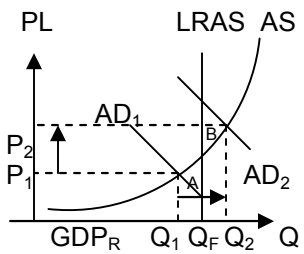
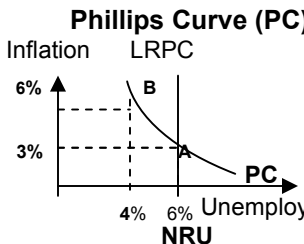


## Macro Free Response Question CUE CARD, 2009

### PART I: Analysis of Short Run AS/AD, PC

<p><b>Economic Analysis</b></p> <ol style="list-style-type: none"> <li>1. A--Before change -- Initial equilibrium at <math>P_1, Q_1</math></li> <li>2. <math>\Delta</math>--Change: <math>C \uparrow \rightarrow AD \uparrow</math></li> <li>3. B--After change— New equilibrium at <math>P_2, Q_2</math></li> </ol>	<p><b>Fig. 1 To Start:</b></p> <p>(1) Look at unemployment first. (2) Look at inflation rate <u>if</u> it starts at full employment</p>  <p style="text-align: center;"><b>Phillips Curve (PC)</b></p> 
<p><b>Did change shift AD and AS?</b></p> <p>If <b>both</b> curves shift at once, there is change on one axis but change on the other axis is <u>indeterminant</u> due to unknown magnitudes. Both affected by business taxes, interest rates, and exchange rates</p>	

For USA	Unemployment	Inflation	GDP Growth
<b>Good</b>	6% or less	1% to 3%	>2.5%
<b>Worry</b>	>6% to 9%	>3% to 7%	>0% to 2.5%
<b>Bad</b>	>9%	>7%	<0%

<p><b><math>\Delta AS = f(\Delta \text{ per unit costs})</math></b></p> <p><b><math>\Delta</math> Resource prices or quantities (inputs)</b></p> <ul style="list-style-type: none"> <li>❖ land – rent</li> <li>❖ labor – wages</li> <li>❖ capital – interest</li> <li>❖ entrepreneurship - profits</li> </ul> <p><b><math>\Delta</math> Productivity, technology</b></p> <p><b><math>\Delta</math> Legal/ institutional</b></p> <ul style="list-style-type: none"> <li>❖ business taxes</li> <li>❖ subsidies</li> <li>❖ regulations</li> </ul>	<p><b><math>\Delta AD = f(\Delta \text{ spending})</math></b></p> <p><b><math>\Delta C</math>--<math>\Delta</math> Consumer spend</b></p> <ul style="list-style-type: none"> <li>❖ wealth,</li> <li>❖ taxes.</li> <li>❖ expectations</li> <li>❖ indebtedness</li> </ul> <p><b><math>\Delta I_g</math>--<math>\Delta</math> Investment spend</b></p> <ul style="list-style-type: none"> <li>❖ interest rates</li> <li>❖ profit expectations</li> <li>❖ business taxes</li> <li>❖ technology</li> </ul> <p><b><math>\Delta G</math>--<math>\Delta</math> Govt spending purchases</b></p> <p><b><math>\Delta X_n</math>--<math>\Delta</math> Net Export spend</b></p> <ul style="list-style-type: none"> <li>❖ n'tl income abroad</li> <li>❖ exchange rates</li> </ul>
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### PART II: FISCAL POLICY--by CONGRESS

<b>If problem is</b>	<b>Unemployment <math>\uparrow</math></b>	<b>Inflation <math>\uparrow</math></b>	
<b>Then Congress uses . . . .</b>			
<b>Tools</b>	<b>Expansionary</b>	<b>Contractionary</b>	
<b>Taxes=T</b>	Decrease	Increase	
<b>Subsidies</b>	Increase	Decrease	
<b>Spending=G</b>	Increase	Decrease	

