

EXAMEN ENVIRONMENTAL & TRANSPORTATION ECONOMICS 2017

1. Basic question about the calibration of a model and tolling

Data:

- $Q(\text{peak}) = 20000$ vehicles
- capacity = 8000 vehicles per hour
- duration trip = 20 minutes
- $t^* = 8.00$ am
- VOT = 12 euro per hour
- cost of being early = 6 euro per hour
- cost of being late = 16 euro per hour
- elasticity of demand = -0.5

- Calibrate demand function.
- What would be the welfare optimising toll and what are the total revenues resulting from this toll?
- Compute the tolling system implemented by a private firm (monopolist) and calculate total revenues
- If daily maintenance costs are 80000 euros, what is the best 'contract' the government and the private firm can have?

2. Environmental economics

- A new policy is that all aviation firms in the world have to use at least 20% biofuel. Suppose all firms can be forced to comply. Note that biofuel is 50% more expensive than regular fuel. Assess this policy.
- Suppose that now only the EU is included in this policy. What changes?

3. Transportation economics

Suppose a cordon toll of 2 euros is implemented for entering the inner city of Leuven. Discuss the SHORT TERM and LONG TERM effect on traffic flows, population, rent and housing for both the inner city and the suburbs of Leuven.