

Econ 4545: Fall 2014

Final (part II) In class

So, this term you have learned a lot about environmental market failures and better, and worse, ways to correct those failures. But we have not spent a lot of time discussing traffic congestion.

I would like you to tackle the issue of traffic congestion on I-70 (the part between Denver and Breckenridge—to and from the mountains).

Issues to address:

Is there now an efficient, or inefficient, amount of congestion? Yes no or uncertain, and explain. Make sure you define efficient in this context.

Suggest two or three ways the government might address excess congestion on I-70. Make sure one of your ways is **not** an efficient way to address an inefficient amount of congestion. Explain its flaws.

For each of your policies evaluate them on efficiency, equity, feasibility, and political-feasibility grounds.

One of your ways **cannot be** widening I-70. Explain why widening I-70 will not, in the longrun, eliminate inefficient congestion.

Before starting to formally answer these questions, spend considerable time planning your answers. Make sure you have addressed every one of my questions and issues. Feel free to make notes and a possible outline.

You have plenty of time, but please **do not write more** than the equivalent of two typed written pages (double spaced).

There is an inefficient amount of congestion on a road if vehicles on the road are slowing down other vehicles on the road (negative external effects) , AND the drivers are not compelled to fully take into account of the negative effects that are producing. That is, if there are congestion externalities.

Since the external effects are negative, and drivers on I-70 do not have to take their slowing effects into account, there will be too much congestion from an efficiency point of view, at least some of the time.

You all know this, why did some of you not say this?

Some of you simply skipped over the first part of the question, some of you simply said there was no way of telling whether there is an efficient amount.

There is an inefficient amount of congestion on many roads at certain times.

A Sunday afternoon traffic jam on I-70 coming East from the mountains is an obvious example. How could one argue otherwise?

Efficient congestion is achieved when the marginal social benefits of cars on -70 (the benefits to society from the marginal car) equals the marginal social cost.

The efficient amount of congestion is not zero congestion; the efficient amount is often a positive amount of slowing. The efficient amount is not necessarily the situation where everyone can go the speed limit.

If I lived in Silverthorne, commuted to Denver, and had money, I would much prefer a toll road to the current situation—I would get to and from work much faster.

If I-70 was a toll road more rich people would move the mountains. This would likely make housing prices in Summit County go up.

Ski area would likely be better off if I-70 was a toll road (they don't seem to understand this). The ski areas could charge more. And, the people who came would be wealthier. I do not go on weekends because it takes too long, but would go and happily pay a \$20 if it meant I could get there and back in a reasonable amount of time.

If there was less congestion on I-70, I would spend less time driving and more time skiing, the mountain would also be less congested also increasing my WTP to ski.

If one sets the toll correctly fewer people will go to the mountains on weekend mornings. That is, not all of them will take another road—some will prefer to stay home at watch the Simpsons.

One reason I picked I-70 for my example, is that for many people in Boulder and N. Denver it is the only feasible route to Winter Park A-Basin and Summit County. (That is, other available routes are many miles longer.)

Varying tolls by time of day and day of week is not technically difficult. (C-470 manages to collect tolls even if you do not have one of those Toll stickers on your car). Uber, the car service, manages to do dynamic pricing.

Many of you correctly pointed out that closing the gate to I-70 when the efficient number of cars are on the I-70 would put the efficient number of cars on the I-70, but this outcome would be achieved at a high cost—a race to the gate and a bunch of people who raced to get there only to find the gate closed.

Some of you suggested an online reservation program for a spot on the road. This would be less costly than a gate and kind of what we do for camp sites in State and National Parks. That said, it will be likely that the people who get the reservations are not the ones with the highest WTP to drive the road.

Efficiency dictates that the road should be filled with by the drivers with the highest wtp to be there. So the outcome would not be overall efficient unless there was a secondary market where one could buy and sell reservations, and that market was not controlled by some online community that captures mores of the reservations with some sort of BOT.

From an equity point of view, poor people have more serious problems than not being able to afford the toll to get back and forth from Vail on Saturday. If you are still worried about equity, maybe everyone could get one free pass each winter.

Paul suggested (tongue and cheek) that driving on I-70 on weekends be determined by whether your license plate number is odd or even, with it varying from week to week. (This was the Mexico City “fix” that fixed little-many commuters in Mexico City simply traded in there good car for two bad cars)

Many commuters would prefer a toll and a faster ride, but not all current commuters.

HOV lanes are difficult to figure out. Typically, making some lanes restrictive and some not is misallocates cars across the lanes. The same problem exists when you have dynamic pricing on some congestible roads and not on substitute roads.

You might want to take our Department course in transportation economics.

Remember that for a policy to achieve efficiency it has to internalize all the costs. And, an efficient policy will change behavior: when and how often people drive on the road.

Some of you suggested banning big trucks on the weekend. What if they are carrying Christmas presents on Christmas Eve? Maybe better would be abig toll that FedEx would pass on to those that need their present NOW.

Big trucks should face different tolls than cars.

Cameron (again tongue in cheek) suggested banning skiing, noting that it would be a costly way to reduce congestion on I-70. Would they also ban snowboarding?

Widening the road does not compel drivers to take into account any negative external effects they produce. It only lessens those effects for a while.

Many of you suggested a gas tax would be highly inequitable to reduce congestion on I-70 because it would be paid by people who never drove I-70. It would also be highly inefficient. The point is to reduce congestion on I-70, not to reduce all driving everyone so much that many fewer people drive I-70 on weekends.

Some other “suggestions”

Destroy every 10th car by zapping with a laser

Making the speed limit 100 mph.

Making the minimum speed limit 100 mph.

Note that environmental economists care a lot of congestion in parks and other recreational areas, and that there is a whole section of this course on that topic.