Lesson Eight: Are Fuel Efficient Cars Destroying Our Roads?


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Introduction: Roads and highways are the backbone of America. They opened the country to westward expansion, and today people use roads to commute to work, transport goods to market, connect families, get exercise by biking or walking, and countless other purposes. Without adequate roads, our economy would struggle as commute times would explode, and the quality of our lives would decline. We currently ship 11.7 billion tons of goods on our nation's highways each year and the Department of Transportation estimates that Americans drive roughly 3 trillion miles each year. That's enough to circle the Earth over 300,000 times EVERY DAY! Clearly, our roads are a key component of our **transportation infrastructure**: the system of roads, bridges, trains, subways, airports, seaports and other transportation vehicles used to move people and goods throughout the country and the world quickly, cheaply, and as efficiently as possible.

Generally, roads tend to be built and operated by a variety of national, state, regional, and local governmental agencies. This is largely because roads are usually considered **public goods.**

Definition of Public Goods: A good that is both consumable by many people at the same time (non-rival) and impossible to exclude from consumption if a person does not pay [non-excludable]. Examples would be AM/FM radio or a large fireworks show as all people can listen or watch at the same time, and it is not possible to stop someone from tuning in or watching if they do not pay.

Note: *Public goods tend to be provided by the government and funded through some form of taxation because profiting from public goods is extremely difficult as charging users is nearly impossible.*

Traditionally, roads tend to be funded by placing a tax on gasoline because that was an indirect way of charging drivers for the use of the roads as all cars required gasoline. It also served the purpose of making gasoline more expensive to encourage fuel efficiency which is better for the environment. This meant that the consumption of gasoline involves an **externality.**

Definition of Externality: A side effect or consequence of an industrial or commercial activity that affects other parties (i.e.: Not the buyer nor the seller) without this being reflected in the cost of the goods or services involved. These effects can be negative inflicting a cost to society (like pollution from cars) or positive representing a benefit to society (like vaccines lowering the risk of sickness to all those surrounding the vaccinated individual).

Note: *We tend to place taxes of goods that exhibit negative externalities [like cigarette taxes] and subsidies of goods that exhibit positive externalities [like free flu shots or public schools].*

However, in recent years, with the rise of hybrids and electric vehicles, Americans are driving more and more miles, but often using fewer gallons of gasoline to do it. As a result, Gas taxes have not kept up with the necessary expansion and upkeep of the road network, leading to large budget shortfalls in transportation agencies across the country. In 2014, California alone was said to face a deficit of nearly $6 Billion leading to unsafe crumbling roads and bridges and a transportation crisis and ticking time bomb. Clearly, the status quo is unsustainable and we have to figure out how we are going to fund the roads of the future with ever-evolving technology.

The central question for today will explore road funding, public goods, and externalities:

How can governments raise revenue needed to fund road maintenance and construction without disincentivizing fuel efficiency and creating a negative externality?

Discuss in Pairs: What might be some of the options for governments to raise money for roads? (try to think of 3)

Example: They could simply raise gas taxes even more.

1.

2.

3.

Now that you have brainstormed some options for funding roads, analyze each of the choices by answering the following questions:

1. What is the most fair way for funding roads? In other words, who should be the main payers for the roads? Users of the roads? The general public? Local residents?
2. Will the funding option be sustainable well into the future given the trend toward more and more fuel efficient cars and electric vehicles?
3. Will it be possible in real life to enforce the tax, fee, toll, etc that your option requires?
4. What effect will your option have in terms of externalities? In other words, will your option incentivize positive or negative behavior?
5. Who would like your option? Who would not like your option? How might that relate to your answer in the previous questions?

Now that we have discussed the issues surrounding funding road construction and maintenance from a variety of angles, it's time to put our knowledge to good use and figure out what to do.

Role Play Activity

Situation: Your state is facing a severe budget shortage for road maintenance and construction. Traffic is getting worse and worse and calls are flooding in about potholes which are damaging cars and making certain roads nearly unusable. Companies and residents are thinking of moving away because the transportation infrastructure is so bad.

You will now be divided into several groups as follows:

1. Commuters in the state who own traditional gas cars
2. Commuters in the state who own hybrid and electric cars
3. Residents in the state who rarely, if ever, drive a car
4. Trucking, bus, taxi, and other transportation companies that use the roads
5. Environmental activists throughout the state
6. The state governmental agency in charge of transportation

First, select one or two representative(s) from your group to speak on your behalf. Once you have done this, Answer the following questions for your group (note: government should also complete this exercise as we can assume that the government agencies want votes and public support as well as to do the moral action, so think about the government's motivations as well):

1. Which transportation funding option discussed earlier would you suggest? Why?
2. Which funding option would you *least* like? Why?
3. Which of the groups might you agree with? Disagree with? Why?
4. What arguments can you use to convince the government to go with your option as opposed to a rival? (note: in answering this, consider the ideas of public goods and externalities as well as ideas of fairness, efficiency, feasibility, etc.)

After you have answered the questions above, your representative will have 1-2 minutes to explain your group's perspectives and lobby for what funding option(s) that you want. You can have multiple suggestions as a mix of funding options as well.

Once all groups have spoken, the government will have 2-3 minutes to discuss the arguments and pass whatever taxes, fees, or otherwise that they choose. Note, this is not necessarily 100% one option or 0% another option. The government can choose whatever it wants, but it must justify its ultimate decisions as well.

Follow Up Assignment

This debate over road funding is not just a theoretical discussion. It is going on across the country in various states and cities on a regular basis.

Go online and research the following questions:

Is this discussion is happening in your state, region, country, or city? Is there a funding crisis near you? If so, what is being proposed and how do you feel about it.

1. Is this debate happening (or did it happen) in your state, region, country, or city. Is (Was) there a funding crisis near you?

2. What are some options being proposed? How will those actions potentially affect you today or in the next 5 years?

3. Do you agree with the legislation being proposed? Why or why not?

4. After conducting your research, what would you propose if you were the governmental agency in charge? Why would you propose that funding option?