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**Economic and Sociodemographic Drivers Associated with  
Vending Machine Purchasers in the United States**

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# Economic & Sociodemographic Drivers Associated with Vending Machine Purchasers in the United States



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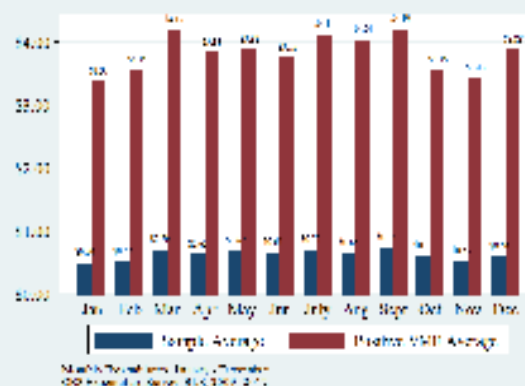
## Overview

The number of obese and overweight persons has increased drastically. One industry that caters to snack food eating is the vending machine sector. Though nearly a twenty billion dollar industry, little research exists on the characteristics of households who purchase from vending machines. In 2009 – 2012, approximately 16% of households purchased from a vending machine within a two week period.

## Objective

To identify household characteristics that influence the decision to purchase from a vending machine

Average Total Vending Expenditures Every Two Weeks



## Data

The Bureau of Labor Statistics conducts a yearly survey, the Consumer Expenditure Survey. Detailed household information as well as expenditure amounts are recorded. The total expenditure amount represents a consecutive two week period. N = 20,518

## Tobit Model

$$y_i = X_i' \beta + e_i \quad \text{if } X_i' \beta + e_i > 0$$

$$y_i = 0 \quad \text{if } X_i' \beta + e_i \leq 0, \quad i = 1, \dots, N,$$

- Y: total household expenditure at vending machines during two week period
- $X' \beta$ : demographic characteristics, other expenditures
- Able to calculate conditional and unconditional marginal effects and elasticities

## Marginal Effects

	Conditional	Unconditional
Age	-0.010***	-0.008***
Family Size	0.008	0.006
Income	0.000***	0.000***
Hours Worked	0.003***	0.002***
Male	-0.053*	-0.040*
Urban	-0.224***	-0.170***
Married	-0.109***	-0.083***
Black	0.090**	0.068**
Hispanic	0.142***	0.108***
College	0.068**	0.051**
Midwest	0.143***	0.109***
South	0.007	0.005
West	-0.076*	-0.058*
Food Away	0.004***	0.003***
Fresh Fruit	-0.001	-0.001
Fresh Veg	0.000	0.000
Candy	0.002	0.001
Bottled Drinks	-0.003	-0.003
Cola	0.018***	0.014***
Tobacco	0.006***	0.004***
Chips	0.014***	0.011***
Nuts	-0.026***	-0.020***

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## Results & Policy Implications

Purchasing cola and chips for at home consumption increases expenditures at vending machines (VM). Hours worked, education, and income positively affect expenditures at VM. No relationship among fresh fruit and vegetable expenditures can be confirmed. Perhaps more educated persons work long hours in offices with easy access to vending machine are spending more at VM. Incorporating fresh fruits and vegetables into the VM selection may attract another consumer base. Recently, regulations about posting calorie information were mandated. Perhaps these regulations will affect VM consumption. Targeting consumers who frequently purchase from VM for better eating decisions (not consuming a full meal at VM) and requiring vendors to include more healthy options at high traffic areas may result in lower calorie consumption.