

**Econ 154:
Intermediate Macroeconomics**

Midterm Exam

Make sure to use a different exam book for each part (i.e. There are 3 parts, so you will need 3 books).

I. True, False, Uncertain Short Answers. Explanation determines the grade. Only a few well chosen sentences are necessary, but you can use models and/or graphs to support your explanations.

(25 minutes, i.e. approximately 4 minutes per question).

- a. In the Robinson Crusoe world, a proportional increase in technology implies that both substitution and wealth effects have occurred. After considering both effects, we conclude that consumption increases and work effort falls.
- b. In 1979, Paul Volker reduced the money supply. At the same time output fell. Thus, it is obvious that contractionary monetary policy caused the recession.
- c. The marginal propensity to consume out of temporary income is always less than one, no matter how old you are.
- d. Consumption depends on the real interest rate because r is the opportunity cost of holding consumption goods.
- e. Walras' law states that the bond market always clears. We can therefore afford to look only at the real goods and money markets only.
- f. In the Keynesian model, when the price level is stuck above equilibrium, then the real interest rate is also stuck above equilibrium.

II. Reagan and Investment Tax Cuts in the Classical Model. (25 minutes)

- a. How and why does investment depend on the real interest rate, the depreciation rate, the marginal product of capital, and the pre-existing capital stock?
- b. Why does investment depend on the real interest rate rather than the nominal interest rate?
- c. Suppose we start from the condition that there exists an investment tax, which taxes a certain percentage of all investment undertaken by a firm. Now suppose that the government decides to **REDUCE** this investment tax. What is the effect on investment demand? Could this be

- considered as having similar effects as an embodied or a disembodied technological change? What happens to aggregate supply today? Tomorrow?
- d. Based on your answer to part (c), what will happen to consumption demand today?
 - e. **GRAPH** the previously discussed shifts in investment demand, consumption demand, aggregate demand, and aggregate supply. What will happen to the *equilibrium* levels of investment, consumption, output, the real interest rate, and the price level today?
 - f. In 1982, Reagan introduced tax credits for investment. In other words, taxes paid by firms were proportionately reduced with each unit of investment undertaken by the firm. The country enjoyed an economic boom (i.e. high output levels) with high nominal interest rates and inflation rates which were not particularly high. How could you explain this in light of the previous discussion (be sure to explain each economic variable mentioned)?

III. Hyperinflation in Bolivia, 1985. (25 minutes)

- a. Why do governments print money if money is truly neutral? Why is printing money considered seignorage (an inflation tax)? Who pays and who collects this tax?
- b. Consider the Laffer Curve. How does the rate of money growth affect the revenue maximizing level of seignorage? For example, if the government has not previously printed money, what will happen to the government's revenues from seignorage when it starts printing money at 10%? On the other hand, if the country already faces a 600% rate of money growth, and the government decides to start printing money even more quickly, what will happen to seignorage revenues?
- c. How (and why) does real money demand depend on the nominal interest rate, output, and real transactions costs?
- d. Suppose the government reduces the rate of money growth from 25,000% to 100%. What will happen to the price level today? What will happen to the inflation rate? Use a **GRAPH** as part of your answer.
- e. Suppose the government instead has a large discreet drop in the money supply today, followed by an even higher rate of money growth (say 26,000%)? What will happen to the price level today? What will happen to the inflation rate? Use a **GRAPH** as part of your answer.
- f. In Bolivia, the inflation rate was 25,000% a year in 1985, meaning that if you waited until after work to do your grocery shopping, you would only be able to buy a small fraction of what you could have bought if you had gone shopping in the morning. Similarly, if you were paid in the morning but waited until after work to use this money, you would lose a majority of the purchasing power of your income. Married couples in Bolivia reacted to these conditions by having one of the spouses quit their job and instead devote themselves full time to managing their money. In Bolivia, are transactions costs negligible? Does money growth have real effects in this case? If so, how (i.e. in which direction) does money affect real variables?¹
- g. Analyze this situation of very large transactions costs which reduce the amount of labor available for productions, in the context of the Classical model without capital. What will happen to the equilibrium levels of output and the real interest rate? Use a **GRAPH** as part of your answer.

¹ Note that Bolivia's growth rate of GDP during this period was -10%.