

**DISCUSSION QUESTION**

Name:

Instructor:

Course:

In October 2013, the city of Irwindale, California filed a lawsuit against Huy Fong Foods, makers of the popular Sriracha hot sauce. Production of the hot sauce takes place in Irwindale, and residents surrounding the production facility claimed that a strong odor emanated from the facility caused burning eyes, headaches, and irritated throats. The city requested that production be halted until the factory figure out a way to mitigate the odor. Huy Fong Foods denied that any odor existed. Source: <http://articles.latimes.com/2013/oct/28/local/la-me-ln-irwindale-sues-sriracha-20131028>

- a) What is true of the private costs of production of Sriracha hot sauce compared to the social costs of production?
- b) Why didn't Huy Fong Foods voluntarily take measures to reduce the odors emanating from their facility?
- c) Would a Pigouvian tax on production of Sriracha address this externality? Why or why not?
- d) How could private negotiations between Huy Fong Foods and residents of Irwindale potentially address this externality problem?

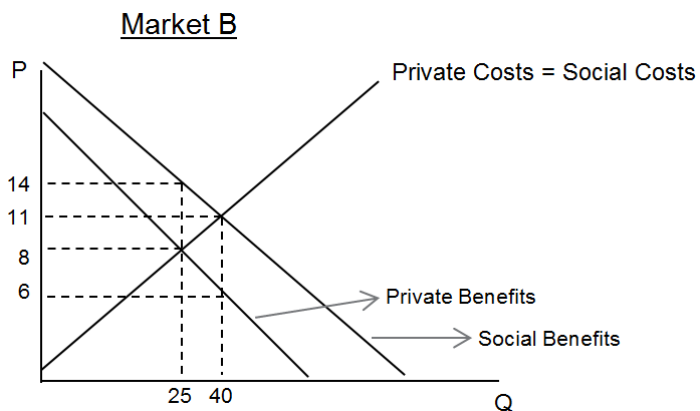
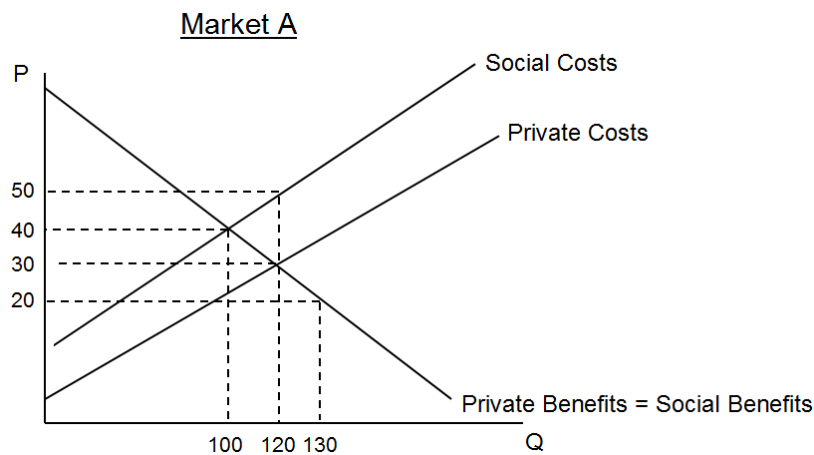
## PEER GROUP PROBLEM SOLVING

Name:

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Use the following diagrams representing markets with different externalities to answer the following questions.



- What is the expected market quantity (without government intervention) in each market?
- What is the socially optimal quantity in each market?

- c) Calculate the inefficiency areas associated with these externalities in both markets.
- d) Describe what could be done in each market to arrive at the socially optimal quantity.

**IN-CLASS EXPERIMENT / ACTIVE EXERCISE**

Students are paired up and assigned the role of a polka music player or a Neighbor. A Polka player likes to play outside while a Neighbor doesn't like to hear this polka music.

Half the class is told that neighbors have the right to zero music, while the other half is informed that Polka players have the right to play as much as they want.

The value to each person depends on the number of songs played:

<b>Songs from Polka playing</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
Polka player's Total Value	\$0	\$30	\$50	\$60
Neighbor's Total Value	\$55	\$40	\$30	\$5
Polka player + Neighbor Value	\$55	\$70	\$80	\$65

## SOLUTIONS AND INSTRUCTOR NOTES

### Discussion Question

In October 2013, the city of Irwindale, California filed a lawsuit against Huy Fong Foods, makers of the popular Sriracha hot sauce. Production of the hot sauce takes place in Irwindale, and residents surrounding the production facility claimed that a strong odor emanated from the facility caused burning eyes, headaches, and irritated throats. The city requested that production be halted until the factory figure out a way to mitigate the odor. Huy Fong Foods denied that any odor existed.

- a) What is true of the private costs of production of Sriracha hot sauce compared to the social costs of production?

*The private costs, which include the variable costs (labor, materials, etc.) and fixed costs (insurance, lease payments, etc.) will be less than the social costs of production. The reason is that the social costs include both the private costs and the external costs, which in this case are given by the costs residents incur from the strong odor.*

- b) Why didn't Huy Fong Foods voluntarily take measures to reduce the odors emanating from their facility?

