

Warm Up Problemset

International Macroeconomics (Master)

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This “warm up” problemset **will not be discussed** in the tutorial. Nevertheless, you are highly encouraged to solve it anyway. You should be able to do the exercises without major difficulties. If this is not the case you should refresh your knowledge, because we will make great use of these concepts in this course.

Exercise 1: Review of Basic Concepts

- (a) Show that for small x , the following relation holds true: $\log(1+x) \approx x$. Hence it is possible to state that $\log \frac{x_{t+1}}{x_t} \approx \frac{x_{t+1}-x_t}{x_t}$.

HINT: Use a first-order Taylor approximation around zero.

- (b) Interpret the regression coefficient β_2 as suggested by

$$\log y = \beta_1 + \beta_2 \log x + \epsilon.$$

- (c) Consider the standard Cobb-Douglas production function $F(K, L) = K^\alpha L^\beta$ with $\alpha + \beta = 1$. What do α and β stand for?

Exercise 2: Power Utility Function

A useful power utility function $u(C) = \frac{C^{1-\gamma}-1}{1-\gamma}$ is called the constant relative risk aversion (CRRA) utility function.

- (a) Calculate the coefficient of relative risk aversion.

HINT: The coefficient of relative risk aversion is defined as $-C \cdot \frac{u''(C)}{u'(C)}$.

- (b) By applying the rule of L'Hôpital, show how the above function looks like once we set $\gamma = 1$.

Exercise 3: Balance of Payments

HINT: Krugman and Obstfeld (2008) chapter 12 might be helpful for solving this question. If you use the most recent edition of Krugman et al. (2012), please refer to chapter 13.

- (a) What is the balance of payments? What is the current account? What is the trade balance?
- (b) Explain the general scheme of the balance of payments.
- (c) Keep book of the following transactions:
 - (i) A Swiss exporter delivers goods (worth \$910,000) to the US and allows the importer to pay within one year. The nominal exchange rate currently is quoted as 0.91\$/CHF.
 - (ii) A Swiss company buys stocks of a German company. Their current value amounts to CHF10 million and the Swiss company decides to pay via electronic transfer.
 - (iii) The Swiss government grants a debt release to the state of Bolivia. The transaction is worth CHF5 million.

References

KRUGMAN, P. AND M. OBSTFELD (2008): *International Economics: Theory and Policy*, Addison-Wesley.

KRUGMAN, P., M. OBSTFELD, AND M. MELITZ (2012): *International Economics: Theory and Policy – Global Edition*, Essex: Pearson Education Limited.