7 Extra Problems

Monday, October 19, 2020 2:02 PM

Consider an analysis of changes in safety regulations for US automobiles.

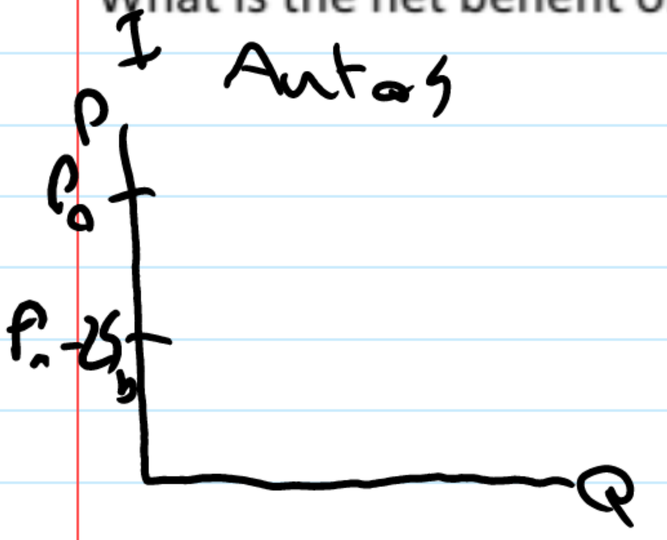
The net impact in the primary market is a loss of $25 billion per year, measured using actual prices and quantities before and after the change (i.e. not holding other prices constant).

The change in regulations effected the US tire market, reducing consumption by 200K, but price did not change appreciably.

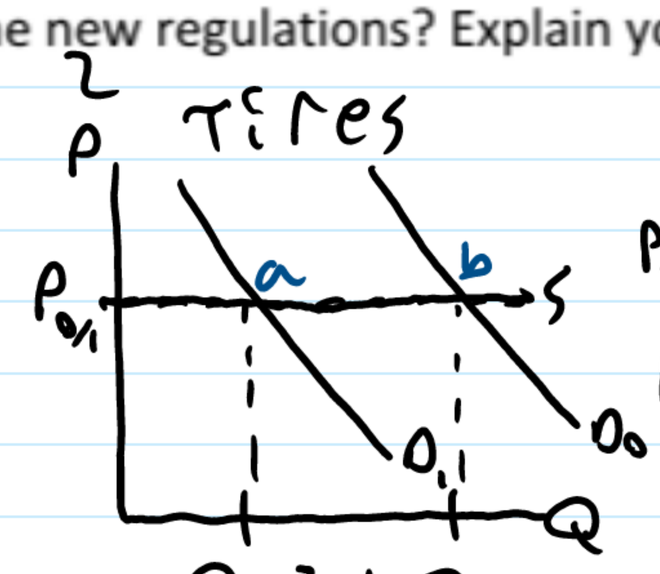
The change in regulations effected the US gasoline market. The price of gasoline fell from $2.10 per gallon to $2.00, with both prices including a $0.5 per gallon tax. Annual gasoline consumption fell 20 billion gallons.

There is an external cost of $1 per gallon of gasoline.

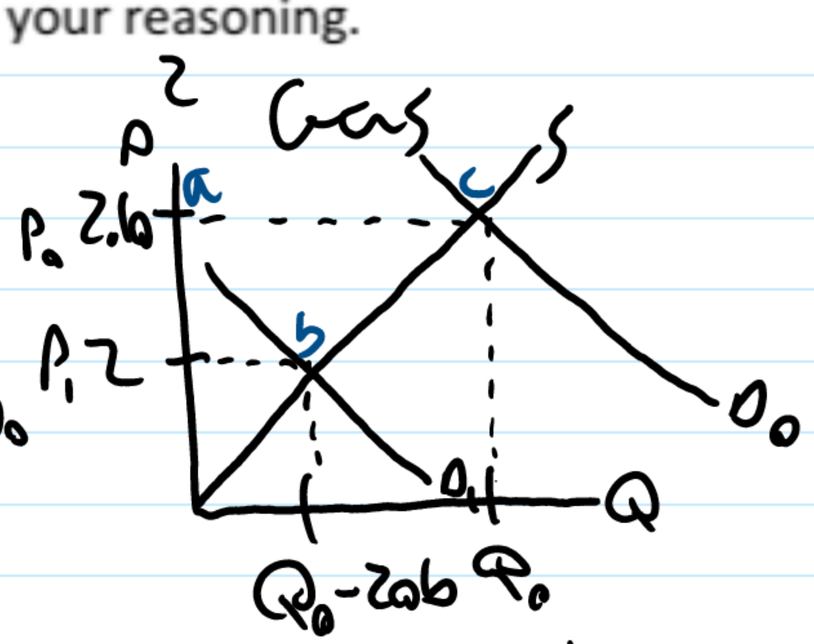
What is the net benefit of the new regulations? Explain your reasoning.



