

Second Exam - Answers
December 12, 2005

Answer in blue book. Use the point values as a guide to how extensively you should answer each question, and budget your time accordingly. Note that there is a total of only ?? points.

- (24 points) Evaluate the welfare effects of a tariff levied by a small country on imports of cigarettes, with the tariff set equal to the harm per cigarette that smoking does to members of society other than the smoker. Based on your analysis, would you recommend such a policy? Would your answer depend at all on the size of the domestic cigarette industry?

Ans: This is a case of a negative externality from consumption. Let the harm done to society per cigarette be H . Then the social marginal benefit (MB) from consuming cigarettes is lower than the private marginal benefit by the amount H .

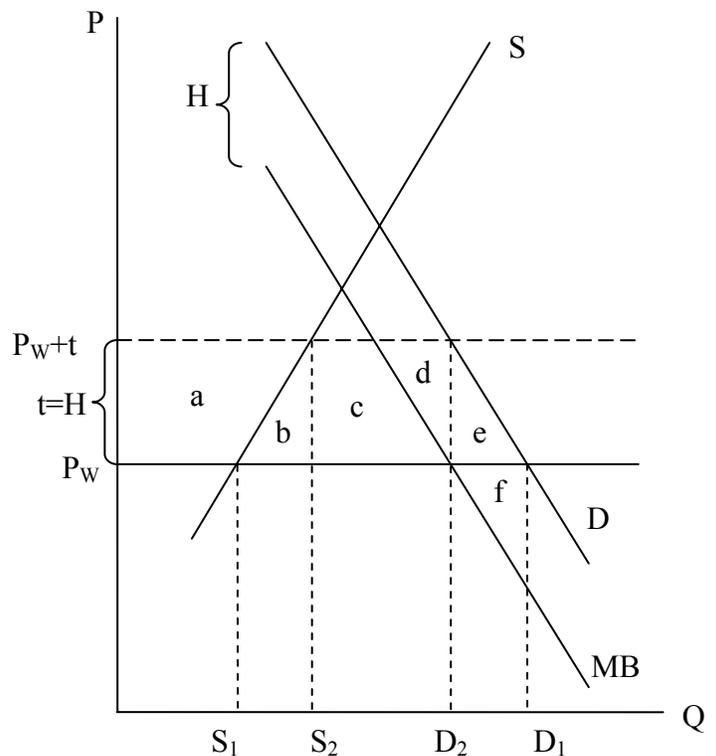
If the country imports cigarettes, the tariff is analyzed in the figure in the usual way, except that the welfare effects now include a gain from reduced externality of H times the fall in demand, and thus the area of the parallelogram $(e+f)$:

Suppliers gain	$+a$
Demanders lose	$-(a+b+c+d+e)$
Government gains	$+(c+d)$
Externality gain	$+(e+f)$
Country:	$-b+f$

Thus country may gain or lose from the tariff.

In general, I would not recommend this policy for dealing with the externality, in part because, without knowledge of the slopes of supply and demand, it seems just as likely to be harmful as helpful. But more important, the tariff is second best, since a tax on consumption would have the same effect on demand while causing no change in supply, and thus be unambiguously both beneficial and better than the tariff.

The size of the domestic cigarette industry mostly does not matter for this conclusion (what matters is the slope of supply, not its size), except for two



possibilities. First, if the country does not have a cigarette industry, then supply is zero and may remain zero even with a tariff. If so, then area b disappears and the tax on imports is equivalent to the optimal policy: a tax on consumption equal to H . In that case, the tariff is first best and beneficial. Second, if the cigarette industry is sufficiently large, so that supply is greater than demand at the world price, then the country exports rather than imports cigarettes, and a tariff will do nothing.

2. (28 points) Suppose that a small country has a single firm producing a good subject to marginal cost that increases with output, and that, with free trade, it both sells the good on the domestic market and exports it.
- Suppose that the country were to levy a large tariff on imports of the good, so large that if there were no domestic firm it would reduce demand for the good to zero. In the presence of that tariff, and assuming that the firm is not worried about any policy response abroad, show that it would engage in dumping.
 - Suppose that, starting from this dumping equilibrium, the firm now attempts to avert a policy response abroad by ceasing to dump. If it continues to export, how can it avoid dumping? If it does this, how will this affect it and its country's welfare?
 - In the absence of any fear of foreign policy response, how large does a tariff have to be in order for the firm to engage in dumping?

