

# Exam 1

Econ 14.05:

Intermediate Applied Macroeconomics

Instructions: Answer the three following questions. Each one of them counts for 1/3. Each subsection counts 1/5.

## 1. Keeping the exchange rate in the monetary union.

The European Community (EC), in its initial stage before the euro, required its members to avoid the exchange rate varying in excess. In particular they had to keep the exchange rate within a band (between a maximum and minimum level). This exercise asks you to analyze some of the common policies used by those members.

- (a) Briefly describe the set-up of the Mundell-Fleming model with static expectations and floating exchange rate. Draw a diagram in the  $(\epsilon, Y)$  space. Some countries like Spain were engaging in expansive monetary policy to stimulate the economy. What was the effect of this policy on the interest rate, the exchange rate and output? Draw graphs in the  $(\epsilon, Y)$  and  $(i, Y)$  spaces in your answer with both perfect and imperfect capital mobility.
- (b) As a consequence of this irresponsible monetary policy, Spain was in risk of not keeping the exchange rate inside the bands (in which direction is part of your answer in part (a)). How could the Spanish government use fiscal policy to avoid this happening? Draw graphs in the  $(\epsilon, Y)$  and  $(i, Y)$  spaces in your answer and analyze both cases, perfect and imperfect capital mobility.
- (c) Another type of policy used was foreign exchange market interventions. In particular, assume the Spanish government sells foreign currency in exchange of Spanish pesetas (the euro did not yet exist) and sterilizes this intervention by buying bonds for Spanish pesetas, so that the money stock does not change. With this intervention, as there is a net reserve loss,  $NX$  and  $CF$  must sum to a negative amount rather than 0 ( $NX + CF = -b$ ). How does this new Balance of Payments condition affect the IS curve with imperfect capital mobility?
- (d) What are the effects of this intervention on output, the exchange rate, and the price level with imperfect capital mobility? Draw graphs in the  $(\epsilon, Y)$  and  $(i, Y)$  spaces in your answer.
- (e) At the end of 1992, after another expansion of the money stock, investors started to realize that because of the irresponsible monetary policy that the government was systematically doing, the exchange rate was likely to change. Write down the uncovered interest parity (UIP) condition under rational expectations. Explain why the condition  $i = i^*$  disappears when investors expect changes in the exchange rate. Then discuss both the long run and the short run effects of the policy on prices and the exchange rate. Consider perfect capital mobility. (Hint: *You do not need to worry about the exchange rate moving outside the bands, assume that whatever it happens to it, it stays inside them*).

## 2. Benjamin Strong's fears

Benjamin Strong, governor of the New York Federal Reserve, considered that the resumption of the Gold Standard after the First World War was the only reasonable international monetary arrangement. He was afraid that the alternatives would result in large fluctuations on the nominal exchange rate and a generalized instability, as shown in “Lessons from the Great Depression” (p.14). Having the advantage of hindsight, and the availability of appropriate models to formalize your thoughts, in this question you are asked to analyze the alternative scenario of not returning to the Gold Standard.

- (a) Using the small country, perfect capital mobility, and static expectations model, show the effect on a country's exchange rate and income if it abandoned the gold standard, regained use of its monetary policy by adopting floating exchange rates, and expanded its money supply. Use an appropriate graph in  $(\epsilon, Y)$  space. What has happened to  $\epsilon$ ?
- (b) Consider now the case in which all countries are identical, and follow the same policy simultaneously (floating the exchange rate and expanding the money supply). From the point of view of a particular country: explain what is the effect on the exchange rate ( $\epsilon$ ), and explain why final output ( $Y$ ) is smaller than the one achieved with the one-side devaluation policy described in (a). Show your result and analysis in graphs.
- (c) Consider now the case of consecutive devaluations. That is, the country that you are analyzing follows the policy described in part (a), and next the rest of the world follows with the same policy. From the point of view of this country (the one that moved first): What happens to the output and exchange rate before and after the rest of the world follows it? (**Hint:** *In a static model like this the timing of the policies followed by the countries do not affect the final outcome. The final equilibrium of the sequential movement is identical to the simultaneous movement determined in part (b)*)
- (d) The country you are analyzing is determined to keep its level of income at the level achieved after following policy (a), so it increases its money supply in response to the sequential movement of the rest of the world described above. Analogously, the rest of the world is also determined to keep the level of income achieved after it followed your country, so it again follows you by expanding its money supply. Describe the evolution across time of the exchange rate and output in the country you are analyzing.
- (e) Assuming the competitive devaluations described in part (d) take effect. How would the price level evolve in the country that you are analyzing (the one that devalued first)? (**Hint:** *Focus on the evolution of domestic money supply, foreign exchange rate, and their effect on aggregate demand*). How can the results you obtained in these problem account for Benjamin Strong's fears?

## 3. Labor markets

In the following questions use the job market models you saw in class. In each case, explain your answer using an appropriate graph in the  $((w/P), L)$  space.

- (a) *Deflation.* Some economists are worried about signs indicating that the US economy may be getting into a deflationary period. Indeed, the GDP deflator (a broad measure of prices) has shown an increase of only 1 percent in the last year. One of the concerns is that the deflation may generate unemployment. Explain what conditions are required

for deflation to create unemployment. Use one of the models discussed in class. Show your analysis in a graph.

- (b) In August 2002, Peter Hartz, the Volkswagen personnel director who had been asked by the German government earlier this year to write a blueprint to help tackle the country's high unemployment, unveiled his reform plan. An important part of the program consisted on the creation of "job centres" which were supposed replace the old labor offices, and to play a more pro-active role helping unemployed to find a job. For example, each job-seeker would have a personal case manager who would get a financial bonus by putting people into work. Briefly discuss the rationality of this measure based on the Stephen Nickell article discussed in class.
- (c) *Unions are back*. Throughout the 1980's and 1990's, British trade unionism declined considerably, mainly as result of legislation passed by the Thatcher government, and the increasing importance of the service sector in the economy. However, the unions seem to have experienced a mini-revival lately (The Economist, Jan 24th, 2002). One of the achievements of this recent union movement has been the establishment of a minimum wage. Explain what are the potential effects of a minimum wage legislation on employment. In particular, explain under what circumstances such a law would or would not have an effect on unemployment. Use a graph.
- (d) *Unions are back II*: The new union movement in the U.K. has also got new legislation that obliges firms to recognize unions and bargain with them collectively if a majority of the workers want to. As a result, the number of recognition agreements rose from 159 in 2000 to 470 in 2001. Assuming that this tendency stays in the future, and unions start playing a significant role on the negotiation of contracts. What would you think it would happen to the unemployment level? Show your intuition in a graph. Assume that prices are rigid, and that initially the labor market equilibrium was on the labor supply curve (no unemployment).
- (e) Econometrical evidence demonstrates that real wages ( $w/P$ ) in the US are mildly procyclical (they increase during expansions). Which of the models discussed in class can explain this finding? Show your explanation in a graph.