Interest Rates: Prices Hidden in Plain Sight

Mary Zaki
University of Maryland

Credit disclosures in dollar Terms

- Interest rates standard method to communicate price on credit
- For credit cards/lines of credit only price disclosure available at time of purchasing decision that enables calculation of cost obligation
- This has not always been the case!
  - First two thirds of the 20th Century, households in U.S. obtained credit directly from retailers
  - Overwhelmingly quoted in dollar terms − “Installment Credit”

Example of Installment Plan

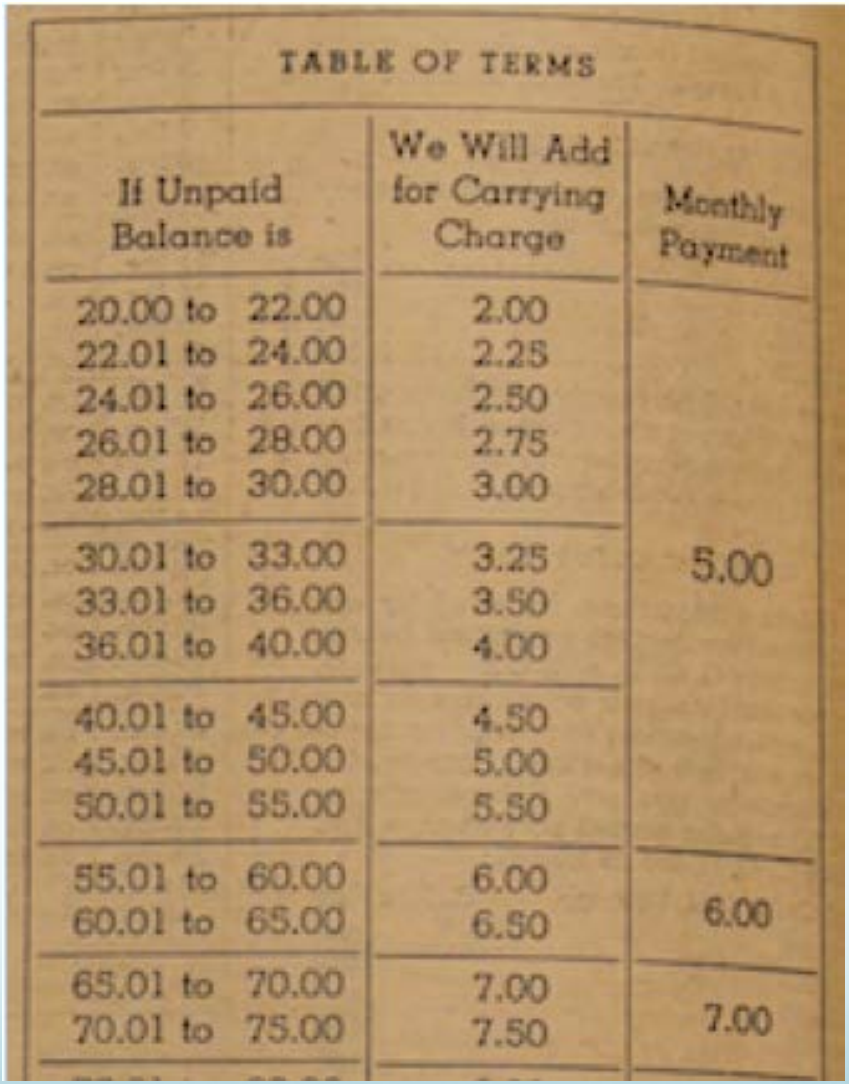


TABLE OF TERMS

If Unpaid Balance is	We Will Add for Carrying Charge	Monthly Payment
20.00 to 22.00	2.00	
22.01 to 24.00	2.25	
24.01 to 26.00	2.50	
26.01 to 28.00	2.75	
28.01 to 30.00	3.00	
30.01 to 33.00	3.25	5.00
33.01 to 36.00	3.50	
36.01 to 40.00	4.00	
40.01 to 45.00	4.50	
45.01 to 50.00	5.00	
50.01 to 55.00	5.50	
55.01 to 60.00	6.00	6.00
60.01 to 65.00	6.50	
65.01 to 70.00	7.00	7.00
70.01 to 75.00	7.50	

