University of the People

ECON 1580 Introduction to Economics

Unit 2 Written Assignment 2

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# Written Assignment Unit 2

## Restaurant Pricing and Revenue Analysis

In this exercise, we evaluate how changes in the price of meals affect demand and total revenue using the concept of price elasticity of demand.

## 1. Compute the Price Elasticity of Demand (from $20 to $18)

The price elasticity of demand (PED) formula is:  
  
PED = (% Change in Quantity Demanded) / (% Change in Price)  
  
First, compute percentage changes:  
Initial price (P1) = $20  
New price (P2) = $18  
Initial quantity demanded (Q1) = 400 meals  
New quantity demanded (Q2) = 450 meals  
  
Percentage change in quantity demanded:  
% Change in Quantity = ((450 - 400) / 400) × 100 = 12.5%  
  
Percentage change in price:  
% Change in Price = ((18 - 20) / 20) × 100 = -10%  
  
Thus, PED = 12.5% / -10% = -1.25  
  
Interpretation: The absolute value of PED is 1.25, meaning the demand is elastic.

## 2. Revenue Change from Price Reduction (from $20 to $18)

Total Revenue (TR) is calculated as:  
  
TR = Price × Quantity  
  
At $20: TR1 = 20 × 400 = $8,000  
At $18: TR2 = 18 × 450 = $8,100  
  
Conclusion: Since demand is elastic and total revenue increases from $8,000 to $8,100, total revenue rises after reducing the price.

## 3. Compute the Price Elasticity of Demand (from $18 to $16)

Now considering a second price reduction:  
Initial price (P1) = $18  
New price (P2) = $16  
Initial quantity demanded (Q1) = 450 meals  
New quantity demanded (Q2) = 500 meals  
  
Percentage change in quantity demanded:  
% Change in Quantity = ((500 - 450) / 450) × 100 = 11.11%  
  
Percentage change in price:  
% Change in Price = ((16 - 18) / 18) × 100 = -11.11%  
  
Thus, PED = 11.11% / -11.11% = -1  
  
Interpretation: The absolute value of PED is 1, meaning demand is unit elastic.

## 4. Revenue Change from Second Price Reduction (from $18 to $16)

At $18: TR2 = 18 × 450 = $8,100  
At $16: TR3 = 16 × 500 = $8,000  
  
Conclusion: Total revenue falls from $8,100 to $8,000 when the price drops from $18 to $16.

## 5. Summary of Total Revenues

Price (per meal) | Quantity Demanded | Total Revenue  
-----------------|-------------------|--------------  
$20 | 400 meals | $8,000  
$18 | 450 meals | $8,100  
$16 | 500 meals | $8,000  
  
Confirmation: The first price cut increases total revenue (elastic demand), and the second price cut decreases total revenue slightly (unit elastic behavior).

## Reference

Mankiw, N. G. (2021). Principles of economics (9th ed.). Cengage Learning.