

Knowing When to Quit: Default Choices, Demographics, and Fraud

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The views expressed in this paper are those of the authors
and do not necessarily represent the views of their employers
or management.

Outline

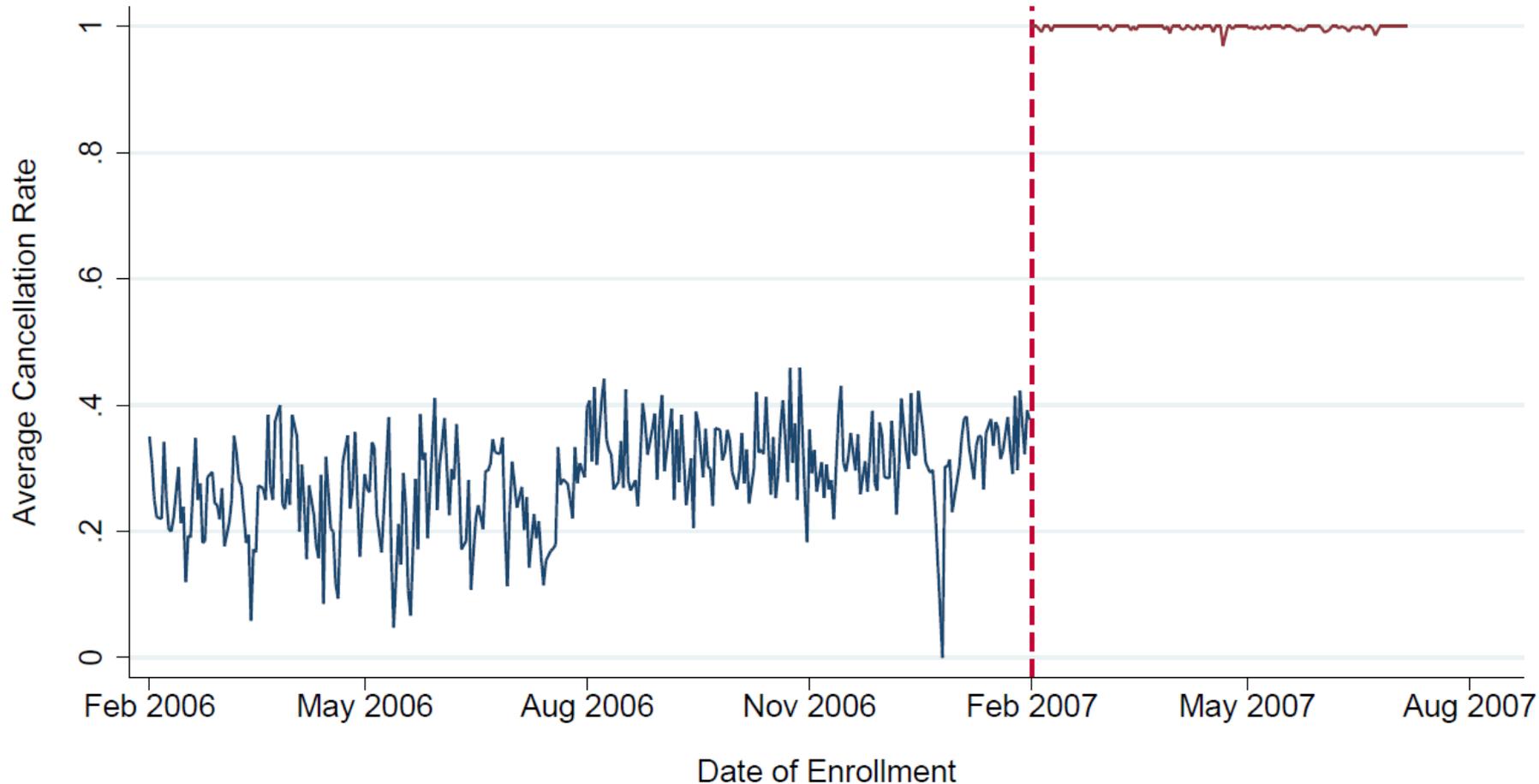
- **Overview: evidence about impact of defaults and demographics on making right choice**
- Background: Fraud case leads to same choice under 3 exogenously assigned choice structures
- Regression Discontinuity: Poor defaults causes 60+% of the population to make errors
- Hazard: Low SES neighborhoods less responsive to enrollment-by-default letters; quit more when charged
- Welfare effects: Cancellation default saves \$400+ relative to 2 observed alternatives
- Conclusion

We observe who makes the choice right under 3 structures

- **Exiting is the right choice:** Fraud enrolled people in (nearly) useless subscriptions that charged until they quit
- Lawsuit creates exogenous variation in defaults and decision structure
 - Enrolled <5 months: Cancellation default
 - Enrolled >5 months: Enrollment default

Direct evidence that bad defaults cause (many) mistakes.

Quit rate before and after transition to cancellation default



Note: Excludes customers who enrolled after February 1 2007 and received notification of enrollment letters

Demographics interact with decision structure when enrollment is the default

- Observe enrollment as default. When people from less wealthy/educated neighborhoods get:
 - charges they are more likely to exit
 - letters they are less likely to exit
- Making cancellation the default could save \$400 per subscriber

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Suntasia used deceptive phone calls to enroll ~750,000 customers

- Phone calls:
 - Claimed to represent bank
 - Offered “free” reward
 - Read routing number; asked consumer to “verify” their checking account number
 - Enrolled customers in up to 3 subscriptions that charged every 30 days until they quit
 - Avg. charges to checking account >\$200.