Montgomery Ward Fall 1954 Catalog

Shift to Interest Rate disclosures

- 1950s and 1960s retailers en masse started "revolving credit”
- Charged a monthly percentage fee on credit accounts based on outstanding credit balance
- Only disclose interest rates to convey costs − like credit cards

Example of Revolving Plan

For a monthly payment of	Your Account Balance May be
$ 3	$ 10.00 to $ 35.00
4	35.01 to 60.00
5	60.01 to 100.00
6	100.01 to 120.00
7	120.01 to 140.00
8	140.01 to 160.00
9	160.01 to 180.00

You may request terms for above amounts. For larger terms, or special problems, write Aldens, Attn. Charles Arthur. Small service charge of 1½% is added to Account each month based on amount owed as of last statement. As monthly balance decreases, your service charge is reduced. No other carrying charges.

ALDENS-281

Aldens 1963 Spring Sale Catalog

Question

- How has historical shift in credit offerings and price disclosures impacted consumers and firms?
- Counterfactuals from dollar-terms disclosures, identify impact of interest rate price disclosures on:
  - credit cost comprehension
  - borrowing and purchasing decisions
  - optimal creditor behavior
- Two methods of analysis:
  1. Experiment with purchasing and borrowing decisions
  2. Constructing new data set of historical credit terms from mail-order catalogs

Experiment

- Test if consumers incorporate credit costs into their purchasing decision
- Recruited from online labor market: Amazon Mechanical Turk
  - 1,477 participants
  - February 2017
  - Real-stakes: 1/30 chance choices materialize

Purchasing Question

You will receive <u>$5 a month for 13 months</u> with the first payment starting in one month.

You can use some of the money from your income stream to purchase one of these specially priced Amazon Gift Cards:

Credit Plans

A: Installment

CREDIT PLAN

*Step 1: **Look up** the price of the Gift Card*	*Step 2: **Add** the one-time service fee listed below to the PRICE of the Gift Card to calculate your starting Credit Balance.*	*Step 3: **Pay** the amount listed below Every Month Until your credit balance is 0**
$10.00	$0.23	$5
$20.00	$0.78	$5
$30.00	$1.68	$5
$40.00	$2.94	$5
$50.00	$4.58	$5

** These payments will be automatically withdrawn from your income stream. If the remaining credit balance in any one month is less than the monthly payment, you will only pay the remaining balance from your income stream. The first withdrawal starts in one month.*

B: Basic Revolving

CREDIT PLAN

*Step 1: **Look up** the price of the Gift Card. This will be the Credit Balance in the first month.*	*Step 2: **Pay** the amount listed below Every Month Until your Credit Balance is 0**
$10.00	$5
$20.00	$5
$30.00	$5
$40.00	$5
$50.00	$5

** These payments will be automatically withdrawn from your income stream. The CREDIT BALANCE in each subsequent month after the first month is calculated by first adding a service fee of 1.5% of the previous month's credit balance to the previous month's credit balance and then subtracting the monthly withdrawal amount (listed in the second column of the table above). If the summation of the previous month's credit balance plus the service fee is smaller than the monthly withdrawal amount, then only the previous month's credit balance plus the service fee will be withdrawn. The first withdrawal starts in one month.*

Calculation Question

*Assume that you will be receiving **$5 for 13 months** with your first payment starting in one month.*

If you are interested in purchasing the following Amazon Gift Card:

*and you are **planning to purchase it using the following credit plan**:*

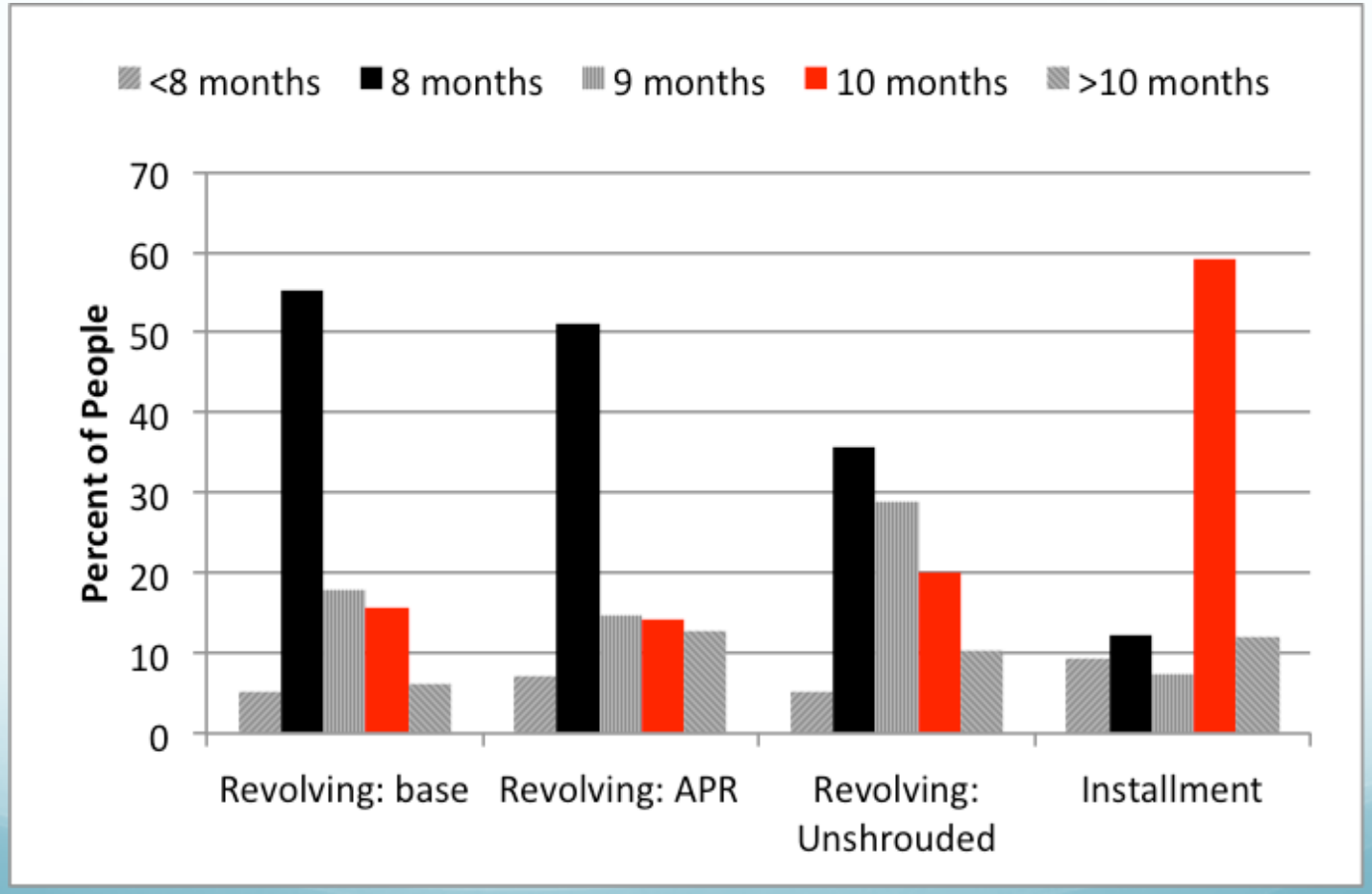
CREDIT PLAN

*Step 1: **Look up** the price of the Gift Card*	*Step 2: **Add** the one-time service fee listed below to the PRICE of the Gift Card to calculate your starting Credit Balance.*	*Step 3: **Pay** the amount listed below Every Month Until your credit balance is 0**
$10.00	$0.56	$5
$20.00	$1.94	$5
$30.00	$4.27	$5
$40.00	$7.77	$5
$50.00	$12.63	$5

