

HW 5

Sunday, September 5, 2021 2:18 AM



ECN 360
Homework...

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ECN 360 Homework 5 Due: 11/2/2021

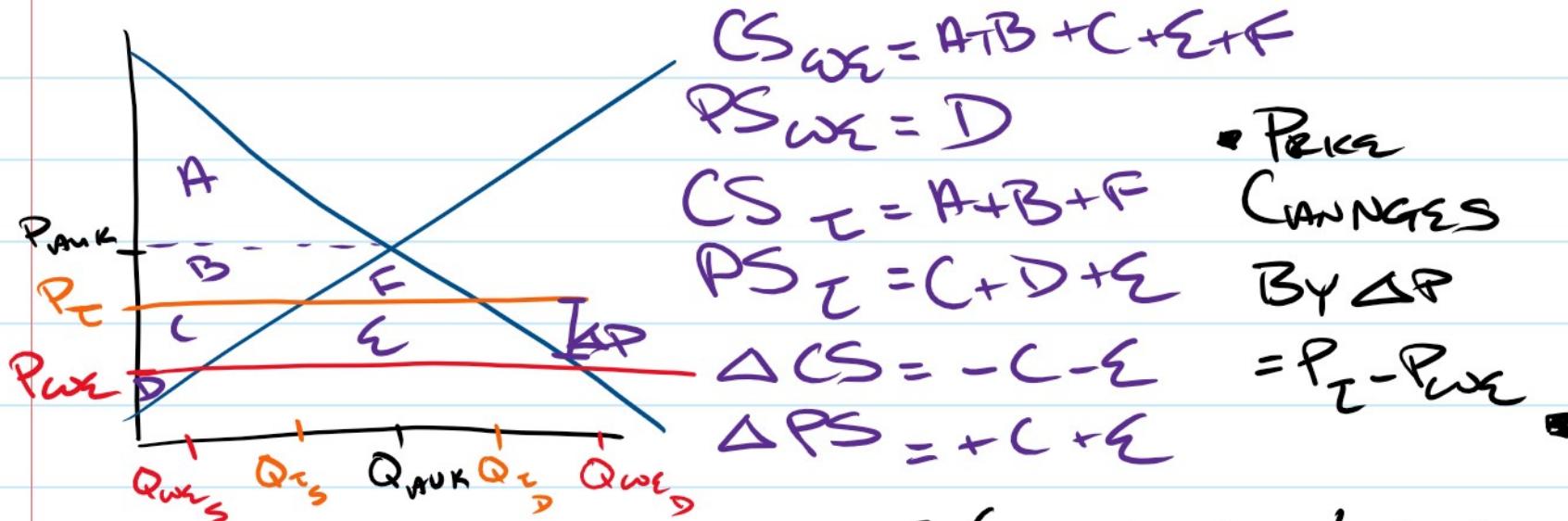
Directions: Answer each question on your own choice of paper. Please be neat! Submit your homework via email to me at: ccdougl@umich.edu A .pdf is preferred, though any file works in practice.

1. Suppose there is a small nation in the Caribbean that can produce computers domestically. However, the price of computers on the world market is lower than the price of computers in the domestic market.
 - a. Should the nation import or export computers in the world market?
 - b. Suppose the nation opens itself to trade as you suggested in part a. Using a supply and demand diagram, illustrate the price of computers before and after trade. What is the quantity of computers supplied and demanded before trade? After trade, how many computers are demanded and how many are supplied domestically? How many computers does the country import?
 - c. Using your diagram from part b. and the ideas of consumer and producer surplus, who gains from trade, and who loses? Do the gains outweigh the losses? Why or why not?
 - d. Suppose the nation imposes a tariff of t on imported computers. Using a separate supply and demand diagram, show the effect of the tariff on the price of computers. Using the ideas of producer and consumer surplus, who gains and who loses from the tariff? Also, indicate the amount of government revenue raised from the tariff. Do the gains from the tariff outweigh the losses, compared with the no tariff case? How can you tell?
 - e. Under what conditions would there only be a revenue effect from the tariff? When would there only be a protection effect?
2. Suppose the country is now “large” in that it can affect the world price of the good it buys and sells on the world market.
 - a. When could an import tariff increase the total surplus for the large country? Illustrate using a supply and demand diagram.
 - b. Why do you think imposing this “optimal tariff” would be difficult to do in reality?