Ans:

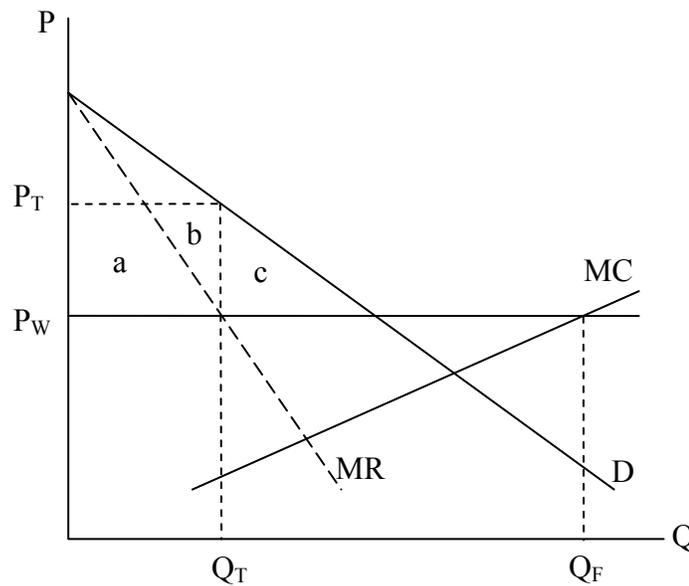
- With free trade, the small country's demanders can buy from abroad at the fixed world price P_W , and the domestic firm cannot therefore sell for any price higher than that. It will therefore produce at the output – Q_F in the figure below – where marginal cost equals P_W . Since we know that it exports the good, it must be true as shown that the MC curve crosses P_W to the right of P_W 's intersection with demand.*

With a large enough tariff, however, the firm will be free to charge any price it wishes domestically, and it will exercise its power as a monopoly by selling a quantity at which marginal revenue equals marginal (opportunity) cost. Marginal cost of selling domestically is not, however, MC, since any unit it might sell at home it could alternatively sell abroad for price P_W . Thus P_W is the relevant marginal cost of supplying the domestic market. Thus output is that labeled Q_T below. It sells in the domestic market for P_T , which is necessarily greater than P_W , and this means that the firm is dumping: selling its export for a lower price than it charges in the domestic market.

- If the firm now wants to avoid satisfying the definition of dumping, but continues to export, then it cannot sell for a higher price abroad since the small country must take the price P_W as given. Instead, therefore, it must reduce its domestic price to P_W as well, even though it is protected by a tariff. As a result, the firm loses profit of area $-(a+b)$, while demanders gain the increase in consumer*

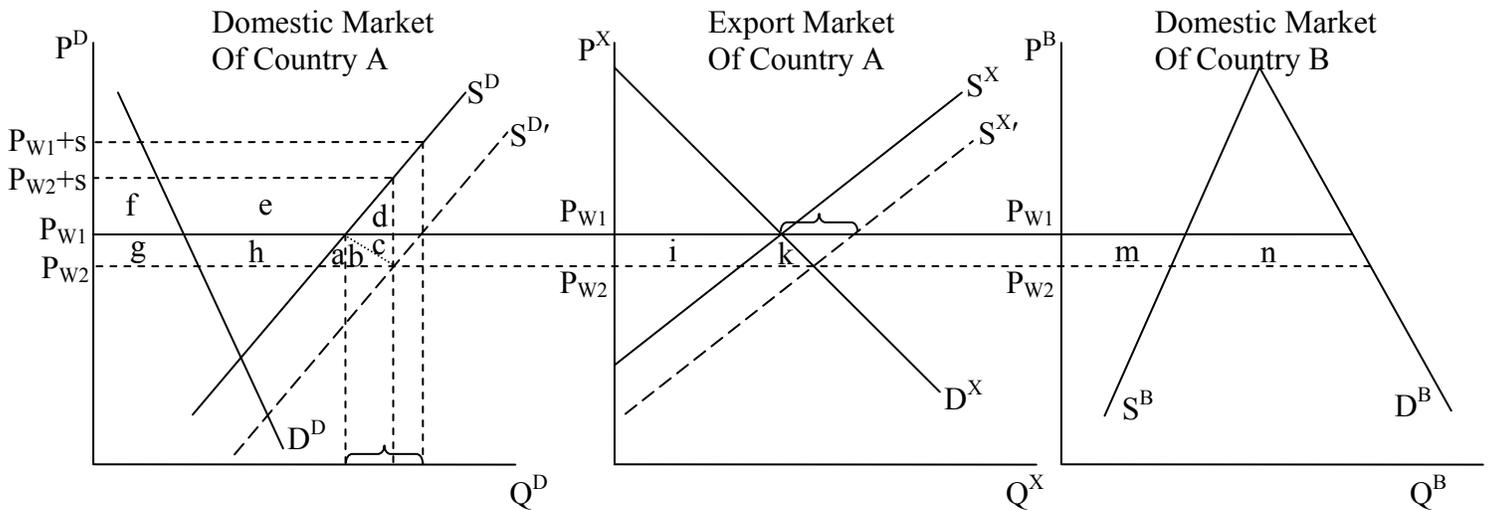
surplus $+(a+b+c)$. The country as a whole, therefore, gains area c , which was the deadweight loss due to the firm's monopoly pricing.

