

Question 1: Funicular

The operator running the funicular between Vevey and Mt Pélerin considers that the travel demand is characterized by

$$q = 1728 - 308p,$$

where q is the number of users per day, and p is the price of the one-way ticket, in CHF.

1. What are the daily revenues of the operator, as a function of price?
2. What price should be applied in order to maximize revenues?
3. How many tickets would they sell per day with the price calculated above?

Question 2: Elasticities

The recent 15% increase in gasoline costs has resulted in a 7% increase in public transportation ridership, and a 9% decrease in gasoline consumption in Switzerland. What is the arc price elasticity of demand for gasoline? What is the arc price elasticity of demand for public transportation? Elaborate on the obtained results.

Question 3: Revenues and consumer surplus

The Swiss railways company is running 128 trains per day between Geneva and Lausanne. Let's assume that each train has a capacity of 476 seats, which corresponds to the number of seats of one unit of an Intercity tilting train. It is estimated that 35% of the seats are occupied, on average. The fare is 11.40 CHF.

The company considers decreasing the price to 10.26 CHF. As they know the price elasticity of demand, they estimate that it will increase the occupation rate to 36%.

When analyzing the scenario, they have to keep in mind both the interests of the company (that is, the total revenues), but also the impact of their decision on the social welfare of the travelers.

1. What is the price elasticity of demand?
2. What would happen for the revenues of the company if the price reduction is implemented?
3. What would happen to the social welfare (consumer surplus) of travelers?