Name_____

UMID_____

Final Exam
December 14 or 22, 2010
Answers

Answer on these sheets. Use the indicated point values as a guide to how extensively you should answer each question, and budget your time accordingly. The exam has a total of 75 points.

1. (11 points) In the space below, indicate the implications of the fact that China continues to accumulate reserves of US dollars.
   a. What does this intervention mean for the yuan/dollar exchange rate?
   b. How does that, in turn, affect the exports and imports of both China and the US?
   c. Assuming that this reserve accumulation continues into the future, what affect does it have on the terms of trade of the two countries and consequently on the welfare of the people of China and the US?

   Ans:

   a) (3 points) The fact that China is accumulating reserves of dollars means that it is buying dollars in the foreign exchange market. That in turn means that the yuan/dollar exchange rate (value of the dollar) is higher than the rate that would equate supply and demand in the absence of that intervention, and correspondingly that the value of the yuan is lower.

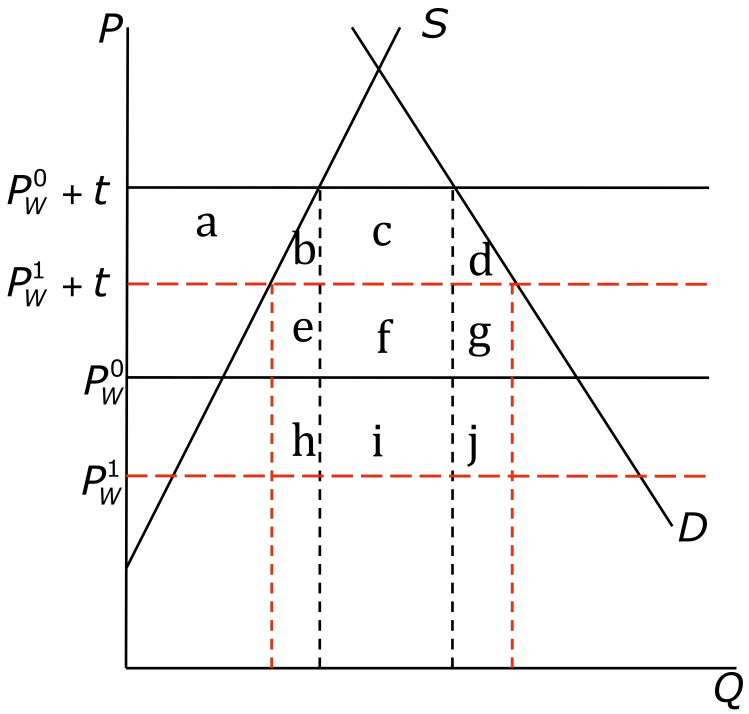
   b) (4 points) This low value for the yuan makes China's exports cheaper for foreign buyers, including in the US, and China's imports more expensive. Thus it tends to increase China's exports to the world and to the US, and to reduce China's imports from the world and from the US. Thus it also increases US imports from China and lowers US exports to China.

   c) (4 points) If the value of the yuan remains low due to this intervention, this means that the terms of trade of China (relative price of exports compared to imports) is reduced (worsened) and the terms of trade of the US is increased (improved). If both countries remain (or become) fully employed, this reduces the welfare of China and increases that of the US, since China is getting less value for what it sells. However, in an environment in which labor especially is less than fully employed, or may become so, these prices may keep China's labor employed and make it harder to employ labor in the US. This benefits China and hurts the US.

2. (12 points) In the space below, first draw the usual partial-equilibrium diagram showing the effects of a specific tariff in the domestic market of a small country that, in the presence of the tariff, imports the good. Then add to the diagram a fall in the world price equal to one-half the size of the tariff. (For example, the world price might have been \$75 and the tariff \$50. The world price then falls by \$25, from \$75 to \$50.) Use the diagram to analyze the effects of this fall in world price on:
   a. Welfare of domestic suppliers
   b. Welfare of domestic demanders
   c. Domestic government
   d. Country as a whole

   (Note: you are <u>not</u> asked to show the effects of the tariff compared to free trade, either before or after the fall in world price. You are only asked to find the effects of that fall in world price, given the presence of the unchanged specific tariff.)

