

# INTERNATIONAL TRADE AND THE WORLD ECONOMY

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## Answers to \* exercises in chapter 8 of the Study Guide

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The \* exercises in chapter 8 are: 8.3 and 8.7.

### Question 8.3

8.3A.

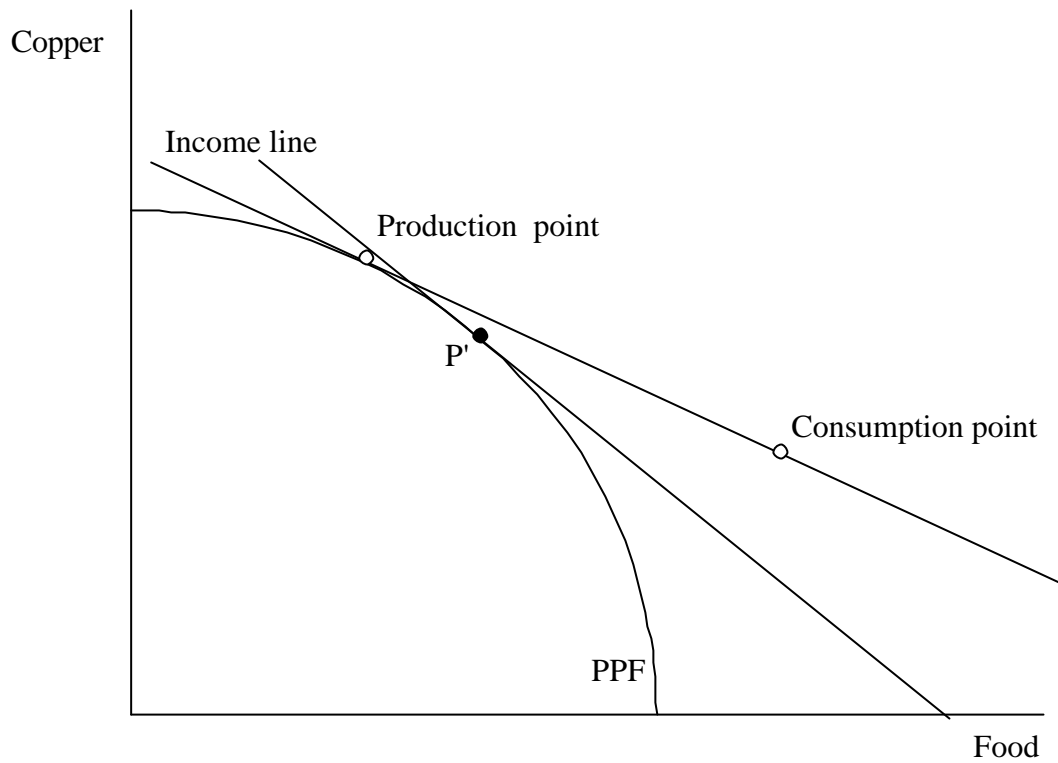
The proposed policy is an *ad valorem* tariff.

8.3B.

Zombio exports copper in return for food. We can see this by looking at the consumption of Food, which is greater than the production of Food. Consequently Zombio exports copper and imports food.

