

Economics 101: International Trade

Fall 2008

Problem Set 3

Instructor: Christopher Nekarda
Email: cnekarda@ucsd.edu
Office: 103 Marshall College
Office hours: Tue 1:00–3:00p

Teaching assistants:	Oana Hirakawa	Li Zhou
Email:	otocoian@ucsd.edu	lzhou@ucsd.edu
Office:	127 Economics	227 Sequoyah Hall
Office hours:	Mon 9:30–11:30a	Wed 3:30–5:30p

1 Export Supply and Import Demand

Home and Foreign (*) demand for chocolate is given by

$$D(P) = 100 - 20P \quad \text{and} \quad D^*(P) = 80 - 20P.$$

Domestic and foreign producers supply goods according to

$$S(P) = 20 + 20P \quad \text{and} \quad S^*(P) = 40 + 20P.$$

- Determine the autarky equilibrium, and calculate domestic price for each country. Illustrate your answer with suitable graphs.
- Will Home be an importer or export of chocolate when these countries trade? Derive and graph its import demand or export supply schedule. Derive and graph the appropriate schedule for Foreign.
- Derive the Home and Foreign import demand and export supply schedules. Calculate and depict the world price when both countries trade with each other at zero cost and find the traded quantities.

2 Export Supply and Import Demand with a Tariff

Consider the same market conditions as in question 1. Suppose Home imposes a specific tariff $\tau = 0.5$ per pound of chocolate imported.

- a. Determine and graph the effects of the tariff on the price of chocolate, the quantity demanded and supplied, and the volume of trade. [Hint: the tariff effects the price in the import demand schedule (MD).]
- b. Determine the effect of the tariff on the welfare of Home import-competing producers, the Home government, Home consumers (assuming tariff revenues are rebated lump-sum).
- c. Show graphically and calculate the terms of trade gain, the efficiency loss, and the total effect on welfare resulting from the tariff. Does overall welfare in Home rise or fall from the tariff?

3 Effects of a Tariff in a Small Country

Consider again Home demand and supply given by question 1, except that Foreign is now a much larger country. Foreign demand and supply are given by

$$D^*(P) = 800 - 200P \quad \text{and} \quad S^*(P) = 400 + 200P.$$

(Note that this implies the same Foreign autarky price as in question 1.) Suppose Home imposes a specific tariff $\tau = 0.5$ per pound of chocolate imported.

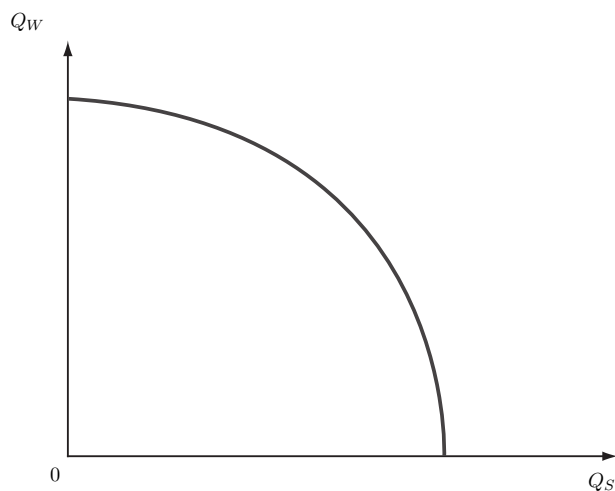
- a. Determine and graph the effects of the tariff on the price of chocolate, the quantity demanded and supplied, and the volume of trade.
- b. Show graphically and calculate the terms of trade gain, the efficiency loss, and the total effect on welfare resulting from the tariff. Does overall welfare in Home rise or fall from the tariff?
- c. How does this result compare to the result of a small country.

4 The Optimal Tariff in a Large and Small Country

In the standard Heckscher-Ohlin model a small country is always made worse off by a tariff. On the other hand, a large country can be made better off by a tariff, provided the tariff is not too high. Explain carefully what accounts for the difference. You may, but need not, use a diagram in your explanation.

5 Trade Policy in a Small Open Economy

Gabon, a small open economy, produces steel (S) and wheat (W) with many factors of production. Gabon's production possibility frontier is graphed below. The opportunity cost of steel production in terms of wheat is lower than those of its trading partners.



- What is the pattern of trade between Gabon and its trading partners? Depict a trade equilibrium consistent with the given information.
- Suppose Gabon imposes a specific tariff τ on its imports. How does its terms of trade change? How will Gabon's production pattern change?

How will its consumption and trade pattern change? How is welfare affected?

- c. Suppose instead that Gabon promotes its export sector with a cost subsidy to producers. How is Gabon's terms of trade affected? How does the domestic price ratio change? How will its production, consumption, and trade pattern change? How is welfare affected?
- d. What are the differences between the export subsidy and the import tariff?

6 Export Promotion in Partial Equilibrium

Consider the two countries from question 1 again. The Foreign government decides to grant an export subsidy of $\sigma = 0.5$ per pound of chocolate exported.

- a. How does this subsidy affect Home welfare?
- b. Show the changes to surpluses and tax revenues for Foreign.

7 External Social Benefits

Home, a small country, can import a good at a world price of 10 per unit. The domestic supply curve of the good is $S(P) = 50 + 5P$ and demand for it is $D(P) = 400 - 10P$. In addition, each unit of production yields a marginal social benefit of 10 that cannot be captured by private producers.

- a. Calculate the total effect on welfare of a specific tariff of $\tau = 5$ per unit levied on imports.
- b. Calculate the total effect of a production subsidy of $\sigma = 5$ per unit.
- c. Which policy produces a greater net welfare gain for Home?
- d. What would the *optimal* policy be. Give the specific value.

8 Trade Creation and Trade Diversion

- a. Explain the difference between trade *creation* and trade *diversion*.

Suppose that Poland, which is considering joining the EU, can produce automobiles at a cost of €14,000. Germany's cost of production is €20,000. Suppose that the EU, which is a customs union, has a $\tau\%$ ad valorem tariff on Japanese automobiles and that the costs of production are C in Japan. Would Poland joining the EU result in trade *creation* or trade *diversion* in each the following situations:

- b. $\tau = 50\%$, $C = €10,000$
c. $\tau = 100\%$, $C = €10,000$
d. $\tau = 100\%$, $C = €8,000$

9 Controversies in Trade Policy

- a. What are the main disadvantages of engaging in strategic trade policy, even in cases where a policy can be shown to improve domestic welfare?
b. What is the main critique against the WTO with respect to environmental protectionism? How does the WTO justify its position on trade disputes that involve environmental issues?

Evaluate the following statements using the theories and evidence seen in this course. Be specific.

- c. "The fundamental problem with any attempt to limit climate change is that the countries whose growth poses the greatest threat to the planet are also the countries that can least afford to pay the price of environmental activism."
d. "The new strategic trade policy argument demonstrates the wisdom of policies like that of South Korea, which subsidizes its exports across the board. The subsidy gives each industry the strategic advantage it needs to establish itself in world competition."