

# Introduction to Macroeconomics

## Tentative answers to questions on Phillips curve and the UIP

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1. A Swedish resident considers the two alternatives of purchasing Austrian or Swedish bonds. The current exchange rate is 12 cents per Swedish krona, and the very same rate is expected for the next year. The Austrian bond offers an interest rate of 5%, the Swedish bond an interest rate of 3%.
  - (a) If the exchange rate is expected to remain constant, the bond with the higher return (interest), i.e. the Austrian bond, is to be preferred. We have convenue to ignore arguments such as default risk, currency exchange risk, transaction costs.
  - (b) This situation is at odds with UIP, as Swedish debtors can only offer a lower interest than Austrian debtors if the Swedish currency is expected to appreciate. Otherwise, rational agents would buy Austrian bonds only and Swedish bonds not at all.
  - (c) The approximative version of UIP say that  $i = i^* - g_E$ , where  $g_E$  is the expected relative appreciation (rate) of the home currency. This means that in order to conform to UIP, the Swedish krona would have to appreciate by 2%, to the modest 12.24 cents per krona. If the original full UIP is used, we obtain  $E^e = (1 + i^*) * E / (1 + i) = 0.12233$ .

2. In a country, the Phillips curve

$$\pi_t = \pi_t^e - \alpha(u_t - 0.05)$$

holds with  $\alpha = 0.5$  and  $\pi_t^e = 0.02$  (or 2% ).

- (a) Clearly, the natural rate  $u_n$  is 5%, it evolves from setting  $\pi_t = \pi_t^e$  in the equation;
- (b) For some time, unemployment has now been at 5% and inflation at 2%. In a specific year  $t = 1$ , people want more unemployment and wilfully create an  $u$  of 6%. The rate of inflation in that year,  $\pi_1$  evolves from

$$\pi_1 = 0.02 - 0.5 * (0.06 - 0.05) = 0.02 - 0.005 = 0.015,$$

i.e. inflation drops to 1.5%;

- (c) Suppose  $u = 0.06$  or 6% again in  $t = 2$ . However, the expectation mechanism changes to  $\pi_t^e = 0.5\pi_{t-1} + 0.5 * 0.02$ . The rate of inflation for that year,  $\pi_2$ , evolves from

$$\pi_2 = 0.5 * 0.015 + 0.5 * 0.02 - 0.5 * 0.01 = 0.5 * 0.025 = 0.0125,$$

i.e. inflation drops to 1.25%.