

Midterm Exam
November 2, 2011

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 60 points.

1. (8 points) The United States is running a deficit on current account. In the space below, explain briefly:
 - a. What a deficit on current account means, by definition;
 - b. What it implies, if anything, for the US financial account;
 - c. What it implies, if anything, for US aggregate expenditure and income and/or savings and investment;
 - d. What it implies, if anything, for US and foreign trade policies.

Ans: a) A current account deficit means that the value of imports of goods and services (including interest and dividend payments) plus transfer payments to foreigners exceeds the value of exports of goods and services (including interest and dividend receipts) plus transfer receipts from foreigners.

b) The current account and financial account add up to zero, so a current account deficit implies a financial account surplus – that is, the receipts from borrowing from and selling assets to foreigners exceeds the amounts lent to and spent on buying assets from foreigners.

c) A current account deficit means that the country is spending (or giving away) more than its income or, equivalently for appropriate definitions, that it is saving less than it is spending on investment.

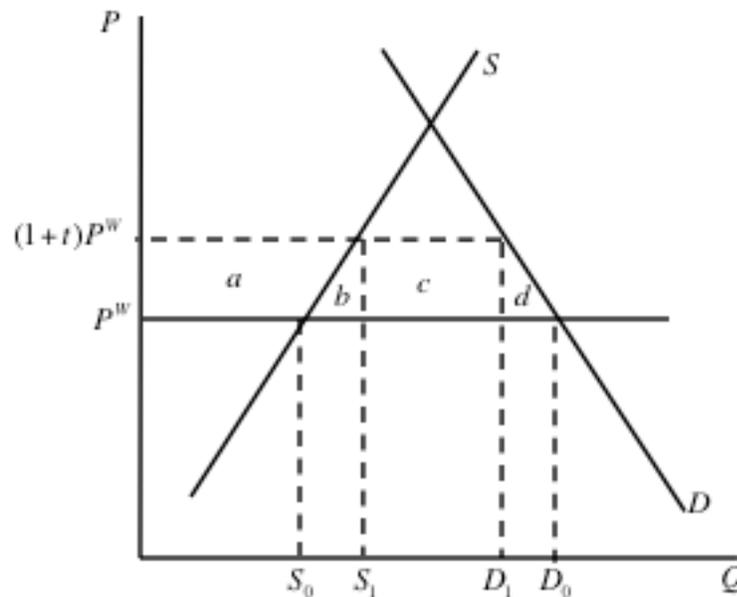
*d) A current account deficit tells us nothing about trade policies. In particular, it does **not** mean that foreigners are somehow restricting our exports more than we are restricting our imports.*

2. (8 points) In the space below, briefly answer the following:
- What is the Law of One Price (LOP)?
 - Does the world obey the LOP, and on what do you base your answer?
 - How is the LOP related to the idea of Purchasing Power Parity (PPP)?
 - According to PPP, if inflation (the rate of increase in prices) in China is greater than inflation in the US, what should happen to the exchange rate between the US dollar and the Chinese currency, the yuan? Specifically, should the dollar appreciate or depreciate relative to the yuan?

Ans:

- The LOP states that the same good in different competitive markets must sell for the same price, when transportation costs and barriers between those markets are not important, and thus that, at a given time t , $P_t^1 = S_t P_t^{*1}$ where P_t^1 is the price of the good in the home country, P_t^{*1} is the price of the good in the foreign country, and S_t is the spot exchange rate, defined as units of domestic currency per unit of foreign currency.*
- That depends on how you interpret the qualification “when transportation costs and barriers between those markets are not important.” Certainly prices are not the same in different markets, as anyone who has traveled can attest. The Economist’s Big Mac Index also shows that very clearly. But in all such cases, you could argue that transport costs and other barriers exist to account for these differences, so that the LOP really isn’t being violated. I will accept either answer.*
- PPP says about the general price levels in two countries (and thus the prices of representative baskets of all goods and services) essentially what LOP says about individual prices. Thus, if P_t is the price of the basket at home and P_t^* is its price abroad, then $P_t = S_t P_t^*$.*
- The US dollar should appreciate (rise in value) relative to the yuan. Higher Chinese inflation than US inflation means that P_t^* rises more than P_t , and thus S_t should fall, mean the price of yuan goes down and the price of the dollar goes up.*

3. (24 points) In the space below, draw a diagram depicting supply and demand for a good, under perfect competition, in a small country that imports the good under free trade.
- a. (12 points) Use the diagram to show the effects of a non-prohibitive, *ad valorem* tariff, t_0 , on imports of that good as it will affect quantities of the good supplied, demanded, and imported, as well as on the welfare of suppliers, demanders, and the country as a whole. (Be sure to state clearly what these effects are; don't just expect me to read them from your diagram.)



Ans: The tariff raises the price to $(1+t_0)P^W$, causes supply to increase and demand to decrease, as shown, from S_0 to S_1 and D_0 to D_1 . Quantity of imports falls from $D_0 - S_0$ to $D_1 - S_1$. Welfare of suppliers rises by area a . Welfare of demanders falls by area $(a+b+c+d)$. Since government collects tariff revenue of area c , welfare of the country as a whole changes by $a+c-(a+b+c+d)=-b-d$, the dead-weight loss from the tariff.

