Exam 3. Econ520. Fall 2012

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UNC

Instructions:

- Answer all questions.
- Clearly number your answers. Write legibly.
- Do *not* write your answers on the question sheets.
- *Explain* your answers – do not just state them.
- *Show* your derivations – do not just state the final result.
- Do not refer to any notes or books.
- The total time is 75 minutes.
- The total number of points is 100.

1 Consumption

Consider the consumption / saving choices of individuals who have access to borrowing and saving opportunities.

1. [6 points] What does the Permanent Income Hypothesis say in words? There are many ways of stating this. I am not that interested in the details, but in the main point.
2. [15 points] Consider 2 individuals. One has a steep age-earnings profile; the other has a flat one. The present value of earnings is the same. Make a stylized plot of their age-saving profiles. Explain its features.

2 Inflation Expectations

Recall the IS/LM model with inflation expectations. In the short run:

$$IS: Y = C(Y - T) + I(Y, i - \pi^e) + G \tag{1}$$
$$LM: M/P = YL(i) \tag{2}$$

In the medium run: add the vertical AS curve $Y = Y_n$. Consider the announcement of faster money growth in the future (there is no change in M today).

1. [15 points] Graph the short run effects. Explain.
2. [15 points] Graph the medium run effects. Explain.
3. [10 points] Based on these findings, what advice would you give to a Central Bank who fights a liquidity trap?

3 Open Economy AS/AD Model

Recall the model equations:

$$UIP: i = i^* + RP \tag{3}$$
$$LM: M/P = YL(i^*) \tag{4}$$
$$AD: Y = C(Y - T) + I(Y, i^* - \pi^e) + G + NX(Y, Y^*, \bar{E}P/P^*) \tag{5}$$
$$AS: P = P^e(1 + m)F(1 - Y/L, z) \tag{6}$$

The exchange rate is fixed. I modified the model by adding a risk premium (RP) to UIP. Assume that the economy starts in a medium run equilibrium. Suppose the risk premium increases.

1. [16 points] Show the short-run effects on output, prices, and net exports. Explain.
2. [15 points] Show the medium-run effects on output, prices, and net exports. Explain.
3. [8 points] Briefly explain what happens during the transition from short to medium run.

End of exam.

4 Answers

4.1 Answer: Consumption

1. Only the present value of lifetime income matters for consumption choice. The timing over the life-cycle does not matter.

2. The consumption profile is the same. This is central for the answer. Therefore, the person with the steep wage profile has lower saving early on (or dissaves), but higher saving later on. The present value of saving must be the same (viz. 0).

4.2 Inflation expectations

1. Short run: $\pi^e \uparrow$ shifts IS up (lower r for given i). Y and i rise. P is fixed by assumption.

2. Medium run: $Y = Y_n$ from AS. Then IS fixes $r = r_n$, which is where we started. So i rises by the change in $\pi = g(M)$. From LM: $M/P \downarrow$, so prices must rise. Money is neutral, as usual.

3. Liquidity trap: i hits the zero lower bound. Conventional monetary policy does not work. But by convincing the public that future inflation will be higher, the CB can lower the real interest rate and stimulate the economy. Of course, the drawback is that future inflation rises.

4.3 Open Economy AS/AD Model

1. Short run: AS unchanged. AD shifts left as $i \uparrow$ and $I \downarrow$. Y and P fall. NX improves because $Y \downarrow$ and $P \downarrow$.

2. Medium run: $Y = Y_n$ from AS. P must fall more as AS shifts toward that point. NX must rise, so that AD stays at Y_n even as $I \downarrow$.

3. Transition: Wage setters adjust price expectations downward. Wages fall, which allows prices to fall. That improves the trade balance and increases Y until $Y = Y_n$.

End of answers.