
LECTURE TWELVE - PART THREE

To Answer These Questions

- We have to understand more about the demand for public goods and, more importantly, how the market demand curves for private and public goods differ.

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The Horizontal Sum: Private Goods

- The demand curve for private goods is the horizontal sum of the individual demand curves.
- Because of this, individual consumers will pay the same price for a good but consume different quantities.

The Vertical Sum: Public Goods

- The market demand curve for a public good is the vertical sum of the individual demand curves.
- Individual consumers will all consume the same amount of the good but value that amount at different prices.

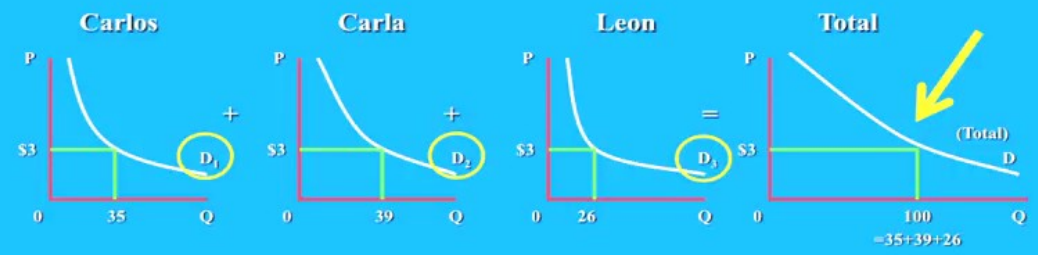
Market demand for corn, three buyers

Price Per bushel	Quantity demanded						Total quantity demanded per week
	Carlos		Carla		Leon		
$5	10	+	12	+	8	=	30
4	20	+	23	+	17	=	?
3	35	+	39	+	26	=	100
2	55	+	60	+	39	=	?
1	80	+	87	+	54	=	221

Pause the presentation now if you want to do this exercise.

Market demand for corn, three buyers

Price Per bushel	Quantity demanded Carlos		Carla		Leon		Total quantity demanded per week
$5	10	+	12	+	8	=	30
4	20	+	23	+	17	=	60
3	35	+	39	+	26	=	100
2	55	+	60	+	39	=	154
1	80	+	87	+	54	=	221



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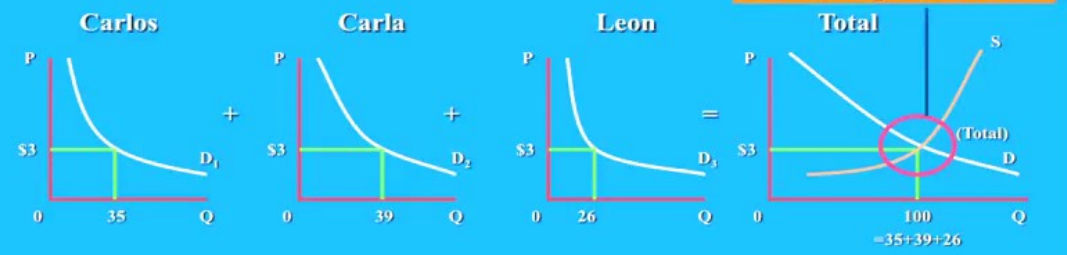
Social marginal benefits= Social marginal costs

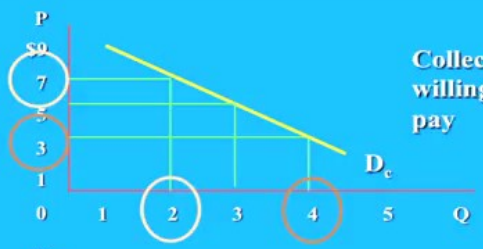


Demand for a public good, two individuals

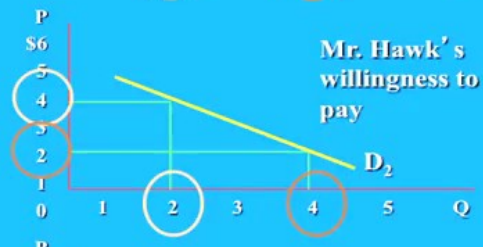
(1) Quantity	(2) Mr. Dove's willingness to pay(price)		(3) Mr. Hawk's willingness to pay(price)		(4) Collective willingness to pay(price)
1	$4	+	$5	=	$9
2	3	+	4	=	7
3	2	+	3	=	5
4	1	+	2	=	3
5	0	+	1	=	1

- Q: Can you draw the market demand curve for this public good? Just remember to sum vertically!

