

DISCUSSION QUESTION

Name:

Instructor:

Course:

The government collected approximately \$2.9 trillion in total taxes in 2013, and the average tax filer paid \$8,548 in income taxes.

Source: <http://www.fool.com/investing/general/2015/01/31/the-average-american-pays-this-much-in-income-tax.aspx>

- a) Suppose the government gives you a lifetime exemption on paying any taxes, but still require that everyone else pay taxes. Would this make you better off as an individual? Would this negatively impact society?

- b) Suppose the government would give everyone a lifetime exemption on paying any taxes, so the government's annual tax receipts would equal \$0. Would this make you better off as an individual? Would this make society better off?

- c) Politicians have many debates about what the efficient level of taxation is, but not many would argue that the efficient level is zero (unless they are anarchists, but not many anarchists run for political office). What factors are relevant in determining the efficient level of taxation? How could a reduction in taxes make society worse off? How could a reduction in taxes make society better off?

PEER GROUP PROBLEM SOLVING

Name:

Instructor:

Course:

A small town has three people who are seeking relief from insects. They are considering a public spraying project. The following three equations represent the individual demand functions of Kevin, Serena, and Scarlett.

Kevin:	$P = 10 - Q$
Serena:	$P = 24 - 3Q$
Scarlett:	$P = 20 - 4Q$

- a) What is the market demand equation for this service?

- b) If the marginal cost of providing the service is constant at \$9 per unit of spraying ($MC = \9), what is the socially optimal output of spraying?

- c) Suppose Kevin free-rides off of Scarlett's and Serena's contribution. What is the new level of provision?

IN-CLASS EXPERIMENT / ACTIVE EXERCISE

Give everyone in the class some arbitrary amount of extra credit points, say 5 extra credit points, towards a quiz. Students have to decide how many points to keep for themselves (as a private good), versus how many points to give to everyone in the class (as a public good). The number of extra credit points to each student is equal to the number of points he or she kept, plus the number of points that were donated as a public good.

Tally the total number of points that were donated. What is the efficient amount of donated points (the amount that would result in the highest benefits to students)?

SOLUTIONS AND INSTRUCTOR NOTES

Discussion Question

The government collected approximately \$2.9 trillion in total taxes in 2013, and the average tax filer paid \$8,548 in income taxes.

- a) Suppose the government gives you a lifetime exemption on paying any taxes, but still require that everyone else pay taxes. Would this make you better off as an individual? Would this negatively impact society?

Nobody likes paying taxes, and every individual's tax contribution is negligible relative to total tax receipts. So from an individual perspective, the quality of public services (and their benefits from these services) would be the same, but they wouldn't have to pay for them, so they would be better off.

- b) Suppose the government would give everyone a lifetime exemption on paying any taxes, so the government's annual tax receipts would equal \$0. Would this make you better off as an individual? Would this make society better off?

From society's perspective, taxes are necessary to fund public services that we all benefit from. Therefore, if nobody paid taxes, there would be no provision of public services. This means no military, public infrastructure, criminal justice system, support of education, social security, etc. So both you as an individual and society overall would be worse off if no one paid taxes.

- c) Politicians have many debates about what the efficient level of taxation is, but not many would argue that the efficient level is zero (unless they are anarchists, but not many anarchists run for political office). What factors are relevant in determining the efficient level of taxation? How could a reduction in taxes make society worse off? How could a reduction in taxes make society better off?

The efficient level of taxes is based on the benefits society receives from public services relative to the cost of providing these services. A reduction in taxes would make society worse off if the reduction in benefits received from these public services outweighed the tax savings. A reduction in taxes would make society better off if the tax savings outweighed the benefits received from these public services.

Peer Group Problem Solving

A small town has three people who are seeking relief from insects. They are considering a public spraying project. The following three equations represent the individual demand functions of Kevin, Serena, and Scarlett.

Kevin:	$P = 10 - Q$
Serena:	$P = 24 - 3Q$
Scarlett:	$P = 20 - 4Q$

- a) What is the market demand equation for this service?

The market demand is equal to the vertical sum of all individual demands, which equals $P = 54 - 8Q$.

- b) If the marginal cost of providing the service is constant at \$9 per unit of spraying (MC = \$9), what is the socially optimal output of spraying?

The socially optimal output is equal to the point where demand equals MC, in this case where $54 - 8Q = 9$. This happens at $Q = 5.63$.

- c) Suppose Kevin free-rides off of Scarlett's and Serena's contribution. What is the new level of provision?

With Kevin free-riding, the demand becomes $44 - 7Q$, so the new level of provision equals $44 - 7Q = 9$; $Q = 5$.

In-Class Experiment / Active Exercise

Give everyone in the class some arbitrary amount of extra credit points, say 5 extra credit points, towards a quiz. Students have to decide how many points to keep for themselves (as a private good), versus how many points to give to everyone in the class (as a public good). The number of extra credit points to each student is equal to the number of points he or she kept, plus the number of points that were donated as a public good.

Tally the total number of points that were donated. What is the efficient amount of donated points (the amount that would result in the highest benefits to students)?

The extra credit points can be hypothetical, but the experiment is more effective if the points count towards something, even if it's something minor like a quiz grade.

The points that are donated should be discounted by some amount, depending on the number of people in the class. If it's a class of 30 students, each point can be discount by 1/10, so the max number of points everyone could receive would be: $5 \times 30 \times 0.1 = 15$.

After the number of donated points is tallied, the key point to emphasize is that the optimal outcome for the class would be for everyone to donate all of their points. However, because each individual is better off if they keep some points for themselves; there is the free-rider problem.

The experiment can be done multiple times with different weights to the public good points, but even one time will illustrate the free-rider problem. An interesting variant of this would be to have students' donation decision remain anonymous for one round, then be public for a subsequent round, and discuss why there is a difference between the number of donated points.

For more in-class experiment and active learning ideas, visit www.econedactive.com.