

A Short Note* (Self Study)

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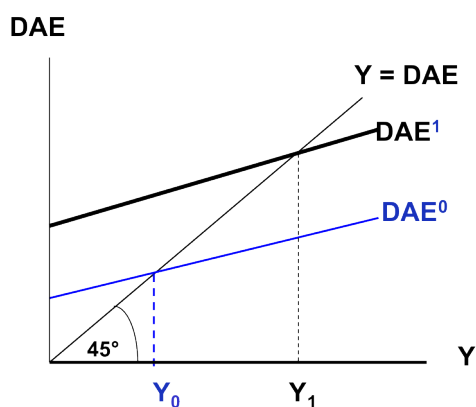
* This summary note is incomplete. Please use with care. I wish all students the best of luck for your final exam.

1 Chapter 3 :

1.1 Multipliers, Inflationary and Deflationary Gap

- Assumptions :

1. Constant Price Level
2. Fixed Resources and Fixed Technology



- DAE shift up from DAE_0 to DAE_1 : autonomous expenditure $\uparrow$ (for example : $C_0, G_0, I_0, X_0 \uparrow$ or $T_0, M_0 \downarrow$), Spending(Expenditure) on domestic goods $\uparrow$ for all levels of Y
- DAE shift down from DAE_1 to DAE_0 : autonomous expenditure $\downarrow$ (for example : $C_0, G_0, I_0, X_0 \downarrow$ or $T_0, M_0 \uparrow$), Spending(Expenditure) on domestic goods $\downarrow$ for all levels of Y
- **“A Multiplier”** is a factor that measures how much an endogenous variable changes in response to a change in some exogenous variables.

- multiplier (k) = $\frac{\Delta Y}{\Delta \text{Autonomous Expenditure}} = \frac{\Delta Y}{\Delta AE}$
- $$\begin{aligned} DAE &= C + I + G + X - M \\ &= (C_a - bT_a + I_a + G_a + X_a - M_a) + (b - bt + d - m)Y \\ &= \text{intercept} + (\text{slope})Y \\ &= AE + (\text{slope})Y \end{aligned}$$
- At equilibrium, $Y = DAE$, $Y_E = \frac{1}{1 - \text{Slope of DAE}}(AE)$
- $\Delta Y_E = k \times \Delta AE$; $k = \frac{1}{1 - \text{Slope of DAE}}$
- $\Delta AE = \frac{\Delta Y}{k}$
- Inflationary gap : $Y_E^* > Y_F$, to solve the problem $\Rightarrow$...increase... DAE $\Rightarrow$ shift DAE down
- Deflationary gap : $Y_E^* < Y_F$, to solve the problem $\Rightarrow$..decrease.... DAE $\Rightarrow$ shift DAE up
- multiplier (k) = $\frac{\Delta Y}{\Delta \text{Autonomous Expenditure}} = \frac{\Delta Y}{\Delta AE} = \frac{1}{1 - \text{Slope of DAE}} > 1 : 0 < \text{Slope of DAE} < 1$
- $\Delta Y = k \times \Delta AE$
- $\Delta AE = \frac{\Delta Y}{k}$
- multipliers table for $k_G, k_C, k_I, k_X, k_T, k_M$ (Closed economy VS. Opened Economy)

1. Closed Economy

Multitplier	$I = I_a$ $T = T_a$	$I = I_a$ $T = T_a + t.Y$	$I = I_a + dY$ $T = T_a$	$I = I_a + dY$ $T = T_a + t.Y$
C, I, G	$\frac{1}{1-b}$	$\frac{1}{1-b+bt}$	$\frac{1}{1-b-d}$	$\frac{1}{1-b+bt-d}$
T	$\frac{-b}{1-b}$	$\frac{-b}{1-b+bt}$	$\frac{-b}{1-b-d}$	$\frac{-b}{1-b+bt-d}$
Balanced Budget Multiplier ($G = T$)	1			

