

Final Exam Fall 2014

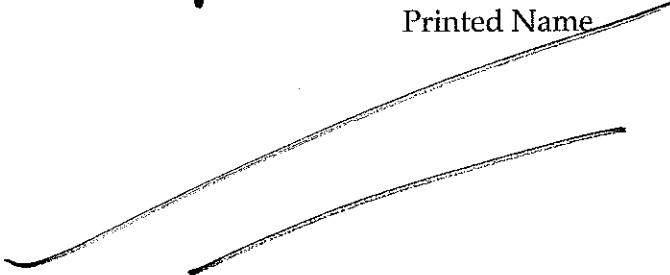
Do not open this exam until instructed to do so.

- You have 120 minutes to complete this exam.
- You may use a calculator; you may **not** use any other device (cell phones, etc)
- You may consult one page of notes (both sides); you may **not** use books, notebooks, etc.
- Show all your work.

I understand that the honor code applies: I will not lie, cheat, or steal to gain an academic advantage, nor tolerate those who do.

Signature
Mike NAUGH

Printed Name



True/False-Explain. Respond to the following statements by *explaining why they are true or false*. For each statement, a complete and correct explanation is worth full credit. No partial credit will be awarded for stating TRUE or FALSE without explanation.

1. The key difference between the short-run (SRAS) and long-run (LRAS) aggregate supply curves is that interest rates are fixed in the short run but flexible in the long run. This gives the SRAS curve its characteristic upward slope, while the LRAS is vertical. Wo

False. The key difference in the SRAS curve is that prices are fixed in the short-run, thus all changes in Demand result in changes in Y

2. In a world with capital controls, the trilemma says a central bank can fix its exchange rate while maintaining independent monetary policy

True. This is China. Trilemma:
Pick two of three

This problem
says
take ①③
get ②

- ① Capital Controls
- ② Independent M. Policy
- ③ Fixed Exchange Rate

3. If the US dollar price of a UK pound is 1.72 and the Australian dollar price of a pound is 1.82, then this implies that US dollar price of an Australian dollar 0.93.

$$S_{\$/\pounds} = 1.72$$

$$S_{A\$/\pounds} = 1.82$$

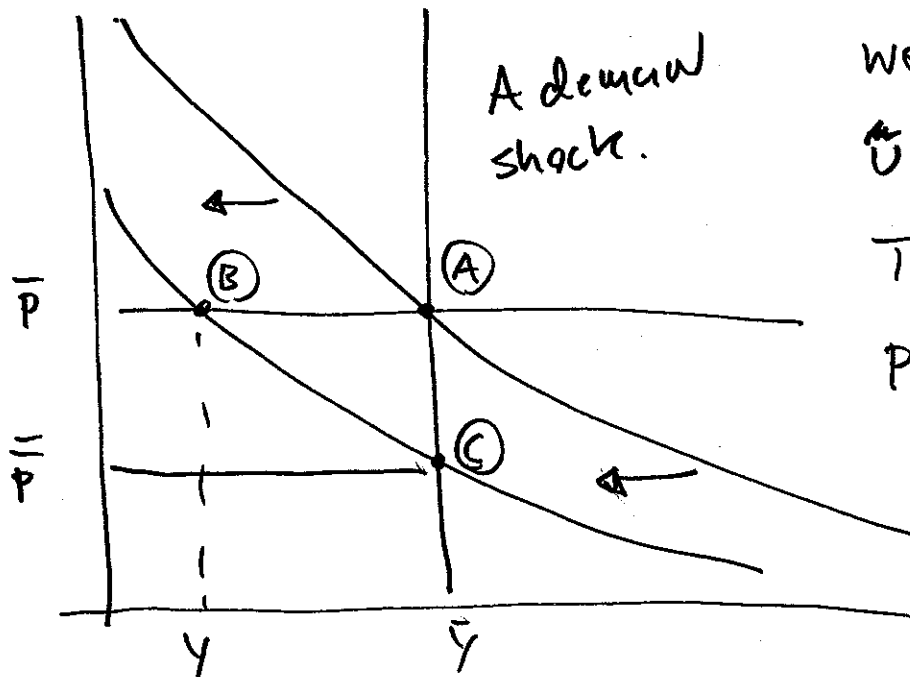
Then note

$$\frac{S_{\$/\pounds}}{S_{A\$/\pounds}} = \frac{1.72}{1.82} = 0.93$$

$$S_{\$/A\$}$$

4. A negative correlation between inflation and unemployment during a certain time period is a sign that an economy was hit by an aggregate demand shock.

Draw the Picture ...