Ans: (4 points) The figure is shown at the right, using solid black lines for the situation before the fall in world price and dashed red lines for the situation after.



a) (2 points) Suppliers lose: –a

b) (2 points) Demanders gain: +(a+b+c+d)

c) (2 points) Government gains tariff revenue because of the increased imports and the unchanged specific tariff per unit of imports. Revenue before the change is (c+f). Revenue after the change is (e+f+g+h+i+j). Areas c and i are equal because the tariff is specific. Therefore government gains +(e+g+h+j)

d) (2 points) Combining these results, the country gains +(b+c+d+e+g+h+i)

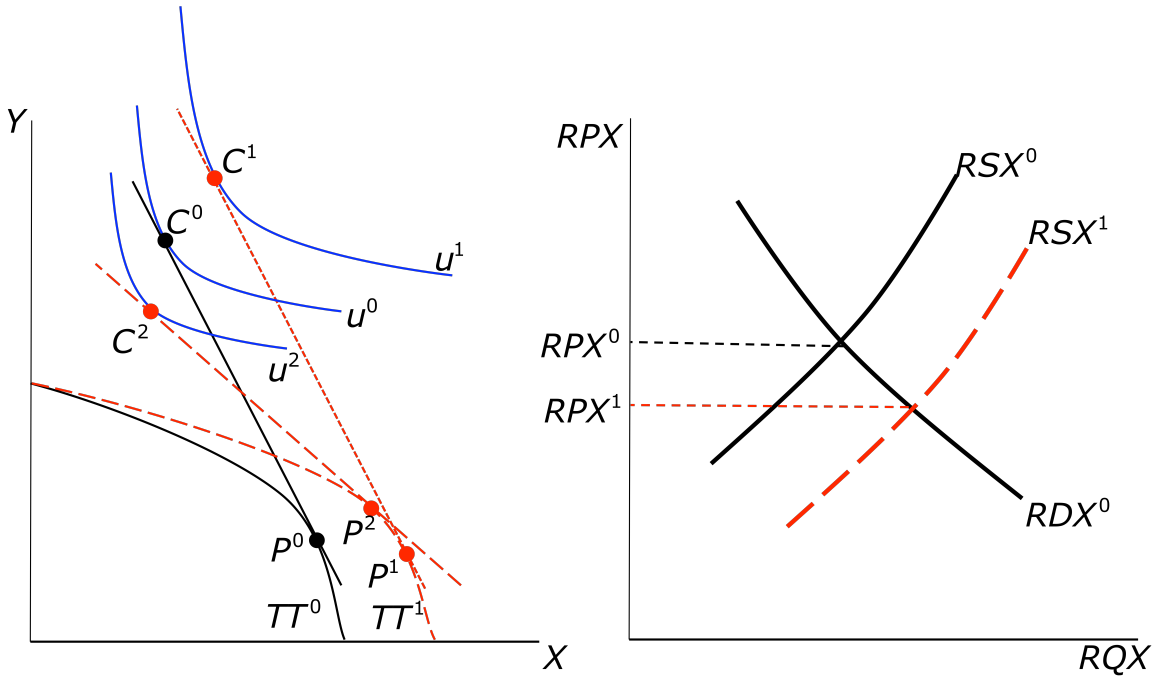
3. (12 points) Define "immizerizing growth," explain it in words, and use the Standard Model, the diagrams of which are shown below for the equilibrium prior to growth, to illustrate it.

Ans: (3 points) Immizerizing growth refers to the possibility that a country may become worse off as a result of becoming able to produce more.

(3 points) This can happen if the country initially exports a good and the growth causes it to produce and export so much more that it causes the price of the good to fall on the world market. For the growth to be immizerizing, the fall in price must be large enough to more than offset the gain the country would have enjoyed if price had not fallen.

