Price Discrimination: Potential Profits

William Fisher
February 8, 2012
Economic Conditions Confronting Seller

$ Quantity

Marginal Cost

Quantity
Economic Conditions Confronting Seller

$\text{Quantity}$

$P(X)$

$P(Y)$

Marginal Cost

$X$ $Y$

$\text{Quantity}$
Economic Conditions Confronting Seller

Economic Conditions Confronting Seller

$\quad$ Quantity

$P(X)$ $P(Y)$ $P(Z)$

Marginal Cost

$X \quad Y \quad Z$

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Economic Conditions Confronting Seller

\[ P(X) \]
\[ P(Y) \]
\[ P(Z) \]

Demand

Marginal Cost

Quantity

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Perfect Price Discrimination

$\$\$\$\$

\begin{align*}
P(X) & \\
P(Y) & \\
P(Z) & \\
\end{align*}

Demand

Marginal Cost

\begin{align*}
X & \\
Y & \\
Z & \\
\end{align*}

\begin{align*}
\text{Quantity} & \\
\end{align*}
Perfect Price Discrimination

Profit-maximizing output

Demand

"Monopoly Profits"
No Price Discrimination

$A$

Demand

Marginal Revenue

Marginal Cost

$C$

$H$

$I$

$O$

$G$

Quantity
No Price Discrimination

Profit-maximizing price

Marginal Revenue

Marginal Cost

Profit-maximizing output

Profit-maximizing price

Monopoly Profits

Demand

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No Price Discrimination

Profit-maximizing price

Profit-maximizing output

Consumer Surplus

Monopoly Profits

Demand

Marginal Cost

1

2

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No Price Discrimination

Consumer Surplus

Monopoly Profits

Deadweight Loss (foregone consumer surplus)

Profit-maximizing price

Profit-maximizing output

Marginal Cost

$A$

$B$

$C$

$D$

$E$

$F$

$G$

$H$

$I$

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Perfect Price Discrimination

$\text{Demand}$

“Monopoly Profits”

$\text{Marginal Cost}$

$\text{Quantity}$
Suppose the seller had imperfect information about each buyer...
Suppose the seller had imperfect information about each buyer...

\[
\begin{array}{c|c|c}
\text{Quantity} & \text{Marginal Cost} & \text{Demand} \\
\hline
\end{array}
\]
Suppose the seller had imperfect information about each buyer...

Seller estimates that each buyer will be able and willing to spend at least this much
Suppose the seller had imperfect information about each buyer...

Seller estimates that each buyer will be able and willing to spend at least this much -- and charges them that much.
Suppose the seller had imperfect information about each buyer...
Suppose the seller had imperfect information about each buyer...
Suppose the seller had imperfect information about each buyer...
Suppose the seller had imperfect information about each buyer...
Suppose the seller had imperfect information about each buyer...

![Graph showing consumer surplus, deadweight loss, and profit](image-url)

- Consumer Surplus
- Deadweight Loss
- Demand
- Profit
- Marginal Cost
- Quantity

$\text{Quantity}$ $\text{Marginal Cost}$

$\text{Profit}$

$\$\text{Consumer Surplus}$

$\text{Deadweight Loss}$

[Diagram details and annotations]
First Degree

Consumer Surplus

Deadweight Loss

Demand

Marginal Cost

$
Second and Third-Degree
Price Discrimination
Second and Third-Degree Price Discrimination

Seller separates buyers into two groups
Second and Third-Degree Price Discrimination
Second and Third-Degree Price Discrimination

Market A

$ 5

4

3

2

1

0

1

2

3

Q (x100,000)
Second and Third-Degree Price Discrimination

Market A

$\begin{array}{c}
\text{Q} \\
(x100,000)
\end{array}$
Second and Third-Degree Price Discrimination
Second and Third-Degree Price Discrimination

Market A

$5

MC

MR (x100,000)

Q

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Second and Third-Degree Price Discrimination

Market A

$5

$4

$3

$2

$1

0 1 2 3

Q

MC

MR

(x100,000)
Second and Third-Degree Price Discrimination

Market A

$5

MC

MR

Q (x100,000)

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Second and Third-Degree Price Discrimination
Second and Third-Degree Price Discrimination

Market A

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Second and Third-Degree Price Discrimination
Second and Third-Degree Price Discrimination

Market A

Profit: $200,000

Deadweight loss: $100,000

Consumer Surplus: $100,000
Second and Third-Degree Price Discrimination

Market A

Consumer Surplus: $100,000
Profit: $200,000
Deadweight loss: $100,000
Second and Third-Degree Price Discrimination

Market A

Profit: $200,000
Deadweight loss: $100,000
Consumer Surplus: $100,000

Market B

Second and Third-Degree Price Discrimination
Second and Third-Degree Price Discrimination

Market A
- Consumer Surplus: $100,000
- Profit: $200,000
- Deadweight loss: $100,000

Market B

Q (x100,000)

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Second and Third-Degree Price Discrimination

Market A
- Consumer Surplus: $100,000
- Profit: $200,000
- Deadweight loss: $100,000

Market B

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Second and Third-Degree Price Discrimination

Market A

Profit: $200,000
Deadweight loss: $100,000
Consumer Surplus: $100,000

Market B

Profit: $200,000
Deadweight loss: $100,000
Consumer Surplus: $100,000

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Second and Third-Degree Price Discrimination

Market A
- Consumer Surplus: $100,000
- Profit: $200,000
- Deadweight loss: $100,000

Market B
- Q (x100,000)
- MC
- MR

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Second and Third-Degree Price Discrimination

Market A

Consumer Surplus: $100,000
Profit: $200,000
Deadweight loss: $100,000

Market B

MC
MR
Q (x100,000)

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Second and Third-Degree Price Discrimination

Market A

Profit: $200,000
Deadweight loss: $100,000
Consumer Surplus: $100,000

Market B

Profit: $200,000
Deadweight loss: $100,000
Consumer Surplus: $100,000

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Second and Third-Degree Price Discrimination

Market A

- Consumer Surplus: $100,000
- Profit: $200,000
- Deadweight loss: $100,000

Market B

- Q (x100,000)
- MC
- MR
Second and Third-Degree Price Discrimination

Market A

Consumer Surplus: $100,000
Profit: $200,000
Deadweight loss: $100,000

Market B

Q (x100,000)
MR
MC
MC
Q (x100,000)
Second and Third-Degree Price Discrimination

Market A

Profit: $200,000
Deadweight loss: $100,000
Consumer Surplus: $100,000

Market B

Consumer Surplus: $56,250
Profit: $112,500
Deadweight loss: $56,250

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No Price Discrimination

Market A

Market B

Consumer Surplus: 250,000

Deadweight loss: $125,000

Profit: $250,000

Q (x100,000)

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No Price Discrimination

Market A

Market B

Consumer Surplus: $250,000
Deadweight loss: $125,000
Profit: $250,000

Q (x100,000)

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No Price Discrimination

Market B

Consumer Surplus: $250,000

Deadweight loss: $125,000

Profit: $250,000

Market A

Price Discrimination

Market B

Consumer Surplus: $156,250

Deadweight loss: $156,250

Profit: $312,500