In this case as we go from A-C
via Okun's LAU

Then Prices will Fall

$P \downarrow$

B.C. u is moving in opposite

direction \Rightarrow

u, P are negatively correlated - - - -

True!!!

Tip. Do with Positive Demand shock.

5. Opening to international trade leads to lower prices and more choice for consumers.

YES!!! The best example hitting both points in the M.C. mode. The two sources of gains there was from

(i) Lower prices from competition

(ii) More Variety (which means
More Choice
For consumers)

6. Technological growth is harmful because it substitutes jobs performed by humans with computers and machines.

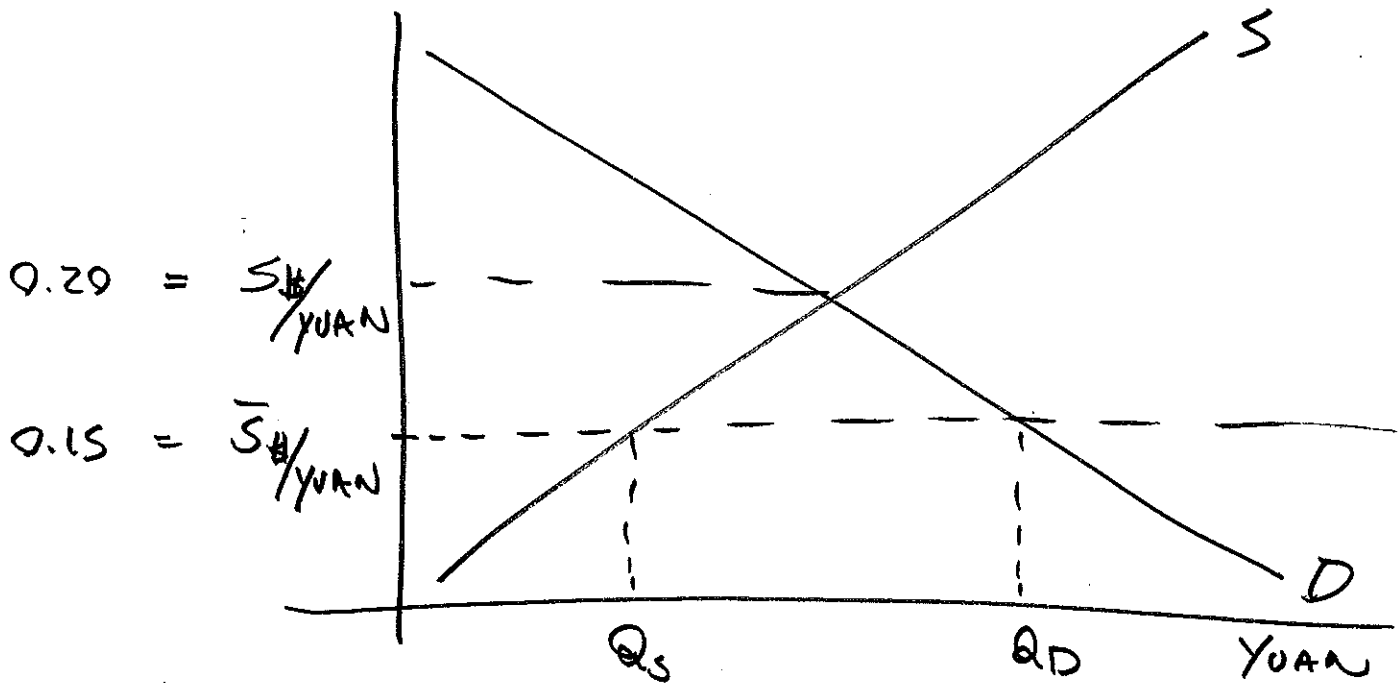
NO!!! It benefits humans by complementing our labor effort.

This shows up as higher wages as Growth in ~~TP~~ raises the marginal Product of Labor, hence wages.

Answer all of the remaining questions.

7. Currently, the U.S. dollar price of a Chinese Yuan is around \$0.15. Suppose that the equilibrium price that would prevail if the Yuan were allowed to float is \$0.20.

- a. Sketch supply and demand curves for the Yuan on the axis below. Label the floating price of the Yuan and fixed price of the Yuan on the graph. Further, label the amount of Yuan supplied and the amount of Yuan demanded at the fixed exchange rate.



- b. How can the People's Bank of China keep the exchange rate fixed at this rate? What will happen to the level of foreign reserves held by the bank?

The PBOC will have to supply YUAN on the FX market, in exchange for Dollars or Dollar Denominated Assets - - - -

Balance Sheet

A PBOC L	
+ Dollars	+ YUAN
+ Dollar Assets	

- c. Absent any other intervention, what would you expect to happen to the price level in China? Carefully, explain why you would expect this.

