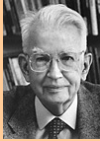


## Property Rights and Economic Efficiency



Lectures in Microeconomics-Charles W. Upton



## Externalities

- The standard solution to dealing with externalities was proposed about 80 years ago by A. C. Pigou in *The Economics of Welfare*.
- Externalities arise because Acme does not pay the cost imposed on its neighbors.



Property Rights and Economic Efficiency

## The Coase Theorem

- There is an important symmetry.



Property Rights and Economic Efficiency



## The Coase Theorem

- There is an important symmetry.
- While we think of Acme harming its neighbors, it is also possible to think of the neighbors harming Acme.



Property Rights and Economic Efficiency



## East Sturbridge

- The East Sturbridge Coal Company proposes to build a railroad from a newly discovered coalfield in East Sturbridge to a nearby power plant. The profits will be \$400 million.

Property Rights and Economic Efficiency



## East Sturbridge

- The East Sturbridge Coal Company proposes to build a railroad from a newly discovered coalfield in East Sturbridge. The profits will be \$400 million. It would run close by Lake Pleasant Resort, Inc. Diesel fumes will cause \$150 million in lost profits to Lake Pleasant Resort.

Property Rights and Economic Efficiency



## West Sturbridge

- The West Sturbridge Coal Company proposes to build a railroad from a newly discovered coalfield in West Sturbridge to a nearby power plant. The profits will be \$150 million.

## West Sturbridge

- The West Sturbridge Coal Company proposes to build a railroad from a newly discovered coalfield in West Sturbridge to a nearby power plant. The profits will be \$150 million.

It would run close by Lake Restful Resort, Inc. Diesel fumes will cause \$400 million in lost profits to Lake Restful Resort.

## The Two Cases

- |                                 |                                   |
|---------------------------------|-----------------------------------|
| • <b>East Sturbridge</b>        | • <b>West Sturbridge</b>          |
| • <b>Lake Pleasant</b>          | • <b>Lake Restful</b>             |
| • <b>\$400 million profits</b>  | • <b>\$150 million in profits</b> |
| • <b>\$150 million in fumes</b> | • <b>\$400 million in fumes</b>   |

## The Two Cases

- |                                 |                                 |
|---------------------------------|---------------------------------|
| • East Sturbridge               | • West Sturbridge               |
| • Lake Pleasant                 | • Lake Restful                  |
| • <b>\$400 million profits</b>  | • <b>\$150 million profits</b>  |
| • <b>\$150 million in fumes</b> | • <b>\$400 million in fumes</b> |
| • <b>Run the Railroad</b>       | • <b>Don't Run the Railroad</b> |

## The Coase Theorem

- Two possible laws
  - Railroads do not require permission to be built
  - Railroads cannot build without permission.

## The Coase Theorem

- Two possible laws
  - Railroads do not require permission to be built
  - Railroads cannot build without permission.
- Either law will achieve the right result

Law	Impact on East Sturbridge (B=400, C=150)	Impact on West Sturbridge (B=150, C=400)
Permission Required	Railroad built. Resort accepts payment of \$150-\$250 million to give permission	Railroad is not built. Railroad unwilling to pay \$400 million payment to get permission.
Permission Not Required	Railroad built. Resort is unwilling to pay \$400 million to stop construction	Railroad is not built. Resort is willing to pay \$150-\$400 million to stop construction.

KENT STATE UNIVERSITY Property Rights and Economic Efficiency

Law	Impact on East Sturbridge (B=400, C=150)	Impact on West Sturbridge (B=150, C=400)
Permission Required	Railroad built. Resort accepts payment of \$150-\$250 million to give permission	Railroad is not built. Railroad unwilling to pay \$400 million payment to get permission.
Permission Not Required	Railroad built. Resort is unwilling to pay \$400 million to stop construction	Railroad is not built. Resort is willing to pay \$150-\$400 million to stop construction.