$NB = -25b$

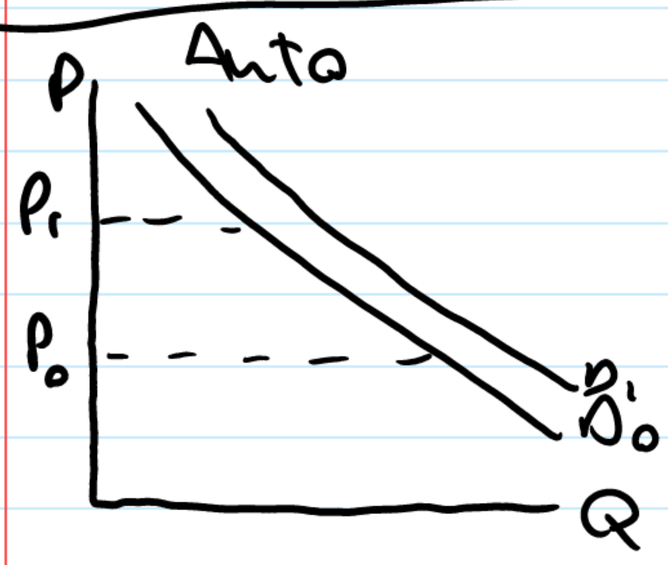


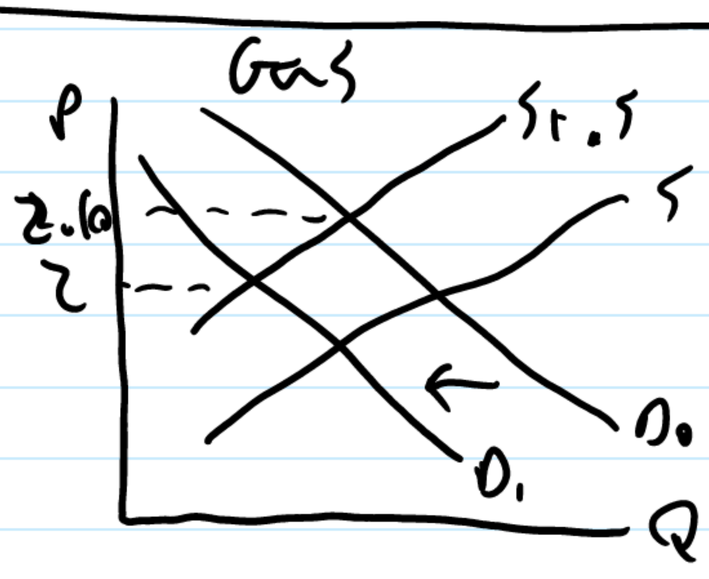
$NB = -200k \cdot P$



$NB = -.1 \cdot 20b$

Total $NB = -25b - (200k \cdot P) - (.1 \cdot 20b) - (.5 \cdot 20b)$





$-25b + (1 \cdot 20b) - (.5 \cdot 20m \cdot (1 + METB))$

- $20b$: savings on external costs
- $.5 \cdot 20m \cdot (1 + METB)$: loss of tax rev

Ignore fines because P constant
gas price change