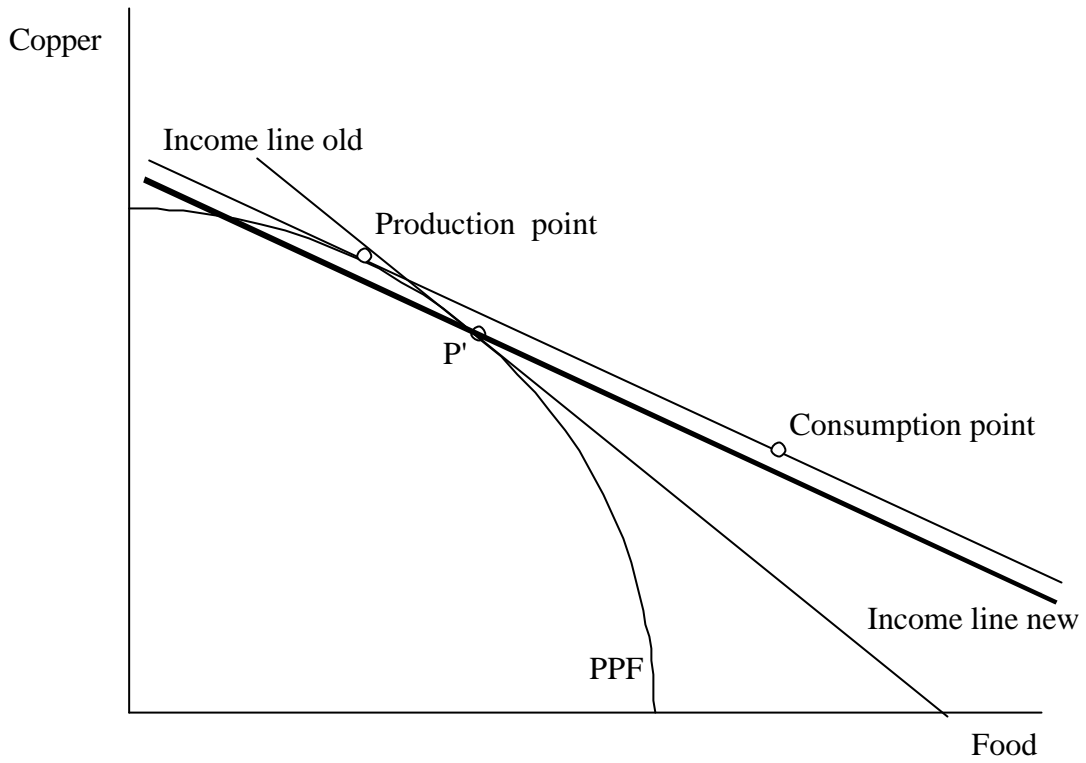
8.3C.

By imposing a tariff on food it becomes more expensive and thereby more attractive to produce for firms in Zombio. They will therefore increase the production of food and simultaneously decrease the production of copper. The income line (at domestic prices) will be steeper now that the price of food has increased, as illustrated below.



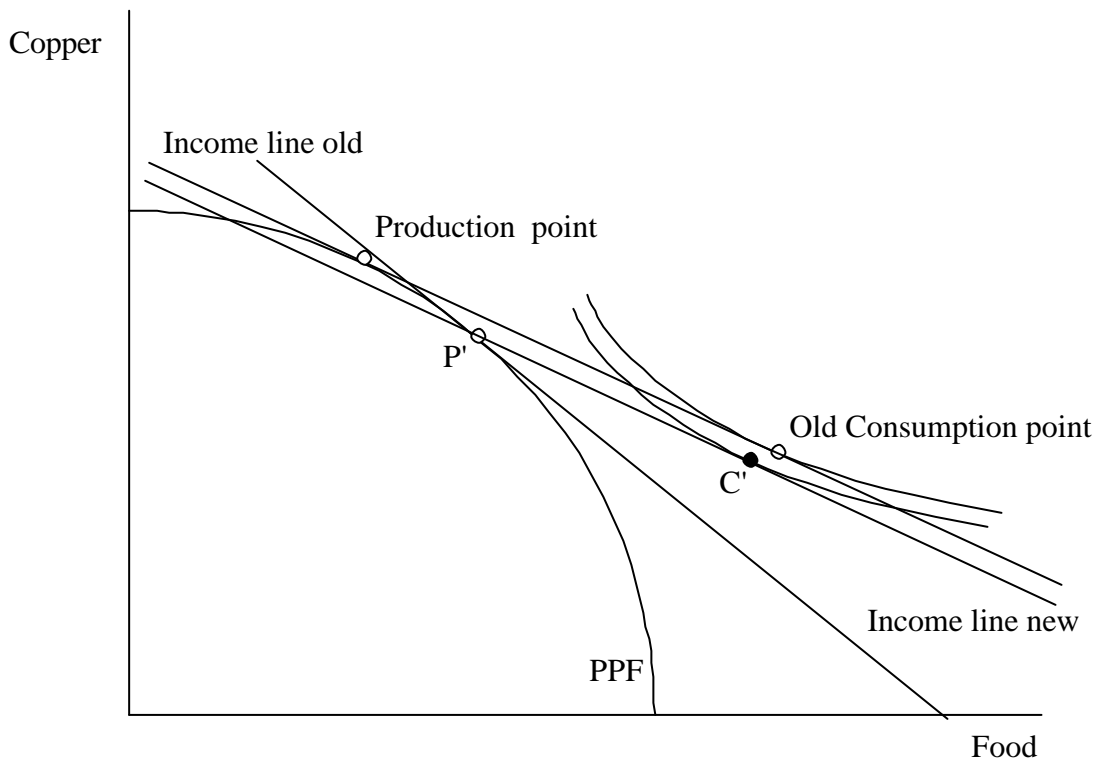
### 8.3D.

