

Ice Cream Social from 2 weeks ago

Cost of putting this on (fixed) = \$500

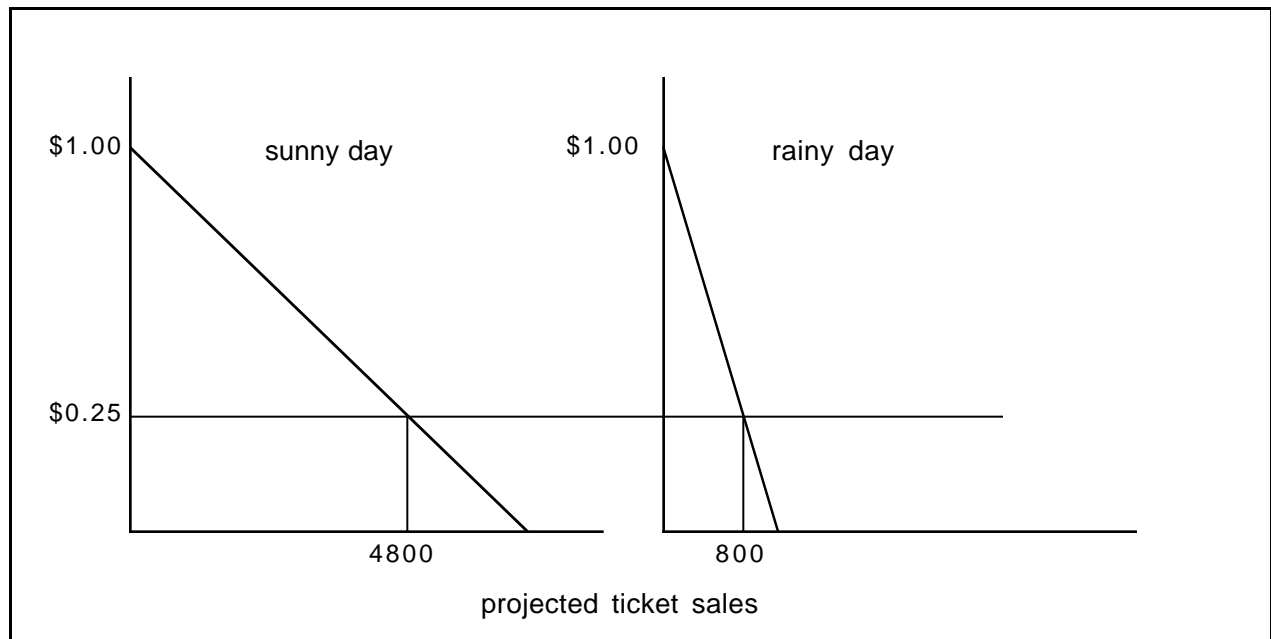
State regulates these events and restricts ticket price to 25¢

Marginal cost of ticket-related goods is 12.5¢

If it's sunny, demand gives you 4800 tickets sold at this price and the y intercept is \$1.00

If it rains, the y intercept is still \$1.00, but only 800 tickets are sold.

Probability of sun = 0.9; probability of rain = 0.1.



Question: Should we do this?

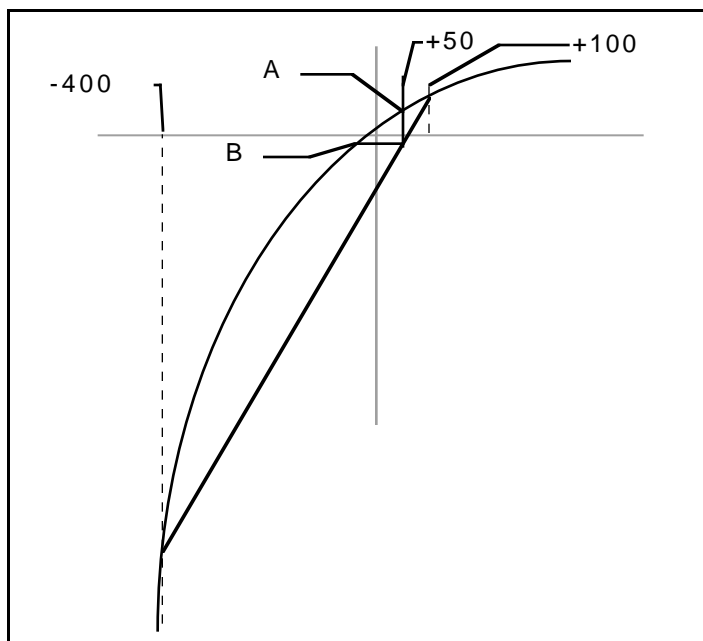
X	X(sun)	X(rain)	E(X)
Cost	500	500	500
Revenue	1200	200	1100
1/2 Revenue	600	100	550
Profit	100	-400	50
Cons. Surplus	1800	300	
Net Benefit	1900	-100	1700

Expected value of 50 indicates yes, but the potential gains are small and the potential losses are great. So how do we decide? Ideally we'd look at the certainty equivalent based on our level of risk aversion. If that certainty equivalent is negative, don't do it. It doesn't look very good from the perspective of the organizers. However, if we add in the consumer surplus of the people who attend, this looks much better. The

question is whether we care about the consumer surplus. We also have to be careful about double counting or over-counting.

Economists generally look at the utilities of the possible outcomes. The problem is that there's not usually a way to know what the shape of the utility function is.

Let's try it with this project. We're going to talk about a PTO that doesn't care about consumer surplus, so the utility function is a function of the profit they'd earn.



The arc is the hypothetical utility curve

+100 and -400 are the possible outcomes of the gamble

the line connecting -400 and +100 represents the gamble

+50 is the expected value of the gamble

Note that A, the utility of the expected value of the gamble, is greater than B, the expected utility of the gamble. This will always be true when the utility curve has this shape (risk-averse).

In fact, in this case the expected utility of the gamble is negative; therefore, even though the expected value of the gamble is positive, the PTO should not hold the ice cream social.