- b. (8 points) Suppose that the main purpose of the tariff in part (a) was to raise revenue for the government. How would the use, instead, of a consumption tax (a tax on all demand for the good), also of *ad valorem* size t_0 , compare to the tariff of part (a)? Compare in terms of: revenue generated, welfare of suppliers, welfare of demanders, and welfare of the country as a whole?

Ans: The same figure applies, but the interpretation is different. Now, because demanders must pay the same tax on the good whether it is domestically produced or imported, suppliers cannot charge a price higher than the world price, P^W . Therefore the price suppliers receive remains what it would have been without a tax and without a tariff, and their welfare is the same as under free trade. Compared to the tariff, therefore, they lose area a.

Demanders must pay the world price, plus the consumption tax, and therefore they pay $(1+t_0)P^W$ just as under the tariff. Compared to free trade and no tax, they lose $(a+b+c+d)$, as before, and therefore they neither gain nor lose from the switch from tariff to consumption tax.

Government now collects revenue from the consumption tax on the total quantity demanded, D_1 . Therefore the revenue is larger area $(a+b+c)$, which exceeds what it collected under the tariff by $(a+b)$.

The country as a whole, compared to free trade and no tax, has its welfare change by $-(a+b+c+d)+(a+b+c) = -d$. thus the country as a whole loses from the consumption tax, compared to free trade and no tax, but it loses less, by the amount of area b, than if it has used a tariff.

- c. (4 points) Based on your analysis in parts (a) and (b), which policy would you advise a government to use in order to raise revenue? Why? Would you expect the government to follow your advice?

Ans: Basing advice on total welfare, you should advise the use of the consumption tax rather than the tariff. However, it seems unlikely that the government will follow that advice, since a switch from tariff to consumption tax will hurt suppliers, and they may have considerable political clout. According to the analysis, also, consumers will not be hurt by the switch, but it may be difficult to convince them of that, since they will think that they are hurt more by the consumption tax than by the tariff.

- d. (2 points extra credit) If the country had been large instead of small, how would this matter for the comparison of the effect of the tariff and consumption tax on welfare of consumers? Why?

Ans: For a large country, the world price will fall due to the reduced demand for imports from either policy. Since imports fall less under the consumption tax than under the tariff, world price will fall less as well, and consumers will therefore be hurt more by the consumption tax than by the tariff.

4. (10 points) Recently, manufacturers of solar panels in the United States have requested that a tariff be levied on imports of solar panels from China.
- a. Explain a process within US trade law by which these manufacturers might pursue this request (this does not need to be the process that they actually are using). Include an explanation of who within the US government will handle this request and the role, if any, of the President.
 - b. If they succeed in getting such a tariff, how might China be able to respond, if at all, within the rules of the World Trade Organization? If they do respond how will their response be handled by the WTO?

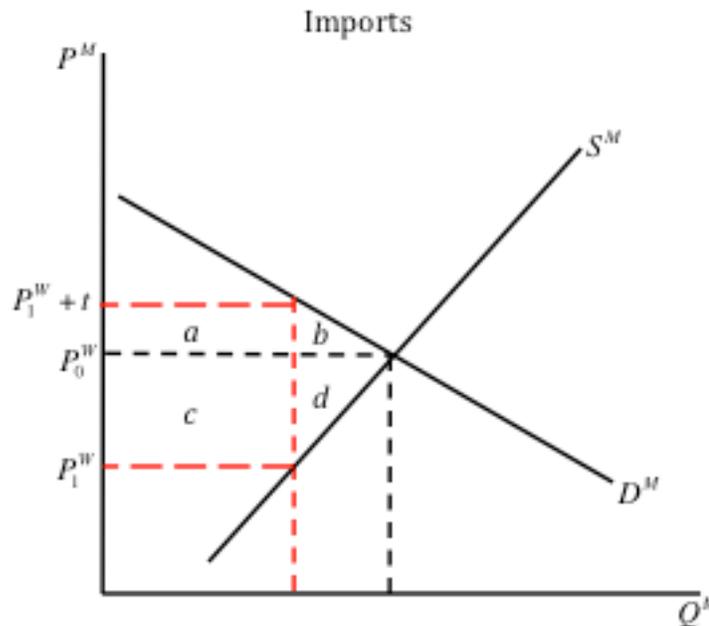
Ans: Your answer to (a) should include an explanation of one of the three mechanisms of administered protection in the United States; Anti-dumping, Subsidies-Countervailing Duties, or Safeguards (Escape Clause). For AD and CVD you need to mention the determination of unfair trade by the International Trade Administration and for these as well as for safeguards you need to mention the determination of injury by the International Trade Commission. The President has the option of denying protection under safeguards, but not under AD and CVD.