Almost no one used the firm's costly products

The firms' subscriptions

| Product | Monthly Fee | One time, initial fee | trial period |
|----------------|-------------|-----------------------|--------------|
| Buyers' club | 19.95 | 40.00 | 14 days |
| Long Distance | 49.95 | 0.00 | 21 days |
| Credit catalog | 9.95 | 149.95 | 7 days |
| Trip | 0.0 | 149.95 | |

We drop everyone we see using these subscriptions

The subscriptions had no apparent option value

- Buyers club:
 - Can claim rebates after cancelling;
 - Other discounts available general public.
- 2.2% of long distance customers used program; delayed start rare
- Credit catalog: implicit interest rate ~100%/year
- **Cancelling is almost always the right choice**

Multiple sources quite critical of Suntasia

- Neutral receiver: “it was difficult to understand ... what was being offered and what was expected of the consumer.”
- Suntasia marketing study of active customers: 35% “did not recall their membership...at all”
- Near record number of complaints
- FTC sues in summer 2007

FTC lawsuit changes decision structure

- Court orders:
 - Put firm under control of a neutral receiver
 - Suspended billing and telemarketing
 - Took seriously the notion that some customers wanted to be enrolled
 - Foresaw a resumption of billing
 - Sent letters, exogenously assigned default in each letter

Subscribers exogenously assigned to make same choice one of three ways

Before Lawsuit

| | |
|-------|------|
| ===== | \$49 |
| ===== | \$19 |
| ===== | \$ 9 |

**Checking
account
charges**

After Lawsuit



Enrolled \leq 5 months

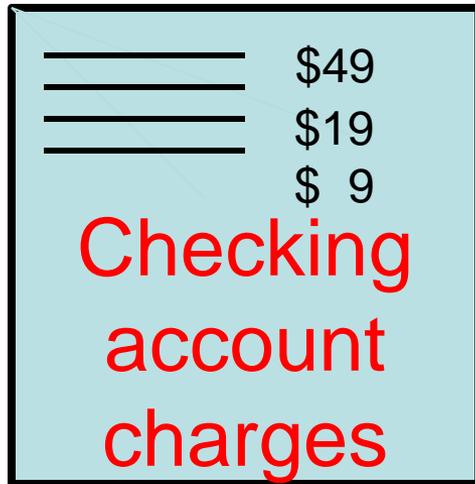


Enrolled $>$ 5 months
or demonstrable contact

Exploit exogenous assignment of similarly situated people to make same choice 3 ways

Before Lawsuit

After Lawsuit



Regression discontinuity:
Effects of a change in
defaults?



Hazard rate:
compare relationship
of demographics and
action to cancel



Enrollment and cancellation letters were almost identical

Both 5 paragraphs long; Some skill required to assess and decide

Enrollment letter

NOTICE OF CANCELLATION RIGHT

Date

Our records show that you are a member of (Product name) and this is an important notice to you regarding that membership. On July 23, 2007 (Product name) was sued by the Federal Trade Commission in the United States District Court in Tampa, Florida. The Court appointed a Temporary Receiver to take control of operations. As a result, your checking account has not been charged for your membership in (Product name) since late July, 2007.

(Product name) and the Temporary Receiver have developed a business plan to manage future operations of the company.

The business plan is set up to automatically continue your membership unless you decide to cancel it. If you continue your membership, (Product name) will resume charging your checking account the monthly fee of \$ in the near future. **Please respond to this notice within 20 days from the postmark date of this notice.**

(Product name) has been upgraded with additional discounts and benefits. A description of those discounts and benefits is attached to this notice.

If you wish to cancel your services and your membership please complete the information below and mail the notice to us in the enclosed self-addressed envelope. You may also cancel your services and your membership by calling 1 800.....

The crucial enrollment language was in paragraph 3

Enrollment letter:

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Our records show that you are a member of (Product name) and this is an important notice to you regarding that membership. On July 23, 2007 (Product name) was sued by the Federal Trade Commission in the United States District Court in Tampa, Florida. The Court appointed a Temporary Receiver to take control of operations. As a result, your checking account has not been charged for your membership in (Product name) since late July, 2007.

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The business plan is set up to automatically cancel your membership unless you decide to continue it. If you continue your membership, (Product name) will resume charging your checking account the monthly fee of \$ in the near future. If you do nothing, your checking account will not be charged and your membership will be cancelled.

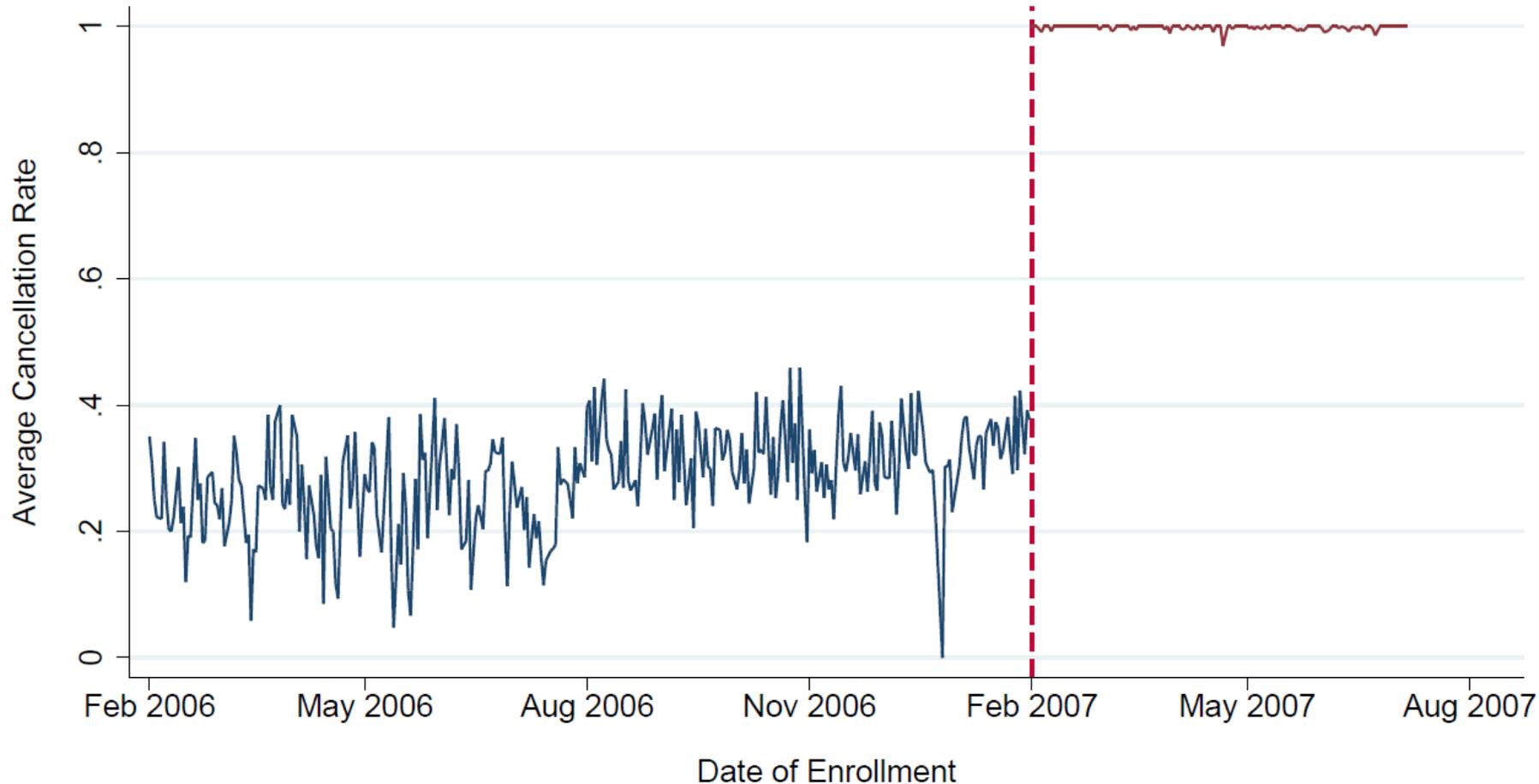
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Direct evidence that bad defaults cause (many) mistakes.

