

Economics 4905

Financial Fragility and the Macroeconomy

Fall 2017

Problem Set 1

Due before the beginning of class on Monday, September 18, 2017

1 Money Taxation

Consider an economy with a single commodity, $\ell = 1$, chocolate. There are 5 consumers, so $n = 5$. The endowments are defined as

$$\begin{aligned}\omega &= (\omega_1, \omega_2, \omega_3, \omega_4, \omega_5) \\ &= (200, 160, 120, 80, 40)\end{aligned}$$

measured in ounces of chocolate.

1.1 A Single Currency

There is one money, dollars. The chocolate price of money is $P^m \geq 0$. In each of the following 3 cases, solve for the set \mathcal{P}^m of equilibrium prices P^m , given the following tax policies τ , and the set of equilibrium commodity allocations. Provide the units in which the variables are measured.

- a) $\tau = (\tau_1, \tau_2, \tau_3, \tau_4, \tau_5) = (1, 1, 0, 0, -2)$
- b) $\tau = (10, 5, 0, -8, -7)$
- c) $\tau = (20, 2, 1, -2, -20)$

1.2 Two Monies

Consider a scenario where there are 2 monies, red dollars R and blue dollars B , with respective chocolate prices of money, $P^R \geq 0$ and $P^B \geq 0$.

In each of the following cases, solve for the equilibrium exchange rate between B and R . Do these depend on the endowments ω ? Give the economic explanation for your answer.

For each of the 3 cases, solve for the set of equilibrium allocations.

- a) $\tau^R = (1, 1, 1, 0, -2)$ and $\tau^B = (1, 0, 0, 0, -2)$
- b) $\tau^R = (1, 1, 0, -1, -2)$ and $\tau^B = (1, 1, 1, 0, -2)$
- c) $\tau^R = (3, 2, 1, 0, -6)$ and $\tau^B = (4, 0, -1, -1, -2)$

1.3 The Absence of Money Illusion

Explain the difference between the “absence of money illusion” and the “quantity theory of money”. Be precise (with symbols).

What is the importance of this distinction for economics, finance, and this course.