THE EFFECTS OF DISCLOSURE REGULATION: EVIDENCE FROM RESTAURANTS

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Motivation

- Lack of product information leads to economic inefficiency

- Need Govenment intervention?
  - Mandatory disclosure
  - Minimum quality standard

- Market mechanism solves the informational problem?
  - Consumer searching
  - Firm signaling / voluntarily disclosing

- Lack of clear-cut empirical evidence

- Los Angeles restaurants provide a unique opportunity

Basic Outline

- Beginning January 1998, restaurants in LA County were issued hygiene letter-grade cards

- In some cities, posting is mandatory

- In other cities, posting is voluntary

- Our data is a panel covering two years prior and one year after the introduction of grade cards

- We analyze the effects on
  - hygiene quality
  - revenue

Research Questions

- What is the effect from increasing the provision of product quality information on firms' quality choices?

- What is the effect from increasing the provision of product quality information on firms' revenue?

- Do these effects differ according to whether disclosure is mandatory or voluntary?

Preview of Results

- Mandatory disclosure causes hygiene quality to increase by 5.7%

- With voluntary disclosure the increase in hygiene quality is 1.3% less

- Mandatory disclosure increases restaurant quarterly revenue by 4.2%

- With voluntary dislcosure, the increase in restaurant revenue is 2.5% less

- A-grade restaurants enjoy more revenue increases

- We conclude there is partial unraveling

Literature — Effects of Information on Firm Behavior

- Stigler (1961) — advertising reduces search costs
- Nelson (1974) — advertising as signal of quality
- Benham (1972) — advertising and prices of eyeglasses across states
- Chipty and Witte (1998) — child-care prices and quality
- Milyo & Waldfogel (1999) — advertising and prices of liquor in Rhode Island
- Dranove *et al* (2000) — mandatory medical surgery report cards

Summary of Existing Results

- Empirical effect of advertising on prices remains uncertain

- When information about quality is provided by an independent institution there is no strong evidence this has any effect on price or quality

Literature — Incentive to Disclose

- Grossman (1981) & Milgrom (1981) — unraveling equilibria
- Mathios (1997) — fat content labeling on salad dressing
- Jin (2000a) — empirical determinants of voluntary HMO accreditation

Restaurant Industry

- US restaurant industry employs around 7 million people
- Total revenue for US of $220 billion
- 207,000 people employed in restaurants in LA county
- Restaurants in LA county generate revenue of $7.9 billion

The Data

- January 1, 1996 to December 31, 1998
- Between 14,506 and 20,086 restaurants subject to DHS inspections exist in any given quarter
- DHS data is matched to sales tax data using restaurant name and address
- Matching reduces number of restaurants by 27%
- We then discard restaurants with missing data (further 22% reduction)
- Sample covers 13,539 restaurants over 12 quarter periods

Exogenous Policy Change

- November 16, 1997 — CBS 2 News airs "Behind the Kitchen Door"

- December 16, 1997 — LA County Board of Supervisors voted in grade card ordinance

- January 16, 1998 — ordinance came into effect at county-level

- Incorporated cities begin adopting the ordinance, some still have not adopted

Hygiene Assessment & Grades

- Mainly objective in nature

- Beginning with 100, pre-specified points are deducted for each violation, eg.

  - food temperature violation $\rightarrow$ minus 5

  - evidence of cockroaches $\rightarrow$ minus 3

  - unclean toilet $\rightarrow$ minus 2

  - dirty eating utensils $\rightarrow$ minus 5

- “A” (90–100%), “B” (80–89%), “C” (70–79%), if less than 70% card reports the actual score

Frequency of Inspections

- Between 4,464 and 7,615 inspections in a quarter

- Average number of inspections per restaurant per year
  - 1.97 in 1996
  - 1.87 in 1997
  - 2.15 in 1998

- Some restaurants are inspected more than 4 times in a year

Additional Data

- DHS also provides capacity, census-tract and name & address (which also identifies whether a chain, and if so which one)

- Tax data also provides dummy for alcohol license

- Yellow Pages tell us food type (eg. Chinese) and food style (eg. fast food) for about half the sample

- Census data provide demographics of local area for each restaurant

Effect of Grade Cards on Hygiene Quality

- Stated goal of the grade cards is to raise hygiene quality

- We measure hygiene quality by the score received from a DHS inspection

- Main weakness — no measure of actual incidents of unhealthiness

- Complaints are fewer for A-grade restaurants

- Average score has risen from 75% to 90% during the period of our sample

Timing of Changes in Assessment Criteria

- July 1, 1997 — removal of subjective component
- January 16, 1998 — begin grade cards
- March 18, 1998 — minor change in scoring

Effect of Grade Cards on Restaurant Revenue

- Allows us to verify that changes in hygiene are driven by economic incentives

- Further examination of unraveling hypothesis

- An objective indication of the magnitude of the incentives

- We observe quarterly restaurant revenue

- Need to transform hygiene scores into a quarterly equivalent

- We assume revenue is uniformly distributed over a quarter

Conclusion

- Increased provision of information causes firms to significantly increase quality

- This is true whether disclosure is mandatory or voluntary

- Increased provision of infomation causes significant increase in restaurant revenue

- The increase is more for mandatory disclosure than for voluntary disclosure

- Support of partial unraveling

- NRA against grade cards

Future work

- Effect of disclosure regulations on entry / exit

- Take into account competitive environments

- Effect of disclosure regulations on chain franchising and quality management

- Effect of disclosure regulations on welfare