## Chapter 13

[1](http://openstax.org/books/principles-microeconomics-3e/pages/13-self-check-questions#ch13mod01_sques01).

No. A market demand curve reflects only the private benefits of those who are consuming the product. Positive externalities are benefits that spill over to third parties, so they create social benefits, and are not captured by a market (or private benefit) demand curve.

[2](http://openstax.org/books/principles-microeconomics-3e/pages/13-self-check-questions#ch13mod01_sques02).

Clearly Samsung is benefiting from the investment, so the 20% increase in profits is a private benefit. If Samsung is unable to capture all of the benefit, perhaps because other companies quickly copy and produce close substitutes, then Samsung’s investment will produce social benefits.

[3](http://openstax.org/books/principles-microeconomics-3e/pages/13-self-check-questions#ch13mod01_sques03).

1. $102 million.
2. If the interest rate is 9%, the cost of financial capital, and the firm can capture the 5% return to society, the firm would invest as if its effective rate of return is 4%, so it will invest $183 million.

[4](http://openstax.org/books/principles-microeconomics-3e/pages/13-self-check-questions#ch13mod01_sques04).

When the Junkbuyers Company purchases something for resale, presumably both the buyer and the seller benefit—otherwise, they would not need to make the transaction. However, the company also reduces the amount of garbage produced, which saves money for households and/or for the city that disposes of garbage. So the social benefits are larger than the private benefits.

[5](http://openstax.org/books/principles-microeconomics-3e/pages/13-self-check-questions#ch13mod02_sques01).

Government programs that either pay for neighborhood clean-up directly or that provide reduced tax payments for those who clean up or fix up their own property could be enacted. It is also easy to imagine how a city might allow its businesses to form a group that would pay for and manage neighborhood cleanup.

[6](http://openstax.org/books/principles-microeconomics-3e/pages/13-self-check-questions#ch13mod02_sques02).

Government programs that either pay for education directly or that provide loans or reduced tax payments for education could create positive spillovers. A city might allow its businesses to form a group that would coordinate business efforts with schools and local colleges and universities—allowing students to obtain real-world experience in their chosen fields and providing businesses with enthusiastic, trained workers.

[7](http://openstax.org/books/principles-microeconomics-3e/pages/13-self-check-questions#ch13mod03_sques01).

1. Once citizens are protected from crime, it is difficult to exclude someone from this protection, so it is nonexcludable.
2. Some satellite radio services, such as SiriusXM, are sold by subscription fee, so it is excludable.
3. Once a road is built it is difficult to exclude people, although toll roads can exclude non-payers.
4. Primary education can be provided by private companies and so it is excludable.
5. Companies sell cell phone service and exclude those who do not pay.

[8](http://openstax.org/books/principles-microeconomics-3e/pages/13-self-check-questions#ch13mod03_sques02).

1. Two people cannot enjoy the same slice of pizza at the same time, so private goods, such as a slice of pizza, are rivalrous.
2. Two people cannot use one laptop at the same time, so they are rivalrous in consumption.
3. Public radio can be heard by anyone with a radio, so many people can listen at the same time—the good is nonrivalrous.
4. It is difficult for two people to simultaneously eat an ice cream cone, so it is rivalrous in consumption.