Name FIRST MIDTERM EXAM

Economics 452 International Trade Theory and Policy Spring 2009

WORLD TRADE

1. Who is the largest trading partner of the United States?
   a. Mexico
   b. Canada
   c. China
   d. Germany
   e. Japan

2. _____ as the *second* largest trading partner of the United States?
   a. Mexico recently replaced Canada
   b. Canada recently replaced Mexico
   c. Mexico recently replaced China
   d. China recently replaced Mexico
   e. China recently replaced Canada

3. What is the largest destination for Texas exports?
   a. Mexico
   b. China
   c. Canada
   d. Germany
   e. Japan

4. What is the *second* largest destination for Texas exports?
   a. Mexico
   b. China
   c. Canada
   d. Germany
   e. Japan

5. All else equal, a country with a larger share of EU gross domestic product (GDP) should have a ____ share of U.S trade with the EU.
   a. Larger
   b. Smaller
   c. Equal
   d. Equal or smaller
   e. No clear prediction

6. All else equal, a country that is further away from the United States should trade with the United States _____ closer countries.
   a. More than
   b. Less than
   c. The same as
   d. More than or the same as
   e. No clear prediction

7. All else equal, a country where English is its primary language should trade with the United States _____ other countries where English is not the primary language.
   a. More than
   b. Less than
   c. The same as
   d. Less than or the same as
   e. No clear prediction

8. Which is *not* a reason why the United States trades more with Canada and Mexico than with Spain and the Netherlands (which are similar in size to Canada and Mexico)?
   a. Regional trade agreements such as NAFTA
   b. Shorter distance to Canada and Mexico
   c. Greater cultural affinity with Canada and Mexico
   d. Common currency
   e. None of the above; all are reasons why

RICARDIAN MODEL

9-12. Chemicals and toys are produced with labor. Suppose China has a comparative advantage over the United States in toys relative to chemicals.

9. This comparative advantage must stem from the
   a. Unit labor requirement for producing toys being lower in China than the United States
   b. Unit labor requirement for producing toys being higher in China than the United States
   c. Opportunity cost of producing toys in terms of chemicals being higher in China than the United States
   d. Opportunity cost of producing toys in terms of chemicals being the same in China as in the United States
   e. Opportunity cost of producing toys in terms of chemicals being lower in China than the United States

10. China has absolute advantage in
   a. Only chemicals
   b. Only toys
   c. Both chemicals and toys
   d. Neither chemicals nor toys
   e. Cannot tell from the information provided

11. The United States has comparative advantage in
   a. Only chemicals
   b. Only toys
   c. Both chemicals and toys
   d. Neither chemicals nor toys
   e. Cannot tell from the information provided

12. Under free trade, the United States exports
   a. Only chemicals
   b. Only toys
   c. Both chemicals and toys
   d. Neither chemicals nor toys
   e. Cannot tell from the information provided

13-16 The United States and Korea engage in free trade in electronics and food, which are produced with labor. Suppose under free trade that Korea produces only electronics.

13. How does the wage paid in the food sector compare to the wage paid in the electronics sector in Korea? The wage is
    a. Higher in the food sector than in the electronics sector
    b. Lower in the food sector than in the electronics sector
    c. The same in the food sector as in the electronics sector
    d. The same or higher in the food sector than in the electronics sector
    e. Cannot tell from the information provided

14. Does the United States strictly gain from trade?
    a. Yes, definitely
    b. No, definitely
    c. Yes, but only if produce just electronics
    d. Yes, but only if produce just food
    e. Yes, but only if produce both goods

15. What does the United States for sure *not* produce under free trade?
    a. Only electronics
    b. Only food
    c. Both goods
    d. Nothing
    e. Only electronics or nothing

16. Is world production efficient under free trade?
    a. Yes definitely
    b. No definitely
    c. Only if the United States completely specializes by producing only food and no electronics
    d. Only if the United States completely specializes by producing only electronics and no food
    e. Only if the United States produces both goods under free trade

PROBLEMS (Ricardian Model)

In the United States (US), producing one pound of cheese requires three units of labor, while producing one gallon of wine requires five units of labor. In the rest of the world (ROW), producing one pound of cheese requires two units of labor, while producing one gallon of wine requires one unit of labor. The United States has 1875 units of labor and the ROW has 750 units of labor. World relative demand for cheese to wine is

$$RD \equiv \frac{D_C}{D_W} = \frac{P_W}{P_C}.$$

1. Construct the US production possibilities frontier (all three forms).

   Determine the maximum production of cheese and wine.