2. Open Economy

Multitplier	$I = I_a$ $T = T_a$	$I = I_a$ $T = T_a + t.Y$	$I = I_a + dY$ $T = T_a$	$I = I_a + dY$ $T = T_a + t.Y$
C, I, G, X	$\frac{1}{1 - b + m}$	$\frac{1}{1 - b + bt + m}$	$\frac{1}{1 - b - d + m}$	$\frac{1}{1 - b + bt - d + m}$
T	$\frac{-b}{1 - b + m}$	$\frac{-b}{1 - b + bt + m}$	$\frac{-b}{1 - b - d + m}$	$\frac{-b}{1 - b + bt - d + m}$
M	$\frac{-1}{1 - b + m}$	$\frac{-1}{1 - b + bt + m}$	$\frac{-1}{1 - b - d + m}$	$\frac{-1}{1 - b + bt - d + m}$

Balance Budget Multiplier = Tax Multiplier + Government Expenditure Multiplier

Balance Budget Multiplier is not always equal to 1. It is equal to one for closed economy without induced investment or income tax.

↑ B (an increase in balanced budget) , ceteris paribus ⇒ DAE shift up, Y ..increases.... : Balance budget multiplier ...>.... 0.

↓ B (a decrease in balanced budget) , ceteris paribus ⇒ DAE shift down, Y ..decreases.... : Balance budget multiplier ...>.... 0. (Balance budget and equilibrium national income change to the same direction)

1.2 Paradox of Thrift (Paradox of Saving)

- a fallacy of composition : “arises when one infers that something is true of the whole from the fact that it is true of some part of the whole (or even of every proper part)”
- Saving (thrift) may be good for individual but it may not be good for the economy.
- In the short run, (keeping the other things being constant) when people try to save more, DAE shift down. Equilibrium output declines.
- Saving may not be good for the economy.
- However, in the long run, we should ↑ S so that we would have more funds for future investment.

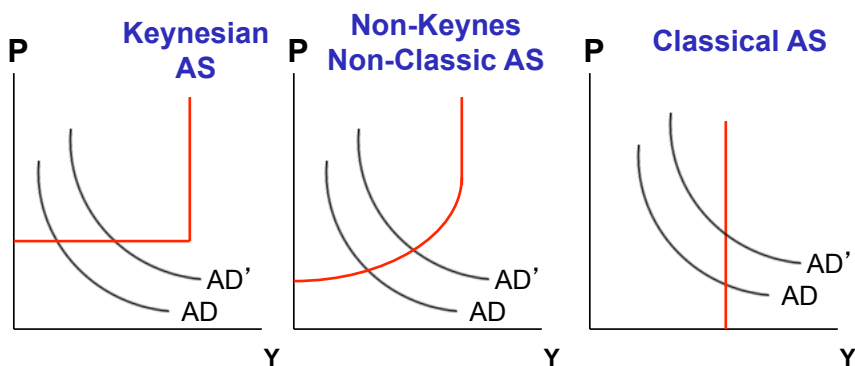
1.3 Derivation of AD :

- Suppose price level ↑ from P_0 to P_1
 ⇒ Real Wealth ...decreases.... (Real Wealth = $\frac{\text{Nominal Wealth}}{\text{Price Level}}$) ⇒ Consumptiondecreases.....

⇒ DAE shift ...down..... ⇒ Equilibrium Y ...decreases.....

- Every point on AD represents Equilibrium in commodity market at a given price
- The point is below AD line, DAE $\dots > \dots$ Y
- The point is above AD line, DAE $\dots < \dots$ Y
- Autonomous Expenditure $\uparrow$ (for example : $C_0, G_0, I_0, X_0 \uparrow$ or $T_0, M_0 \downarrow$) ⇒ AD shift to the right
- Autonomous Expenditure $\downarrow$ (for example : $C_0, G_0, I_0, X_0 \downarrow$ or $T_0, M_0 \uparrow$) ⇒ AD shift to the left

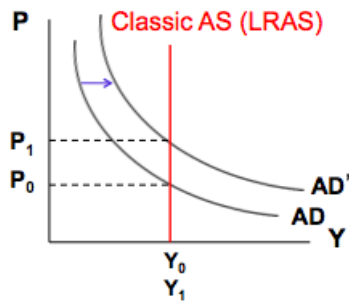
2 Classical/ Keynesian and Non-Classical non Keynes