Quit rate before and after transition to cancellation default



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Regression discontinuity regressions confirm that default had large impact on exit

Table 2: Regression Discontinuity Analysis of Default Choices: Logit Average Marginal Effects

| | Window | | |
|---|-----------------------|-----------------------|----------------------|
| | (1) All | (2) 30 Days | (3) 15 Days |
| Cancellation Letter | 0.684* (0.00411) | 0.636* (0.0143) | 0.621* (0.0185) |
| Amount Paid Last Billing Cycle (\$00s) | -0.0112* (0.00427) | -0.0121 (0.00967) | -0.0129 (0.0121) |
| Number of Subscriptions | -0.0258* (0.00292) | -0.0426* (0.00810) | -0.0434* (0.0120) |
| Census Block Demographic Variables | Yes | Yes | Yes |
| Piecewise Quadratic Trends in Enrollment Date | Yes | Yes | Yes |
| <i>N</i> | 42159 | 5256 | 2782 |
| Enrollment Letter Reponse Rate | 0.291 | 0.357 | 0.368 |

* $p < .05$

Coefficients are average marginal effects from a logit regression of the probability of cancelling in response to the court-ordered notification letters.

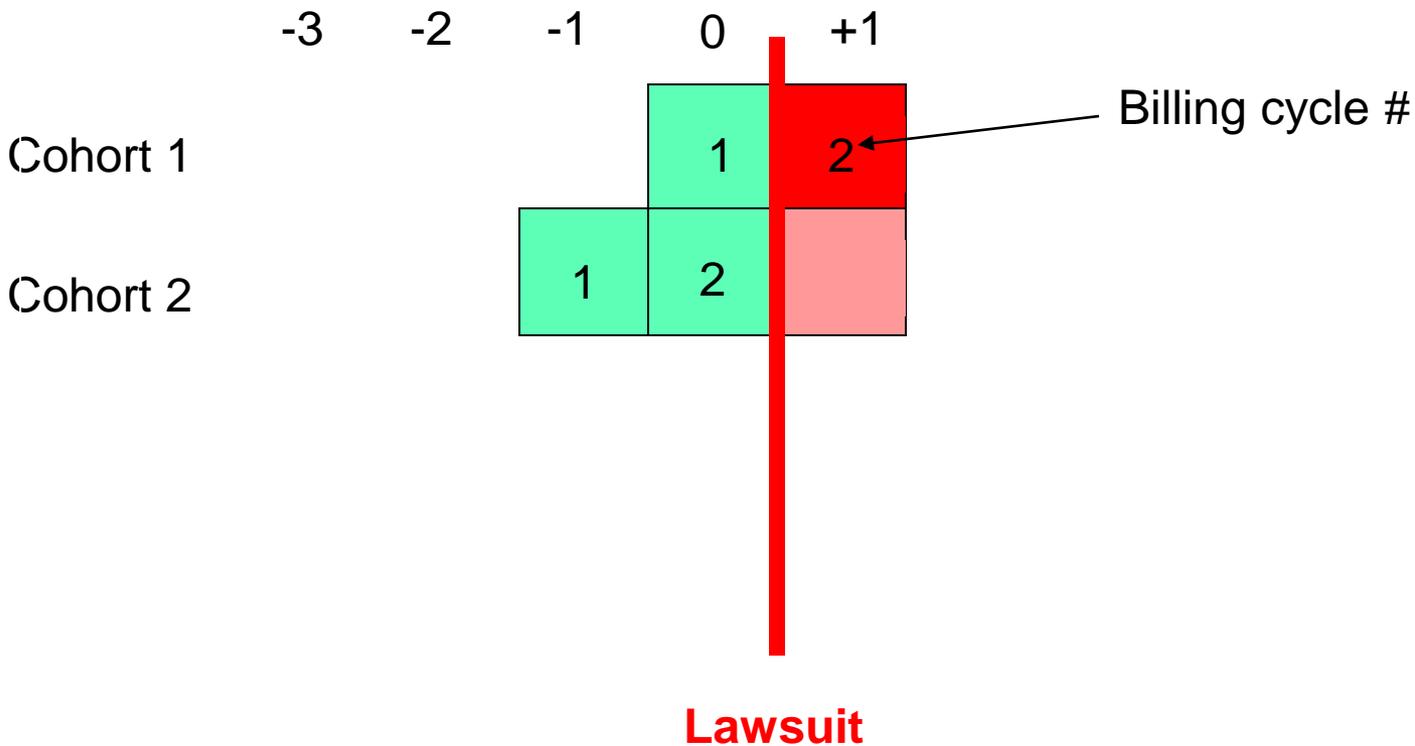
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Lawsuit led to a difference in difference natural experiment by:

Creating exogenous variation by sending all subscribers letters at the same time, regardless of the age of their subscription...