Absent any intervention, this is inflationary
Why??? Quantity theory says that

$$\frac{M}{P} \cdot V = Y \quad \text{--- Hold } Y \text{ Fixed,}$$

then any increase in

→ $M \Rightarrow P \uparrow$ (or inflation)

PBOC is effectively printing money here...

- d. What would you expect to happen to interest rates in China if the PBoC stopped intervening to keep the Yuan below its equilibrium level? Why? How would this affect the flows of capital into the economy, if at all?

This is harder / don't sweat it

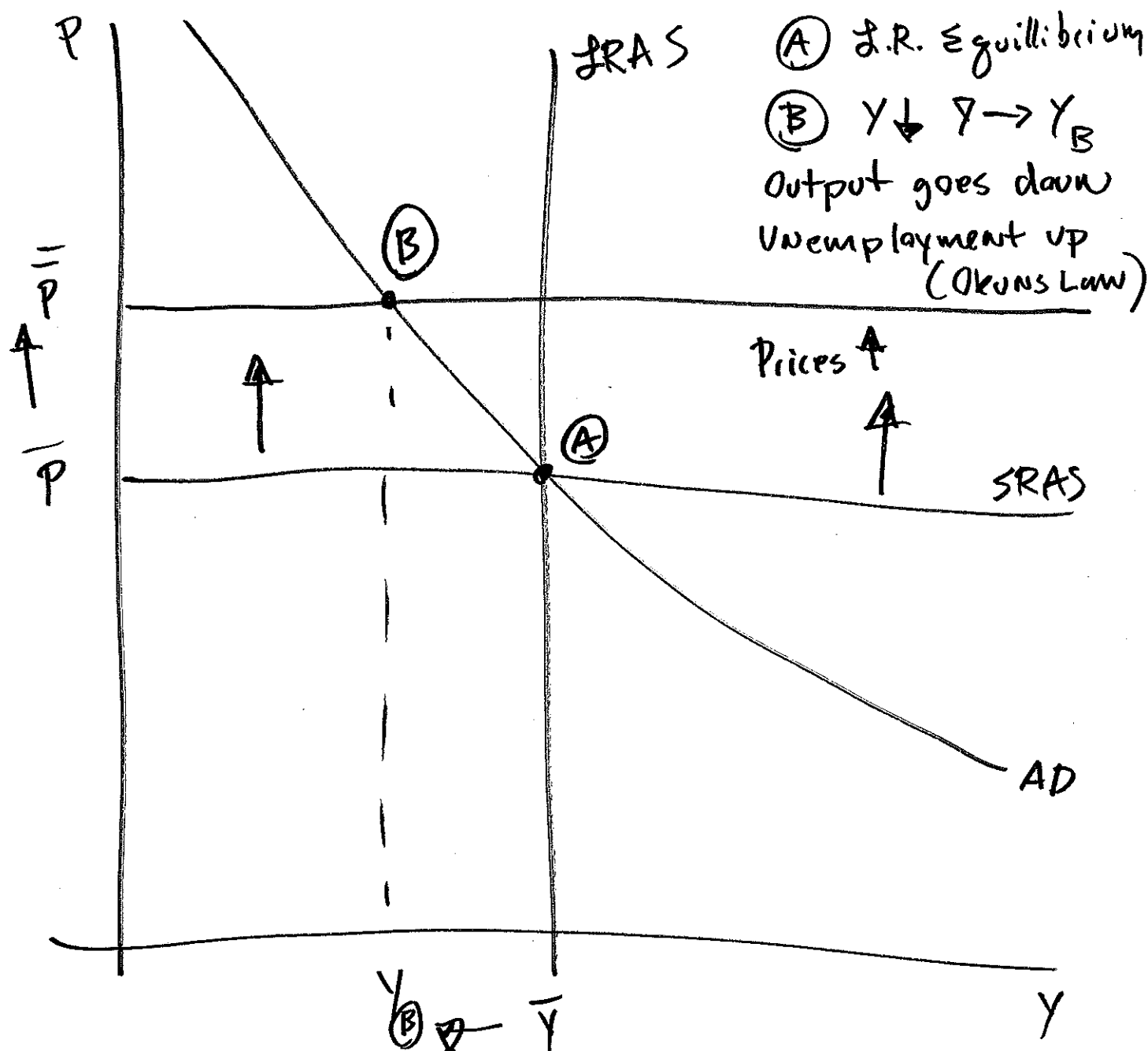
So you should think that expansionary M. policy like this would be associated with low i interest rates (at least in short-run). As PBOC stops intervening $i \uparrow$. Then capital might start to flow in to China as returns in China are relatively more attractive now.

