

3 Methodology

3.0.1 Calculating the Demand Function with Price Elasticity E

$$E = \frac{\Delta q[\%]}{\Delta p[\%]} = \frac{\frac{q_{org} - q_{new}}{q_{org}}}{\frac{p_{org} - p_{new}}{p_{org}}} \quad (3.1)$$

$$\Leftrightarrow E \cdot \left(1 - \frac{p_{new}}{p_{org}}\right) = 1 - \frac{q_{new}}{q_{org}} \quad (3.2)$$

$$\Leftrightarrow q_{new} = q_{org} \cdot \left(1 - E \cdot \left(1 - \frac{p_{new}}{p_{org}}\right)\right) \quad (3.3)$$

$$= q_{org} - E \cdot q_{org} + E \cdot q_{org} \cdot \frac{p_{new}}{p_{org}} \quad (3.4)$$