Worksheet 5: Price elasticity of demand (PED) and total revenue (TR) answers

1 A 20 per cent increase in prices results in a 10 per cent decrease in quantity demanded. Calculate the PED and explain the effect on TR.

PED = $\dfrac{-10\%}{+20\%}$ = –0.5%

Effect on TR: The firm gains 20 per cent more revenue from the increase in prices but loses 10 per cent revenue from the fall in quantity demanded. TR therefore rises by 10 per cent overall.

2 A 5 per cent increase in prices results in a 15 per cent decrease in quantity demanded. Calculate the PED and explain the effect on TR.

PED = $\dfrac{-15\%}{+5\%}$ = –3%

Effect on TR: The firm gains 5 per cent more revenue from the increase in prices but loses 15 per cent revenue from the fall in quantity demanded. TR therefore falls by 10 per cent overall.

3 A 16 per cent increase in prices does not change quantity demanded. Calculate the PED and explain the effect on TR.

PED = $\dfrac{-0\%}{+16\%}$ = 0%

Effect on TR: The firm gains 16 per cent more revenue from the increase in prices and doesn't lose any revenue because there's no change in the quantity demanded. TR therefore increases with the same percent with which prices increase.

4 A 3 per cent increase in prices results in a 6 per cent decrease in quantity demanded. Calculate the PED and explain the effect on TR.

PED = $\dfrac{-6\%}{+3\%}$ = –2%

Effect on TR: The firm gains 3 per cent more revenue from the increase in prices but loses 6 per cent revenue from the fall in quantity demanded. TR therefore falls by 3 per cent overall.

5 A 7.5 per cent decrease in prices results in a 14 per cent increase in quantity demanded. Calculate the PED and explain the effect on TR.

PED = $\dfrac{+14\%}{-7.5\%}$ = –2%

Effect on TR: The firm gains 14 per cent more revenue from the increase in prices but loses 7.5 per cent revenue from the fall in quantity demanded. TR therefore rises by 7.5 per cent overall.

6 A 13 per cent increase in prices results in a 13 per cent decrease in quantity demanded. Calculate the PED and explain the effect on TR.

PED = $\dfrac{-13\%}{+13\%}$ = –1%

Effect on TR: The firm gains 13 per cent more revenue from the increase in prices but also loses 13 per cent revenue from the fall in quantity demanded. TR therefore remains unchanged.

What I've learned:

If a firm with PED<1 wants to increase its TR, it must *increase* prices.

If a firm with PED>1 wants to increase its TR, it must *decrease* prices.

If a firm with PED = 0 wants to increase its TR, it must *increase* prices.

If a firm with PED = –1 wants to increase its TR, *it cannot achieve this with changes in prices because any change in prices will leave TR unchanged and it must adopt non-price strategies to increase demand on TR.*