   What is the US opportunity cost of cheese in terms of wine?

   Where does it appear in the equation describing production possibilities?

   Draw graph of US production possibilities frontier here:

2. Construct the ROW production possibilities frontier (all three forms).

Determine the maximum production of cheese and wine.

What is the ROW opportunity cost of cheese in terms of wine?

Compare the slopes of the two production possibilities frontiers – which is flatter and why?

Draw graph of the ROW production possibilities frontier here:

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3. What is the world relative supply of cheese to wine if each country produces only its comparative advantage good?

Construct the world relative supply and world relative demand functions.

Find the world equilibrium relative price of cheese in terms of wine under free trade.

Draw graph of world relative supply and world relative demand here:

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4. Determine the optimal production bundle for each country under free trade.

Determine whether each country gains from trade and explain the source of any gains from trade.

5. Construct the US trade possibilities frontier (all three forms).

Determine the maximum consumption of cheese and wine under free trade.

Where does the free trade relative price of cheese in terms of wine appear in the equation describing trade possibilities?

Draw graph of US trade possibilities frontier on the PPF graph.

6. Construct the ROW trade possibilities frontier (all three forms).

Determine the maximum consumption of cheese and wine under free trade.

Compare the slopes of the two trade possibilities frontiers and explain.

Draw graph of ROW trade possibilities frontier on the PPF graph.

On my honor as an Aggie, I have neither given nor received unauthorized aid on this exam.

Signature _____

FIRST MIDTERM EXAM SOLUTIONS

Economics 452 International Trade Theory and Policy Spring 2009

MULTIPLE CHOICE

1b Canada is the largest trading partner of the United States.
2d China recently replaced Mexico as the *second* largest trading partner of the United States.
3a Mexico is the largest destination for Texas exports.
4c Canada is the *second* largest destination for Texas exports.

5a All else equal, a country with a larger share of EU gross domestic product (GDP) should have a larger share of U.S trade with the EU.
6b All else equal, a country that is further away from the United States should trade with the United States less than closer countries.
7a All else equal, a country where English is its primary language should trade with the United States more than other countries.
8d Common currency is *not* a reason why the United States trades more with Canada and Mexico than with Spain and the Netherlands.

9e This comparative advantage must stem from the opportunity cost of producing toys in terms of chemicals being lower in China than the United States.
10e Cannot tell from information provided what China has absolute advantage in.
11a The United States has comparative advantage in only chemicals.
12a Under free trade, the United States exports only chemicals.

13b How does the wage paid in the food sector compare to the wage paid in the electronics sector in Korea? The wage is lower in the food sector than in the electronics sector.
14d Does the United States strictly gain from trade? Yes, but only if produce just food.
15e What does the United States for sure *not* produce under free trade? Only electronics or nothing.
16a Yes, world production is definitely efficient under free trade.

PROBLEMS (Ricardian Model)

In the United States (US), producing one pound of cheese requires three units of labor, while producing one gallon of wine requires five units of labor. In the rest of the world (ROW), producing one pound of cheese requires two units of labor, while producing one gallon of wine requires one unit of labor. The United States has 1875 units of labor and the ROW has 750 units of labor. World relative demand for cheese to wine is

$$RD \equiv \frac{D_C}{D_W} = \frac{P_W}{P_C}.$$

1. Construct the production possibilities frontier for the United States

$$a_{LC}Q_C + a_{LW}Q_W = L,\ 3Q_C + 5Q_W = 1875,\ Q_W = 375 - \frac{3}{5}Q_C$$

Determine the maximum production of cheese and wine.

$$\bar{Q}_C = 625,\quad \bar{Q}_W = 375$$

What is the US opportunity cost of cheese in terms of wine?