3. Suppose that the production of \$1 million worth of steel in Canada requires \$100,000 worth of taconite. You can think of the \$100,000 worth of taconite being the price the steelmaker would have to pay absent any tariff and the \$1 million in steel being the value of steel absent any tariff. Canada's nominal tariff for importing these goods is 20% for steel and 10% for taconite. Given this information, calculate the effective rate of protection for Canada's steel industry. Interpret your results. Why do you think that the tariff on steel is higher than the tariff on taconite? How could you adjust the two tariffs to increase the protection offered to the Canadian steel industry?
1. Suppose there is a small nation in the Caribbean that can produce computers domestically. However, the price of computers on the world market is lower than the price of computers in the domestic market.
- a. Should the nation import or export computers in the world market?
 $P_{AUK} > P_{WE}$. . . Import . . . AS Price REDUCTION
- b. Suppose the nation opens itself to trade as you suggested in part a. Using a supply and demand diagram, illustrate the price of computers before and after trade. What is the quantity of computers supplied and demanded before trade? After trade, how many computers are demanded and how many are supplied domestically? How many computers does the country import?
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- Pre Trade: Q_{AUK} is quant. supply & demand
 Price BEFORE = P_{AUK}
 Price AFTER = P_{WE}
- After: Q_D is TRADe - quant. demand & Q_S is quant. supply
 $\text{imports} = \Delta Q = Q_D - Q_S$
- c. Using your diagram from part b. and the ideas of consumer and producer surplus, who gains from trade, and who loses? Do the gains outweigh the losses? Why or why not?
- $CS_{AUK} = A$ $CS_{WE} = A + B + D$
 $PS_{AUK} = B + C$ $PS_{WE} = C$
- $\therefore \Delta CS = B + D$ * Consumers Gain ;
 $\Delta PS = -B$ * Producers Lose .. *
- $\sum S_{AUK} = A + B + C$ $\sum S_{WE} = A + B + D + C$
- $\therefore \Delta \sum S = D$ * Gains Outweigh Losses
- * NET SURPLUS INCREASES *
- d. Suppose the nation imposes a tariff of t on imported computers. Using a

AS NET SURPLUS INCREASES *

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$$\sum CS_{Wx} = A + B + C + D + E + F$$

$$\sum CS_I = A + B + C + D + E + F$$

$$\Delta \sum CS = 0$$

$$Revenue = I(\gamma + \phi P_{Wx})$$

$$\hookrightarrow I_I = Q_{I_D} - Q_{I_S}$$

LET γ BE FIXED TARIFF PER IMPORT;

THAT IS IMPOSED ON ALL IMPORTS

\hookrightarrow LET ϕ BE % OF PRICE CHARGED PER IMPORT;

THAT IS IMPOSED ON ALL IMPORTS

\hookrightarrow NOTE IMPORTS ARE PURCHASED AT WORLD PRICE..