(6 points) This is illustrated in the figures below. Initially the country has production possibilities given by the curve TT^0 and produces and consumes at point P^0 and C^0 respectively, attaining welfare level u^0.

Growth occurs, causing its production possibilities to expand to the red dashed curve TT^1. If the relative price of its export good X compared to its import good Y (RPX^0) were to remain unchanged, it would expand production to P^1 and consumption to C^1, reaching welfare level u^1 which is unambiguously an improvement. But in the world market shown at the right, the country's expanded production of good X causes the world relative supply, RSX, to shift to the right, and the world relative price of X falls to RPX^1. This flattens out the price line on the left to the red dashed line shown, causing production and consumption to move to P^2 and C^2 respectively. As drawn, C^2 is on a lower indifference curve than was C^0, and the country is worse off.



4. (12 points) Suppose that a small country imports a good that it does not produce itself, and suppose, as a first case, that it also does not produce any good that is a substitute for the imported good.
   a. Show the welfare effects of a tariff on that imported good.

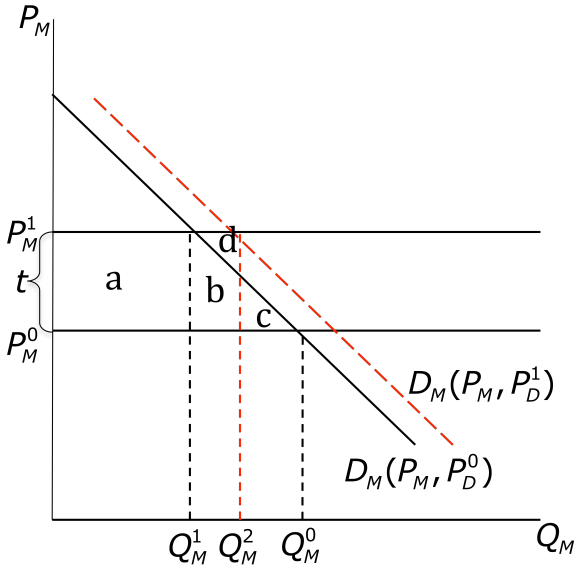
   Now assume as a second case that the country <u>does</u> produce a good that is an imperfect substitute for the imported good, the demand for which depends as before on its own price but now also on the price of the substitute.
   b. Use the two markets to show how the tariff on the imported good affects price and quantity of this substitute, and how this in turn affects what happens in the import market.
   c. State and explain (but there is no need to show this in the diagrams) how the welfare effects of the tariff in the second case differ from those in the first case. That is, how does the presence of the domestic substitute alter the welfare effects of the tariff on domestic consumers, domestic producers, and the domestic government? You do <u>not</u> need to answer this for the country as a whole, as that would be difficult.

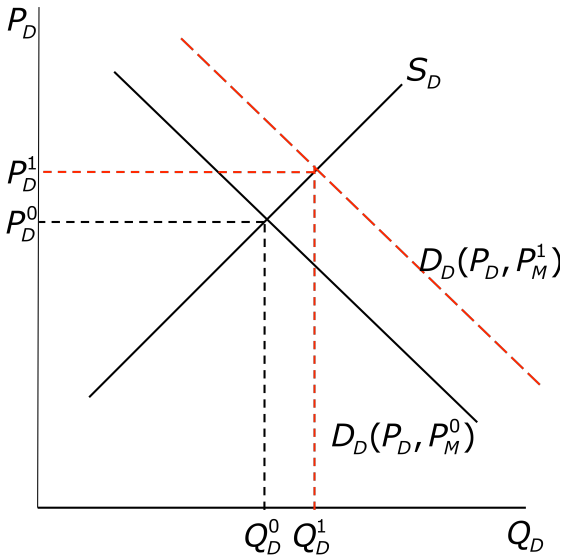
Ans:

a) (2 points) The figure on the left below shows the market for the imported good. The solid black lines show the usual effect of a tariff, t, raising the price and lowering the quantity of imports, causing a loss to demanders of area –(a+b+c) and a gain to the government of area +a in tariff revenue.