$$\frac{a_{LC}}{a_{LW}} = \frac{3}{5} = 0.6$$

Where does it appear in the equation describing production possibilities?
Absolute value of slope

GRAPH OF PRODUCTION POSSIBILITIES FRONTIER: horizontal axis labeled cheese, vertical axis labeled wine; cheese endpoint 625; wine endpoint 375; PPF label

2. Construct the production possibilities frontier for the ROW.

$$a_{LC}^{*}Q_{C}^{*} + a_{LW}^{*}Q_{W}^{*} = L^{*},\ 2Q_{C}^{*} + Q_{W}^{*} = 750,\ Q_{W}^{*} = 750 - 2Q_{C}^{*}$$

Determine the maximum production of cheese and wine.

$$\bar{Q}_{C}^{*} = 375,\quad \bar{Q}_{W}^{*} = 750$$

What is the ROW opportunity cost of cheese in terms of wine? Compare the slopes of the two production possibilities frontiers – which is flatter and why?

$$\frac{a_{LC}^{*}}{a_{LW}^{*}} = \frac{2}{1} = 2$$

US production possibilities frontier flatter due to lower opportunity cost of cheese in terms of wine.

$$\frac{3}{5} = \frac{a_{LC}}{a_{LW}} < \frac{a_{LC}^{*}}{a_{LW}^{*}} = 2$$

GRAPH OF PRODUCTION POSSIBILITIES FRONTIER*: horizontal axis labeled cheese, vertical axis labeled wine; cheese endpoint 375; wine endpoint 750; PPF* label

3. What is the world relative supply of cheese to wine if each country produces only its comparative advantage good?

$$\tilde{RS} = \frac{\bar{Q}_{C}}{\bar{Q}_{W}^{*}} = \frac{625}{750} = \frac{5}{6} = 0.83$$

Construct the world relative supply and world relative demand functions.

P_C/P_W	RD = P_W/P_C	RS
3/5	5/3	0 .. 5/6
6/5	5/6	5/6
2	1/2	5/6 .. ∞

Find the world equilibrium relative price of cheese in terms of wine under free trade.

$$\frac{P_C}{P_W} = \frac{6}{5} = 1.2$$

GRAPH OF RELATIVE DEMAND AND RELATIVE SUPPLY: horizontal axis labeled relative quantity of cheese (to wine), vertical axis labeled relative price of cheese (to wine); first step at 3/5=0.6, second step at 2; jump at 5/6 and free trade relative price 6/5=1.2; other two points on RD (3/5,5/3) and (2,1/2); RD label, RS label

4. Determine the optimal production bundle for each country under free trade.

$$Q_C = \bar{Q}_C = 625,\ Q_W = 0$$

$$Q_C^* = 0,\ Q_W^* = \bar{Q}_W^* = 750$$

Determine whether each country gains from trade and explain the source of any gains from trade.

Both countries gain from trade as the free trade relative price differs from both opportunity costs.

5. Construct the trade possibilities frontier for the US.

$$\frac{P_C}{P_W}D_C + D_W = \frac{P_C}{P_W}\bar{Q}_C,\ \frac{6}{5}D_C + D_W = \frac{6}{5}(625) = 750,\ D_W = 750 - \frac{6}{5}D_C$$

Determine the maximum consumption of cheese and wine under free trade.

$$\bar{D}_C = 625,\quad \bar{D}_W = 750$$

Where does the free trade relative price of cheese in terms of wine appear in the equation describing trade possibilities?

Absolute value of slope

GRAPH OF TRADE POSSIBILITIES FRONTIER: cheese endpoint 625; wine endpoint 750; TPF label; position of TPF outside PPF

6. Construct the trade possibilities frontier for the ROW.

$$\frac{P_C}{P_W}D_C^* + D_W^* = \bar{Q}_W^*,\ \frac{6}{5}D_C^* + D_W^* = 750,\ D_W^* = 750 - \frac{6}{5}D_C^*$$

Determine the maximum consumption of cheese and wine under free trade.