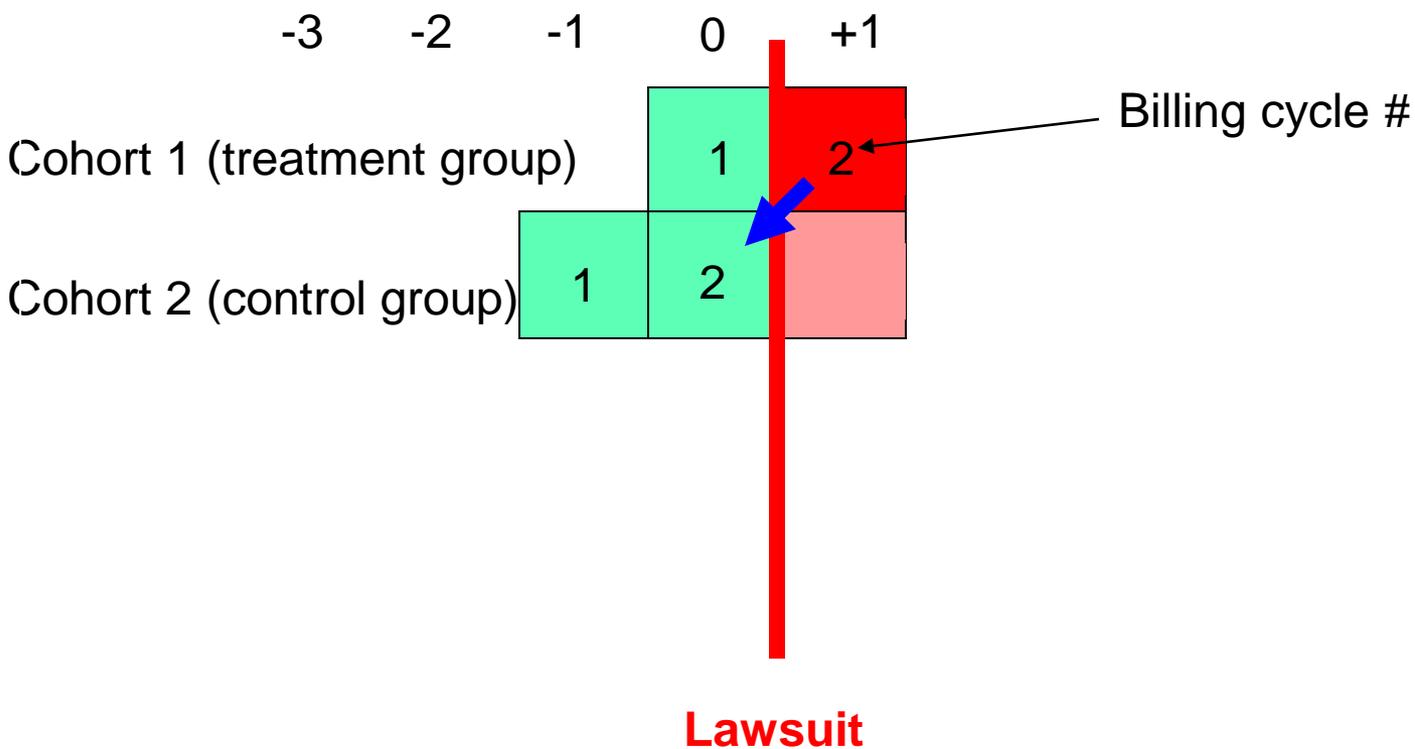
Calendar month relative to last operating month



Lawsuit led to a difference in difference natural experiment by:

...and creating a **comparable cohort** that got a **charge** in the same billing month

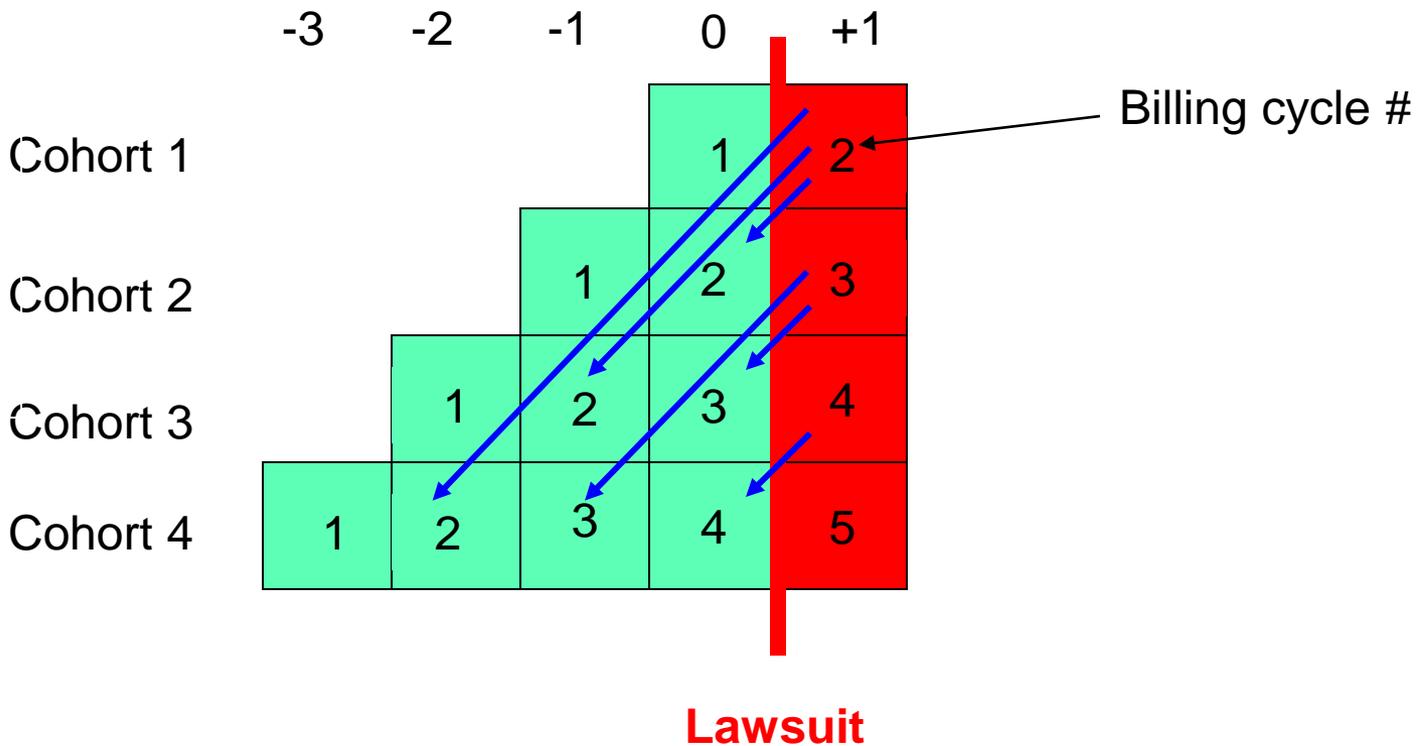
Calendar month relative to last operating month



