

Price elasticity of demand (PED or Ed) is a measure used in economics to show the responsiveness, or elasticity, of the quantity demanded of a good or service to a change in its price. More precisely, it gives the percentage change in quantity demanded in response to a one percent change in price (ceteris paribus, i.e. holding constant all the other determinants of demand, such as income).

In our case the demand is inelastic.

The percentage change in total revenue is approximately equal to the percentage change in quantity demanded plus the percentage change in price. (One change will be positive, the other negative.) The percentage change in quantity is related to the percentage change in price by elasticity: hence the percentage change in revenue can be calculated by knowing the elasticity and the percentage change in price alone.

So, the quantity demanded decreased less than price increased in 0.75 times. So, if change in price is $x\%$, change in quantity will be $-0.75x$ and revenue change will be:

$$x - 0.75x = 3\%$$

$$0.25x = 3\%$$

$x = 12\%$, so change in price is $+12\%$ and change in quantity is -9% .