*It would be costly to take measures to reduce the odors associated with production of Sriracha. Incurring these additional costs would reduce Huy Fong Foods' profits.*

- c) Would a Pigouvian tax on production of Sriracha address this externality? Why or why not?

*A direct tax on production of Sriracha would likely not efficiently address this externality, due to the fact that the externality is heavily localized (only those who surround the facility are impacted by the odor).*

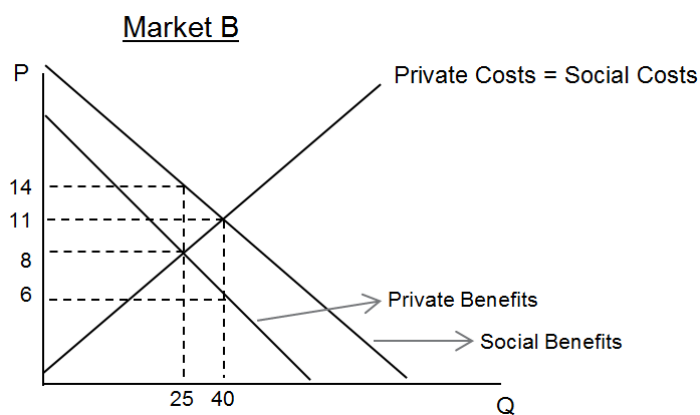
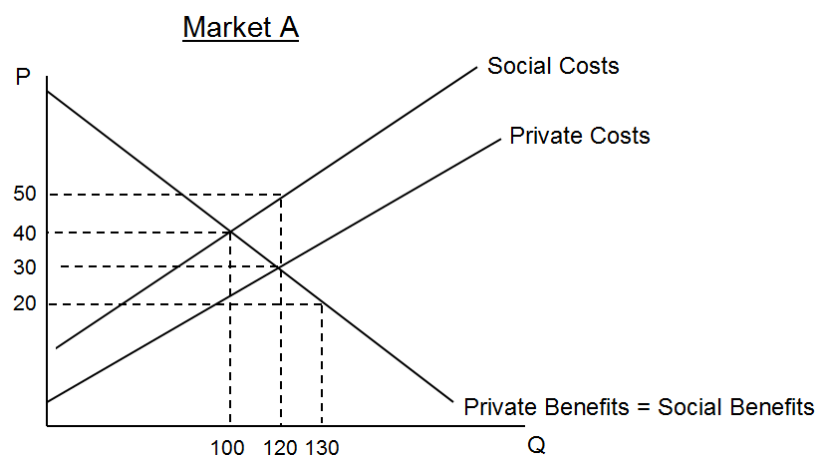
- d) How could private negotiation between Huy Fong Foods and residents of Irwindale potentially address this externality problem?

*Residents would be willing to allow some odors if they are compensated for it. Residents' willingness to accept the odors would be based on the external costs associated with production. Huy Fong Foods would be willing to pay residents if paying residents is less costly than taking measures to reduce odors or moving to a new facility. As long as the willingness to pay of Huy Fong Foods is greater than the willingness to accept of local residents, both parties can be made better off as a result.*

### Peer Group Problem Solving

Use the following diagrams representing markets with different externalities to answer the following questions.





- a) What is the expected market quantity (without government intervention) in each market?

*The market quantity is determined by where private benefits equal private costs. In Market A, it is 120; in Market B, it is 25.*

- b) What is the socially optimal quantity in each market?

*The socially optimal quantity is determined by where social benefits equal social costs. In Market A it is 100; in Market B it is 40.*

- c) Calculate the inefficiency areas associated with these externalities in both markets.

*The inefficiency area is given by the difference between social benefits and social costs, and the private quantity and the socially optimal quantity.*

*In Market A, it is  $\frac{1}{2} (\$50 - \$30) \times (120 - 100) = \$200$ . In Market B, it is  $\frac{1}{2} (\$14 - \$8) \times (40 - 25) = \$45$ .*

- d) Describe what could be done in each market to arrive at the socially optimal quantity.

*In Market A, a negative externality is present. To address a negative externality, a tax could be imposed equal to the amount of the external costs so as to internalize the externality. In this market, the external cost equals \$20.*

*In Market B, a positive externality is present. To address a positive externality, a subsidy could be applied equal to the amount of the external benefits so as to internalize the externality. In this market, the external benefit equals \$6.*

### In-Class Experiment / Active Exercise

Students are paired up and assigned the role of a polka music player or a Neighbor. A Polka player likes to play outside while a Neighbor doesn't like to hear this polka music.

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The value to each person depends on the number of songs played:

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*Each pair should be able to negotiate the optimum outcome regardless of who has the "property" rights (in this case, it is 2 songs from the polka player). It is important to note that the efficient outcome is reached regardless of whom has the rights, but the outcomes to each individual differ, so equity can be an issue.*

*Variants of this could be to have multiple payoff structures with different outcomes. The instructor could also show that a single efficient outcome is not always reached if the game were to have multiple peaks.*

*For more in-class experiment and active learning ideas, visit [www.econedactive.com](http://www.econedactive.com).*