Note: This is the issue with China. Capital wants to leave China given FX policy. They prevent this with capital controls.

8. The Federal Open Market Committee (FOMC) sets the target for the federal funds rate, the interest rate that banks charge each other for uncollateralized loans in the overnight market. This question tests your understanding of how FOMC policy is made and how it affects the economy in the context of the AS/AD model

- a. The Patient Protection and Affordable Care Act (PPACA) mandates that firms with 50 or more workers must provide health insurance to all full time workers or pay a per worker fine. This has drawn concern from business leaders in industries that employ low wage workers who would need to be covered, e.g. The Cheesecake Factory's CEO said that the law could be "very costly and would have to pass these costs on to consumers."

In the context of the AS/AD model and assuming that we are starting from a long-run equilibrium, clearly illustrate what would the short-run effects of PPACA be? (Hint: Shift the SRAS)



- b. If monetary policy did not respond to the PPACA, what would be the long run impact on the price level and output? Be sure to carefully describe how and what would adjust in the long run.

Note, We should expect Firms eventually adjust and Prices return back to \bar{A} . Then Y goes back up to \bar{Y} .

So in Long run, everything goes back to \bar{A}

- c. Fast forward to the end of 2015. The change in the economic environment has left portfolio managers to wondering if and how the Fed will react. Turning to the data, we see that annual core PCE inflation has risen to 3%, while the Congressional Budget Office estimates that current real GDP is 4 percentage points below potential GDP. Use the Taylor rule to predict what the federal funds target rate will be. Assume the Fed's inflation target is 2%, the long run real interest rate is 2% and the sensitivity parameters (or coefficients) for deviations of inflation from its target and for deviations of output from its potential are both 0.5.

$$i = \pi + r + \frac{1}{2}(\pi - \bar{\pi}) + \frac{1}{2}(y - \bar{y})$$

Taylor Rule

$$= 3 + 2 + \frac{1}{2}(3 - 2) + \frac{1}{2}(-4)$$

$$= 3.5$$

- d. Assuming that the FED's old policy was consistent with its target inflation and growth rate, describe how the balance sheet of the Fed would change as it tries to implement this new target interest rate.

Old policy

$$i = \underbrace{2 + 2}_4 + \underbrace{\frac{1}{2}(2 - 2)}_0 + \underbrace{(\bar{y} - \bar{y})}_0$$

So the FED in "Normal times" would set $i = 4$.