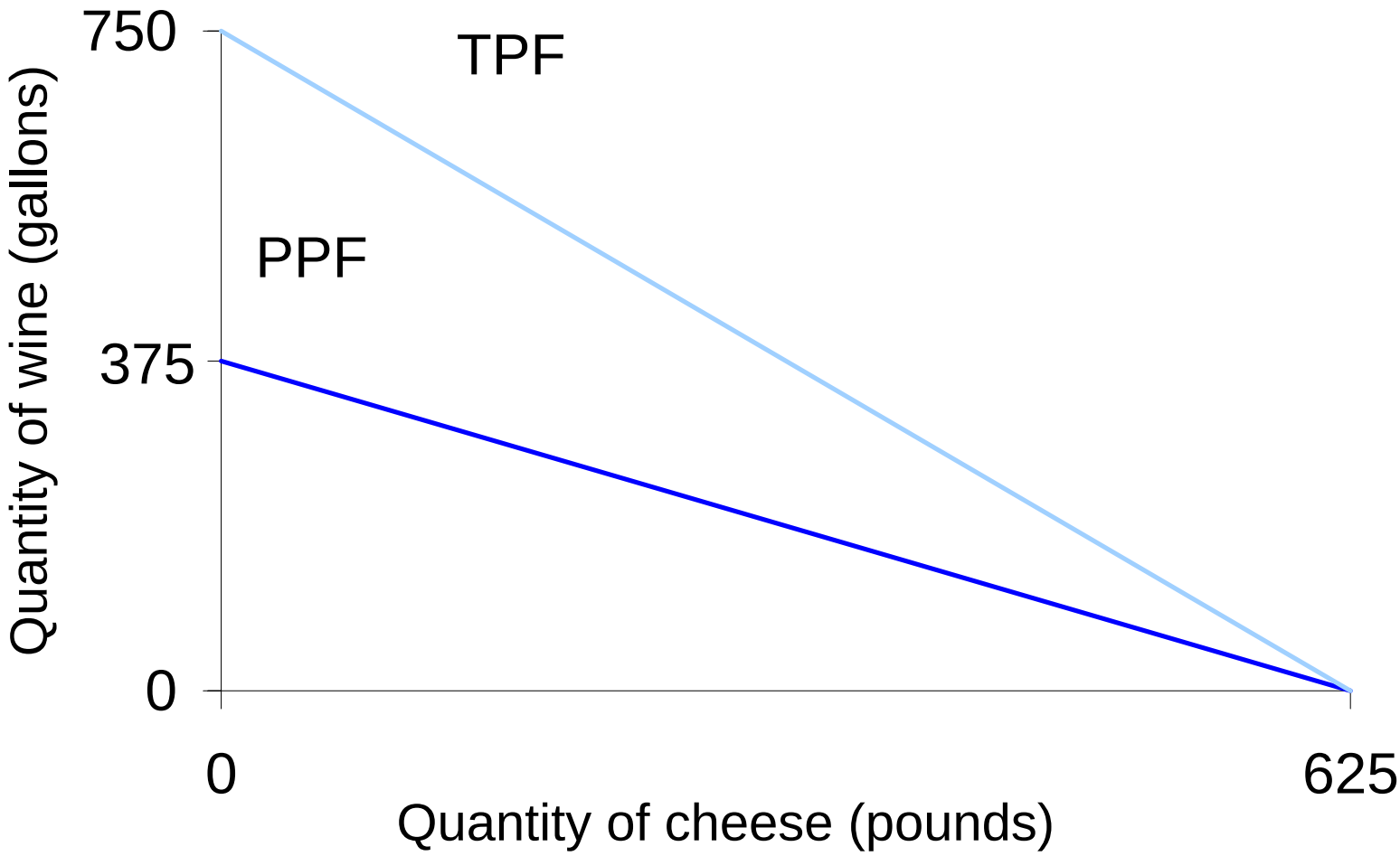
$$\bar{D}_C^* = 625,\quad \bar{D}_W^* = 750$$

Compare the slopes of the two trade possibilities frontiers and explain.

