

SIMON FRASER UNIVERSITY  
Department of Economics

Econ 305  
Intermediate Macroeconomic Theory

Prof. Kasa  
Spring 2012

PROBLEM SET 3  
(Solutions)

1. (15 points). Conservative commentators in the US often attribute the slow recovery to market concerns about what Obama might do in the future. In particular, it is often argued that people are worried that he might raise taxes and spending in the future, and that this is holding back the recovery today.

- (a) Use the market-clearing Real Business Cycle model developed in chapters 9-11, to analyze the effects of expectations of higher future government spending and (lump-sum) taxes. Under what conditions can this explain a slow recovery?

*In the textbook market-clearing model, an anticipated increase in future government spending is not a promising explanation for a slow recovery. Households now view themselves as poorer (due to higher expected taxes - note, the timing of taxes is irrelevant with Ricardian Equivalence), and as a result, labor supply increases. This shifts out the  $Y^s$  curve. There would also be leftward shift of  $Y^d$ , as households reduce their consumption in response to their lower permanent income (note, the increased government spending takes place in the future). If the negative wealth effect on consumption dominates the positive wealth effect on labor supply it's conceivable that the leftward shift in  $Y^d$  dominates the rightward shift in  $Y^s$ , so there is a net decrease in output. However, that would still leave unexplained why employment has been so slow to recover.*

- (b) Now suppose that taxes are not lump-sum, but instead have the effect of reducing incentives and productivity. Explain how this would change your analysis. Would the 'Obama effect' become more or less convincing?

*If taxes are distorting, then anticipated future government spending and taxes combines a negative wealth effect with an expected decline in future productivity. This would contribute to the leftward shift in  $Y^d$ , since current investment would decline, and make it more likely that output would be slow to recover. However, it would still leave unexplained the lack of employment growth. An anticipated reduction in future productivity does not influence current labor demand in the textbook model, so you are still left with the prediction that the Obama effect increases employment (which is not a good prediction!).*

2. (15 points). There has been much debate among economists about Classical versus Keynesian business cycle models. It would be nice to be able to distinguish between them. Some people have argued that we can do this by looking at how employment responds to productivity shocks. Explain why this is. Compare and contrast what each model predicts about how employment responds to productivity shocks. If possible, use graphs to illustrate your answers.

*The textbook market-clearing model predicts a negative correlation between  $P$  and  $Y$ . (See Figure 11.2, pg. 383, in the textbook, or lecture slides 14). In contrast, Keynesian models predict a positive correlation. Why? Because Keynesian models attribute output fluctuations to demand fluctuations,*

not productivity fluctuations. Keynesian models also predict that the AS curve is upward sloping, not vertical. If wages are fixed, then a higher price level produces lower real wages, which increases labor demand. A shifting AD curve in combination with an upward-sloping AS curve produces a positive correlation between  $Y$  and  $P$ . (Extra credit: Some students might note that it is possible to produce a positive correlation even in a market-clearing model. That was the whole motivation behind the Lucas supply curve!)

An increase in productivity increases equilibrium employment in the textbook market-clearing model, since  $N^d$  shifts right more than  $N^s$  shifts left. (See Figure 9.23, pg. 325 for the graph). In Keynesian models, on the other hand, an increase in productivity would likely decrease employment. Why? Because output and employment are demand constrained in Keynesian models. Without a significant increase in output demand, firms will not change production by much. However, if labor is now more productive, firms can produce the same output with fewer workers, so labor demand and employment would actually decrease. True, there would be some effect on demand arising from the fact that increased productivity increases wealth, which increases demand, but Keynesian models typically downplay the wealth effect on consumption, and it would not likely be very large anyway unless the productivity increase is large and long-lasting, in which case the negative effect on labor demand is going to be larger as well.

3. (15 points). There has been much debate among economists about Classical versus Keynesian business cycle models. It would be nice to be able to distinguish between them. Some people have argued that we can do this by looking at the correlation between output and the price level. Explain why this is. Compare and contrast what each model predicts about the correlation between output and the price level. If possible, use graphs to illustrate your answers.

The textbook market-clearing model predicts a negative correlation between  $P$  and  $Y$ . (See Figure 11.2, pg. 383, or lecture slides 14). In contrast, Keynesian models predict a positive correlation. Why? Because Keynesian models attribute output fluctuations to demand fluctuations, not productivity fluctuations. At the same time, Keynesian models predict an upward-sloping AS curve. With fixed nominal wages, a higher price level reduces real wages, which then increases labor demand. The combination of a shifting AD curve with an upward-sloping AS curve produces a positive correlation between  $P$  and  $Y$ . (Extra credit: Some students might note that it is possible to produce a positive correlation between  $P$  and  $Y$  even in a market-clearing model. That was the whole motivation behind the Lucas supply curve!)

4. (15 points). Use the Keynesian IS-LM model to provide one possible explanation of the recent financial crisis. Use a graph to illustrate your answer. Describe how monetary and fiscal policies could be used to respond to the crisis, and discuss the pros and cons of each.

This is straight from the notes. (See lecture slides 17). A loss of confidence in the financial system would likely increase the demand for money, which shifts LM to the left. This would increase the interest rate on less liquid assets, and reduce output. (Note, there might also be an endogenous reduction in broad definitions of the money supply, due to a decline in the money multiplier, which would reinforce the leftward shift of LM). In principle, either expansionary monetary or fiscal policies could be used to combat the recession. In this case, since the original disturbance occurred in the financial markets, a monetary expansion (e.g., having the Fed purchase 'toxic' assets) makes more sense. A fiscal expansion would take longer to implement, and would likely exacerbate the effects on interest-rate sensitive sectors of the economy.