

Macroeconomic Policy
Exercise set 9

1. Assume the classical dichotomy holds and that the money market equilibrium condition is given by

$$\frac{M_t}{P_t} = \frac{Y_t}{1 + i_t}. \quad (1)$$

Suppose that a developing country follows Dornbusch's recipe to low inflation. Dornbusch suggests to dollarize the economy; i.e. to replace the national currency with US dollars. Since only the US Federal Reserve can print US dollars, dollarization can be seen as a commitment to reduce the rate of nominal money growth in the dollarized economy to zero (or so to speak). Suppose that at time t a country whose money supply has grown at a constant 10% rate for a long time and whose output is constant replaces its supply of home currency with dollars (the nominal money supply is left unchanged by the operation).

1. Derive the past and future path for velocity, real balances and the price level under the assumption that the policy change is permanent and has not been announced in advance. Do you envisage any problem for this economy?
 2. Suppose that at time t the country announces that it will dollarize the economy at time $t + 3$ but that the rate of money growth will remain unchanged at 10% up to $t + 3$. Derive the path for velocity, real balances and the price level from time t onwards under the assumption that the announcement is fully credible (Hint: work out the path from time $t + 3$ onwards and use your result to work backwards to time t).
2. Consider the following problem. The economy is described by the SRAS curve

$$y_t = \bar{y} + \alpha (\pi_t - \pi_t^e) \quad (2)$$

where α is a positive constant, y_t is the current output level and \bar{y} is its equilibrium, full-employment level. π_t is actual inflation and π_t^e is the private sector expectation of the inflation rate. Private sector expectations are rational and formed before the authorities determine actual inflation. Assume the economy lasts two periods only, so that there is no way for the central bank to establish a reputation. The central bank's welfare function is given by

$$W = -(y_t - k\bar{y})^2 - \gamma \frac{\pi_t^2}{2}, \quad (3)$$

where $k > 1$.

1. Explain the intuition behind the above welfare function.
2. What are the expected and the actual rate of inflation if the central bank cannot commit on inflation (hint: you need three equations to solve for the three endogenous variables. Make sure you have all three of them)? Explain which parameters determine it and provide the economy intuition for your findings? What is the associated value of government welfare W ?
3. What are the expected and the actual rate of inflation if private agents (irrationally) believe the central bank's pledge to keep inflation at zero and she regenes on it? Is the associated value of government welfare W lower or higher?