The tariff-ridden prices determine the new production point. But the world market prices are unchanged. So given the new production point, we draw an income line with the slope determined by world prices. The consumers can choose consumption points along this line, see the graph below.



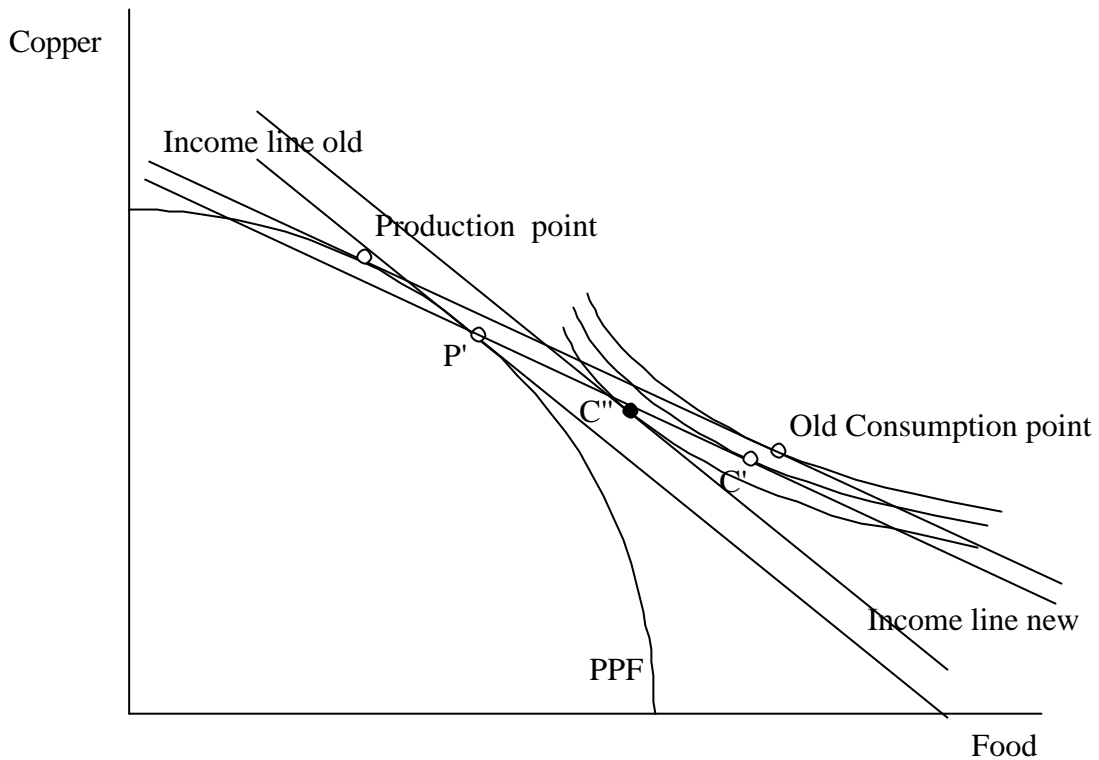
8.3E.

