

Final test for Macroeconomics

January 2004

1. Assume a (closed) economy is in its medium-run equilibrium, i.e. Y is natural output Y_n . The government wants to achieve higher output and increases G .
 - (a) Using an AS-AD diagram, explain what happens in the short run. Is the fiscal expansion successful?
 - (b) Using the AS-AD diagram, explain what happens in the medium run. Is the fiscal expansion successful in the medium run?
 - (c) Compare the new and the old medium-run equilibrium (the one before and after the expansion episode). Are they exactly the same or are there differences? In particular, what happened to C and I ?
2. An economy obeys the following three equations (in the medium run)

$$\begin{aligned}u_t - u_{t-1} &= -0.5(g_{Yt} - 3\%) \\ \pi_t &= 0.5\pi_{t-1} + 0.5\pi_{at} - (u_t - 5\%) \\ g_{Yt} &= g_{Mt} - \pi_t\end{aligned}$$

Note the time index in the third equation. π_{at} is the *announced* inflation target. The economic agents form inflationary expectations as a moving average of last period's observation and the announced target, i.e., $\pi_t^e = 0.5(\pi_{t-1} + \pi_{at})$. Suppose that in year 0, the economy is in its medium-run equilibrium with $\pi_0 = 1\%$ and $u_0 = 5\%$. [Note that this determines g_{Y0} and g_{M0}]. The central bank considers π too low and wants to raise π to 2%. This means, they *announce* $\pi_{at} = 2\%$ for all years excepting $t = 0$, where $\pi_{a0} = 1\%$. Do you think they can do this in one year? If so, which g_{M1} do they choose and what will be the values for u_1 and g_{Y1} ?

3. Answer the following questions:
 - (a) Define nominal and real exchange rates. What are a real appreciation and a real depreciation?
 - (b) What is the uncovered interest parity condition? What does it imply in terms of the domestic interest rate and the foreign interest rate?
 - i. What does the Marshall-Lerner condition state?
 - ii. What does this condition imply in case of a real depreciation (assuming the depreciation starts from a state of balanced trade)?

- (c) What combination of fiscal policy and exchange-rate changes should the government pursue if it wants to:
- Increase output while improving the trade balance?
 - Decrease output while improving the trade balance?

4. Interest parity:

- (a) Suppose that the interest parity condition holds and the expected exchange rate between the euro and the U.S. dollar in one year is 0.8 (80 euro cents per dollar). Determine the current exchange rate for the following pairs of annual interest rates:
- Euro Area, 7%; U.S., 5%
 - Euro Area, 7%; U.S., 7%
 - Euro Area, 7%; U.S., 9% [**Use the exact formula**]
- (b) Suppose the following. The interest rate in Austria is 6%. The interest rate in Japan is 1%. The current nominal exchange rate (euro price of a yen) is 0.01. The expected nominal exchange rate next year is 0.011.
- How many euros would an Austrian resident expect to earn for each euro invested in Japanese bonds for one year?
 - Ignoring risk and transaction costs, should an Austrian resident prefer to invest in domestic or Japanese bonds?
 - How many yen would a resident of Japan expect to earn for each yen invested in Austrian bonds for one year?
 - Ignoring risk and transaction costs, should a resident of Japan prefer to invest in Austrian or Japanese bonds?
 - What is the expected rate of appreciation or depreciation of the euro? (State which.)
 - Show that the data are not consistent with uncovered interest parity. [**Use the approximation formula**]