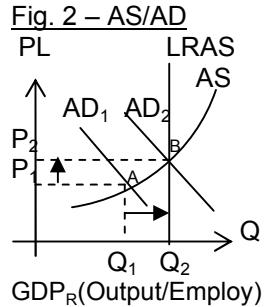
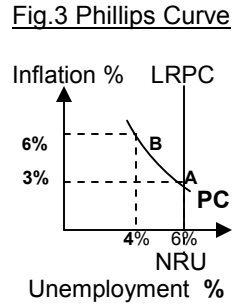
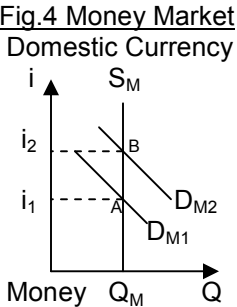
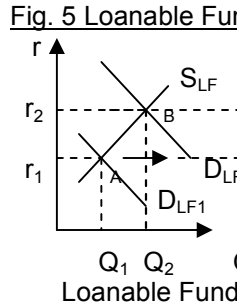
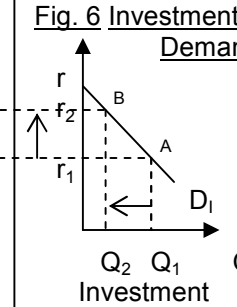
**Ex.: If Congress Uses Expansionary Fiscal Policy**

- Personal  $T \downarrow \rightarrow DI \uparrow \times MPC \rightarrow C \uparrow \times \text{mult} \rightarrow AD \uparrow$  (Fig. 2)  $\rightarrow GDP_R \uparrow$ ,  $PL \uparrow$  and  $\%U \downarrow$ ,  $\%inflation \uparrow$  (Fig.3)
- Business  $T \downarrow \rightarrow \text{profits} \uparrow \rightarrow I_g \uparrow \times \text{mult.} \rightarrow AD \uparrow$  and Bus.  $T \downarrow \rightarrow$  per unit costs  $\downarrow \rightarrow AS \uparrow \rightarrow GDP_R \uparrow$ ,  $PL$  indeterminant
- $G \uparrow \times \text{mult.} \rightarrow AD \uparrow \rightarrow GDP_R \uparrow$ ,  $PL \uparrow$  (Fig.2) and  $\%U \downarrow$ ,  $\%inflation \uparrow$  (Fig.3)

**If Govt. deficit spending  $\uparrow \rightarrow D_M \uparrow \rightarrow i \uparrow$**  (Fig. 4) and **govt. borrow  $\uparrow$**  by selling new bonds  $\uparrow \rightarrow S_B \uparrow \rightarrow P_B \downarrow$  (Fig. 7) and  $D_{LF} \uparrow \rightarrow r \uparrow$  (Fig. 5)  $\rightarrow I_g \downarrow$  (Fig. 6), esp. at full-employment (Crowd-out)

**If  $GDP_N \uparrow \rightarrow D_t \uparrow \rightarrow D_m \uparrow \rightarrow i \uparrow$**  (Fig. 4)

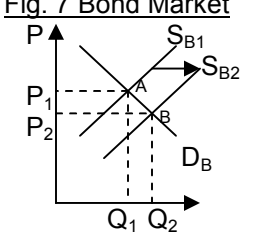
Interest rates:  $i$  - expected inflation rate =  $r$   
Spending Multiplier  $1/MPS$  or  $\Delta GDP_R / \Delta AE$

<p><b>Fig. 2 – AS/AD</b></p> 	<p><b>Fig.3 Phillips Curve</b></p> 	<p><b>Fig.4 Money Market Domestic Currency</b></p> 	<p><b>Fig. 5 Loanable Funds</b></p> 	<p><b>Fig. 6 Investment Demand</b></p> 
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**Fiscal Policy effects may be weakened by . . .**

- **Crowding Out Effect** – If  $G \uparrow$  deficit spending  $\uparrow \rightarrow D_{LF} \uparrow \rightarrow r \uparrow \rightarrow I_g$  may slow, especially at full employment since profit expectations may not be rising  $\rightarrow AD \uparrow$  less.
- **Net Export Effect** – If  $G \uparrow$  deficit spending  $\rightarrow D_{LF} \uparrow \rightarrow$  domestic  $r \uparrow \rightarrow$  foreign and domestic investors seek higher return on US bonds and other assets  $\rightarrow$  in FEX  $D_s \uparrow$ ,  $S_s \downarrow \rightarrow$  Foreign Price per  $\$ \uparrow \rightarrow \$$  appreciates  $\rightarrow$  exports $_{US} \downarrow$  (expensive) and imports $_{US} \uparrow$  (cheaper)  $\rightarrow X_n \downarrow$  some  $\rightarrow AD \uparrow$  less.

