

Professor Christiano
306, Winter 2001

Midterm

IMPORTANT: read the following notes

- You may not use calculators, notes, books, or aids of any kind.
- Please feel free to ask the proctor questions if the wording of a question is unclear.
- A total of 100 points is possible, with the distribution by question indicated in parentheses.
- Explain your answers carefully in clear English. Back up what you say with liberal use of diagrams and state clearly any assumptions you use.
- Write neatly and label all diagrams. We cannot give you credit if we cannot read your answer.

1. (10) Consider two countries in which the nominal exchange rate is fixed. Suppose government regulations do nothing to hinder trade between the two countries. Suppose the aggregate price index in one country is rising more than it is in another country. Explain how this can happen.
2. (15) Suppose the Fed wants inflation in the long run to be 5%. Output growth is expected to be 3% in the long run. Money demand is:

$$\frac{M}{P} = f(R)Y^\gamma,$$

where $\gamma > 0$ is a parameter and f is a decreasing function. Define velocity like this:

$$V = \frac{PY}{M}.$$

- (a) Suppose that V is observed to grow over time, as Y grows. Suppose that R displays no particular trend over the same period. What would you infer about the value of γ ? Explain.
 - (b) Display a formula in terms of γ which shows what money growth needs to be in the long run if the Fed is to hit its long run inflation target.
3. (35) Here is our short run model:

$$(1) \text{ UIP} : R = R^f + \frac{E^e - E}{E}.$$

$$(2) \text{ Money Market} : \frac{M}{P} = L(R, Y).$$

$$(3) \text{ Goods Market Equilibrium} : Y = D,$$

where D is aggregate demand:

$$D = C(Y - T) + I + G + CA(q, Y - T),$$

and CA is the current account, which is increasing in its first argument and decreasing in its second argument. Finally, the real exchange rate, q , is related to the nominal exchange rate and foreign and domestic prices like this:

$$q = \frac{EP^f}{P}.$$

The endogenous variables in this model are E , R , Y , q and D . The exogenous variables are R^f , E^e , M , T , I , P .

- (a) Explain why the current account is increasing in its first argument and decreasing in its second argument. What sense does it make to assume P is fixed?
- (b) Suppose there is a temporary increase in I . Explain what happens to the endogenous variables using the AA and DD curve framework developed in class. What happens to the current account? (Hint: the AA curve is the E, Y combinations where equations (1) and (2) are satisfied and the DD curve is the E, Y combinations where equation (3) is satisfied.)
 - i. Explain carefully which curve shifts and why. Frame your answer in terms of the economic relations underlying the AA and DD curves.
 - ii. Indicate where the initial and new equilibria are. Explain the dynamic path the economy takes from the old equilibrium to the new equilibrium.
 - iii. Describe the economic effects of the increase in I in intuitive terms.
4. (30) Suppose there is a temporary increase in R^f . Analyze the impact of this on the endogenous variables of the short run model in the previous question. Redo part *b* of that question for this case.
5. (5) Could the current account ever be negative while net exports is positive? Explain.
6. (5) In the model above, the demand for real money balances, $L(R, Y)$, is specified in terms of the nominal and not the real interest rate. Explain why this is the correct specification.