Economics studies how people make decisions regarding the use of scarce resources

Decisions could be individual (market) choices or collective (government) choices

It is assumed that every individual exchange is mutually satisfactory

For both exchanging parties, the benefits of the transaction are at least as large as the costs for the individual participants

Many transactions generate environmental costs (pollution) that are largely unintended

Examples:

Environmental costs is framed largely as a decrease in benefits/well being of others not part of the transaction generating the cost

Course analyzes environmental costs of market transactions

Evaluates ways to change incentives of market participants to limit excessive environmental damage

Carrots: “If you pollute we will publish your company’s name in a website” or “If you pollute your taxes will be higher”

Sticks: “If you pollute we will throw you in jail”

Examples of public policies to change people’s behavior by changing incentives

**I. Congestion road pricing in London**

London has very high population densities

By the 1990’s the average speed across London had fallen below the level at the turn of century – at time before cars

In 2002, the average all-day speed of vehicles in central London was 8.6 mph

In February 2003, a congestion charge began for all cars travelling within [central London](http://content.tfl.gov.uk/congestion-charge-zone-map.pdf) during weekdays

The all day charge was initially the equivalent of $7.50; today it is the equivalent of $17.50

Motorists pre-pay to use central roads London largely through the internet

Cameras posted throughout central London would record the vehicle numbers

Congestion charge represents additional cost drivers consider in deciding to drive into the city during weekday

Alter driver incentives

Change in vehicle use in central London in thousands of vehicle-kilometers

|  |  |  |  |
| --- | --- | --- | --- |
|  | 2002 | 2003 | Percent change |
| Cars | 771 | 507 | -34% |
| Vans | 287 | 273 | -5% |
| Trucks | 73 | 68 | -7% |
| Taxis | 256 | 312 | 22% |
| Buses | 54 | 65 | 21% |
| Motorcycles | 129 | 137 | 6% |
| Bicycles | 69 | 89 | 28% |
| All Vehicles | 1,640 | 1,451 | -12% |

What calculation did drivers face with the charge?

The average travel speeds increased by almost 20% within three months after charge started

Benefits generated by the charge:

**All vehicles using central London saved time**

**Fewer Accidents**

**Reduced pollution**

**II. Waste Disposal**

In 1994 the City of Marietta Georgia participated in an experiment in which fixed household fee for trash collection was replaced by per unit fees:

Garbage in Marietta collected twice a week

Disposal of solid waste (trash) is an environmental problem

The fixed monthly fee was done away and households had choice of two per unit pricing schemes: Bag or Subscription Can.

|  |  |  |  |
| --- | --- | --- | --- |
| Trash Collection Program | Container Requirement | Monthly fee (per household) | Quantity Related Charges (per household) |
|  |  |  |  |
| Original (pre-1994) | None | $15 | None |
| Bag | 30 gallon plastic bag | $8 | $0.75 per bag collected |
| Subscription Can | 32 gallon trash can | $8 | $4 for first can subscribed per month  $3 for second can  $4 for each additional can |
|  | 20 gallon trash can | $8 | $3 per can; limit of one can |

The $8 fixed fee charge in per unit programs paid for unlimited collection of recyclables, and large waste.

The can program reduced waste 20% (relative to original fixed fee program)

The bag system reduced waste by as much as 51%