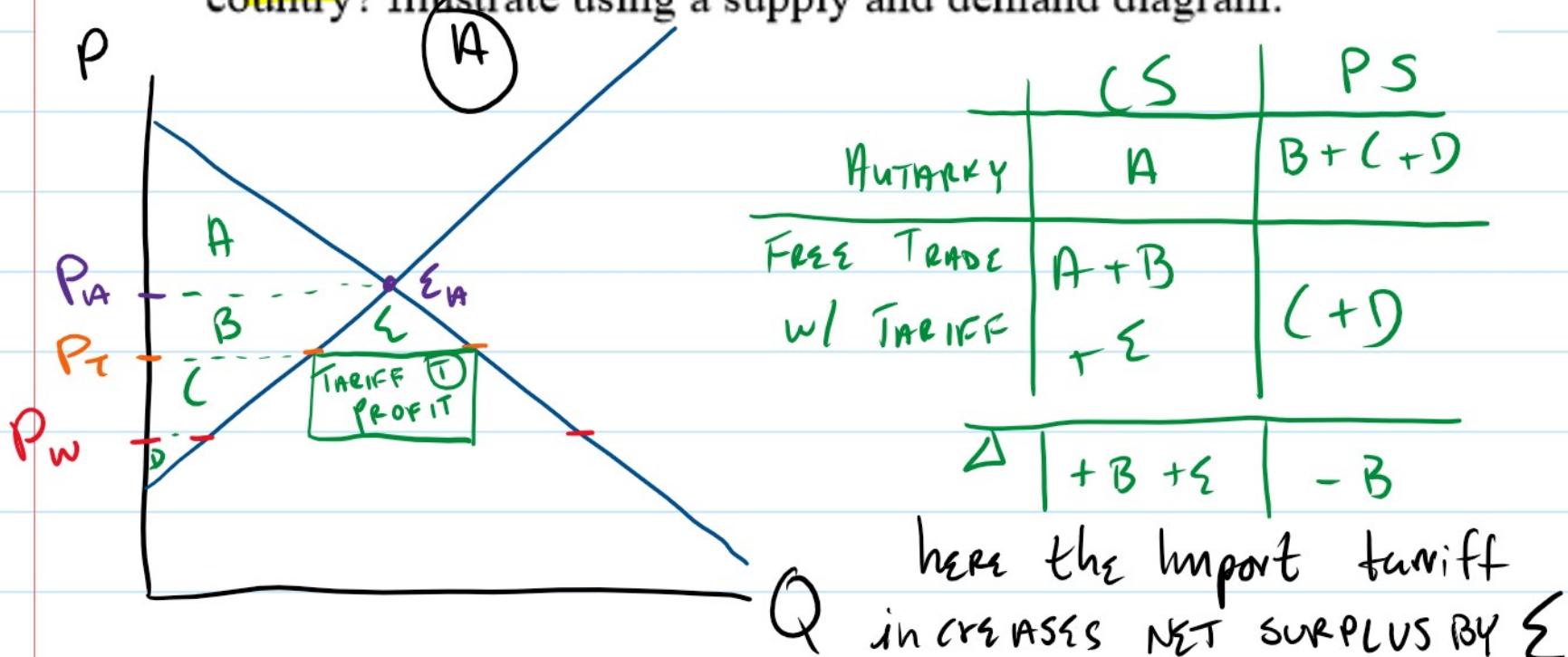
- e. Under what conditions would there only be a revenue effect from the tariff? When would there only be a protection effect?
(Pure)

REVENUE EFFECT | HAPPENS WHEN NO DOMESTIC PRODUCERS \therefore PURE Gov't PROFITS.
(Pure)

PROTECTION EFFECT | HAPPENS WHEN THERE IS DOMESTIC PRODUCERS; THE TARIFF IS MADE SO HIGH SUCH THAT THERE IS NO IMPORTS \Rightarrow DOMESTIC PRODUCERS SEE NO CHANGE IN THEIR MARKET SHARE..

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2. Suppose the country is now "large" in that it can affect the world price of the good it buys and sells on the world market.
- a. When could an import tariff increase the total surplus for the large country? Illustrate using a supply and demand diagram.



- b. Why do you think imposing this "optimal tariff" would be difficult to do in reality?

In reality, this is difficult as the competing country will often levy a parallel import tariff on imports from the large country.

∴ the large country then loses their capital gains → ∴ less importing is possible; consumption is driven down & Both countries realise lower indifference curves.

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CANADA Steel Production

$$\text{ERP} = \frac{V' - V}{V} - 1$$

$$V = \$1,000,000 - \$100,000 = \$900,000$$

$$V' = \$1,000,000 \times 1.2 - \$100,000 \times 1.1$$

$$= \$1,200,000 - \$110,000 = \$1,090,000$$

$$\text{ERP} = \frac{\$1,090,000}{\$900,000} - 1 = 1.2\bar{1} - 1 = 0.2\bar{1}$$

OR 21.1% Gain

through tariff

The Tariff on Steel

MAR BE HIGHER THAN THE TARIFF ON TACONITE SUCH THAT

TARIFF ON TACONITE

MAY BE HIGHER THAN THE TARIFF ON TACONITE SUCH TO
PREVENT LIMITATIONS TO OTHER INDUSTRIES USING TACONITE
AS A FACTOR OF PRODUCTION

THERE IS 2 WAYS TO INCREASE STEEL PROTECTION

- ① INCREASE STEEL TARIFF
- ② DECREASE TACONITE TARIFF

* THE GOVERNMENT ENTITY MAY ALSO IMPOSE
A COMBINE STRATEGY..

Ex. STEEL TARIFF $\{20\%\} \rightarrow \{30\%\}$

TACONITE TARIFF $\{10\%\} \rightarrow \{5\%\}$

$$\text{here } v'' = \$1,000,000 \times 1.3 - \$100,000 \times 1.05 \\ = \$1,300,000 - \$105,000 = \$1,195,000$$

$$ERP^I = \frac{v''}{v} - 1 = \frac{\$1,195,000}{\$900,000} - 1 = 1.32\overline{77} - 1 = 0.32\overline{77}$$

or $32.\overline{77}\%$