KENT STATE UNIVERSITY Property Rights and Economic Efficiency

Law	Impact on East Sturbridge (B=400, C=150)	Impact on West Sturbridge (B=150, C=400)
Permission Required	Railroad built. Resort accepts payment of \$150-\$250 million to give permission	Railroad is not built. Railroad unwilling to pay \$400 million payment to get permission.
Permission Not Required	Railroad built. Resort is unwilling to pay \$400 million to stop construction	Railroad is not built. Resort is willing to pay \$150-\$400 million to stop construction.

KENT STATE UNIVERSITY Property Rights and Economic Efficiency

### The Acme Paper Mill

Tons of Paper Produced	Marginal Cost of Production (1)	Marginal Damage to Lake's Recreation Value (2)	Net Social Cost (3) = (1)+ (2)
1	3	2	5
2	4	3	7
3	5	4	9
4	6	5	11
5	7	6	13

KENT STATE UNIVERSITY Property Rights and Economic Efficiency

### Permission Required

Acme sells 2 tons for \$14; production costs are \$7

Paper Produced	Marginal Cost of Production (1)	Marginal Damage to Lake's Recreation Value (2)	Net Social Cost (3) = (1)+ (2)
1	3	2	5
2	4	3	7
3	5	4	9
4	6	5	11
5	7	6	13

Total damages to the lake are \$5

KENT STATE UNIVERSITY Property Rights and Economic Efficiency

### Permission Required

Acme sells 2 tons for \$14; production costs are \$7

Acme won't pay more than \$7; the lake won't take less than \$5

Paper Produced	Marginal Cost of Production (1)	Marginal Damage to Lake's Recreation Value (2)	Net Social Cost (3) = (1)+ (2)
1	3	2	5
2	4	3	7
3	5	4	9
4	6	5	11
5	7	6	13

Total damages to the lake are \$5

KENT STATE UNIVERSITY Property Rights and Economic Efficiency

Impact of Property Rights	
Law	Impact on Lake Whatever
Permission Required	Acme will manufacture 2 tons of paper and pay the Resort somewhere between \$5 and \$7.
Permission Not Required	Acme will manufacture 2 tons of paper and the Resort will pay Acme somewhere between \$3 and \$13.

## Permission Not Required

	Marginal Cost of Production (1)	Marginal Damage to Lake's Creation Value (2)	Net Social Cost (3) = (1) + (2)
	3	2	5
2	4	3	7
3	5	4	9
4	6	5	11
5	7	6	13

Without any restrictions, ACME would produce 5 tons of paper

## Permission Not Required

	Marginal Cost of Production (1)	Marginal Damage to Lake's Creation Value (2)	Net Social Cost (3) = (1) + (2)
	3	2	5
2	4	3	7
3	5	4	9
4	6	5	11
5	7	6	13

Acme would lose \$3 if it reduced output to 2 tons

Recreational damages would be reduced by \$15

## Permission Not Required

	Marginal Cost of Production (1)	Marginal Damage to Lake's Creation Value (2)	Net Social Cost (3) = (1) + (2)
	3	2	5
2	4	3	7
3	5	4	9
4	6	5	11
5	7	6	13

Acme would lose \$3 if it reduced output to 2 tons

Recreational damages would be reduced by \$15

Acme won't take less than \$3; won't get more than \$15

Impact of Property Rights	
Law	Impact on Lake Whatever
Permission Required	Acme will manufacture 2 tons of paper and pay the Resort somewhere between \$5 and \$7.
Permission Not Required	Acme will manufacture 2 tons of paper and the Resort will pay Acme somewhere between \$3 and \$13.

## Shopping Malls

Rental Information from Shopping Malls		
Type of Store	Median Rent per Square Foot	Rent as a Percent of Sales
Department	\$1.95	1.5%
Clothing	\$18.58	7.9%
Food Service	\$32.41	9.5%
Jewelry	\$42.00	7.6%

## Shopping Malls

Rental Information from Shopping Malls	
Type of Store	Me p
Department	
Clothing	
Food Service	
Jewelry	

One kind of store generates traffic; the other kind lives off of the traffic. The one that generates traffic gets a lower rate.

End

©2004 Charles W. Upton