Lawsuit led to a natural experiment by:

and doing this repeatedly, yielding a rolling difference in difference identification

Calendar month relative to last operating month



Descriptive stats: Charges lead to more exit in low SES neighborhoods; enrollment letters to less exit in low SES neighborhoods

Differences in exit rate between top and bottom quartile of the characteristic, enrolled 6-8 months

| | Charges | Enrollment letters |
|---|---------|--------------------|
| Census Block % Homeowner | -0.014* | +0.046* |
| Census Block Group % High School Drop Out | +0.012* | -0.051* |
| Probability African American | +0.005* | -0.055* |

This holds over many variables; 1st month and 6th-8th month were similar

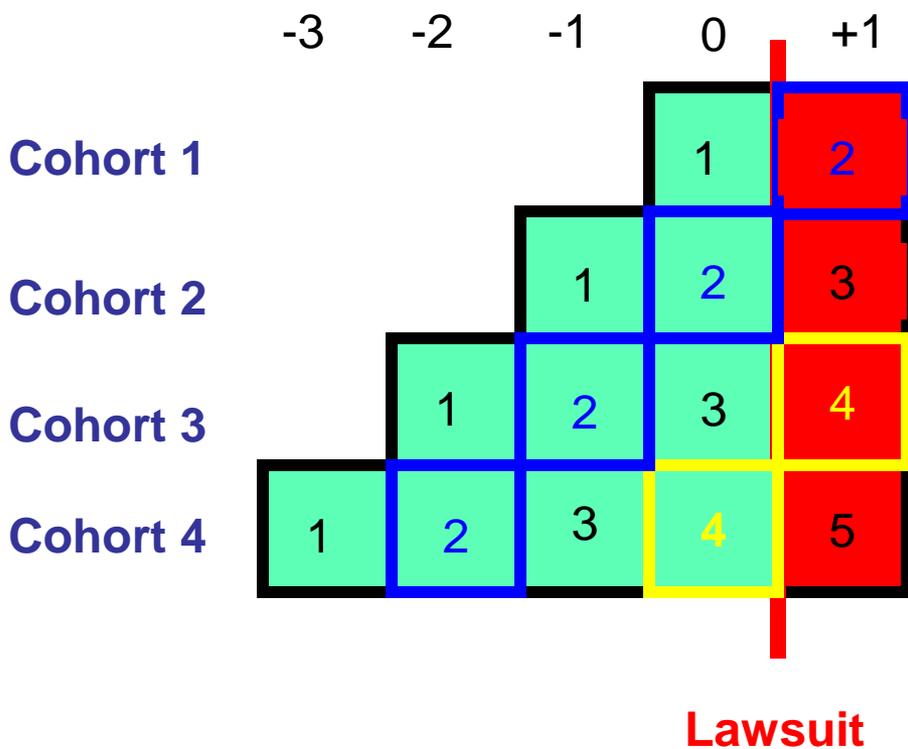
Table 3: Differences in Average Cancellation Rates of Upper and Lower Quartiles of Census Block Demographic Characteristics

| | 1st Billing Cycle | Billing Cycles 6–8 | |
|---------------------------|-------------------|--------------------|-------------------|
| | No Letter | No Letter | Enrollment Letter |
| Median Income | -0.049* | -0.015* | 0.031 |
| % Homeowner | -0.057* | -0.014* | 0.046* |
| % HS Dropouts | 0.019* | 0.012* | -0.051* |
| % BA | -0.018* | -0.009* | 0.047* |
| % Speak English Poorly | 0.003 | 0.003 | -0.051* |
| Probability Black | 0.031* | 0.005* | -0.055* |
| Probability Hispanic | 0.005* | 0.007* | -0.034 |
| Probability Asian/Other | 0.005* | 0.001 | -0.022 |
| Average Cancellation Rate | 0.586 | 0.107 | 0.344 |
| N | 494152 | 196561 | 4728 |

* $p < 0.05$

In the more general case **month**, **cohort** and **treatment** dummy variables yield the desired identification

Calendar month relative to last operating month



Econometric model

$$\text{exit}_{i,t} = \alpha + \beta_1 X_{i,t} + \beta_2 \text{Letter}_{i,t} + \beta_3 \text{Letter}_{i,t} X_{i,t} + \beta_4 \text{ReminderLetter}_{i,t} + \beta_5 \text{PreSuit}_{i,t} \\ + \tau * \text{Cycle}_t + \omega \text{Cohort}_i + \epsilon_{i,t}$$

- Discrete time hazard rate is a logit.
- Model all billing cycles before the lawsuit plus all enrollment letters.
- We truncate cancellation letter recipients at the time of the lawsuit
- Coefficients on demographics X = attrition while firm operated; on $\text{Letter} * X$ = predict response to enrollment letters

