Investigating the Substitutability of Alternative Nicotine and Tobacco Products for Conventional Cigarettes in an Experimental Tobacco Marketplace among Vulnerable Populations

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Experimental Tobacco Marketplace (ETM)

- Virtual storefront wherein the price, availability, and/or product labeling may be manipulated
- Examine cigarette demand as a function of increasing price
- Examine substitutability of other fixed-price alternative products
- Can model potential regulatory policies in a simulated real-world tobacco marketplace in which a diverse variety of products are available

Conventional Cigarettes in an Experimental Tobacco Marketplace among Vulnerable Populations

1. Investigate substitutability of alternative nicotine and tobacco products for adult daily smokers from populations particularly vulnerable to smoking
2. Determine cigarette demand and the substitutability of JUUL and cigarillos/little cigars (LCCs) as a function of increasing cigarette price among adults
3. Examine substitutability of other fixed-price alternatives
4. Determine how increasing price and/or product labeling may be manipulated

Virtual storefront wherein the price, availability, and/or product labeling may be manipulated

- Price of alternative products remained fixed: JUUL pods, LCCs, Skoal, Snus, gum, & lozenges
- Price of usual brand cigarette increased
- Made purchases for 5 days worth of products
- Assigned an account balance based on weekly cigarette consumption
- Price of usual brand cigarette increased
- Price of alternative products remained fixed: JUUL pods, LCCs, Skoal, Snus, gum, & lozenges

Within-Subject, 3 sessions
1. All products available
2. LCCs unavailable
3. JUUL pods unavailable

Data Analysis

- Products purchased converted to total mg of nicotine
- Linear regression performed mean data as a function of log-transformed cigarette price
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Cigarette Demand

- Cigarette purchasing decreased as a function of price (slope ≠ 0)
- All products available
  - F(1, 3) = 81.48, p = .003*, R² = .96
  - No Cigars
  - F(1, 3) = 173.14, p = .001*, R² = .98
  - No JUUL
  - F(1, 3) = 288.16, p = .0004*, R² = .99

- Average demand intensity trended in the direction of lowest when all alternative products were available, intermediate when LCCs were unavailable, and highest when JUUL was unavailable, but not significantly (p = 0.15)

Alternative Product Substitutability

Results

- JUUL availability could be an important consideration for tobacco regulatory policies on conventional cigarettes
- No evidence that LCCs substituted for cigarettes but that observation should be interpreted cautiously pending further investigation

- The current study replicates previous work with the ETM by demonstrating the substitutability of ENDS for combusted cigarettes
- Extends this work to populations especially vulnerable to smoking
- Across all sessions, cigarette purchases decreased as a function of increasing price
- Some evidence to suggest that demand intensity may vary by product availability
- JUUL was the preferred substitute when constraints on combusted cigarettes increased
- Thus, JUUL availability could be an important consideration for tobacco regulatory policies on conventional cigarettes
  - E.g., Reduced nicotine content standard for cigarettes
  - No evidence that LCCs substituted for cigarettes but that observation should be interpreted cautiously pending further investigation

Discussion

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