HW 7.2

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Passed solution review

2. Recall exercise 2 from Chapter 5 in which a country imposes an import fee on the crude oil it imports. Assume that prior to the imposition of the import fee, the country annually consumed 900 million short tons of coal, all domestically mined, at a price of $66 per short ton. How would the CBA of the import fee change if, after imposition of the import fee, the following circumstances are assumed to result from energy consumers switching from crude oil to coal?

2. A country imports 3 billion barrels of crude oil per year and domestically produces another 3 billion barrels of crude oil per year. The world price of crude oil is $90 per barrel. Assuming linear curves, economists estimate the price elasticity of domestic supply to be 0.25 and the price elasticity of domestic demand to be 0.1 at the current equilibrium.

a. Annual consumption of coal rises by 40 million short tons, but the price of coal remains unchanged.

So long as price remains the same, this doesn't matter in a BCA for oss in the primary market

b. Annual consumption of coal rises by 40 million short tons and the price of coal rises to $69 per short ton. In answering this question, assume that the prices of other goods, including coal, were not held constant in estimating the demand schedule for crude oil.

Because they're not constant, they find a new equilibrium when coal shifts and therefore don't need to be counted.

c. Annual consumption of coal rises by 40 million short tons and the price of coal rises to $69 per short ton. In answering this question, assume that the prices of other goods, including coal, were held constant in estimating the demand schedule for crude oil. Also assume that the demand schedule for coal is completely inelastic.

If Coal rises and others are constant, then not everything is considered in SS and you must subtract Coal SS From Oil SS.

$\Delta PS = (.5 \cdot 40m \cdot 3) + (900m \cdot 3) = 2.76b$
$\Delta CS = (940m \cdot 3) = 2.82b$

$Net = 2.82b - 2.76b = 60m$

d. The market price of coal underestimates its marginal social cost by $7 per short ton because the coal mined in the country has a high sulphur content that produces smog when burned. In answering this question, assume that the annual consumption of coal rises by 40 million short tons, but the price of coal remains unchanged.

If there is an externality, SS changes even if price is constant.

$\Delta SS = 40m \cdot 7 = 280m$