**Fig. 7 Bond Market**



**New Treasury Bonds**  
**If  $P_{Bonds} \downarrow$ ,  $r \uparrow$**

# PART III: MONETARY POLICY – by FEDERAL RESERVE’S FOMC

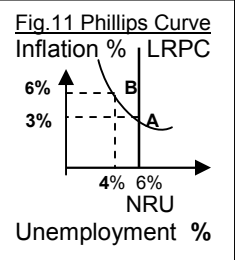
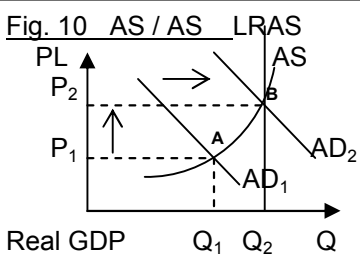
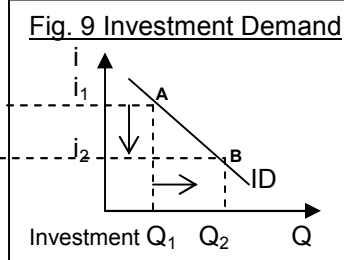
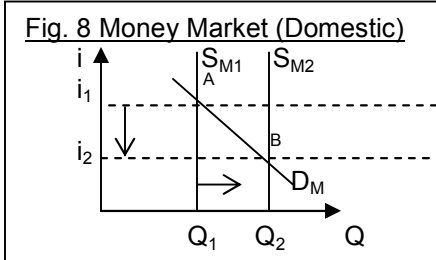
## Part III: Monetary Policy – by Federal Reserve Bank’s FOMC

If Problem is Then the Fed . . .	<b>Unemployment ↑</b>	<b>Inflation ↑</b>
	↓ Easy	↓ Tight
<b>Tools</b>	<b>Expansionary</b>	<b>Contractionary</b>
<b>OMO</b>	Buys ST bonds	Sells ST bonds
<b>Reserve Requirement</b>	Decrease	Increase
<b>Discount %</b>	Decrease	Increase
<b>Quantitative Easing</b>	Buys long term bonds	Sells longer term bonds

### Ex. of Linkages: Expansionary Monetary Policy

If the Fed buys bonds from the public . . .  
 Demand deposits ↑ → Excess Reserves (ER) ↑ → Loans ↑ × money multiplier →  $S_m$  ↑ →  $i$  ↓ (Fig. 8) →  $I_g$  ↑ (Fig. 9) b/c more investment projects are profitable at lower interest rate → × mult. →  $AD$  ↑ →  $GDP_R$  ↑,  $PL$  ↑ (Fig. 10) and % inflation ↑, Unemployment ↓ (Fig. 11)

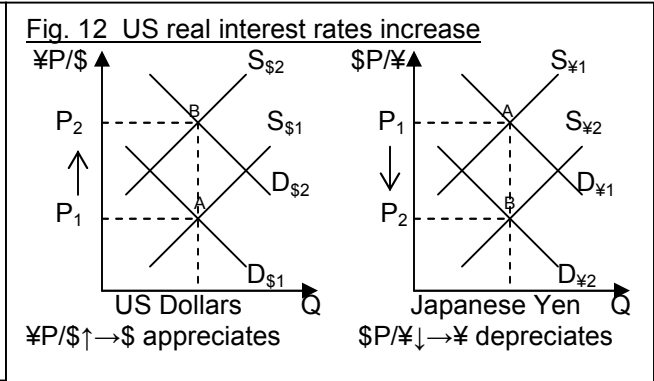
**Money Multiplier = 1/Reserve Requirement**



**Monetary Policy effects may be strengthened by . . . Net Export Effect** - If the Fed buys bonds →  $S_m$  ↑ →  $i$  ↓ → foreign and domestic investors seek higher returns on foreign bonds and other foreign assets →  $D_{\$}$  ↓,  $S_{\$}$  ↑ → Foreign Price per  $\$$  ↓ →  $\$$  depreciates → exports<sub>US</sub> ↑ (cheaper) and imports<sub>US</sub> ↓ (more expensive) →  $X_n$  ↑ →  $AD$  ↑ some more.