Note : Classical AS is known as Long-Run Aggregate Supply

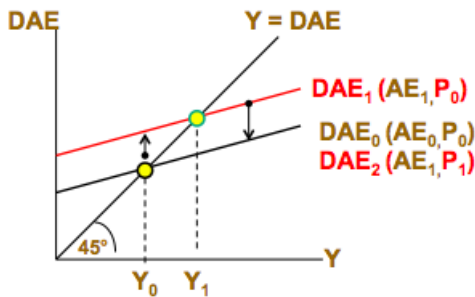
Classic	Economy operates at full employment Autonomous Expenditure $\uparrow$, AD shift right, $\bar{Y}$, $P \uparrow$ $P \uparrow \Rightarrow$ (1) Firms want to produce ...more... $\Rightarrow$ (2) Labours want ..higher... nominal wage $\Rightarrow$ Cost $\uparrow$ $\Rightarrow$ Firms want to produce ..less.... Factor price is fully adjusted $\Rightarrow$ the two effects, (1) and (2), fully offset each other multiplier effect ...=... 0 Classical Aggregate Supply Curve is <i>long-run AS</i>.
Keynes	Economy operates lower than full employment AD shift right, $\bar{P}$, $Y \uparrow$ (when economy reaches full employment , no distinction between Keynes and Classic) “Firms operate with excess capacity. Then, they respond to demand variations by altering output while keeping price constant. In other words, they will supply whatever they can sell at their existing prices as long as they are producing below their capacity*” multiplier effect ..>... 0
Non-Keynes, Non-Classic	Economy operates lower than full employment AD shift right, $P \uparrow$, $Y \uparrow$ (when economy reaches full employment , no distinction between Non-Keynes non classic and Classic) Non Keynes non classic's multiplier effect ..<.. Keynes's. (Practice: graphically illustrate) Before full-employment $Y < Y_F$, the SRAS curve will be upward sloping from left to right. When the economy operates far from full-employment, if there is any increase in production, cost will gradually rise. But once the economy approaches the full-employment, the increase in cost of production can be quite rapid.

1. AD-AS Model: Classics



- Autonomous expenditure (AE) $\uparrow$ (ex: $C_0, G_0, I_0, X_0 \uparrow$ or $T_0, M_0 \downarrow$)
 $\Rightarrow$ AD shift to ..AD'..
 $\Rightarrow$ Price level .increases.. , Y ..remains the same at Y_0 ..
- (This is because when the price $\uparrow \Rightarrow$ excess demand for labour
 $\Rightarrow$ nominal wage $\uparrow \Rightarrow P \uparrow$ and Cost $\uparrow$ produce at the same level)
- There is no “Multiplier Effect” , multipliers = 0

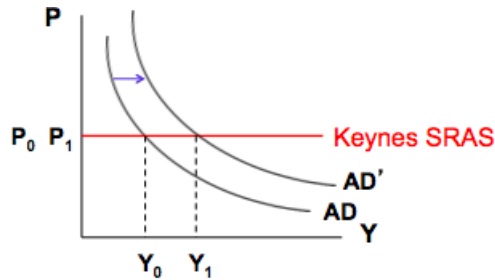
2. DAE Model :



- Autonomous expenditure $\uparrow$
 - DAE shift ..up.. from DAE_1 to DAE_2 (keeping price constant)
 - Producers want to produce more.
 - Since the economy operates at full-employment, labour requires higher wages.
 - Cost ..increases. and Price .increases.....
 - Price .increases... Real wealth ..decreases.. and C_0 (autonomous consumption).decreases..
 - Since the price is fully adjusted, DAE shift back from DAE_2 to DAE_1

Think about a decrease in autonomous expenditure.

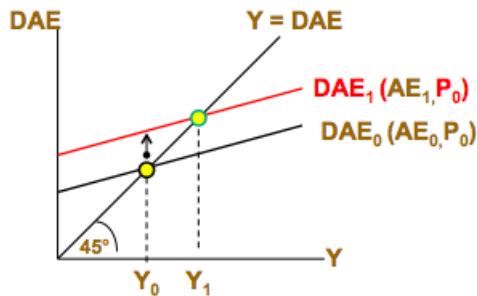
1. AD-AS Model: Keynes



- $Y < Y_F$
 - Autonomous expenditure $\uparrow$ (ex : $C_0, G_0, I_0, X_0 \uparrow$ or $T_0, M_0 \downarrow$)
 $\Rightarrow$ AD shift to the right
 $\Rightarrow$ Price level remain unchanged, $Y \uparrow$
 - There is “Multiplier Effect”.

