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International Trade Theory and Policy – Part II

Problem Set #4 – Political Economy of Trade Policy

Consider the gadget industry. The quantity of gadgets demanded domestically (Q^D) is a negative function of the domestic price (P) according to the following demand schedule:

$$Q^D = 100 - 1P$$

The industry marginal cost (MC) is a positive function of the quantity of gadgets supplied (Q^S):

$$MC = 1Q^S$$

Assume the home country is “small” (i.e. a price-taker in the world market) and that the world market price (P^*) of gadgets is 25.

Note: It would be useful to begin by illustrating each problem diagrammatically and relating your numerical answer to the relevant diagram.

1. The gadget industry has been found to be polluting the environment. A government study indicates that the social marginal cost (SMC) of producing gadgets (including the environmental cost) is 25 percent higher than the private marginal cost (MC).

$$SMC = 1.25MC = 1.25Q^S$$

Your assignment is to evaluate two policy options to deal with the pollution externality that has led to “over-production” in the gadget industry. One option is a tax levied on domestic producers. The other is a trade policy measure (e.g., an import subsidy).

- 1.a Compute the appropriate ad valorem production tax rate. Analyze the costs and benefits of the tax for (i) consumers, (ii) producers, (iii) government revenue, and (iv) net national welfare.
 - 1.b Compute the ad valorem import subsidy rate that would result in a similar reduction in domestic production and compute the costs and benefits as in (1.a).
 - 1.c Which policy is superior? Why is one policy superior to the other? What arguments would you anticipate may be raised against your recommended policy?
2. Forget about the pollution problem in the gadget industry and instead consider the national defense implications of the gadget industry. A Ministry of Defense study has concluded that the free-trade production level ($S= 25$) is not adequate for national security. It has been determined that the country needs a production level of 35 units to ensure national security.

Your assignment is to evaluate two policy options to deal with the “underproduction” of gadgets. One option is a production subsidy. The other is an import tariff.

- 1.a Compute the appropriate production subsidy rate. Analyze the welfare effects of the subsidy for (i) consumers, (ii) producers, (iii) government, and (iv) net national welfare.
 - 1.b Compute the import tariff rate that would have the same production effect as the production subsidy and compare the welfare effects for each group (i to iv).
 - 1.c Why might the government favor the inferior (2nd best) policy option? Explain
3. Forget about pollution and national defense. Suppose a decision is made for whatever reason that the nation should be more self-sufficient in the gadget industry—imports should occupy a smaller share of the domestic market. The free trade level of gadget imports (50) should be lowered to 30 units.

Compare the welfare costs of two policy options: (1) a tariff that reduces imports to 30 units and (2) production subsidy that achieves the same objective.

What principle of the theory of the second-best does this problem illustrate? Explain.

4. Forget about gadgets all together. Let's consider motorbikes.

Motorbikes made in China cost \$1,000; those made in Thailand cost \$1,200. Vietnam imports, of course, from China and imposes a 40% ad valorem tariff, making the domestic price \$1,400. Subsequently, Vietnam forms a customs union with Thailand, exempting Thai motorbikes from the tariff, but not Chinese motorbikes. As a consequence, Vietnam begins to import bikes from Thailand. The price falls from \$1,400 to \$1,200.

Has Vietnam benefited from the customs union with Thailand? Answer by computing the trade creation and trade diversion effects of the customs union with Thailand.

Assume that the level of demand prior to the Vietnam-Thailand customs union was 100,000 bikes, of which 50,000 were produced in Vietnam.

Assume the level of demand in Vietnam rises to 120,000 bikes after the customs union comes into effect, of which 40,000 bikes are produced domestically.

What does this problem illustrate regarding the principles of the theory of the second best? Explain.