

ECON 321, Professor Hogendorn

Problem Set 2

1. *Windy*. (This problem adapted from Oz Shy, *Industrial Organization*, page 165.) Windy Road goes from point 0 to point 1 on a $[0,1]$ line. There are two restaurants on Windy Road, restaurant a at point 0 and restaurant b at point 1. (These locations are fixed and never change.)

The wind on Windy Road always blows from right to left. Let the transport cost for moving left from point x to point 0 be $1 \times x$ but the cost of moving right from point x to point 1 is $R \times (1 - x)$ where $R > 1$.

Consumers are spaced out evenly along the road and will eat one meal from whichever restaurant j maximizes their utility

$$u(x) = v - p_j - \text{transport costs}$$

(You can assume the wind dies down after dinner time, and the consumers can walk home at 0 cost!)

- (a) What is the location of the indifferent consumer in terms of p_a , p_b , and R ?
- (b) What are the Nash equilibrium prices charged by the two restaurants?