# PART IV: INTERNATIONAL TRADE. (Compare USA to ROW—Rest Of the World.)

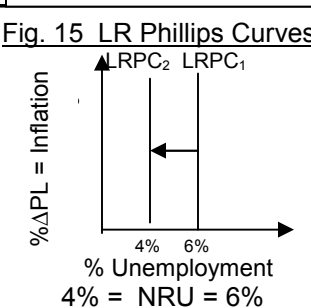
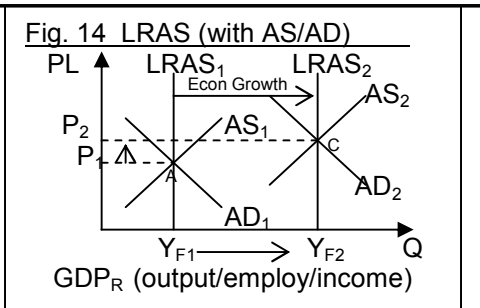
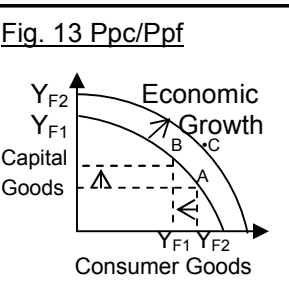
**Examples compare US \$ to Japanese ¥**  
**Output/Employment** – If  $GDP_{USA}$  ↑ → income<sub>USA</sub> ↑ →  $M$  ↑ →  $X_n$  ↓ →  $D_{\$}$  ↓,  $S_{\$}$  ↑ →  $\$P/\$$  ↓ →  $\$$  depreciates  
**Price Level** – If  $PL_{USA}$  ↑ →  $M$  ↑ (foreign goods cheaper),  $X$  ↓ (our goods expensive to ROW) →  $X_n$  ↓ →  $D_{\$}$  ↓,  $S_{\$}$  ↑ →  $\$P/\$$  ↓ →  $\$$  depreciates  
**Interest Rate** – Ex:  $r_{USA}$  ↑ → Jap, & US investors buy US bonds, assets ↑ →  $D_{\$}$  ↑,  $S_{\$}$  ↓ →  $\$P/\$$  ↑ →  $\$$  appreciate (Fig. 12)  
 →  $X_{US}$  ↓, →  $M_{US}$  ↑ →  $X_n$  ↓ →  $AD$  ↓ →  $GDP_R$  ↓,  $PL$  ↓  
**Trade deficit or surplus** – Ex: If  $X_n$  ↓, then a trade deficit gets worse or a trade surplus gets better.



**PART V: LONG RUN. If  $r$  ↓ → SR Investment ( $I_g$ ) ↑ → Quantity and/or quality of resources ↑ (capital stock, land, labor) or productivity ↑, research & development ↑, technology ↑ → causes Economic Growth. (The opposite causes Economic Decline) In the long run all input prices change in response to price level changes. In the short run, at least one input price (often nominal wages) has not changed in response to price level changes.**

**Linkage:** If real interest rates ↓ or if business T ↓ →  $I_g$  ↑ in short run (points A to B). If  $I_g$  ↑ > depreciation → growth in stock of capital →  $P_{pc}$  ↑ (Fig. 13),  $LRAS$  ↑ (Fig. 14).

$LRPC$  at  $NRU = NAIRU$ , but not related to % inflation. Ex: If worker experience ↑ →  $NRU$  ↓ →  $LRPC$  shifts left (Fig. 15)



**Changes in NRU cause LR shift:**  
 \* Labor force characteristics (experience, women, migrants)  
 \* Labor market institutions (unions, temp agencies, internet searches)  
 \* Govt policies (minimum wage, job training, benefits)  
 \* Productivity ↑ > wage ↑