

Estimation of the Inelasticity of Incentive Demand for Non-motorized Commuting

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Purpose: Estimate incentive elasticity of demand for using non-motorized transportation to work.

Hypothesis: The incentive elasticity of demand for walking/biking to work is the same regardless of the individual characteristics of the participant. These characteristics include demographics and seasonality.

Background: 2001: The Campus Area Transportation Management Association (CATMA) at UVM established an incentive program to promote the use of non-motorized commute modes among its members' employees. Participants receive a card to record the dates they bike and/or walk to and from work. For each completed card, participants receive \$10 gift card redeemable at local stores/restaurants (CATMA 2007).

2007: Participants are required to bike/walk to and from work at least 3 times a week and cards are completed in eight week blocks for a \$15 reward. (CATMA 2007).

Method: This analysis relied on participants' completed cards for 6 months before and 6 months after the incentive changed, from July 2006 through 2007. 174 participated (made a least one bike/walk trip) both before and after the incentive change and these comprise the sample for this analysis.

Model: Non-motorized commuting typically requires more time spent in commute, effectively reducing the wage rate (more hours spent in work activity with no increase in income). In economic terms, the incentive program attempts to mitigate this effect, as the incentive will partially compensate for lower wage rate.

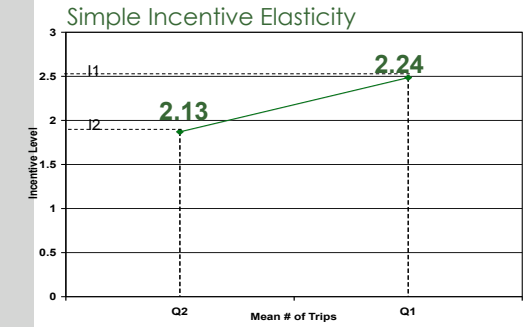
Descriptive statistics

Variable	Mean
# of Trips	2.23
Incentive Amt	\$2.20
Mode (Walk)	0.58
Town (Burlington)	0.86
Years in Program	4.19
Winter	0.25
Spring	0.25
Fall	0.25
Female	0.61

Binomial probit results

	Probability of making at least one trip
Incentive Coefficient	0.035**
Years in Program	-0.010
Winter	-0.033***
Spring	-0.062***
Fall	0.082***
Gender	-0.118***
Town	0.012
Mode	-0.003

**p<.05
***p<.01



Results:

Over 700 CATMA employees (out of 9,000 employees) have participated in the bike/walk program. The results of this study of 174 of these commuters shows **demand for bike/walk trips is inelastic (simple elasticity of .20)** to the amount of incentive. A discrete choice model was then developed (binomial probit with random effects using Limdep 9.0). This model shows an **elasticity of demand of .13 (inelastic)**.

In addition:

Gender has biggest impact and **being a woman reduces the probability of making a trip**. **Season (weather) plays a role in the probability of making a trip**. **Years in program (habit) and town (distance) do not affect the probability of making a trip**.

Discussion:

Transportation and obesity are two of this decade's largest public policy challenges, with non-motorized commuting at the nexus of the two. This preliminary investigation into demand for non-motorized commute modes and the role policy generally, and incentives specifically, may play in promoting these modes. This research shows that **demand for non-motorized commute trips is inelastic to small changes in incentive**, suggesting that **a small incentive may be treated more as a reward for existing behavior** than as an impetus to change commute behavior.



Erin Roche, M.S.
Jane M. Kolodinsky, Ph.D.
Lisa Aultman-Hall, Ph.D.

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