Since all three mechanisms are legal under the GATT and WTO, China will not be entitled to respond. However, they can file a complaint with the WTO alleging that process followed by the US did not satisfy the requirements of the WTO – that trade was found to be unfair, for example, when it was not in fact unfair under WTO rules, or that the ITC found injury associated with the imports that either did not occur, or was not due to the imports. If they do make such a complaint, and if negotiation with the US does not resolve the issue, then the case will go to a Panel in the WTO Dispute Settlement Mechanism. If the US is found to have violate WTO rules, if that finding is upheld under an appeal to the WTO Appellate Body, and if the US does not then remove the tariff, then China will be entitled to retaliate by levying tariffs of its own again US exports.

5. (10 points) Identify any one (and only one) of the following three statements as True or False and provide an analysis, with an appropriate diagram and explanation, to justify your answer.

a. A tariff cannot make a country better off.

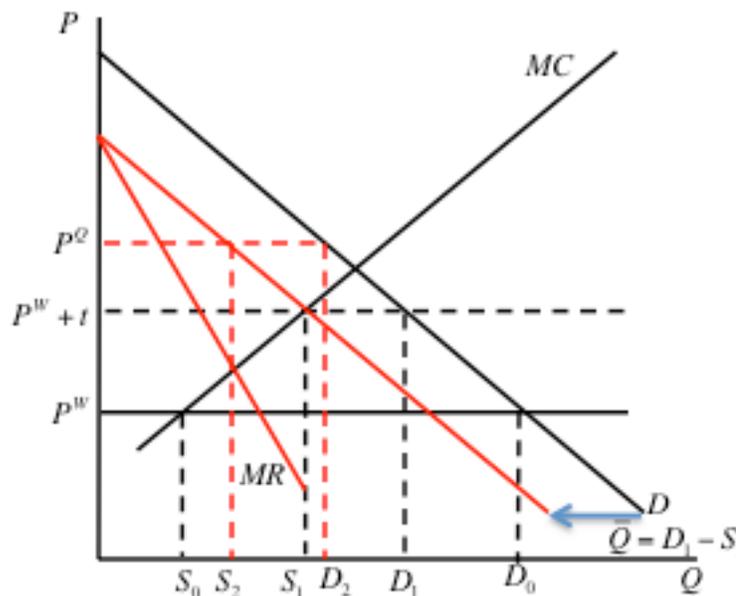
Ans: False. If a country is large enough to matter for the world price of the good on which it levies the tariff, then the world price will fall and the country may gain. Using the market for a country's imports, its large size means that it faces an upward sloping supply of imports from abroad. The analysis is as follows:



The tariff causes the world price to fall from P_0^W to P_1^W and the domestic price to rise from P_0^W to $P_1^W + t$. Domestic suppliers and demanders (combined) suffer a net loss of area $(a+b)$, while the government collects tariff revenue of $(a+c)$. Thus the country as a whole gains $(c-b)$, which as drawn is positive.

- b. If a tariff is replaced by an import quota – with the quota set equal to the quantity of imports that came in under the tariff – then consumers of the imported good may be worse off.

Ans: True. This can happen if there is a single domestic firm, thus a monopoly if it has no competition from imports. A tariff raises the price that the firm can charge, and thus induces both reduced demand and increased production, as if there were perfect competition. But it does not allow the firm to charge a price any higher than the world price plus tariff. A quota set equal to the quantity of imports under the tariff, however, does permit the firm to charge a higher price, since demanders cannot increase what they buy from abroad. If the firm finds it in its interest to in fact raise price (it won't always), then consumers will indeed be worse off. The analysis is as follows:



With free trade, the firm can only charge P^w , so it produces where price equals marginal cost, S_0 , while demand is D_0 and imports are $(D_0 - S_0)$. With the tariff, t , price rises to $P^w + t$, the firm's output expands to S_1 , demand falls to D_1 , and imports fall to $D_1 - S_1 = \bar{Q}$. Now replacing the tariff with a quota equal to \bar{Q} , the demand curve faced by the firm is shifted left by \bar{Q} , as shown. The firm now faces a downward sloping demand curve and can use its monopoly power, raising price above $P^w + t$. It finds its optimal price by constructing its marginal revenue curve from this new demand curve, then equating marginal revenue to marginal cost. As a result, it raises price to P^Q . Consumers pay a higher price and are indeed worse off.

- c. A tariff placed on imports of a good that is used as an input to another industry will hurt both suppliers and demanders in the using industry.

Ans: True if the using industry is not traded. False if the using industry is traded and the country is small, so that the price there does not rise.

The tariff raises the price of the input and thus raises cost in the using industry. If price were to rise there by the full amount of the increase in costs, then suppliers would be unaffected, while demanders would be hurt. But that won't happen.

If the using industry is traded and the country is small, then the price won't rise at all. Demanders won't be hurt, but suppliers will be hurt by the full rise in cost of the input.

If the using industry is not traded, then with downward sloping demand and/or upward sloping supply, price will rise by less than the increase in cost and both suppliers and demanders will be hurt. The analysis is as follows for the non-traded case:

