Informing the Uninformed: How Drug Advertising Affects Check-Up Visits

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November 2009

*The opinions expressed here are those of the authors and not necessarily those of the Federal Trade Commission or any of its Commissioners.
Advertising and Rx Drug Markets

- Advertising in Drug Markets is Controversial
  - Possibly Informative
    - Important Topic (Fatal Conditions) for a Potentially Underserved Population
    - Information Could be Misleading GAO (2006)
    - DTC Advertising Aimed at Least-Informed Agents (Patients)
  - Firm Incentives Could Mislead Consumers
    - Can Consumers Infer Truthful Information from Advertisements?
  - Advertising Is Potentially Wasteful
    - Some See It as Raising Drug Costs with Little Benefit
    - Rx Drug Costs are Large ($191 Billion) and Rising Quickly (11% - 20% Share of Medical Care)

- In 1997 FDA Lifts Advertising Regulation
  - Consumer Drug Advertising has Increased

- Policy Questions:
  - Should Direct-to-Consumer Drug Advertising be allowed?
  - Should FDA more strictly regulate content, e.g., return to pre-1997 disclosure rules?
Our Study: Is DTC drug advertising beneficial?

- Measure how drug advertising affects a consumer’s choice to see a physician for a Check-up.

- Focuses on a population of the “undiagnosed”.
  - Policy Relevant Segment of the Population: untreated/uninformed consumers

- MEPS Person-level Panel Data
  - Can control for person-level heterogeneity using fixed-effects
Prior Literature

- **Rx Drugs and Advertising**
  - Meyerhoefer and Zuvekas (2008)
  - Iizuka and Jin (2005, 2007)
  - Wosińska (2002)
  - Rizzo (1999)

- **Advertising and Health**
  - Ippolito and Mathios, RAND(1990)
Advertising Data: TNS

- Total Advertising Expenditures By:
  - Drug, Region, Quarter, Media Type

- Advertising Almost All (>90%) National
  - We Aggregate to National Bi-Annual.

- Advertisement Dollars Appear Targeted
  - MTV: Birth Control and Acne
  - Golf Channel: Prostate Conditions and Allergy

- We Assigned Advertising Based on Sex and Age of Individual
  - E.g.: Menopausal Drug Advertising Assigned To Women Age>45
  - Aggregation Across “Relevant” Conditions Allows Spillovers Across Conditions
Variation in Advertising Expenses in our Data

- Advertising Varies Along Several Dimensions
  - Time
    - Large Increase In Advertising Over Time
  - Age
    - Some Advertising is Irrelevant for Certain Age Groups
      - E.g.: Birth Control Irrelevant for Post-Menopausal women.
  - Sex
    - Some Advertising is gender-specific
      - E.g.: Impotence, birth-control, prostate enlargement
MEPS: Medical Expenditure Panel Survey

- Nationally Representative Publicly Available Survey of Individuals
  - 2-year Panel of 30,000 People from 1997-2004
  - Construct 4 Six-month Periods for Each Person

- Demographic Information
  - Insurance Status
  - Age, Sex, Race, Income, Region, Family Structure

- Medical Care
  - Events: Office Visits
  - Directly Observe No Care Decisions

- Detailed Information on health
  - SRHS, Activity Limitations
  - Chronic Conditions: ICD-9 Codes
Empirical Model

- Dependent Variable
  - Indicator of Whether a Patient Visits a Physician for a Check-up in the Period

- Advertising
  - Varies By Age and Sex – Depends on Disease Category Advertised
  - National Level Aggregates Across Regions and Media Types

- Sample
  - Have No Diagnosed Condition Within Period
  - Individuals With Acute Conditions Come In and Out of Sample
  - Age > 35
Estimating Equation

\[ \text{Prob}(Visit_{it} = 1) = a_i + b z_{it} + \theta \log(DTC_{it}) + \sum_{k=1998}^{2004} \gamma_k Y^k_{it} + \lambda_{\text{Month1-6}}_{it} + \varepsilon_{it} \]

- DTC – Expenditures on Direct-to-Consumer Advertising
- Z – Demographic Characteristics
- A – Person-specific fixed effects
- Y – Year Dummies
- Month1_6 – Seasonal Dummy
  - Coefficient in LPM is the Marginal Effect
  - Separate Equations Performed By:
    - Race
    - Sex
    - Education
# Results

Table 3: Effect of Drug Advertising on Likelihood Of Checkup
Estimated Separately by Subgroup

<table>
<thead>
<tr>
<th></th>
<th>Pooled</th>
<th>Black</th>
<th>Hispanic</th>
<th>White and Other</th>
<th>College</th>
<th>High School</th>
<th>Less than High School</th>
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<tbody>
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<td><strong>Men:</strong></td>
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<tr>
<td>Log(DTC)</td>
<td>0.055</td>
<td>0.116</td>
<td>0.028</td>
<td>0.055</td>
<td>0.166</td>
<td>0.021</td>
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<td>(.032)</td>
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<td>(.032)</td>
<td>(.036)</td>
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<td>Observations</td>
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<td>4791</td>
<td>8441</td>
<td>22686</td>
<td>8209</td>
<td>17158</td>
<td>10551</td>
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<tr>
<td><strong>Women:</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log(DTC)</td>
<td>0.147</td>
<td>0.201</td>
<td>0.063</td>
<td>0.162</td>
<td>0.242</td>
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<tr>
<td></td>
<td>(.043)</td>
<td>(.108)</td>
<td>(.071)</td>
<td>(.059)</td>
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<td>7178</td>
<td>17509</td>
<td>5596</td>
<td>14753</td>
<td>9441</td>
</tr>
</tbody>
</table>
Robustness

- Use Advertising Measure that is Not Group-Specific (Only Time Variation)
  - Smaller coefficients, larger standard error.

- Are Trends Identifying the Effect?
  - Falsification tests:
    - “Incorrect Advertising” Does Not Explain Check-up Propensity
Discussion

- Person-level *Panel* Allows for a Rich Set of Individual Controls

- The Undiagnosed Population
  - Policy-Relevant Population Want to Inform

- Advertising Measure Allows for Spillovers across Conditions

- Evidence Suggesting Time Trends Are Not Responsible for Effect
  - Falsification Tests Suggest Irrelevant Advertising Does not Explain Visit Propensity

- Isolates Effects of DTC Advertising
  - Detailing Should Not Affect Check-up Propensities
  - Check-up Visits Can Be Assumed to Be Informative
Conclusions

- Direct to Consumer Drug Advertising appears to increase physician visits for undiagnosed patients.
  - Restrictions on advertising would lessen the likelihood this population seeks treatment.

- Advertising appears most effective for women and the highly educated.