Final Exam

TRADE POLICIES

1-4 The United States, a large country, adopts a quota on imports of textiles.

1. The price of textiles in the United States
   a) rises
   b) falls
   c) remains the same
   d) a) or c)
   e) b) or c)

2. Who benefits in United States due to the quota?
   a) textiles producers
   b) textiles consumers
   c) government revenue
   d) a) and c)
   e) b) and c)

3. Who is hurt in the United States due to the quota?
   a) textiles producers
   b) textiles consumers
   c) government revenue
   d) a) and c)
   e) b) and c)

4. The price of textiles in the rest of the world
   a) rises
   b) falls
   c) remains the same
   d) a) or c)
   e) b) or c)
5-8. The United States, a large country, adopts a subsidy on exports of wheat.

5. The price of wheat in the United States
   a) rises
   b) falls
   c) remains the same
   d) a) or c)
   e) b) or c)

6. Who in the United States benefits from the subsidy?
   a) wheat producers
   b) wheat consumers
   c) government revenue
   d) a) and c)
   e) b) and c)

7. Who in the United States is hurt by the subsidy?
   a) wheat producers
   b) wheat consumers
   c) government revenue
   d) a) and c)
   e) b) and c)

8. The price of wheat in the rest of the world
   a) rises
   b) falls
   c) remains the same
   d) a) or c)
   e) b) or c)
FACTOR MOBILITY

9-12. The United States and Canada produce trees using labor and land. Initially, Canada has fewer workers per acre than the United States. The countries share the same technology. Consider the effects of allowing labor to move freely between the two countries.

9. The wage in the United States will
   a) rise
   b) fall
   c) remain unchanged
   d) a) or c)
   e) b) or c)

10. The wage in Canada will
    a) rise
    b) fall
    c) remain unchanged
    d) a) or c)
    e) b) or c)

11. Land owners in the United States will be made
    a) better off
    b) worse off
    c) no better, no worse
    d) a) or c)
    e) b) or c)

12. Land owners in Canada will be made
    a) better off
    b) worse off
    c) no better, no worse
    d) a) or c)
    e) b) or c)
FOREIGN DIRECT INVESTMENT

13-16 Honda (a Japanese company) is deciding how to serve the automobile market in the United States.

13. The difficulty of ensuring that a licensee produces high quality output would best be described as a
   a) ownership advantage
   b) location advantage
   c) internalization advantage
   d) a) and c)
   e) b) and c)

14. The existence of an internalization advantage is important for establishing that there is a reason why
   a) Honda needs to serve the US market
   b) production needs to take place in the United States
   c) transactions need to take place within one firm
   d) the firm (Honda) is special
   e) the country (the United States) is special

15. If there is ownership advantage, location advantage, and internalization advantage, what should Honda do?
   a) export cars to the United States
   b) establish a production subsidiary in the United States
   c) license a US firm to produce its cars
   d) stay out of the US market
   e) shut down entirely

16. If there is ownership advantage, location advantage, but no internalization advantage, what should Honda do?
   a) export cars to the United States
   b) establish a production subsidiary in the United States
   c) license a US firm to produce its cars
   d) stay out of the US market
   e) shut down entirely
TRADE POLICY PROBLEMS

In the United States (US), inverse demand for clothing is \( P = 28 - Q_D \), while inverse supply of clothing is \( P = 12 + Q_S \). In the rest of the world (ROW), inverse demand for clothing is \( P^* = 20 - Q_D^* \), while inverse supply of clothing is \( P^* = 4 + Q_S^* \).

1. Derive the US autarky price and quantity. Derive the US import demand (including slope-intercept form).

2. Derive the ROW autarky price and quantity. Derive the ROW export supply (including slope-intercept form).

3. Derive the free trade price and US imports under free trade. Derive US quantity demanded and quantity supplied under free trade.

4. Derive the US tariff-ridden import demand for a tariff \( T = 2 \) (including slope-intercept form). Derive the ROW price, the US price, and US imports with the tariff.

5. Derive US quantity demanded and quantity supplied with the tariff. Derive the change in consumer surplus, producer surplus, and government revenue in the United States due to the tariff.

6. Derive the US consumption distortion and production distortion. Derive the US efficiency loss and terms of trade gain. Derive the change in welfare in the United States due to the tariff. Is the United States better or worse off with the tariff?
Final Exam Solutions

1a The price of textiles in the United States rises.
2a Textiles producers in the United States benefit.
3b Textiles consumers in the United States are hurt.
4b The price of textiles in the rest of the world falls.

5a The price of wheat in the United States rises.
6a Wheat producers in the United States benefit.
7e Wheat consumers and government revenue in the United States are hurt.
8b The price of wheat in the rest of the world falls.

9a The wage in the United States will rise.
10b The wage in Canada will fall.
11b Land owners in the United States will be made worse off.
12a Land owners in Canada will be made better off.