- $Y > Y_F$, Inflationary gap
 - There must be an adjustment to the price $P \uparrow$.
 - If there is further increase in DAE, inflationary gap will be wider and wider and price will be higher and higher

2. DAE Model : Autonomous expenditure $\uparrow$

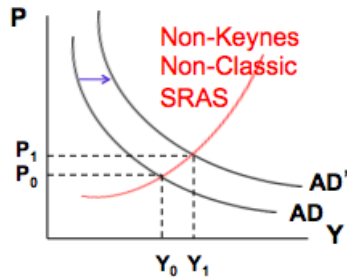


- DAE shift to the right from DAE_1 to DAE_2 (keeping price constant)
- $Y < Y_E$
 - Producers want to produce more.
 - Since the economy operates lower than full-employment, $Y \uparrow$ and $\bar{P}$.
 - (Firms use idle capacity, willing to supply more without an increase in price)
 - Full “Multiplier effect” (same size as discussed in Ch. 3)

- $Y > Y_F$: same as Classical School

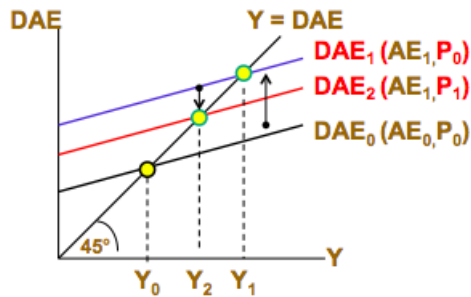
Think about a decrease in autonomous expenditure.

1. AD-AS : Non-Classics, Non-Keynes



- Autonomous expenditure $\uparrow \Rightarrow$ AD shift to the right
- $Y < Y_F$
 - If there is any $\uparrow$ in production, cost will **gradually** rise.
 - Law of diminishing returns: produce $\uparrow$, average cost $\uparrow$ (microeconomics backgrounds)
 - The firms raise the price when supply more output
 - $P \uparrow, Y \uparrow$
 - “Multiplier Effect” (smaller than Keynes’s case)
 - Both AD and AS jointly determine equilibrium P and equilibrium Y
- $Y > Y_F$: same as Classic

2. DAE Model : Autonomous expenditure $\uparrow$



- $Y < Y_E$:
 - DAE shift to the right from DAE_1 to DAE_2 (keeping price constant)
 - To supply more output, firms raise the price
 - $P \uparrow, DAE \downarrow$ (DAE shift down) from DAE_2 to DAE_3
 - $AD \uparrow \Rightarrow P \uparrow, Y \uparrow$ from Y_1 to Y_3
 - There is “Multiplier effect” (smaller size than Keynes’s)

- $Y > Y_F$: same as Classic

Think about a decrease in autonomous expenditure.

3 Chapter 5: Fiscal Policy

3.1 Tax

- Regressive Tax : As tax base rises, tax rate $\downarrow$, $ATR \downarrow MTR \downarrow$, $MTR < ATR$
 - Proportional Tax : As tax base rises, tax rate remains constant. ATR and MTR remain constant, $MTR = ATR$
 - Progressive Tax : As tax base rises, tax rate $\uparrow$, $ATR \uparrow MTR \uparrow$, $MTR > ATR$
- 1. Direct taxes : tax collected from income received by the owner of factors of production. Normally, income tax is progressive (as income $\uparrow$, tax rates $\uparrow$).
- 2. Indirect taxes : tax which is not collected from income received by the owner of factors of production, for example VAT
 - It seems to be proportional tax.
 - People with high income pay the same rate as people with low income when they buy goods and services.
 - It could be considered as regressive tax.

