

Q → Effect on Demand for good X  
if ? - own price?

↳ cigarettes - reduce

↳ tax - elasticity is low

Q10 p109

$\eta = 0.4$  if  $\eta < 1$  - inelastic D

$$\eta = 0.4 = \frac{\% \Delta Q}{\% \Delta P}$$

$\% \Delta P$  is 10%

$\% \Delta Q$  is 4%

$\eta > 1$  - elastic D

$$\eta = 1.2 = \frac{\% \Delta Q}{\% \Delta P}$$

10%  $\Delta P \rightarrow 12\% \Delta Q \downarrow$

$\eta = 0.4$  - age dependent

Target reduction of 20%

Pack cost #2

mid point  $\leftarrow$   $0.4 = \frac{20\%}{\frac{\% \Delta P}{X}}$  solve

$$0.4 \cdot X = 20$$

$$X = \frac{20}{0.4}$$

$$X = 50 - \text{\$/ tax}$$

$$\checkmark \eta = \frac{20}{50} = 0.4$$

enforcement - probability caught  $\uparrow$

- fine  $\uparrow$

$$\text{Expected value} = P_c \cdot f + (1 - P_c) \cdot 0$$

Effect of  $P \uparrow$  or  $P \downarrow$  on Total Revenue (TR)

$$\text{Profit} = \underline{\text{Tot. Rev.}} - \text{Tot. Cost}$$

tied to  $\eta$  - if  $\eta < 1$   $P \uparrow \Rightarrow TR \uparrow$

$\eta > 1$   $P \uparrow \Rightarrow TR \downarrow$

Q || P || 0

want  $TR \uparrow$

$P \uparrow$  or  $P \downarrow$  ?

need  $\eta$  to answer question

$\eta > 1 \rightarrow P \downarrow$

$\eta < 1 \rightarrow P \uparrow$

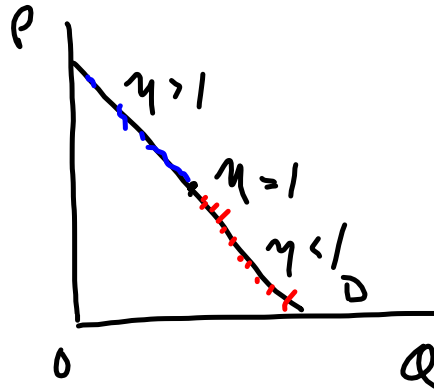
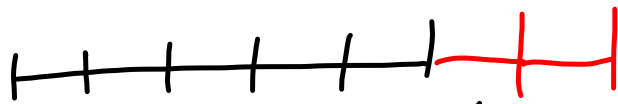


Fig 4

Q: - security lines at airports  
→ delays → missed flight



- reduce time / passenger
- reduce carry on luggage -  
charge for carry on  
free checked. -

Q 9 p 109

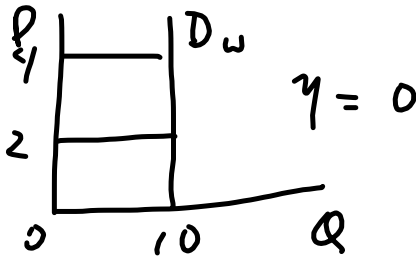
Walt + Jessie

P? W → 10 gal

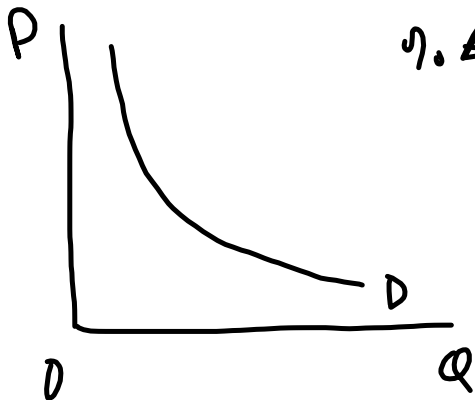
J → \$10

$P \cdot Q = \$10 \quad \eta = 1 = \frac{\% \Delta Q}{\% \Delta P}$

$\% \Delta Q = \% \Delta P$



$\eta = \frac{\% \Delta Q}{\% \Delta P} = \frac{0}{\% \Delta P}$



competitors - substitutes

$\eta_{xy}$  ?

seller of X need  $\eta_{xy}$  before you  
change price

$$\eta_{xy} = \frac{\% \Delta Q_x \uparrow}{\% \Delta P_y \uparrow}$$

$P \uparrow$  for Y &  $Q_x \uparrow$   $\eta_{xy} > 0 \rightarrow X \text{ \& } Y$  substitutes

If  $\eta_{xy} = 1$  - assume price choice by Y

$\eta_{xy}$  - in store brand  $x$   
 national brand  $y$  } groceries

Q data - 13 products  $-x$   
 $-y$

P data -

$\eta_{xy} \rightarrow$  price premium for national  
 brand

as  $\eta_{xy} \uparrow \rightarrow$  closer substitutes

$(P_y - P_x) \downarrow$

correlation 0.5 -

- complements - price of complementary good
- profit margin for X higher than for Y
- cut price on Y  $\rightarrow$  boost  $D_x$

Happy Hour - offer low cost Y  
to sell more X

- amusement parks
- grocery store loss leader



Test - Take Home Due Monday Class  
- post it on Web (weebly.)  
Thursday afternoon