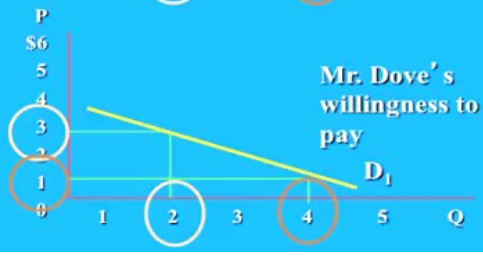
Pause the presentation now if you want to do this exercise.



Collective willingness to pay

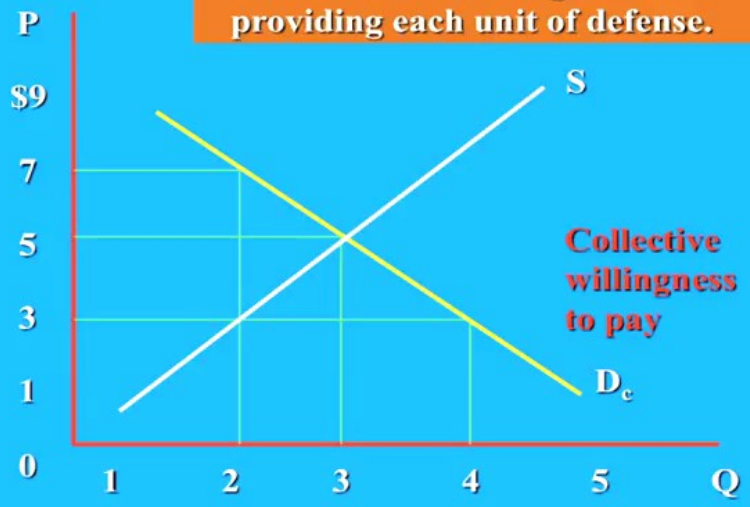


Mr. Hawk's willingness to pay

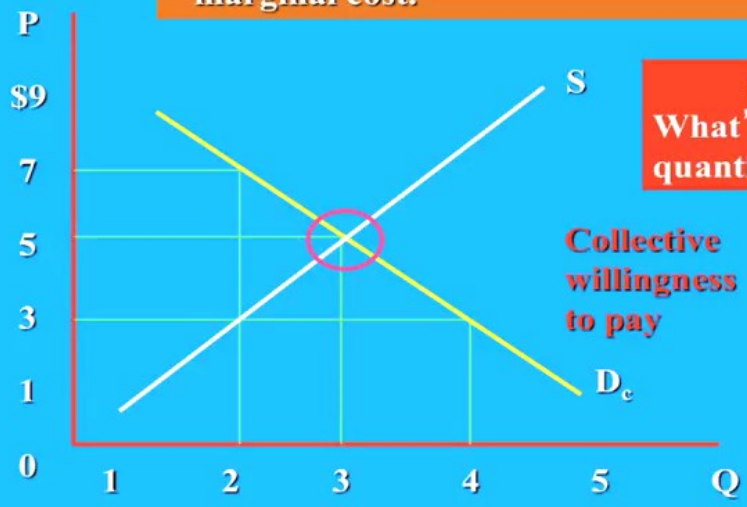


Mr. Dove's willingness to pay

- This supply curve slopes upwards because of the law of diminishing returns.
- It measures the marginal cost to society of providing each unit of defense.



- The optimal output occurs at the intersection of supply and demand.
- Here, the social marginal benefit equals the social marginal cost.



Question
What's the optimal quantity?

A: At 3 units, the combined willingness to pay for the extra unit--the marginal benefit to society--just matches that unit's marginal cost of $5.

This marginal benefit equals marginal cost principle is analogous to both the MR=MC output rule and the MRP=MRC input rule for maximizing profit.