- **Effect of Tax on Equilibrium National Income**

1. $S + T + M = I + G + X$: Tax $\uparrow \Rightarrow$ leakage $\uparrow \Rightarrow Y_E \downarrow$:
2. $Y = DAE = C + I + G + X - M$. Tax $\uparrow \Rightarrow Y_d \downarrow$
 $\Rightarrow C \downarrow \Rightarrow DAE \downarrow$ and $Y_E \downarrow$

$G = T$: Balance Budget, creation of public debt = 0
 $G < T$: Budget Surplus, creation of public debt < 0
 $G > T$: Budget Deficit, creation of public debt > 0

- $T = T_0 + tY$ = Lump Sum Tax + Income Tax
 - an increase in Lump Sum Tax $\Rightarrow$ DAE shift down
 - a decrease in Lump sum Tax $\Rightarrow$ DAE shift up
 - an increase in income tax rate (t) $\Rightarrow$ DAE rotates clockwise or becomes flatter
 - a decrease in income tax rate (t) $\Rightarrow$ DAE rotates counter-clockwise or becomes steeper
- $G = G_0 = G_a$
 - an increase in intended government expenditure $\Rightarrow$ DAE shift up
 - a decrease in intended government expenditure $\Rightarrow$ DAE shift down
- Inflationary gap ($Y > Y_F$) : $\uparrow$ Tax, $\downarrow$ Government Expenditure
- Deflationary gap ($Y < Y_F$) : $\downarrow$ Tax, $\uparrow$ Government Expenditure

3.2 Non-discretionary fiscal policy (Automatic or Built-in Stabilizing): Income Tax

- $MPC = b$, $MPC \text{ out of } Y = b - bt$
 - Slope of DAE = $MPTS = b - bt + d - m$
 - $DAE_{\text{with income tax}}$ is flatter than $DAE_{\text{without income tax}}$ ***
 - $\text{Multiplier} = \frac{1}{1 - \text{slope}} = \frac{1}{1 - (b - bt + d - m)}$: Slope $\uparrow$, Multiplier $\uparrow$
 - $\text{Multiplier}_{\text{with income tax}}$ is *less* than $DAE_{\text{without income tax}}$ ***
 - **Income tax will make the multiplier effect smaller.**
 - Therefore, the same magnitude of a positive ΔAE , Y_E for the economy with income tax will increase by a smaller amount than that for the economy without income tax.
 - The economy with income tax is more stable.
 - Lump sum tax is **not** automatic stabilizer.

- With income tax, the fluctuation will be less, that's why we called it automatic stabilizer.
- When you have income tax in the system, automatically when there's an economic expansion, it will not expand as much as there is no income tax.
- When the economy declines, it will not decline as much as there is no income tax.

3.3 Discretionary fiscal policy (more relevant)

(1) Expansionary fiscal policy : to solve a deflationary gap, $\uparrow G$, $\downarrow T$

(2) Contractionary fiscal policy : to solve inflation problem or inflationary gap, $\downarrow G$, $\uparrow T$

- Tax multiplier is lower than Government Multiplier.
- The government has to decrease lump-sum tax more than to increase in government spending to close the deflationary gap.
- The government has to increase lump-sum tax more than to decrease in government spending to close the inflationary gap.

3.4 Limitations of Fiscal Policy

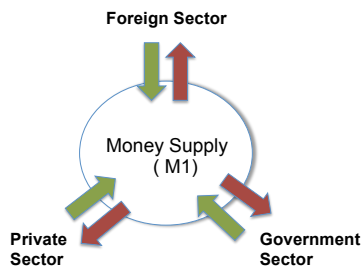
- Limitations of nondiscretionary fiscal policy : Automatic stabilizer just helps reducing the fluctuation in output. When the economy tends to have an inflationary or a deflationary gap, it help reducing the size of the gap. However, it cannot totally prevent the gap to happen.
- Limitations of discretionary fiscal policy :
 - **Fiscal Lags :**

- * To change fiscal policy requires making changes in taxes and government expenditures. The change must be agreed on by the administration and passed by Congress. Thus, even if economists agreed that the economy would be helped by, say, a tax cut, politicians would likely spend a good deal of time debating whose tax and by how much. "delay" $\Rightarrow$ "decision lag"
- * Once policy changes are agreed on, there is still an execution lag. It takes time for the economic consequences to be felt.