Given the new income line at world prices, consumers would maximise their utility at a point of tangency, such as point C' below.



8.3F.

The consumers are faced with the domestic prices, rather than the world prices. Therefore they choose their consumption bundle with respect to these domestic prices, and arrive at a different consumption point (with an iso-utility curve tangent to the distorted domestic prices). See the graph below.



8.3G

The double distortion comes about by the influence on production levels and the choice of the consumption bundle. As we have seen in 8.3C, the producers adjust their production to a sub-optimal level as a result of the price distortion caused by the tariff. This price distortion also distorts consumers's choices, so they also make a sub-optimal decision as we have seen at 8.3E.

8.3H.

When Zombio is not able to influence the world prices, the world will always trade with Zombio at the same terms of trade. This makes the offer curve of the rest of the world a straight line.

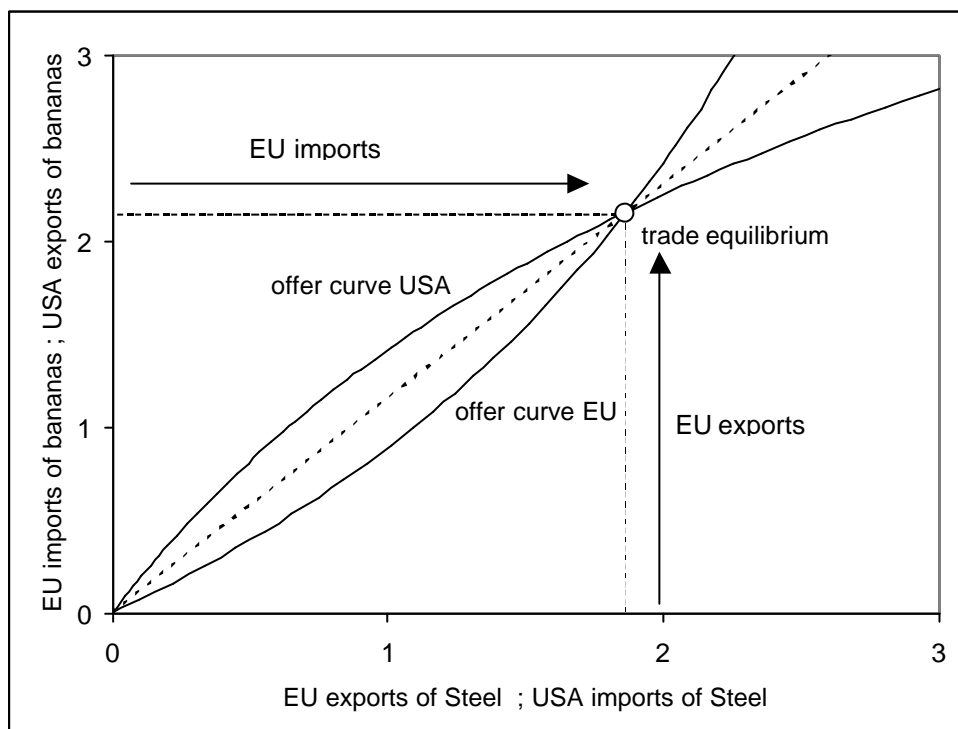
8.3I.

The offer curve of Zombio will rotate inwards as shown in figure 8.10 of the book. For every given terms of trade Zombio is willing to trade less than before.

### Question 8.7

8.7A-B.