(c) is saying set $i = 3.5 \Rightarrow$ Increase Monetary Base

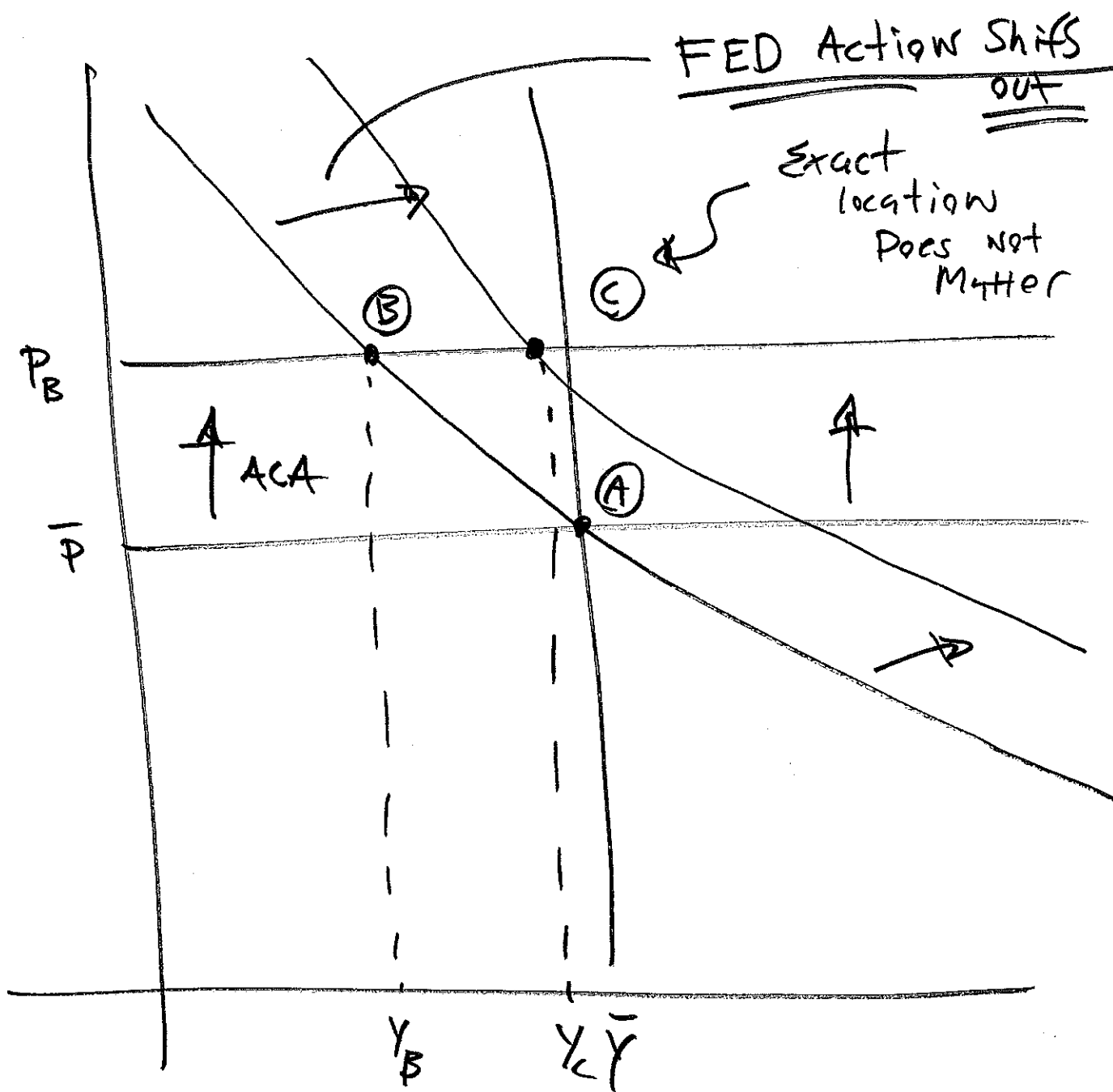
~~e. Building on your answer to part (a), illustrate the effects of the policy described in (c) and (d) in the aggregate supply and demand framework. Describe and illustrate the effects of this policy on prices and output.~~

Why. We want to lower interest rates \Leftrightarrow

Buy T-Bills in exchange for Reserves put in circulation. This process means bond prices \uparrow , Yields/interest rates \downarrow FED

		A	B
This process pushes $i \downarrow$	{	+ T-Bills	+ Reserves }
		This process increases B_1 and M .	

Part (E) What does (d) imply for AS/AD



This results in Higher Y , lower \bar{P} , ~
 But at the cost of permanently higher
 prices

9. In Thomas Piketty's "Capital in the 21st Century" he basically argues for a tax on capital as a way to reduce income inequality. One concern against the taxation of capital is that it reduces incentives for people to save and accumulate capital. In the problem, your job is to evaluate this policy in the context of the model discussed in Chapter 3.

a. If a tax on capital reduces the savings rate (because of the forces described above) and, in turn, reduces the amount of capital in the economy, how will output change relative to the period before the implementation of the tax.

Simple!!! Less inputs, Less Outputs

$$Y = AK^\alpha L^{1-\alpha}$$

$$\text{If } K \downarrow \Rightarrow Y \downarrow$$

b. How will the real wage change after the implementation of the tax on capital? Please carefully explain why.

$$\text{Real Wage} = MPL$$

Then with Cobb-Douglas production

$$MPL = (1-\alpha) \frac{Y}{L}$$

$$\text{So if } K \downarrow \Rightarrow Y \downarrow$$

$$\Rightarrow MPL \Rightarrow \text{Real Wages} \downarrow$$

~~TAXING~~
Capital, less capital
Workers become
less productive
Workers get paid
Less!!!

c. How will the rental rate of capital (i.e. the price received by the owners of capital for the use of their capital) change after the implementation of the tax on capital?

Even simpler, Diminish Returns implies that as the factor becomes scarce, then its marginal product increases.

In this case $K \downarrow$, $MPK \uparrow$, via DMP.

Then we know $\frac{R}{P} = MPK \Rightarrow$ The

Rental Rate of Capital \uparrow

d. One of Piketty's is to reduce inequality between the owners of capital and workers. Does this policy achieve this goal? Why or why not?

No. We know that the share of income paid to labor is just $(1-\alpha)$, the share paid to capital is just (α) . This policy does nothing to change this...

Why? While capital becomes scarce, its ~~price~~ ~~becomes~~ value increases and so
Net, there is no change in how much income is allocated to it.