4 Chapter 6 : Monetary Policy

4.1 Supply of Money

- Money Supply = total amount of "money" in the hand of public at a specific time. It is a stock concept.
- Narrow definition of money supply : $M1 = \text{currency in circulation} + \text{demand deposits at commercial banks}$.



- Foreign Sector : export $\Rightarrow MS \uparrow$, import $\Rightarrow MS \downarrow$
 - export $\Rightarrow$ exporters receive USD $\Rightarrow$ convert USD to Bht $\Rightarrow M1 \uparrow$
 - Trade surplus $\Rightarrow MS \uparrow$, Trade deficit $\Rightarrow MS \downarrow$
- Government Sector : depends on how the government finance its deficits
 1. use saving (surplus from the past)
 2. borrow from abroad
 3. print more money
 4. borrow from private sector (issue bonds)

- Total Deposits $= \frac{P}{rr}$.

- Money multiplier $= \frac{1}{rr'}$,

- Demand Deposits Created by Banking Sector (D), the maximum amount of money that can be created

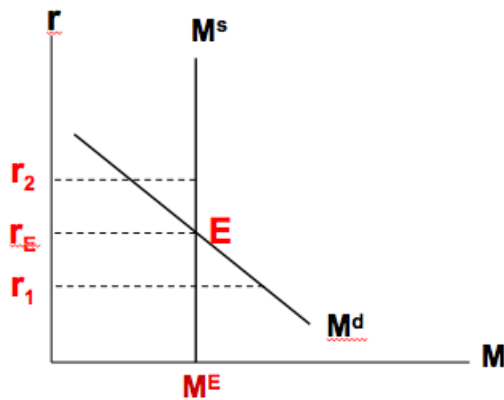
$$D = \frac{P}{rr} - P = \frac{(1 - rr)P}{rr} = \frac{A}{rr}.$$

- In practice, the amount of money that can be created is ..more.. than $\frac{P(1 - rr)}{rr}$.
 - Excess reserve is *not* all loaned.
 - One *does not* deposit his money totally.
- The private sector (financial institutions and the public) plays an important role, which could change the money supply.
- Money Supply does not depend on the interest rate.

4.2 Demand for Money

- Demand for money : the amount of wealth that everyone in the economy wishes to hold in the form of money balances
- liquidity = how easy an asset can be quickly converted in to the medium of exchange, with a little loss of value.
- Keynesian's Liquidity Preference Theory :
 - There are two main assets people use to store their wealth, Money and Bonds.
 - Opportunity cost of holding money = income that you could have earned if you hold the bonds (or deposit money in a bank), which is interest.
 - People hold the money because it provides liquidity.
- Demand for Money consists of 3 components
 1. Transaction demand for money (M_T^d) : People want to hold money to meet their daily transaction
 2. Precautionary demand for money (M_P^d) : People hold some money to safeguard themselves from something that they cannot detect beforehand.
 3. Speculative demand for (M_S^d) : People hold money for speculation

Bond price $\uparrow \Rightarrow$ Interest rate (r) $\downarrow$
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- If interest rate is *lower* than the equilibrium interest rate,
- there will be excess money ..Demand..
- agents will ..sell... more bonds,
- bond supply will ..rise..
- then bond price ..decreases..
- therefore the interest rate ...increases...
- interest rate adjusts toward equilibrium
- (practice, when interest rate is *greater* than the equilibrium interest rate)

4.3 Monetary Policy Transmission Mechanism

- $MS \uparrow \Rightarrow$ Interest Rate (r) ..decreases.. $\Rightarrow$ Investment (I) ...increases..... $\Rightarrow$ DAE shift ..up... $\Rightarrow Y_E$..increases...
- $MS \downarrow \Rightarrow$ Interest Rate (r) ..increases.... $\Rightarrow$ Investment (I) ..decreases.... $\Rightarrow$ DAE shift ..down.... $\Rightarrow Y_E$...decreases...

(Practice : graphically illustrate - money market, investment, DAE)

4.4 Types of Monetary Policy

1. Expansionary Monetary Policy : to increase money supply, to stimulate economy, used when there is ..deflationary.. gap.