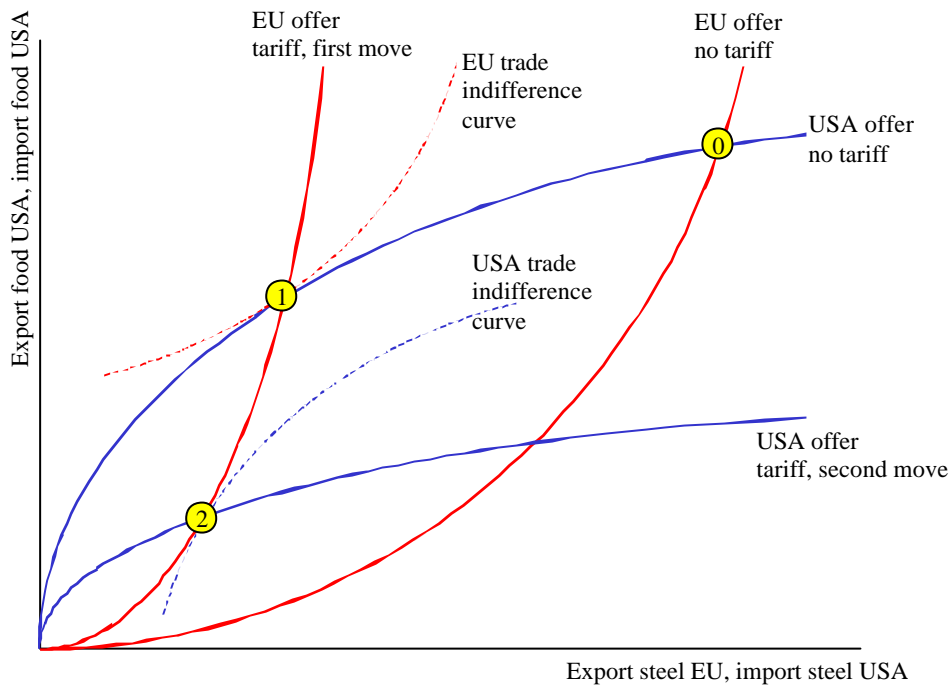
The offer curves of the USA and the EU are depicted below; the EU exports steel and imports bananas. The trade equilibrium is indicated at the point of intersection of the two offer curves.



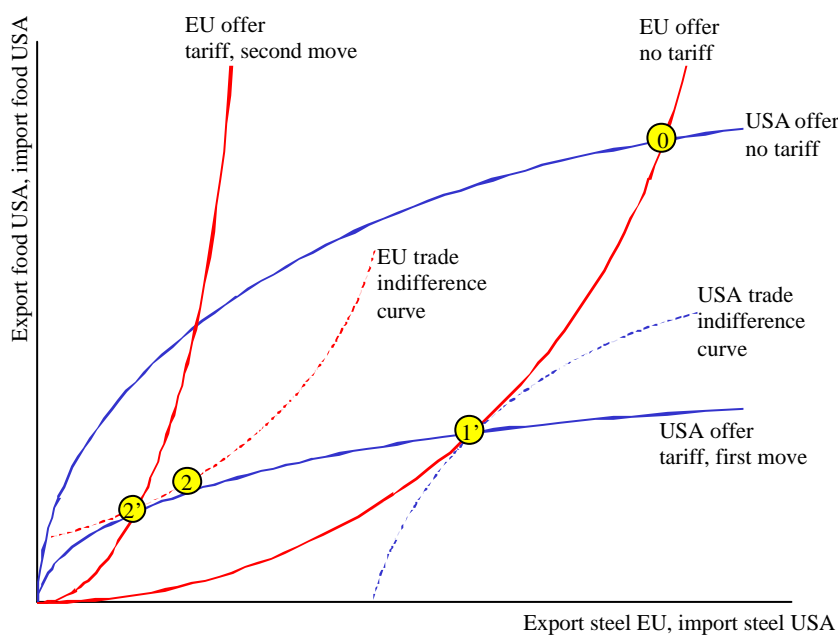
8.7C.