13c The difficulty of ensuring that a licensee produces high quality output would best be described as an internalization advantage.
14c Internalization advantage is important for establishing that there is a reason why transactions need to take place within one firm.
15b If there is ownership advantage, location advantage, and internalization advantage, Honda should establish a production subsidiary in the United States.
16c If there is ownership advantage, location advantage, but no internalization advantage, Honda should license a US firm to produce its cars.
PROBLEMS
1. US autarky price and quantity
   \[28 - Q^A = 12 + Q^A \to 2Q^A = 16 \to Q^A = 8\]
   \[P^A = 28 - Q^A = 28 - 8 = 20\]

   US import demand
   \[P = 28 - Q_D \to Q_D = 28 - P\]
   \[P = 12 + Q_S \to Q_S = -12 + P\]
   \[M = D - S = Q_D - Q_S = 28 - P - (-12 + P)\]
   \[M = 40 - 2P \to P = 20 - \frac{1}{2}Q_M\]

   Graph of the US import demand

2. ROW autarky price and quantity
   \[20 - Q^{A*} = 4 + Q^{A*} \to 2Q^{A*} = 16 \to Q^{A*} = 8\]
   \[P^{A*} = 20 - Q^{A*} = 20 - 8 = 12\]

   ROW export supply
   \[P^* = 4 + Q^*_S \to Q^*_S = -4 + P^*\]
   \[P^* = 20 - Q^*_D \to Q^*_D = 20 - P^*\]
   \[X^* = S^* - D^* = Q^*_S - Q^*_D = -4 + P^* - (20 - P^*)\]
   \[X^* = -24 + 2P^* \to P^* = 12 + \frac{1}{2}Q^*_X\]

   Graph of the ROW export supply
3. **Free trade price**

\[ M = X^* \to 40 - 2P = -24 + 2P^* \to 64 = 4P \to P = P^* = 16 \]

**US quantity of imports**

\[ M = 40 - 2P = 40 - 2(16) = 40 - 32 = 8 \]

**US quantity demanded and quantity supplied**

\[ P = 28 - Q_D \to 16 = 28 - Q_D \to D = Q_D = 28 - 16 = 12 \]

\[ P = 12 + Q_S \to 16 = 12 + Q_S \to S = Q_S = 16 - 12 = 4 \]

4. **US tariff-ridden import demand**

\[ M_T = 40 - 2P_T = 40 - 2(P_T^* + 2) = 40 - 2P_T^* - 4 \]

\[ M_T = 36 - 2P_T^* \to P_T^* = 18 - \frac{1}{2}Q_{M_T} \]

**Graph of the tariff-ridden US import demand**

**ROW tariff-ridden price**

\[ M_T = X^* \to 36 - 2P_T^* = -24 + 2P_T^* \to 60 = 4P_T^* \to P_T^* = 15 \]

**US tariff-ridden price**

\[ P_T = P_T^* + T = 15 + 2 = 17 \]

**Tariff-ridden US quantity of imports**

\[ M_T = 36 - 2P_T^* = 36 - 2(15) = 36 - 30 = 6 \]
5. US tariff-ridden quantity demanded and quantity supplied

\[ P^T = 28 - Q_D^T = 17 = 28 - Q_D^T - D^T = Q_D^T = 28 - 17 = 11 \]

\[ P^T = 12 + Q_S^T - 17 = 12 + Q_S^T - S^T = Q_S^T = 17 - 12 = 5 \]

US producer surplus increases by the area \( a \)

\[ \Delta PS = (P_T - P) \left( \frac{S + S_T}{2} \right) = (17 - 16) \left( \frac{4 + 5}{2} \right) = 4.5 \]

US consumer surplus decreases by the area \( a+b+c+d \)

\[ \Delta CS = -(P_T - P) \left( \frac{D + D_T}{2} \right) = -(17 - 16) \left( \frac{12 + 11}{2} \right) = -11.5 \]

US government revenue increases by the area \( c+e \)

\[ \Delta GR = TM_T = 2(6) = 12 \]

6. US consumption distortion is the area \( d \)

\[ d = \Delta P \left( \frac{\Delta D}{2} \right) = (17 - 16) \left( \frac{12 - 11}{2} \right) = \frac{1}{2} = 0.5 \]

US production distortion is the area \( b \)

\[ b = \Delta P \left( \frac{\Delta S}{2} \right) = (17 - 16) \left( \frac{5 - 4}{2} \right) = \frac{1}{2} = 0.5 \]

US efficiency loss is \( b+d = 0.5 + 0.5 = 1 \).

US terms of trade gain is area \( e \)

\[ e = (P - P^T)M_T = (16 - 15)(6) = 6 \]

The US welfare gain is \( e-(b+d) = 6 - 1 = 5 \) or

\[ \Delta W = \Delta CS + \Delta PS + \Delta GR = -11.5 + 4.5 + 12 = 5 \]

The United States is better off due to its tariff.
World Market

![Graph showing world market with price quantity traded axes and lines M and M']