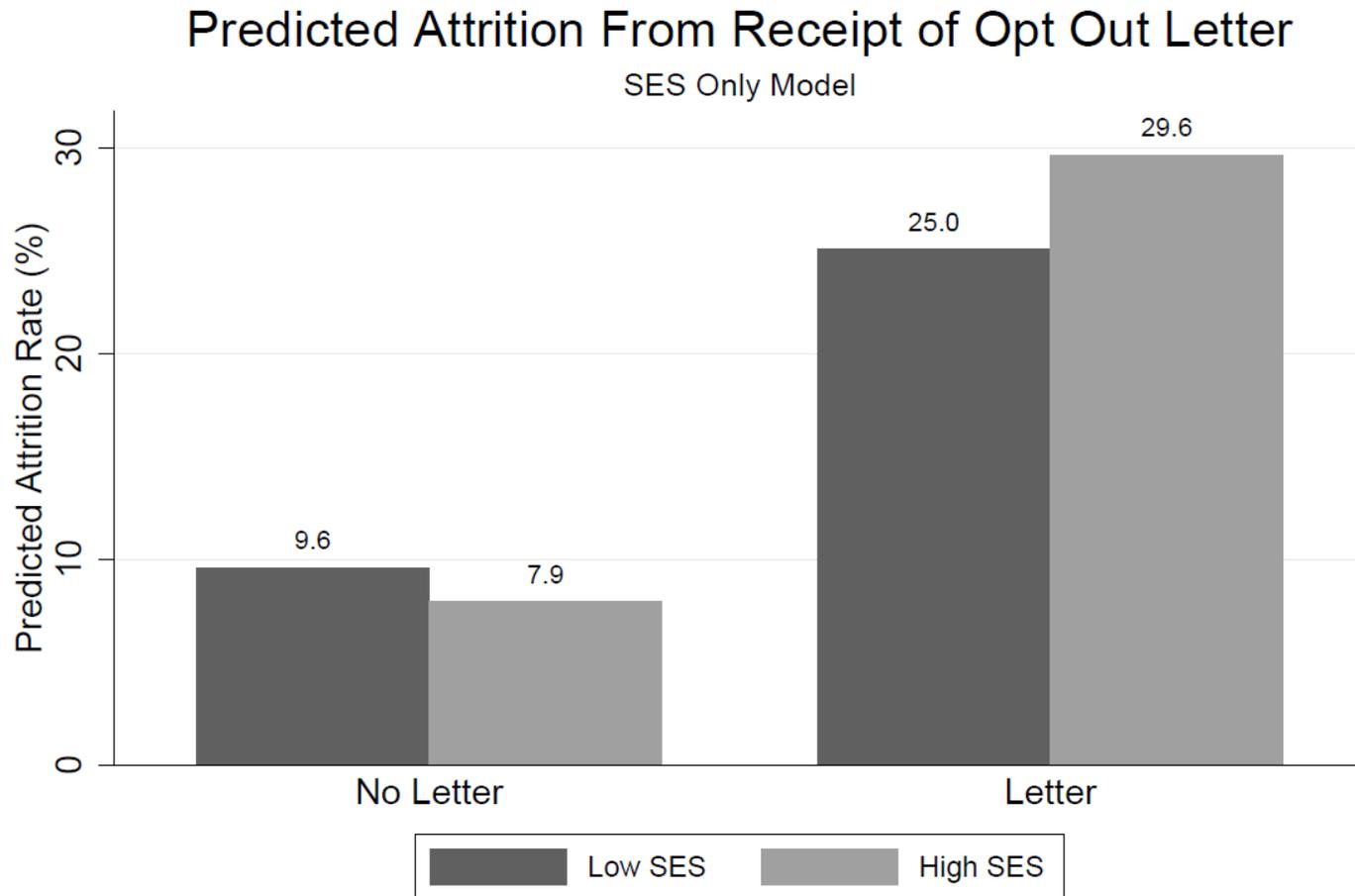
Hazard rate model finds the same pattern. The story comes through in several variables; quirks in measurement complicate interpretation

Table 4: Marginal Effects of Demographics on Decisions to Cancel Suntasia Subscriptions, With and Without Opt Out Letters

| | (1) | | (2) | |
|--------------------------|-----------|------------|-----------|------------|
| <hr/> | | | | |
| % Homeowner | | | | |
| Pre-Lawsuit | -0.0227* | (0.00112) | -0.0214* | (0.00114) |
| With Opt-Out Letter | 0.0370* | (0.0114) | 0.0178 | (0.0116) |
| <hr/> | | | | |
| Median Income | | | | |
| Pre-Lawsuit | -0.00278* | (0.000251) | -0.00287* | (0.000252) |
| With Opt-Out Letter | -0.00210 | (0.00240) | -0.00141 | (0.00239) |
| <hr/> | | | | |
| % HS Dropouts | | | | |
| Pre-Lawsuit | 0.00723 | (0.00394) | 0.00159 | (0.00407) |
| With Opt-Out Letter | -0.119* | (0.0397) | -0.0230 | (0.0409) |
| <hr/> | | | | |
| % BA | | | | |
| Pre-Lawsuit | -0.0135* | (0.00317) | -0.0138* | (0.00318) |
| With Opt-Out Letter | -0.0407 | (0.0307) | -0.0371 | (0.0306) |
| <hr/> | | | | |
| % Speak English Poorly | | | | |
| Pre-Lawsuit | -0.0154* | (0.00493) | -0.0253* | (0.00539) |
| With Opt-Out Letter | -0.126* | (0.0520) | -0.113* | (0.0563) |
| <hr/> | | | | |
| Probability Hispanic | | | | |
| Pre-Lawsuit | | | 0.00952* | (0.00127) |
| With Opt-Out Letter | | | -0.0738* | (0.0127) |
| <hr/> | | | | |
| Probability Black | | | | |
| Pre-Lawsuit | | | 0.00525* | (0.00105) |
| With Opt-Out Letter | | | -0.0955* | (0.0105) |
| <hr/> | | | | |
| Probability Asian/Other | | | | |
| Pre-Lawsuit | | | 0.00601* | (0.00210) |
| With Opt-Out Letter | | | -0.0593* | (0.0208) |
| <hr/> | | | | |
| <i>N</i> | 1594023 | | 1593914 | |
| Effect of Letter Receipt | 0.161 | | 0.160 | |

* $p < 0.05$

This leads to a 10-20% difference in predicted attrition rates between residents of low SES and high SES neighborhoods



SES calculated as average value of education and income variables within the lower and upper quartiles of that variable's distribution.
Model fit for consumers present and billing cycle 6.