- OMO : ...buy... government bonds
- Bank rate/Rediscount rate(lower).....
- Minimum Legal Reserve Requirement (rr) ...(lower).....

(Practice : graphically illustrate - money market, investment, DAE)

2. Contractionary Monetary Policy : to decrease money supply, to slow down the economy, used when there is ..inflationary.... gap.

- OMO : ..sell.... government bonds
- Bank rate/Rediscount rate ..(raise)..
- Minimum Legal Reserve Requirement (rr) ...(raise).....

(Practice : graphically illustrate - money market, investment, DAE)

5 Chapter 7 : Policy Effectiveness

- Monetary Policy is *effective* when $\frac{\Delta I}{\Delta r}$ is large (I is flat) and $\left[\frac{\Delta M^d}{\Delta r} \right]$ is small (M^d is steep).
- Fiscal Policy Crowding out Effect

Commodity Market		Money Market
$\uparrow G \text{ or } \downarrow T \Rightarrow DAE \uparrow \Rightarrow Y \uparrow$	$\Rightarrow$	$M^d \uparrow \Rightarrow r \uparrow$
$Y \downarrow \Leftarrow DAE \downarrow \Leftarrow I \downarrow$	$\Leftarrow$	$\Downarrow$

The increase in Y_E by $\uparrow G$ or $\downarrow T$ is partially offset by the rising of r .

- Crowding out effect is “ the offsetting reduction in private expenditure caused by the rise in interest rates that follows an expansionary fiscal policy”
- Fiscal Policy is *effective* when $\frac{\Delta I}{\Delta r}$ is small (I is steep) and $\left[\frac{\Delta M^d}{\Delta r} \right]$ is large (M^d is flat). The crowding out effect is small.

Keynes	Monetarist
$\left[\frac{\Delta I_0}{\Delta r} \right]$ is small	$\left[\frac{\Delta I_0}{\Delta r} \right]$ is large
Investment is interest rate inelastic	Investment is interest rate elastic
$\left[\frac{\Delta M^d}{\Delta r} \right]$ is large	$\left[\frac{\Delta M^d}{\Delta r} \right]$ is small
Money demand is interest rate elastic	Money demand is interest rate inelastic
Fiscal Policy is more effective	Monetary Policy is more effective

6 Chapter 8: International Economics

6.1 Gain from trade

- Example :

	Amount produced in 40 hours		Hours needed to make 1 kg of:	
	Meat	Potatoes	Meat	Potatoes
Farmer	2 kg.	4 kg.	20 hr./kg	10 hr./kg.
Rancher	40 kg.	5 kg.	1 hr./kg	8 hr./kg.

- Opportunity Cost

	Meat in terms of potatoes given up	Potatoes in terms of meat given up
Farmer	2	$\frac{1}{2}$
Rancher	$\frac{1}{8}$	8

- Suppose both divide their time equally for these 2 production; 20 hours for meat and 20 hours for potatoes

	Meat	Potatoes
Farmer	1 kg.	2 kg.
Rancher	20 kg.	2.5 kg.

- The Rancher's Offer to Farmer: Spend all 40 hours producing potatoes and I'll trade 3 kg of meat for 1 kg of your potatoes.
- The rancher will allocate more time on meat production and less time on rice production by 4 hours
- After trade : Production and consumption

	Production		Consumption	
	Meat	Potatoes	Meat	Potatoes
Farmer	0 kg.	4 kg.	3 kg.	3 kg.
Rancher	24 kg.	2 kg.	21 kg.	3 kg.

- Both are better-off.
- The rancher has absolute advantage over the farmer in meat and potatoes production.
- However, the opportunity cost of producing potatoes of the rancher is greater than that of the farmer.
- Therefore, the farmer has a comparative advantage over the rancher in potatoes production.
- When one party has a comparative advantage over the other party, there is a benefit from trade.
- If the rancher had a comparative advantage over the farmer in producing both goods, there would be no benefit from trade.
- Gains from specialization and trade based on comparative advantage .
- Total production in economy rises Increase in the size of the economic pie. Everyone – better off.
- Trade can benefit everyone in society. It allows people to specialize in activities.

