A$ .
- These countries are taking advantage of technology to grow
- The reason why GDP is low is because output is still low



Increase savings  
- GDP rise from  $y_0$  to  $y_1$



Increase  $A \rightarrow$  Increase in  $y_0$  to  $y_1$   
and  $k_0$  to  $k_1$