- c. In the absence of any fear of foreign policy response, the firm will charge the highest price it can, up to the price P_T . Therefore any tariff, no matter how small, will permit the firm to charge more than the world price and will therefore cause it to engage in dumping.



3. (24 points) Analyze the effects of a production subsidy provided by a large country to its producers of a homogeneous product, assuming that in equilibrium the country exports the good. The industry is perfectly competitive at home and abroad. Determine the welfare effects on domestic and foreign suppliers and demanders, and on the countries as a whole and the world as a whole.

Ans: The subsidy, s , would raise the domestic price to P_{W1+s} if the world price were to remain unchanged, and at this price the quantity supplied would increase by the amount shown. Since demand would not change in that case, this increase appears as a rightward shift of the country's supply of exports in the middle panel. This in turn causes the world price to fall from P_{W1} to P_{W2} , which appears on the left as a fall in the price to demanders to P_{W2} and a reduced increase in price to suppliers to P_{W2+s} .



Welfare effects on Country A:

Suppliers gain: $+(f+e)$

Demanders gain: $+g$

Government loses: $-(a+b+c+d+e+f+g+h)$

Country A as a whole: $-(a+b+c+d+h)$

Welfare effects on Country B:

Suppliers lose: $-m$

Demanders gain: $+(m+n)$

Country B as a whole: $+n$

Welfare effect on the world: $+n-(a+b+c+d+h)$

But areas $n = (i+k) = (h+a+b)$ since in each equilibrium A's excess supply equals B's excess demand, so that each of these areas has the same length across the top (=pre-subsidy trade) and the same length across the bottom (post-subsidy trade). Thus the welfare effect on the world turns out to be an unambiguous loss of $-(c+d)$.

4. (24 points) Write an essay discussing the positions that various countries and groups of countries (such as developed and developing countries) have taken in the Doha Round negotiations with regard to the following policies, in each case addressing
- i. what the groups of countries want to have happen, or not happen, in the negotiations and why, and also
 - ii. whether and why their positions are in the best interests of developing countries.
- a. Developed countries' tariffs on agricultural products
 - b. Developed countries' subsidies on agricultural products
 - c. Developed countries' tariffs on manufactured goods.
 - d. Developing countries' tariffs on manufactured goods.

Ans:

- a. *Most developing countries want these tariffs to be reduced, especially on products that they may plausibly be able to export, while developed countries, seeking to protect their farmers, are reluctant to do this (though the U.S. has proposed substantial reductions in return for liberalization by others and in other areas). Exceptions to the former, however, are those developing countries that already have zero tariffs on their exports to certain developed-country markets such as the EU, due to tariff preferences, the benefits of which would be eroded by liberalization. The developing-country views, here, are in the interest of developing countries, and the developed country views are not.*
- b. *As in (a), developing countries want these subsidies reduced, both export subsidies and production subsidies, while the major developed countries (especially the EU) are again mostly reluctant to do so. In this case, it is in the interest of developing-country exporters of these products to have the subsidies reduced, and also in the interests of developing-country producers of these products even if their countries are net importers. However, the latter countries will actually find their terms of trade worsened by the removal of these subsidies.*
- c. *Developing countries also seek reductions in those developed-country tariffs that are still high on manufactured goods, especially the labor-intensive ones that developing countries are most likely to be able to export, such as textiles and apparel. Developed countries resist this, as they do all tariff reductions, though not as strenuously as they resist liberalization in agriculture.*

Reducing these tariffs is, again, in the interest of most developing countries, with the few exceptions of some that have benefited from tariff preferences.

- d. The position on developing-country tariffs on manufactures is essentially the reverse of the above, in that developed countries want them reduced, while developing countries resist doing so, and even resist binding their tariffs at levels well above the rates that they currently apply. Developing countries' interests, however, would be best served by reducing these as well, both for their benefit as importers and for their benefit as exporters to each other.*