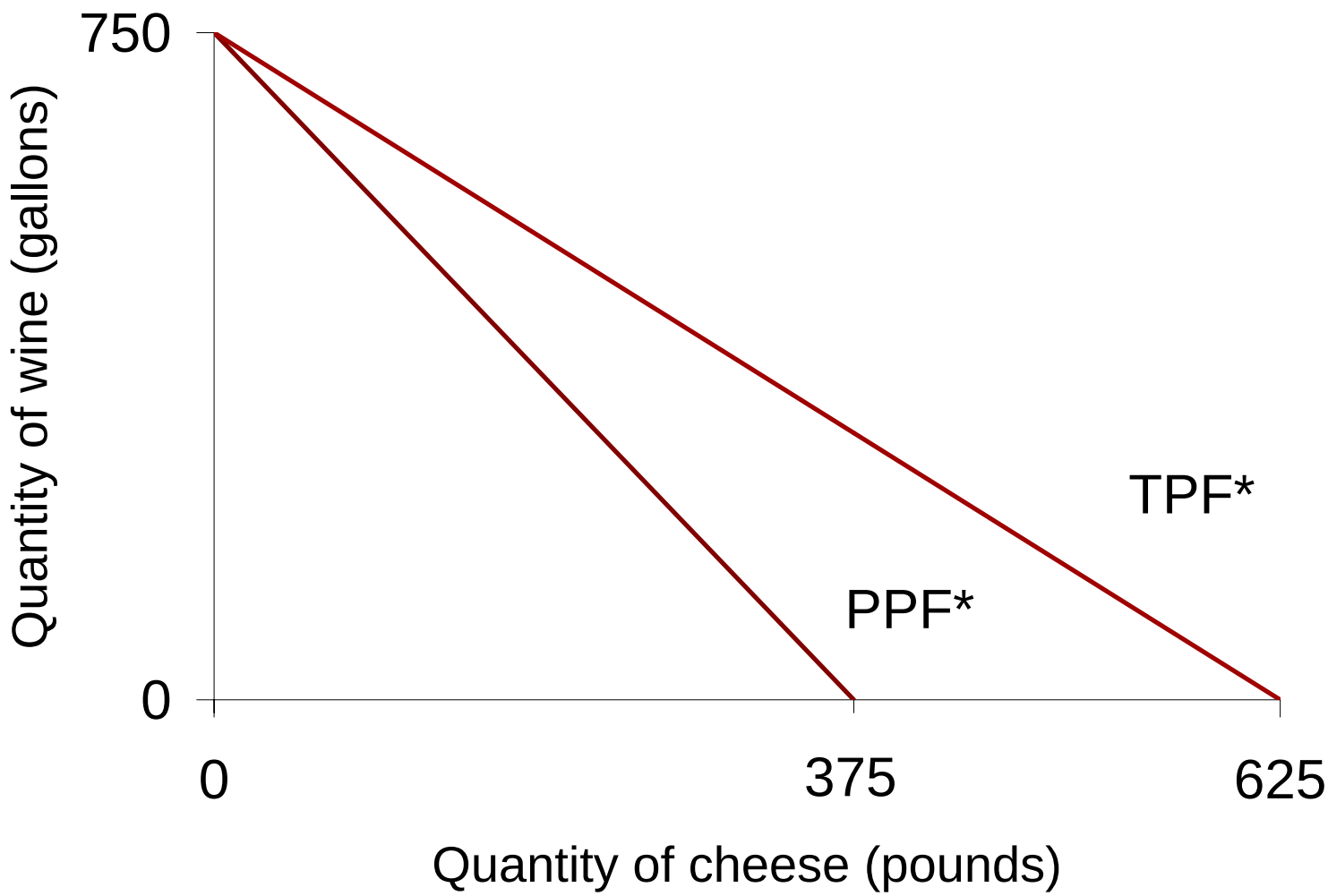
Same as the two countries face same relative price under free trade

GRAPH OF TRADE POSSIBILITIES FRONTIER*: cheese endpoint 625; wine endpoint 750; TPF* label; position of TPF* outside PPF*