b) (4 points) When the domestic substitute is introduced in the figure on the right, both demand curves now depend on the price of the other good. The rise in the price of the import shifts the demand for the domestic good to the right. With an upward sloping supply there, price and quantity of the domestic good both rise, and this in turn shifts the demand curve for the import to the right, reversing some of the decline in imports.

c) (6 points) Comparing to the situation without the substitute, domestic producers gain more than when nobody was producing a substitute, since those who do now get a higher price. The government gains more tariff revenue, since the decline in quantity imported is smaller. And consumers lose more, since they face not only a rise in price of the imported good but also a rise in price of the substitute. (One could argue, correctly, that the appearance of this substitute domestic good would make demand for the import good more elastic, and thus make the tariff less costly to consumers. I don't expect you to say that, but if you do, so much the better.)


P_M
P_M^1
t
P_M^0
a
b
c
d
$D_M(P_M, P_D^1)$
$D_M(P_M, P_D^0)$
Q_M^1 Q_M^2 Q_M^0
Q_M

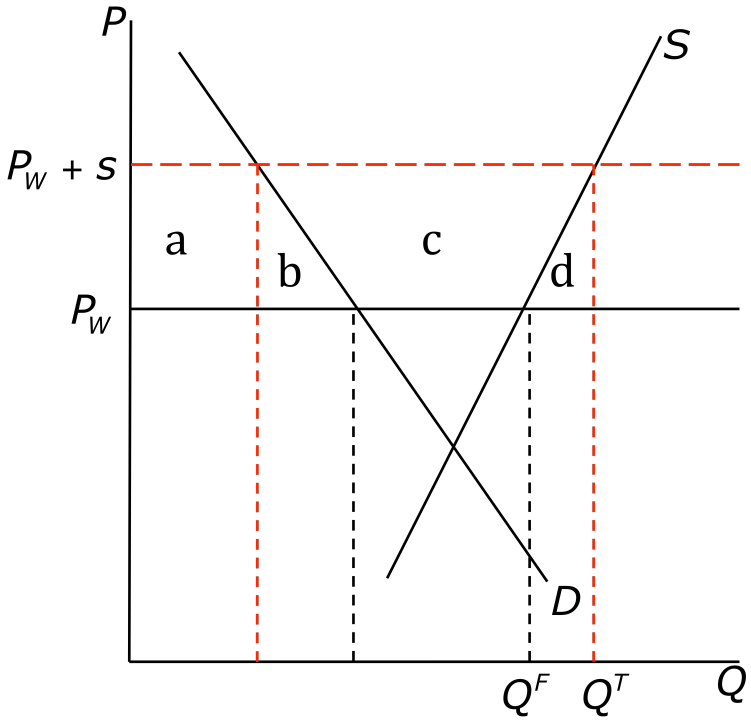

P_D
S_D
P_D^1
P_D^0
$D_D(P_D, P_M^1)$
$D_D(P_D, P_M^0)$
Q_D^0 Q_D^1
Q_D

5. (10 points) In the space below, write a short essay defining "dumping," then listing and explaining reasons why a firm might dump and what the welfare effects of dumping for each reason would be.

   Ans:

   - *(4 points) Dumping is defined as exporting at a price that is either below the price charged on the exporter's domestic market for the same good, or below some measure of cost.*
   - *(2 points each for max of 6) Reasons for dumping and their welfare effects:*
     - *Predatory dumping*
       - *Meant to drive out all competitors so as to be able to charge higher, monopoly prices later on.*
       - *If successful, harms both firms and consumers in the importing country (though consumers are hurt only in its later stage, when prices rise)*
     - *Price discrimination*
       - *An exporter with tariff or other protection in its home market charges a higher price there, but can export only at the lower world price.*
       - *Lowers welfare in the exporting country but has no effect on welfare in the importing country*
     - *Cyclical dumping (I don't think I ever used that term)*
       - *Charging a price that is below total average cost but above variable cost in a time of weak demand, especially during recession. If done in an export market, it is dumping.*
       - *Compared to not selling at all, this dumping is beneficial to both the dumping firm and its customers in the importing country*
     - *Learning by doing*
       - *Sale of a new product at below cost in order to get experience producing it, so that cost will fall and the firm will become profitable over time.*
       - *Beneficial to consumers in importing country*
     - *Experience goods*
       - *Sale of a new product at below cost in order to introduce it to consumers who are unfamiliar with it, so that they can learn its quality and become willing to pay a price above cost later on.*
       - *Beneficial to consumers in importing country*

6. (10 points) Suppose that the government of a small country wishes, for whatever reason, to increase production of a good that the country exports from its free-market level, Q^F to some target level, Q^T. Using the partial equilibrium diagram that is started for you below, show how this can be done either with an export subsidy combined with an equal or larger tariff, or with a domestic (i.e., production) subsidy. Then compare the two policies in terms of their costs to the government, the welfare of domestic suppliers and demanders, and the welfare of the country as a whole. Which policy is better?



Ans: (4 points) The solid black lines in the figure show the situation prior to any policy, with production at Q^F. To increase output to Q^T, the government needs to increase the amount that producers receive to the level shown as P_W+s. It can do that by paying a subsidy s for production, which will yield the suppliers P_W+s on all output while selling at price P_W to both the foreign and domestic market. Or it can provide the same size subsidy s only for exports, accompanied by a tariff at least that large to keep domestic buyers from importing. Since in that situation, suppliers will get P_W+s for exports, they will not sell for any less on the domestic market, and the domestic price will rise to P_W+s.

(4 points) Welfare effects:

	Export subsidy	*Domestic subsidy*
Suppliers	*+(a+b+c)*	*+(a+b+c)*
Demanders	*–(a+b)*	*0*
Government	*–(b+c+d)*	*–(a+b+c+d)*
Country	*–(b+d)*	*–d*

(2 points) Both policies cause a loss of welfare (which may be acceptable, given that we don't know the reason for the decision to increase output). But the domestic subsidy causes a smaller loss of welfare than the export subsidy. Even though the domestic subsidy costs the government more than the export subsidy (since the export subsidy is paid on a smaller quantity), the domestic subsidy does not distort the choice of demanders, and thus is less costly in terms of welfare.

7. (8 points) In the news, China is said to have cut off exports of rare earths (which are essential inputs to many high-technology products, such as smart phones) to Japan. For some years, China has been essentially the only supplier of rare earths anywhere in the world. Write an essay discussing what may have been the motivations for doing that and what effects you expect that this action might have on Japan, on China, and on the world market for rare earths.

Ans:

- *(2 points) Possible Motivations*
  - *To use its market power in the world market for this good in order to raise its price and improve China's terms of trade*
  - *To assert its power over Japan in response to another conflict between the two countries (Japan had arrested the crew of a ship that had collided with a Japanese ship, and China wanted them released).*
  - *To undermine Japan's ability to produce high-tech products so that China's producers can expand their markets*
- *(6 points) Effects*
  - *On Japan*
    - *Interferes with Japanese production of high-tech products*
    - *Weakens Japan's ability to assert its power in East Asia*
  - *On China*
    - *Improves its terms of trade by raising the price of one of its exports.*
    - *Signals both Japan and the world that China has economic power and must be listened to*
    - *Lowers the price and increases the availability of rare earths to Chinese producers who use it as an inputs, helping those producers to produce more competitively for domestic and world markets*
  - *On the world market for rare earths*
    - *Raises their price not just in Japan, as buyers elsewhere outside China scramble to stockpile supplies*
    - *Induces potential suppliers of rare earths in other countries to invest for future production, thus reducing China's market power in the future.*