Cancellation default outperforms enrollment default with letters and charges by >\$400

Counterfactual estimates from hazard rate model

Table 5: Expected Cost to Consumers of Cancellation, Enrollment, and No Notification

| | (1) Billing Cycles | (2) \$ Paid |
|---------------------|-----------------------|----------------|
| Cancellation Letter | 0.00 | 0.00 |
| Enrollment Letter | 10.16 | 423.04 |
| No Letter | 11.53 | 477.82 |

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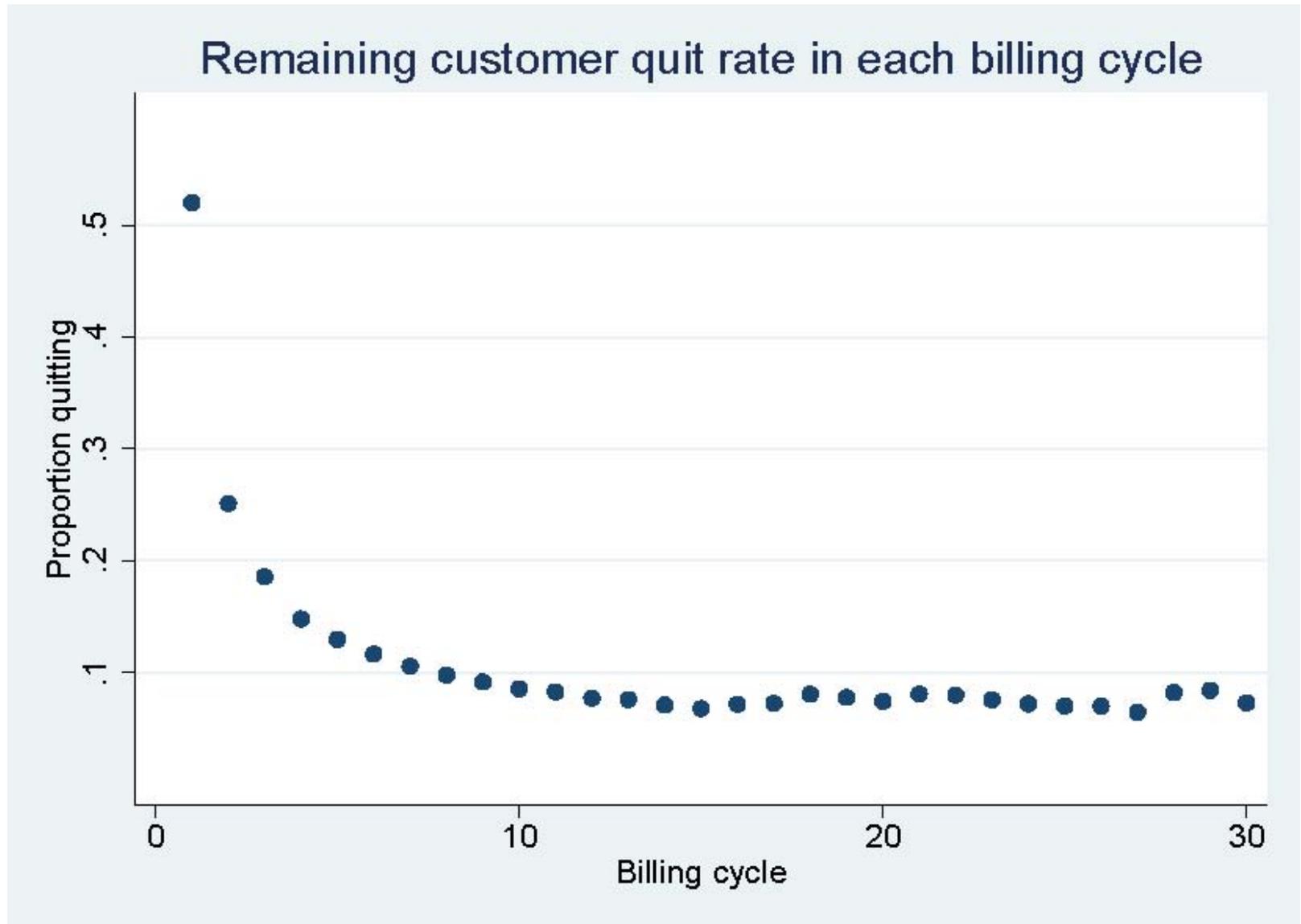
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Conclusions

- Simple, direct evidence that bad defaults lead to mistakes
- Providing complex information was less helpful to people in lower SES neighborhoods
- Results consistent with high SES neighborhoods have better reading skills; seeing their marginal dollar as less crucial

