Problem Set 3

Due: **Mon, December 1, 12:00pm**
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1   Vertical Foreign Direct Investment

A domestic steel monopoly with marginal cost $MC = 1 \cdot Q$ considers outsourcing to a foreign supplier. The monopoly faces an inverse demand function $P = S - (1/b) \cdot Q$ with $S = 4$, $b = 2/3$. (Q is one square-foot of cold-rolled steel.)

- If the monopolist acquires final steel supplies on the market (at arm's length), the supplier faces a hold-up problem and may not undertake specific investments to produce the right quality of steel. Give an example of a hold-up problem.

- If acquired, the foreign steel supplier produces with marginal cost $MC^* + \tau = (2/5) \cdot Q + (1/10) \cdot Q$. If not acquired, the foreign supplier produces more cheaply but the monopoly incurs hold-up costs from lower quality. Hold-up costs increase in the imported quantities so that *Hold-up cost* $+ MC'^* + \tau = Q^2$. This is depicted in the graph below (not to scale). Show the internalization advantage (or disadvantage) in the graph.

- Will the domestic steel monopoly import foreign supplies? Will the domestic monopoly import at arm's length or acquire the foreign subsidiary? [You may provide either an algebraic or a graphical solution.]
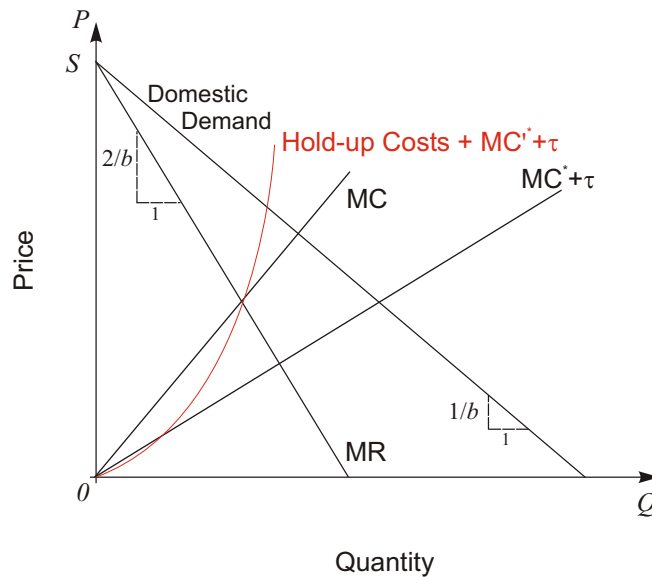
2 Political Economy of Trade

As opposed to the findings of Magee (1980) for the tariff reforms in US Congress in 1973, Baldwin and Magee (2000) identify the following contributions and voting patterns in 1993 and 1994.

	Congressional votes	
	For NAFTA 1993	For GATT 1994
Actual votes	*229*	*283*
Predicted by model	229	290
Absence of labor contributions	+62	+56
Absence of business contributions	−34	−33
Absence of any contributions	+27	+33

Baldwin and Magee (2000)

- Is this evidence for or against the Stolper-Samuelson theorem?

- Is Heckscher-Ohlin trade theory supported? If not, what would voting patterns have to look like?

- Is the Specific Factors model (Ricardo-Viner trade theory) supported? If not, what would voting patterns have to look like?

3 Import Tariff

Home's demand and supply for cars are given by: $D = 130 - 30 \cdot P$ and $S = 10 + 30 \cdot P$, while Foreign's demand and supply for cars are: $D^* = 60 - 30 \cdot P$ and $S^* = 40 + 30 \cdot P$ (P is thousands of US\$).

- Determine the autarky equilibrium, and calculate domestic price for each country. Illustrate your answer with suitable graphs.

- Derive Home's import demand schedule and Foreign's export supply schedule. Calculate and depict the world price when both countries trade, and show the traded quantities.

- Home imposes a tariff of $\tau = .4$ per car. Calculate and depict the price that Home consumers pay. Show domestic consumption, production and the trade volume.

- Show graphically how the tariff affects Home welfare. Distinguish Home consumer surplus, producer surplus and government revenues.

- Did the tariff improve efficiency? Show the net efficiency gain or loss graphically.

4 Export Promotion

Consider the two countries from question 3 again. Home has a tariff of $\tau = .4$ per car in place.

The Foreign government decides to grant an export subsidy of $\tau = .4$ per exported car.

- How does this subsidy affect Home welfare?

- Show the changes to surpluses and tax revenues for Home.

- Use a Standard Trade model with cars and food to depict the terms-of-trade and welfare effects for the economy as whole.

5   Infant-industry Protection

Home currently imports 1,000 cars at $8,000 per car, every year. The Home government conducts a study and finds that domestic producers could manufacture cars for only $6,000 if given sufficient time to learn. However, there would be an initial shakedown period of t years, during which cars would cost $11,000 to produce domestically.

The Home country is concerned with a period of up to 10 years. [You may assume that $1 of income today is worth as much as $1 in any future year to domestic consumers.]

- Suppose that each firm that tries to produce cars must go through a shakedown period of high costs on its own. How short must the shakedown period be for infant-industry protection to be justifiable?

- Now suppose that there are 4 potential domestic producers. Once one firm has borne the costs of learning to produce cars at $6,000 each, other domestic firms can imitate it at no cost. How short must the shakedown period be for infant-industry protection to be justifiable?

- Explain how trade might prevent the development of a domestic car industry, and how infant-industry protection can address this. How long should the protection remain in place?

6   Free Trade in the Americas

The creation of a Free Trade Agreement in the Americas is on the agenda of North and South American governments. Discuss the benefits and possible short-term or long-term costs for the NAFTA countries on one side and Latin American economies on the other side. (You may include Mexico in or exclude it from either group.)

Pay particular attention to

- Likely patterns of trade given resource endowments and productivity differences

- Possible terms-of-trade effects and improved market access after trade integration

- The possibility of trade diversion

- The consequences of your insights for the likely political agenda of various governments for the negotiations