6.2 Balance of Payments

- Composition of BOP account

1. Current Account : \$ flow in (+), \$ flow out (-)

- 1.1 Trade in good account: record of foreign exchange receive and payment from the country's export and import of good

- 1.2 Trade in service account: record of foreign exchange receive and payment from the country's export and import of services (such as, transportation, travel, government service and other services)

- 1.3 Income Account: record of foreign exchange income receipts and income payments from compensation of employees and investment income (such as dividends, interest, rent, and profits)

- 1.4 Transfer Account: record of transfer receive and payment from private and government sectors (such as, parents transfer money to children staying abroad, donation from Thai government to other countries, and donation of other countries to Thailand)

2. Capital and Financial Account : \$ flow in (+), \$ flow out (-)

It records purchases and sales of foreign assets and purchases and sales of domestic assets by foreign residents

3. International Reserve Account : change in international reserve

Shows changes of the country international reserve during one period resulting from the adjustment of difference between total receipt and payment of foreign exchange for current account and capital and financial account.

- $\text{Current Account} + \text{Capital and Financial Account} > 0 \Rightarrow \text{Surplus} \Rightarrow \text{International Reserve} \uparrow$
- $\text{Current Account} + \text{Capital and Financial Account} < 0 \Rightarrow \text{Deficit} \Rightarrow \text{International Reserve} \downarrow$

6.3 Foreign Exchange Market : ER=Exchange rate (direct quote)

Demand for Foreign Exchange	Supply for Foreign Exchange
Demand for goods, services and investments produced by ..foreign country....	Demand for goods, services and investments produced by . our own country...
Exchange Rate * Appreciation (ER ..decreases.) * Depreciation (ER.increases..)	Exchange Rate * Appreciation (ER .decreases..) * Depreciation (ER .increases..)
Price of Imported goods, services * The effect of imported price on value of export depends on price elasticity of import. * Value of import $\uparrow \Rightarrow$ Demand for \$ $\uparrow$ * Value of import $\downarrow \Rightarrow$ Demand \$ $\downarrow$	Price of Exported goods, services * The effect of exported price on value of export depends on price elasticity of export. * Value of Export $\uparrow \Rightarrow$ Supply of \$ $\uparrow$ * Value of Export $\downarrow \Rightarrow$ Supply of \$ $\downarrow$
Investments *Thai people invest more in the US: Demand for \$ increases	Investments * American invest more in Thailand : Supply of \$ increases
Expectation : Expect \$ to be appreciated in the future $\Rightarrow$ Demand for \$ Expect \$ to be depreciated in the future $\Rightarrow$ Demand for \$	Expectation: Expect \$ to be depreciated in the future $\Rightarrow$ Supply of \$ Expect \$ to be appreciated in the future $\Rightarrow$ Supply of \$
Central Bank Buy more foreign currency reserves $\Rightarrow$ D of \$ (shift to the right)	Central Bank Sell more foreign currency reserves $\Rightarrow$ S of \$ (shift to the right)

1. $\epsilon_{P_{US_X}} > 1 \Rightarrow$ when P_{US_X} increases 1% $\Rightarrow$ contributing to the decrease in total expenditure
 Q_{US_X} will fall more than 1%
 $D_{\$}$ will shift to the left and vice versa
2. $\epsilon_{P_{US_X}} = 1 \Rightarrow$ when P_{US_X} increases 1% $\Rightarrow$ no change in total expenditure
 Q_{US_X} will fall by 1%
no change in $D_{\$}$
3. $\epsilon_{P_{US_X}} < 1 \Rightarrow$ when P_{US_X} increases 1% $\Rightarrow$ contributing to the increase in total expenditure
 Q_{US_X} will fall less than 1%
 $D_{\$}$ will shift to the right and vice versa

P_{US_X} = Price of American export

$\varepsilon_P > 1$	$\Rightarrow$	Q will dominate
	$\Rightarrow$	Total Expenditure change in the same direction as Q changes
$\varepsilon_P < 1$	$\Rightarrow$	P will dominate
	$\Rightarrow$	Total Expenditure change in the opposite direction as Q changes
Determination of ε_P : (1) Availability of substitutes (2) Definition of products		
(3) Short Run and Long Run		