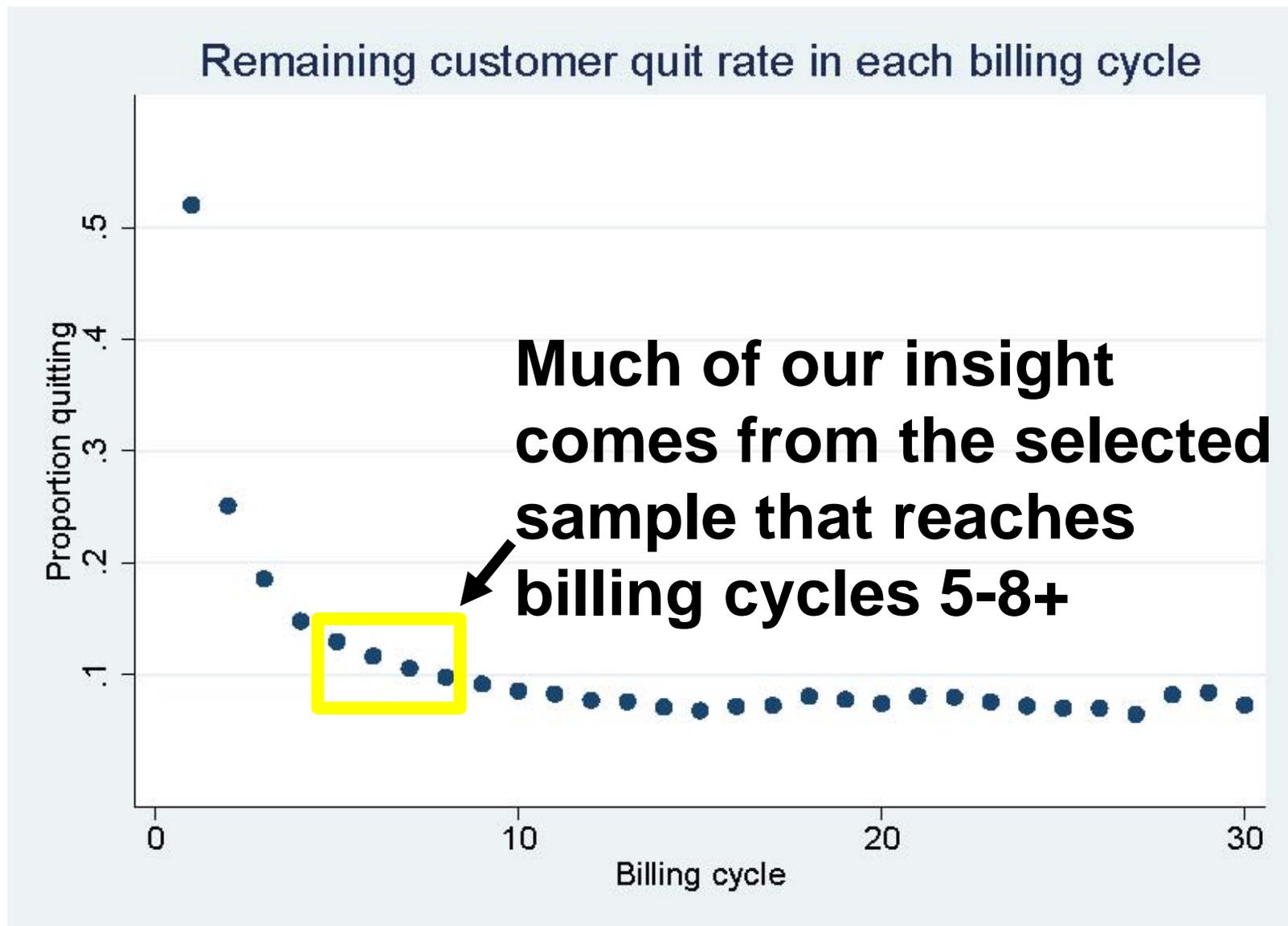
Backup slides

Cancellation: >50% during the costly first month; drops in later months until stabilizing at ~10% per month



Omits people with total charges of \$149 in the first period

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Subscribers look fairly similar to US as a whole

Demographics

Most from Census Block or Block Group

Race by Last Name and Census Block Group data

| | U.S. (Census 2000) | Subscribers | | |
|------------------------------------|--------------------|-------------|-----------|---------|
| | Mean | Mean | Std. Dev. | N |
| Homeownership rate | 66.2% | 60.35% | 33.51 | 471,791 |
| Median income, \$10,000s | 4.2 | 4.19 | 1.87 | 494,237 |
| No high school degree ^a | 19.6% | 21.96% | 14.50 | 493,833 |
| Bachelor's or more ^a | 24.4% | 20.94% | 15.87 | 493,833 |
| Does not speak English well | 4.1% | 5.31% | 8.69 | 493,886 |
| Hispanic | 12.5% | 13.30% | 34.19 | 494,073 |
| Black | 12.1% | 21.60% | 29.69 | 494,073 |
| Median age | 35.3 | 33.45 | 11.96 | 494,237 |
| Age \geq 70 | 9.0% | 10.68% | 11.13 | 472,740 |

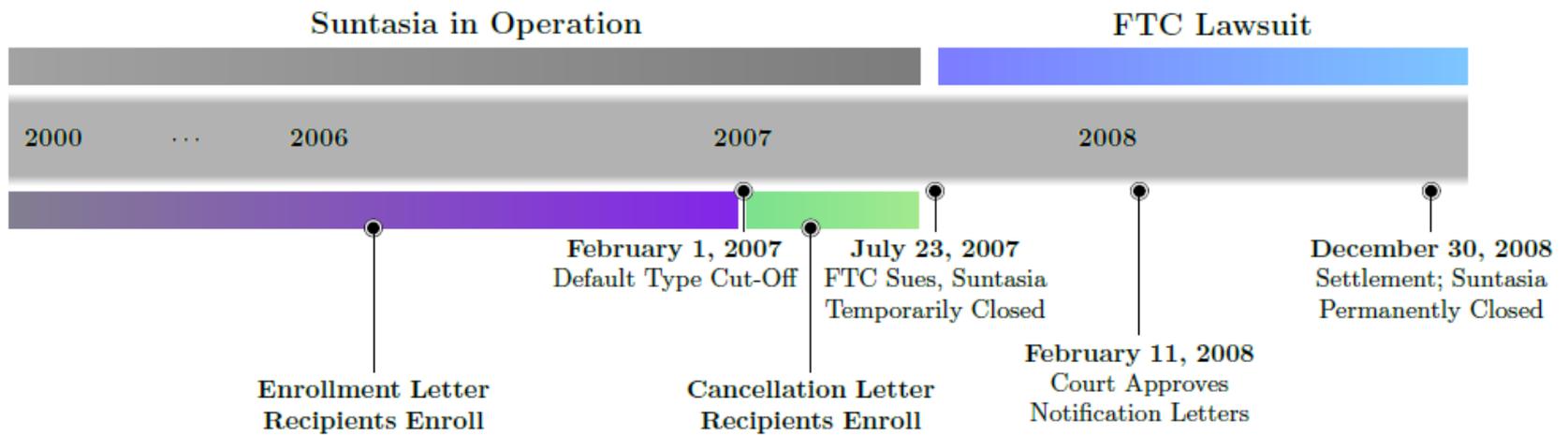


Figure 1: Suntasia Case Timeline

Data used:

We use billing, usage, opt-in/opt-out letter, geocoded census, and census name data

- **Billing:** date, customer & amount of every completed charge and refund; no rationale
- **Usage:** identify and drop some users of two of three major programs.
- **Opt-in/opt-out letter:** letter type and response for ~100,000 accounts active when FTC sued
- **Census:** We matched:
 - Addresses to census demographics
 - Last names to census racial composition data