

HOMEWORK 2 ANSWER KEY

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EC 481/581

① a)

Argentina-US
Intra-industry
trade Index
at 1-digit SITC

$$IIT = 1 - \frac{\left| \frac{3866}{427020} - \frac{68551}{325497} \right| + \left| \frac{366}{427020} - \frac{12911}{325497} \right| + \dots}{2}$$

Note: Using "Customs Value Basis" for Imports, but one could use "CIF Value Basis" instead

IIT = 0.370

CANADA-US IIT
at 1-digit level

IIT = 0.752

Using the same calculations but different data obviously.

These IIT indexes are as I would expect. Given that the U.S. and Canada are at a much similar level of development, income levels and (probably) common culture, one would guess the intra-industry trade in different varieties of goods would be more prevalent.

⑥

Argentina-US
IIT Index at
2-digit level

Calculations yield: IIT = 0.265

This fall is the IIT index as one gets narrower classifications is expected as well. The broad 1-digit "industries" likely contain many different industries. Thus, inter-industry trade can be showing up as intra-industry trade when we define industries very broadly.

2 a

^{autarky}
In equilibrium $Q_D = Q_S$

$$Q_D = 35 - P$$
$$Q_S = \frac{1}{2}P - \frac{5}{2}$$

$$\therefore 35 - P = \frac{1}{2}P - \frac{5}{2}$$

$$\frac{75}{2} = \frac{3}{2}P$$

$$P_A = 25 \Rightarrow$$

$$Q_D = 35 - P$$
$$= 35 - 25$$

$$Q_D = Q_S = Q_A^* = 10$$

b At $P^* = 15$:

$$Q_D = 35 - 15 = 20$$

$$Q_S = \frac{1}{2}(15) - \frac{5}{2} = 5$$

$$\therefore \text{Imports } (m) = Q_D - Q_S \Big|_{\text{at } P^* = 15} = 15$$

c with 20% tariff, new price faced by Chileans:

$$P^*(1+t) = 15(1+0.2) = 15(1.2) = 18$$

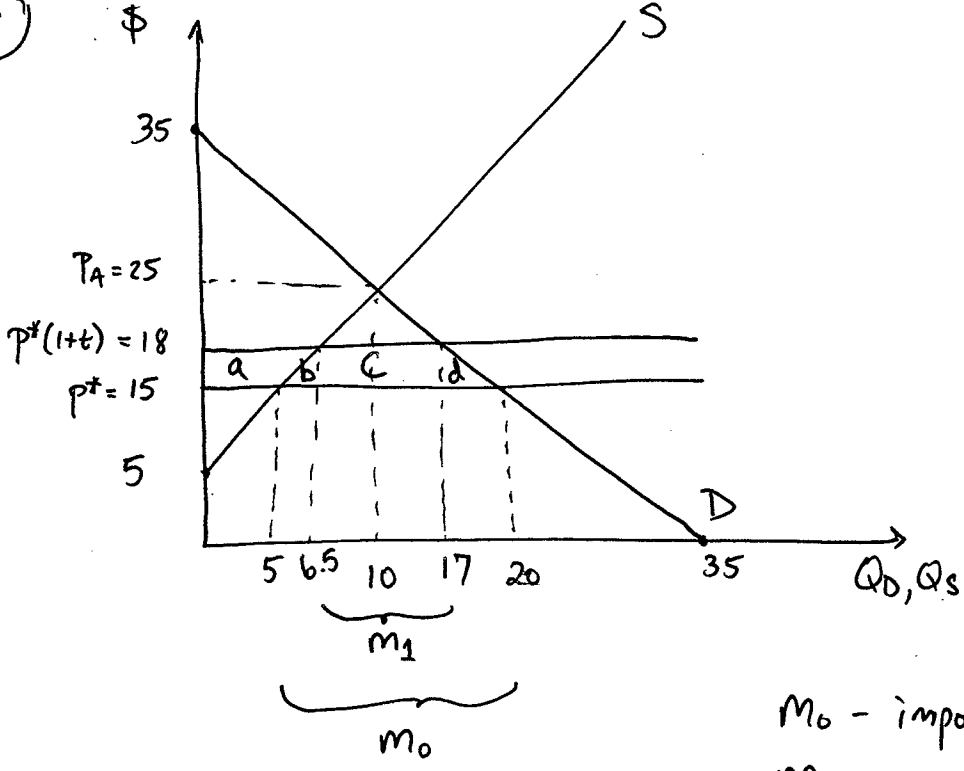
At $P^*(1+t) = 18$

$$Q_D = 35 - 18 = 17$$

$$Q_S = \frac{1}{2}(18) - \frac{5}{2} = 6.5$$

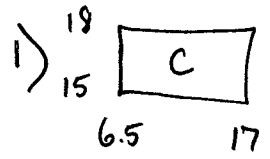
$$\Rightarrow m_1 = 10.5$$

2c

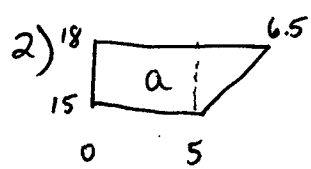


M_0 - imports w/ Free trade
 M_1 - imports w/ tariff

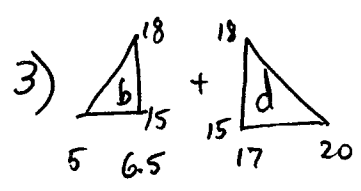
d



Tariff revenue = Area of $c = (18-15) * (17-6.5)$
 $= 3 * 10.5$
 $= 31.5$ million pesos



Producer surplus = $(18-15) * (5-0) + \frac{1}{2} * (18-15) * (6.5-5)$
 $= 3 * 5 + \frac{1}{2} * 3 * 1.5$
 $= 15 + 2.25 = 17.25$ million pesos



DW loss = $\frac{1}{2} * (18-15) * (6.5-5) + \frac{1}{2} * (18-15) * (20-17)$
 $= 2.25 + 4.5$
 $= 6.75$ million pesos

4) Lost consumer surplus = $a + b + c + d = 31.5 + 17.25 + 6.75 = 55.5$ million pesos

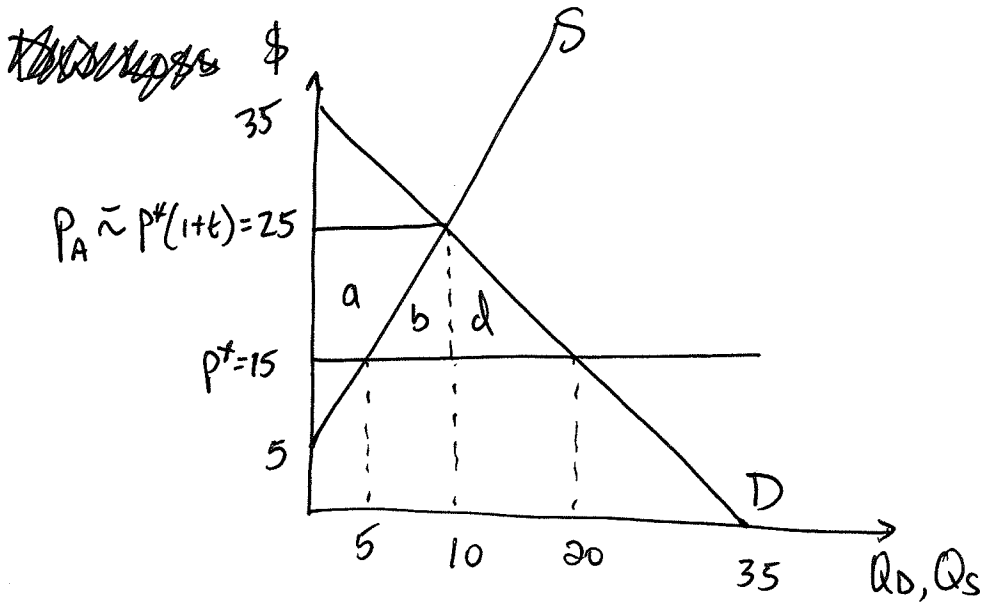
2e

At $t = 0.67 \Rightarrow p^*(1+t) = 25.05 > 25 = P_A$

\Rightarrow The autarky price is in effect \Rightarrow No IMPORTS!