A trade war will lead both countries to impose an 'optimal' tariff on the exports of the other country. If the moves are not simultaneous it matters, in general, which country moves first and which country second.

- Suppose that the EU moves first. Starting from the initial situation "0" in the figure below, imposing an optimal tariff given the USA's offer curve moves the equilibrium to point 1 in the figure. If the USA then retaliates, given the EU's tariff-ridden offer curve, the equilibrium moves from point 1 to point 2 in the figure.

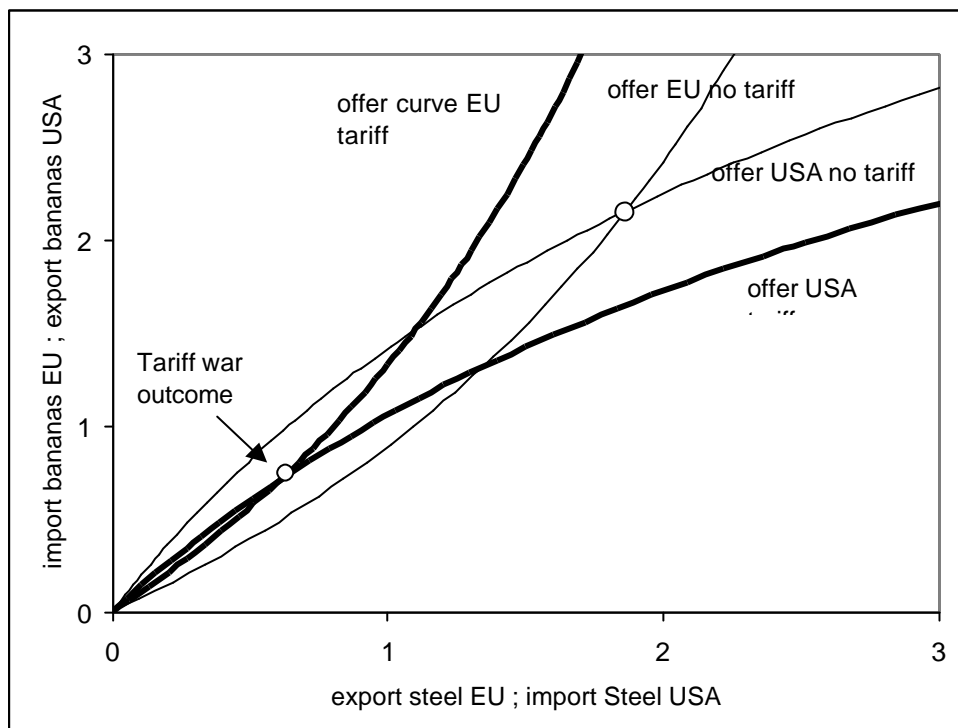


- Suppose that the USA moves first. Starting from the initial situation "0" in the figure below, imposing an optimal tariff given the EU's offer curve moves the equilibrium to point 1' in the figure. If the EU then retaliates, given the USA's tariff-ridden offer curve, the equilibrium moves to point 2', which is different than point 2.



### 8.7D

If both countries simultaneously impose the 'optimal' tariff the outcome is depicted below.



Generally speaking, the welfare of both nations has been reduced as both nations now reach a lower trade indifference curve than the free trade indifference curve. Note, however, that each country individually would be best off if the other country imposed no tariff, while it does so itself. The resulting outcome is called a 'prisoner's dilemma' in game theory. It leaves both 'individually rational' parties at a sub-optimal outcome.

### 8.7E.

The situation sketched above can be mitigated if both countries can credibly commit themselves to *not* impose any tariffs. The establishment of international trade organisations can facilitate such a commitment. By agreeing to impose rules and monitoring if countries adhere to these rules such organisations bring the world closer to the optimal free trade outcome.