

# International trade

## Problems and exercises

Nikolas A. Müller-Plantenberg\*

2023–2024

---

\*E-mail: [nikolas.mullerpl@uam.es](mailto:nikolas.mullerpl@uam.es). Address: Department of Economic Theory and Economic History, Faculty of Economics and Business Administration, Universidad Autónoma de Madrid, 28049 Madrid, Spain.

1. [Problem 1 of chapter 2 of Krugman and Obstfeld (2003).]

Home has 1200 units of labour available. It can produce two goods, apples and bananas. The unit labour requirement in apple production is 3, while in banana production it is 2.

- (a) Graph Home's production possibility frontier.
- (b) What is the opportunity cost of apples in terms of bananas?
- (c) In the absence of trade, what would the price of apples in terms of bananas be?

2. [Problem 2 of chapter 2 of Krugman and Obstfeld (2003).]

Home is as described in problem 1. There is now also another country, Foreign, with a labour force of 800. Foreign's unit labour requirement in apple production is 5, while in banana production it is 1.

- (a) Graph Foreign's production possibility frontier.
- (b) Construct the world relative supply curve.

3. [Problem 3 of chapter 2 of Krugman and Obstfeld (2003).]

Now suppose world relative demand takes the following form: Demand for apples / demand for bananas = price of bananas / price of apples.

- (a) Graph the relative demand curve along with the relative supply curve.
- (b) What is the equilibrium relative price of apples?
- (c) Describe the pattern of trade.
- (d) Show that both Home and Foreign gain from trade.

4. [Problem 4 of chapter 2 of Krugman and Obstfeld (2003).]

Suppose that instead of 1200 workers, Home had 2400. Find the equilibrium relative price. What can you say about the efficiency of world production and the division of the gains from trade between Home and Foreign in this case?

5. [Problem 5 of chapter 2 of Krugman and Obstfeld (2003).]

Suppose that Home has 2400 workers, but they are only half as productive in both industries as we have been assuming. Construct the world relative supply curve and determine the equilibrium relative price. How do the gains from trade compare with those in the case described in problem 4?

6. [Adapted from problem 4 of chapter 6 of Krugman and Obstfeld (2003).]

In class, we have considered trade between a home country and a foreign country with increasing returns to scale. The market size  $S$  of the home country was 900,000 cars and that of the foreign country 1,600,000. The fixed cost of production  $F$  was 750,000,000 euros and the variable cost of production  $c$  5,000 euros in both countries. The parameter  $b$  was 1/30,000.

Now consider a third country with a market size of 3,900,000 cars. If all countries would join to become a single free-trade area, what would be the number of firms, the output per firm and the price per car in the new integrated market after trade?

## References

Krugman, Paul R. and Maurice Obstfeld. *International Economics*. Addison Wesley, Boston, 2003.