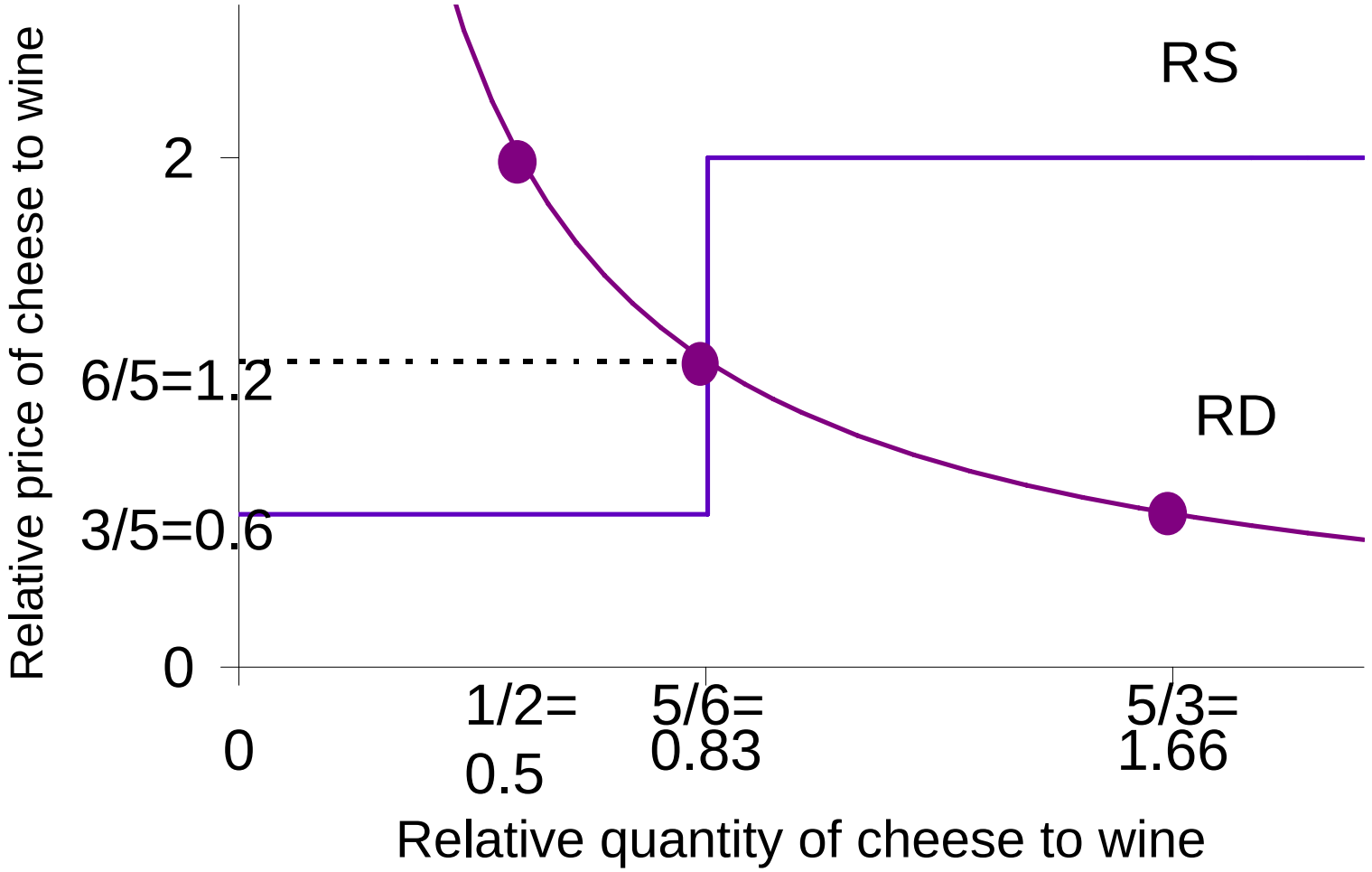
1&5 US PPF and TPF



2&6 ROW PPF and TPF



3 World RS & RD


RS
RD
2
6/5=1.2
3/5=0.6
0
Relative price of cheese to wine
0
1/2=
0.5
5/6=
0.83
5/3=
1.66
Relative quantity of cheese to wine