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Information source and cigarettes: experimental evidence on the messenger effect

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The Big Picture

?

«Take B»

Choice A

Choice B

Behavioral Theory: **Yes**!

Neoclassical Theory: **No**!

The messenger effect

- *Definition*: «The same information received from different messengers can have different marginal effects on consumer beliefs & choices.»
- Why is this important?

  - Implications:
    - Economic gains / losses
    - Biased opinions (manipulation)

Previous Literature

Only theoretical → Empirical Evidence?

Goal of this study

How important is the source of information (the ‘messenger’) on consumer choice in the context of cigarettes, electronics and tobacco?

The different messengers (1)

Figure 1: FDA as the messenger

The different messengers (2)

Figure 2: The fictitious e-cigarette company (the Ave) as the messenger

The different messengers (3)

Figure 3: Physicians as the messenger

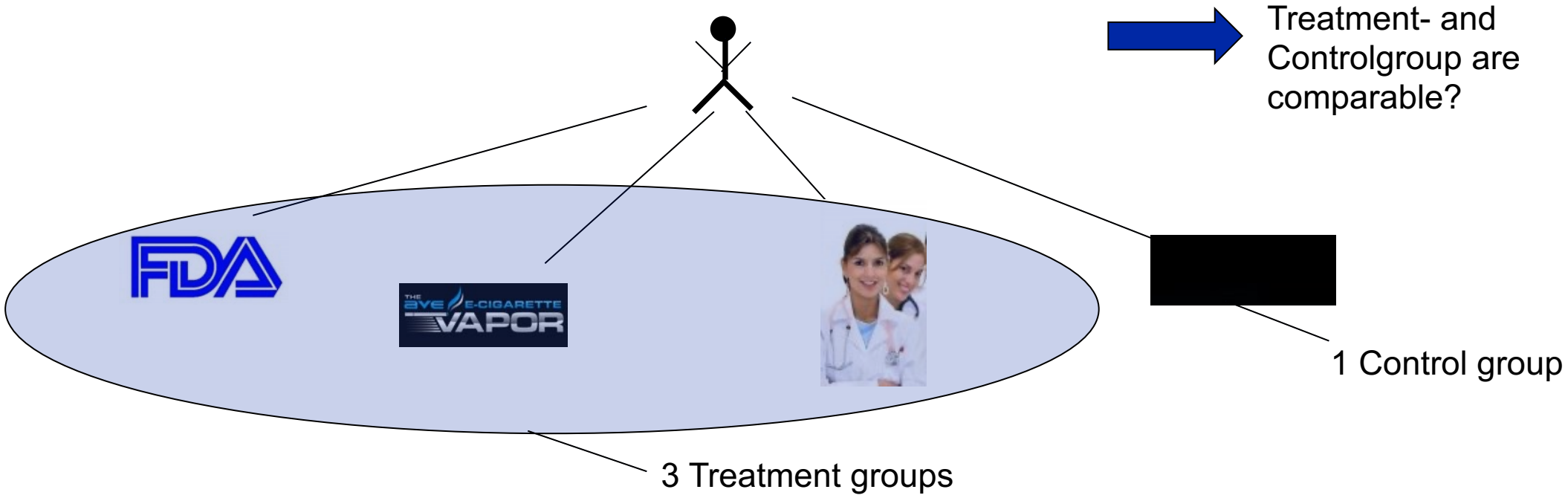
The different messengers (4)

Figure 4: No messenger

Data

- Panel Data from 6.04.2017 to 26.05.2017
- Online-Survey
- 2’722 adult smokers of age 18 to 64
- After eliminating respondents who: 1) ..had difficulty viewing the image; 2) ..found the image extremely difficult to understand; 3)..who failed the attention test; 4)..who completed the survey too fast
  - The sample size reduces to 2’499 (92% of the full sample)
- Design: experimental approach

Methodology



- Representative sample: The sample was constructed to match a sample of adult smokers in 2014 of large national health survey (BRFSS)

Assumptions & Hypothesis

1) Credibility-Assumption
2) Hidden-Agenda-Assumption

H_1: $\beta_i > \beta_{no\ source}, where\ i = \{FDA, Physicians\}$ (credibility assumption)

H_2: Information from an E-cigarette company will have no effect on how people choose between tobacco cig. & e-cig. (hidden agenda assumption)

The empirical model (1)

$$C_{i,m} = \beta_0 + \beta_1 FDA_m + \beta_2 Physicians_m + \beta_3 Ave_m + \boldsymbol{X}_{i,m}\beta_4 + \mu_{i,m}$$

$C_{i,m}$: Binary Outcome (intention to use // risk perception)

FDA_m : Dummy

$Physicians_m$: Dummy

Ave_m : Dummy

$\boldsymbol{X}_{i,m}$: Vector of the smoker's demographic characteristics assgigned to messenger m

→ We have a dummy-dummy model

Results (1)

Effect of messengers on E-cig. and tobacco cig. usage

Independent variables ↓	Use E-cig. in next 30 days (Y-var.)	Quit tobacco cig. in next 30 days (Y-var.)
No controls		
FDA	0.032	0.024
Ave	0.08***	0.038
Physicians	0.026	0.042
With controls		
FDA	0.032	0.018
Ave	0.065***	0.028
Physicians	0.033	0.038

*** : statistically different from zero at the 99% confidence-level.

Results (2)

Effect of messengers on E-cig. and tobacco cig. risk perception

Independent variables ↓	E-cig. healthier than tobacco cig. (Y-var.)	Switching from tocacco to e-cig. improves health(Y-var.)	Government should promote switching to e-cig.
No controls			
FDA	0.039	0.044	0.034
Ave	0.085***	0.064**	0.034
Physicians	0.009	0.020	0.011
With controls			
FDA	0.039	0.043	0.033
Ave	0.071***	0.052*	0.019
Physicians	0.008	0.020	0.014

Results (3)

- Ficticious company particularly important messenger. This goes against the researcher's second hypothesis (H_2).
- The researchers cannot reject their first hypothesis (H_1)
    - Survey was conducted at a time of general distrust towards science
    - Some misinterpretations from the respondents?
- Magnitude for «intention to use E-cig.»: (0.08)/0.52 = 15% increase in intention to use if messenger is E-cig. company

Results (4)

- The researcher cannot test why the ficticious company appears to be important for adult smokers.
  - Robustness-Check: if you exclude respondents (n=922) that find the private company «trustworthy», you get: $\beta_{physicians} = 0.06^*$ (intention to quit)

Conclusion

- The study finds some evidence for the messenger effect (through magazines).
- Especially e-cigarette firms seem to have major influence on consumers' intention to use & risk perception
- The implementations like an attention test in the survey, the pilot study or the randomization test make us think that the researchers really thought the study through, even though their argumentation is sometimes unsatisfying.

Questions?

Discussion (1)

- The study found evidence that only the E-cig. Company had an influence on the choice behavior of the smokers.
  - Do you believe in this result that there is a messenger effect?

- Assumption: put hidden-agenda assumption on FDA & physicians
- Robustness Checks → nothing wrong
- First ever done study → evidence for messenger effect

- Everything in the experiment is «fake»
- Study only simulates advertisement using plain text
- People can lie…