

### Midterm 1 Exam

This exam is 70 minutes long, and is worth 70 points. Part I is multiple choice, Part II is a short answer, and Part III is a derivation. The points are allocated in proportion to the time you should spend on each problem. Write **all** answers in the bluebook.

**PART I:** Multiple Choice [24 minutes total, 2 points each]. Do NOT explain.

1. In the IS/LM model studied in class, what behavioral assumption is necessary to ensure that the IS curve is downward sloping but not completely vertical?

- a) The MPC is not 0
- b) Neither net exports nor investment depend on the interest rate
- c) At least either of net exports or investment depends on the interest rate
- d) both (a) and (b)
- e) both (a) and (c)

2. Potential GDP,  $Y^*$ ,

- a) is the level of output consistent with the natural rate of unemployment in the economy.
- b) depends upon the government spending in the current period.
- c) depends in part on the capital stock.
- d) depends directly upon the money stock in the current period.
- e) both (a) and (c) above.

3. If money supply were shown to depend positively on the interest rate, then we would expect to see (relative to the situation with the usual money demand function)

- a) a steeper IS.
- b) a flatter LM curve.
- c) no difference in the LM curve.
- d) a flatter IS curve.
- e) a steeper LM curve.

4. As the marginal propensity to consume gets larger,

- a) the IS curve shifts farther right in response to a given increase in government spending.
- b) the IS curve shifts less to the right in response to a given increase in government spending.
- c) the IS curve gets flatter.
- d) the IS curve gets steeper.
- e) both (a) and (c) above.

5. Portfolio crowding-out of investment, and hence of income, starting from initial budget balance:

- a) is caused by the increased transactions demand for money associated with higher levels of income.
- b) could result in expansionary fiscal policy being completely ineffective.
- c) is caused by higher interest rates due to the increased supply of government bonds associated with a budget deficit.
- d) none of the above.
- e) both (b) and (c) above.

6. Suppose that because of the uncertainty in the economic environment, households' marginal propensity to consume were to decline. Then, holding all else constant,
- GDP will decline.
  - fiscal policy will become more effective.
  - tax cuts will become more effective in stimulating aggregate demand.
  - monetary policy will become more effective.
  - both (a) and (c).
7. Transactions crowding out of income is greater:
- the greater the proportion of wealth people desire to hold as bonds.
  - the greater the interest sensitivity of investment.
  - the greater the income sensitivity of money demand.
  - the greater the interest sensitivity of money demand.
  - both (b) and (c) above.
8. If the GDP deflator is rising by 2% per year, and nominal GDP is rising by 1.5%, then
- real GDP growth is negative.
  - real GDP growth is 3.5%.
  - the inflation rate is positive.
  - real output is growing by 0.5%
  - both (a) and (c) above.
9. A monetary expansion will have a larger effect on income if:
- money demand is interest-sensitive, but investment is insensitive to interest rates.
  - the income sensitivity of money demand and the interest sensitivity of investment are both low.
  - the interest sensitivity of money demand is low relative to the income sensitivity, and the IS is flat.
  - the LM curve is flat and the IS curve is steep.
  - none of the above.
10. United States Gross Domestic Product
- measures the total value of final goods and services produced by American-owned factors of production (land, labor, capital).
  - is the measure of aggregate American welfare.
  - is sum of all the value added by factors of production in the United States.
  - measures the total value of final goods and services produced by factors of production (land, labor, capital) located in within the borders of the United States.
  - (c) and (d) above.
11. In the standard IS-LM model, an expansionary fiscal policy and a contractionary monetary policy
- necessarily causes output to decrease.
  - usually causes interest rates to rise.
  - usually causes interest rates to fall.
  - both (a) and (b) above.
  - none of the above.

12. Suppose that we modify the IS/LM model in class so that money demand does not depend on the level of income (i.e.  $k=0$ ). Which of the following is true?

- a) The LM curve is horizontal
- b) Compared to the standard IS/LM model, monetary policy is more effective
- c) There is more transactions crowding out than in the usual IS/LM model.
- d) both (a) and (b)
- e) all of (a), (b) and (c)

**PART II: Short Answer** (16 minutes total) [start your answers to this Part on a new page]

1. In 2010, the economy of Homeland produced 1000 widgets (sold for \$3), 2000 donuts (sold for \$1). In 2011, Homeland produced 2000 widgets (sold for \$3), 2000 donuts (sold for \$2). Consider 2010 to be the base year. The economy of Homeland is closed, and these are the only goods that are produced there.

- 1.1. (4 points) Calculate nominal GDP in both 2010 and 2011
- 1.2. (6 points) Calculate Laspeyres and Paasche price indices for 2011.
- 1.3. (3 points) Calculate the Fisher price index for 2011.
- 1.4. (3 points) What is the rate of inflation, using the Fisher price index? (Hint:  $7^{0.5} = 2.65$ ).

**PART III: Derivation** (30 minutes total) [start your answers to this Part on a new page]

Suppose the real side of a closed economy was described by the following equations:

$Y = AD$	Equilibrium condition
$AD \equiv C + I + G$	Definition of aggregate demand
$C = a_0 + bY_d$	Consumption function
$Y_d \equiv Y - T + F$	Def'n of disposable income
$T = tY$	Tax function
$F = FT_0$	Transfers function
$I = e_0 - dR + \lambda Y$	Investment function
$G = GO_0$	Government purchases spending

Where the standard LM curve is in place, viz.,  $R = \frac{\mu}{h} - \left(\frac{1}{h}\right)\left(\frac{M_0}{P_0}\right) + \left(\frac{k}{h}\right)Y$

Answer the following questions, showing your work, and "boxing in" your answers.

- 1. (5 points) Derive the IS curve, with Y as a function of R.
- 2. (5 points) Solve for equilibrium income.
- 3. (5 points) What is the transfers multiplier? Be sure to show your work.

4. (10 points) Is fiscal policy more, or less, effective in this model as compared to the model with a standard investment function, where investment depends only on the interest rate. Be sure to *explain* the economics of your answer, using equations or diagrams if necessary. (A graph will prove helpful in answering this question.)

5. (5 points) Can you tell whether investment will be greater than or less than it started out as? Explain your answer, using either algebra or graphs as adjuncts.

e302mt1\_f09 1.10.2009