\therefore TARIFF Revenue = (Per unit tariff) * (Imports) = 0

Since Imports = 0

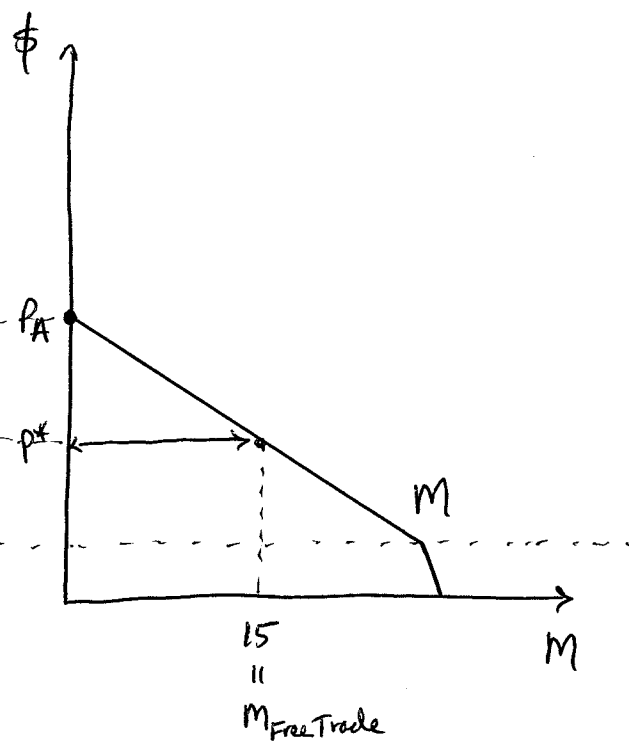
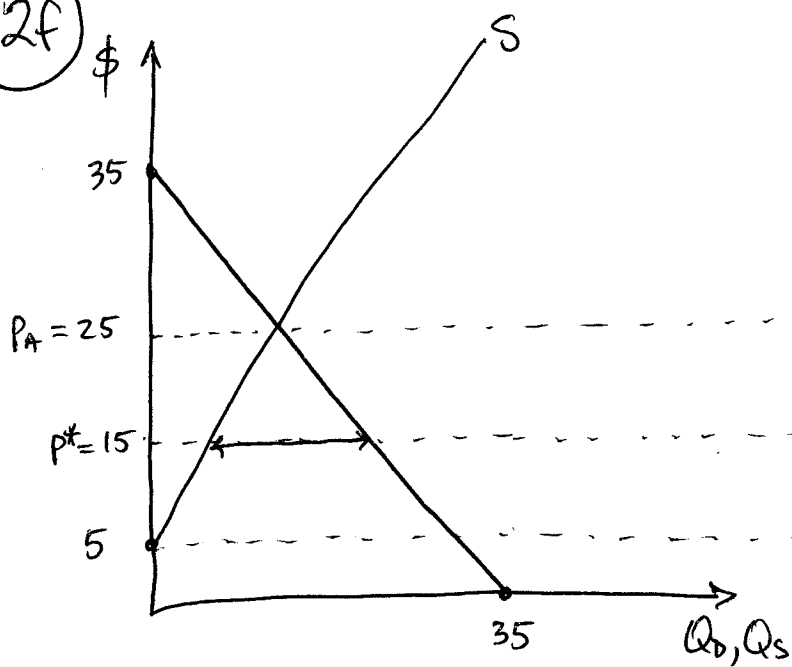


DW Loss = b + d (Notice b and d take up all the space that used to comprise b, c, + d)

$\frac{1}{2} \cdot 5 \cdot 10 + \frac{1}{2} \cdot 10 \cdot 10 = 75$ million pesos

This deadweight loss when ~~the~~ going from free trade to autarky, must correspond to the gains from trade when a country goes from autarky to free trade!

(2f)



Mathematically:

$$\begin{aligned} M &= \text{Excess Demand} \\ &= Q_D - Q_S \\ &= (35 - P) - \left(\frac{1}{2}P - \frac{5}{2}\right) \\ &= 37.5 - \frac{3}{2}P \end{aligned}$$