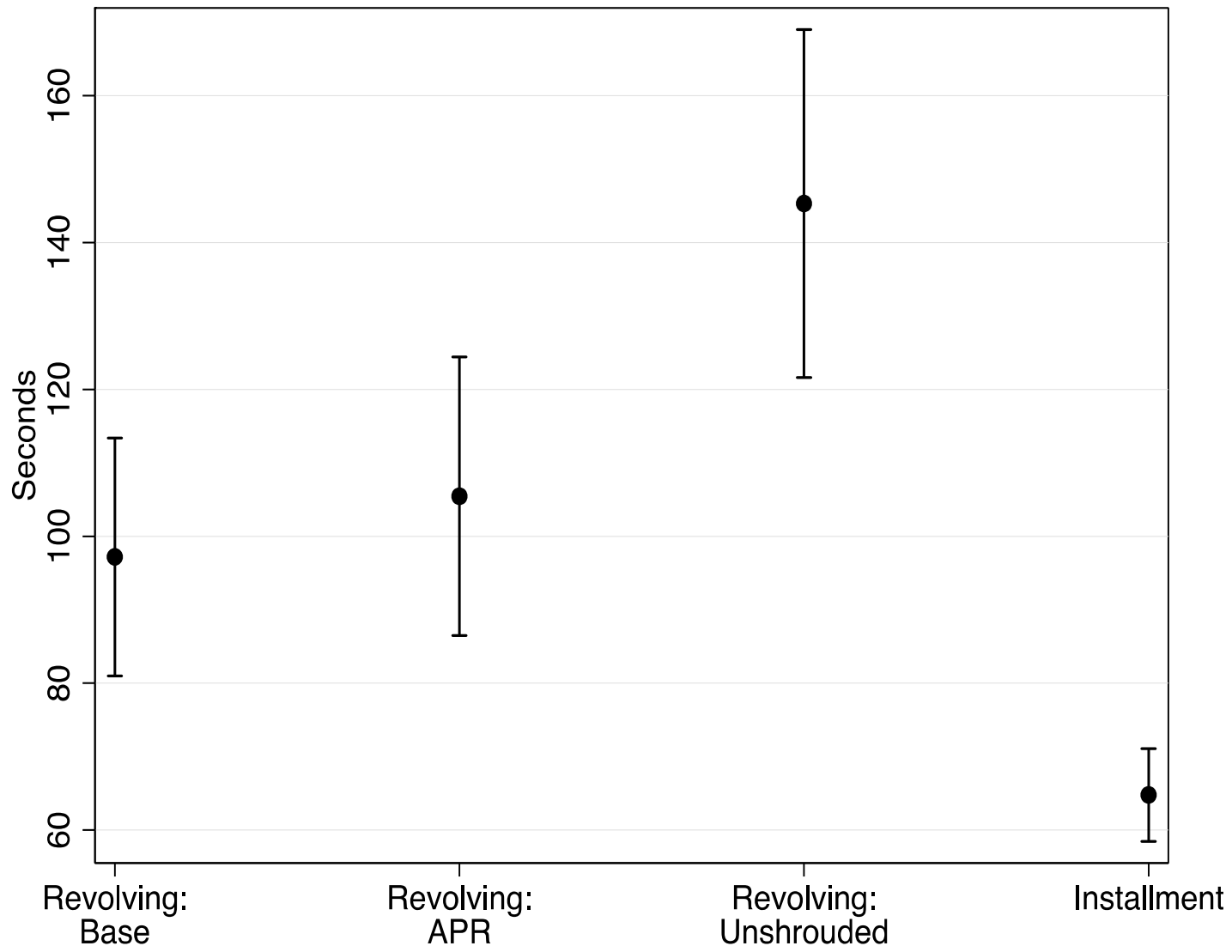
** These payments will be automatically withdrawn from your income stream. If the remaining credit balance in any one month is less than the monthly payment, you will only pay the remaining balance from your income stream. The first withdrawal starts in one month.*

then how many months will it take you to pay off your credit balance? For example, if your credit balance will be equal to 0 in one month from today, then your answer is "1". Please type your response in the box below:

Calculation Question Response



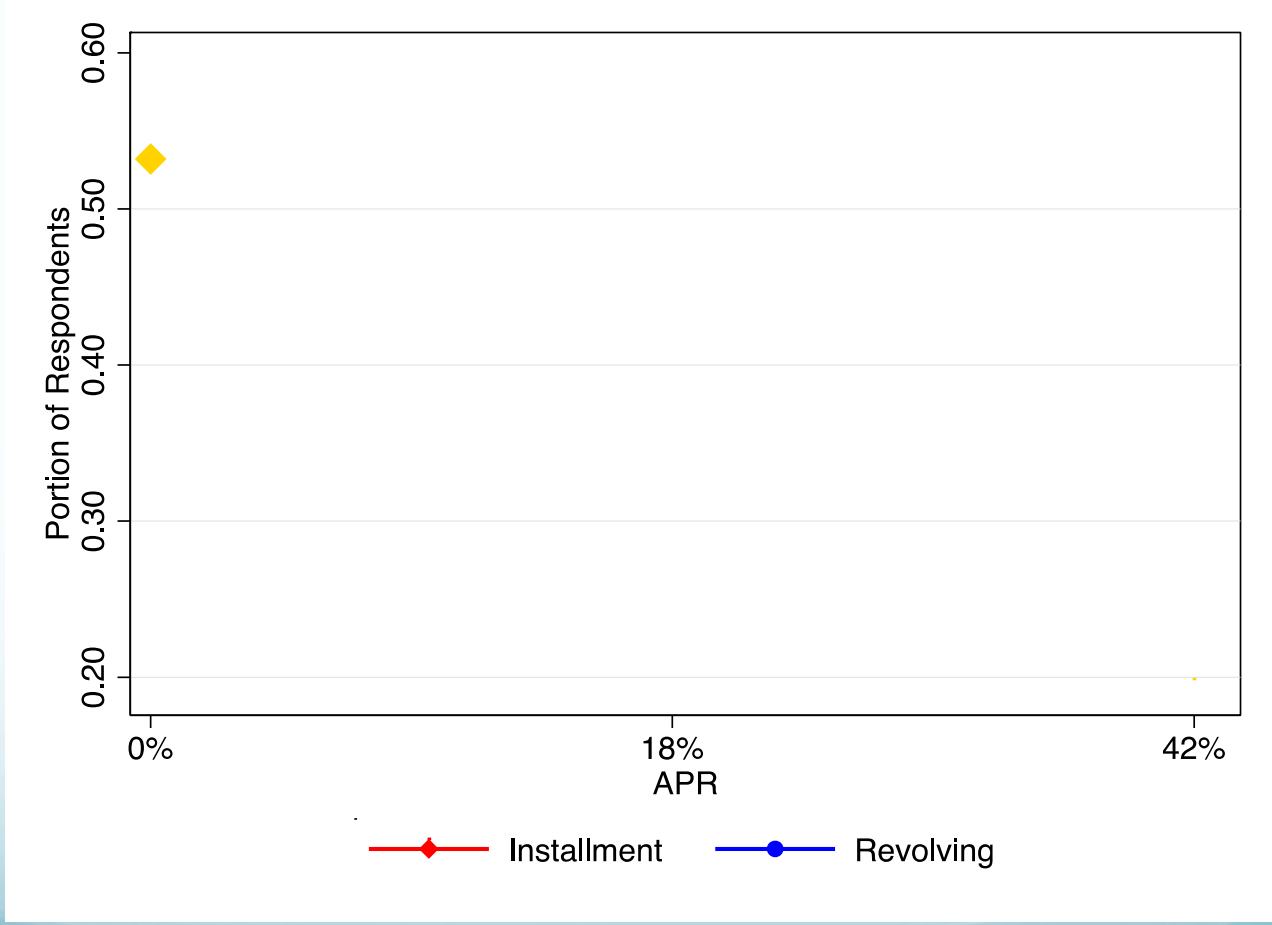
Calculation Question Response Time



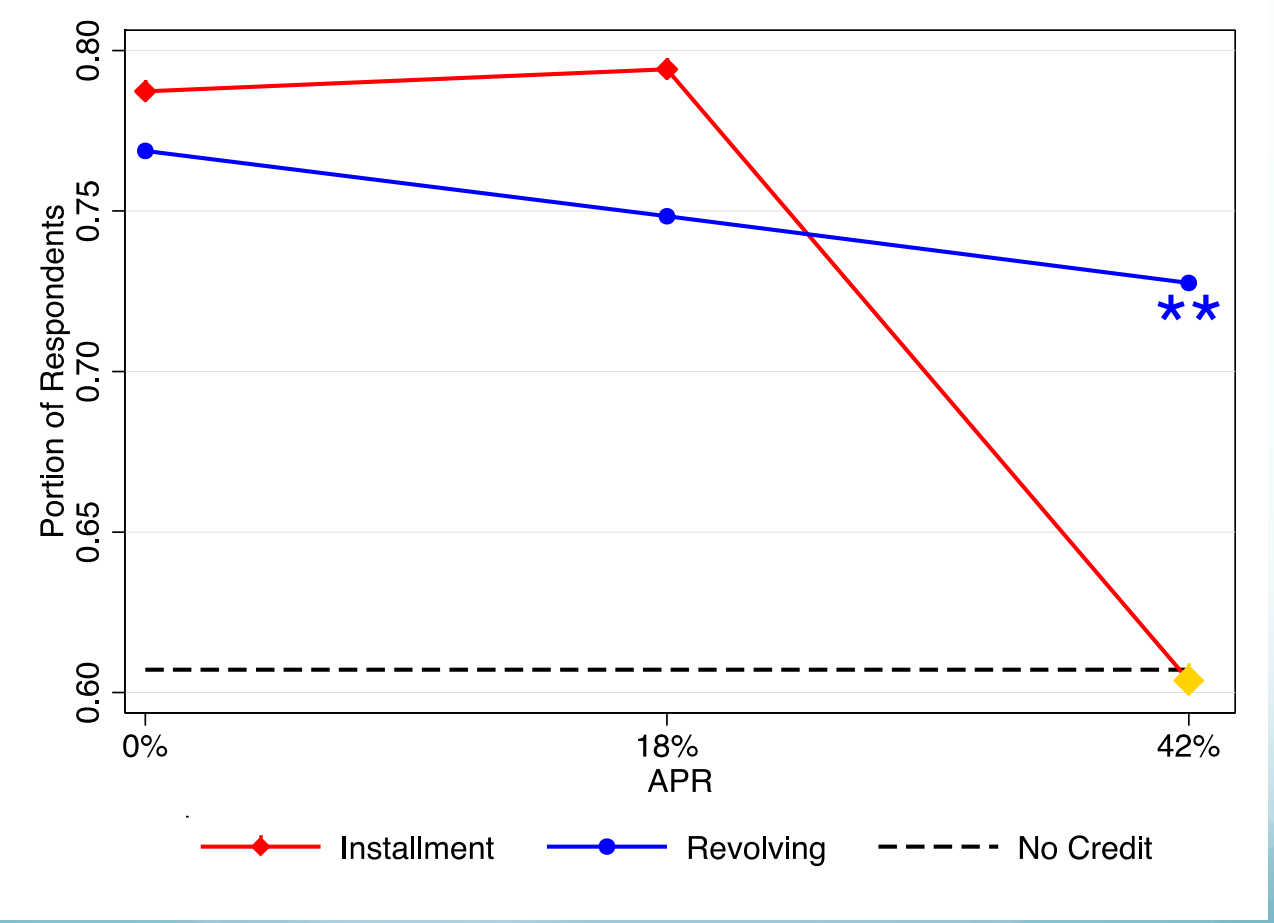
Finding #1

- Consumers *cannot*, rather than *do not*, translate interest rates into cost obligations
- True even with effort, incentives, and no limitations on utilizing outside tools

% of Participants who Use Credit



% of Participants who Make a Purchase



Finding #2

- Two different reactions to obfuscated credit costs:
  - Rule to never use credit
    - non-optimally avoiding credit (underconsumption)
  - Rule to always use credit
    - non-optimally consuming credit (overconsumption)
- Isolated impact of interest rate disclosures even before adding other typical revolving credit features

Implications for Policy on Revolving Credit

- Salience of revolving credit costs would lead to:
  - some convenience users to borrow/consume more
  - some borrowers to borrow/consume less
- Use of interest rates to deter borrowing not effective
- Increased salience of costs needs to occur before, not after, purchasing decisions

Creditor Behavior

- If consumers are sufficiently inattentive to interest rates, then optimal to not educate consumers nor compete on costs
- Why? Revelations lead consumers to avoid credit purchases altogether rather than borrow from the cheapest creditor.
- Disincentive to educate → creditors raise prices in equilibrium without experiencing lowered demand.
- “Shrouded Equilibrium” : No creditor educates consumers on costs

Efficient vs. Non-efficient Creditors

- "shrouded equilibrium" attractive to less efficient creditors who incur higher costs to provide credit
  - Look more competitive
- More efficient creditors may find it optimal to offer transparent installment credit to attract those who avoid revolving credit or sophisticated consumers
- Both cheap installment and expensive revolving can both exist in equilibrium if:
  - inattentive consumers deterred from using installment credit
  - efficient creditors are not tempted to educate (unshroud)

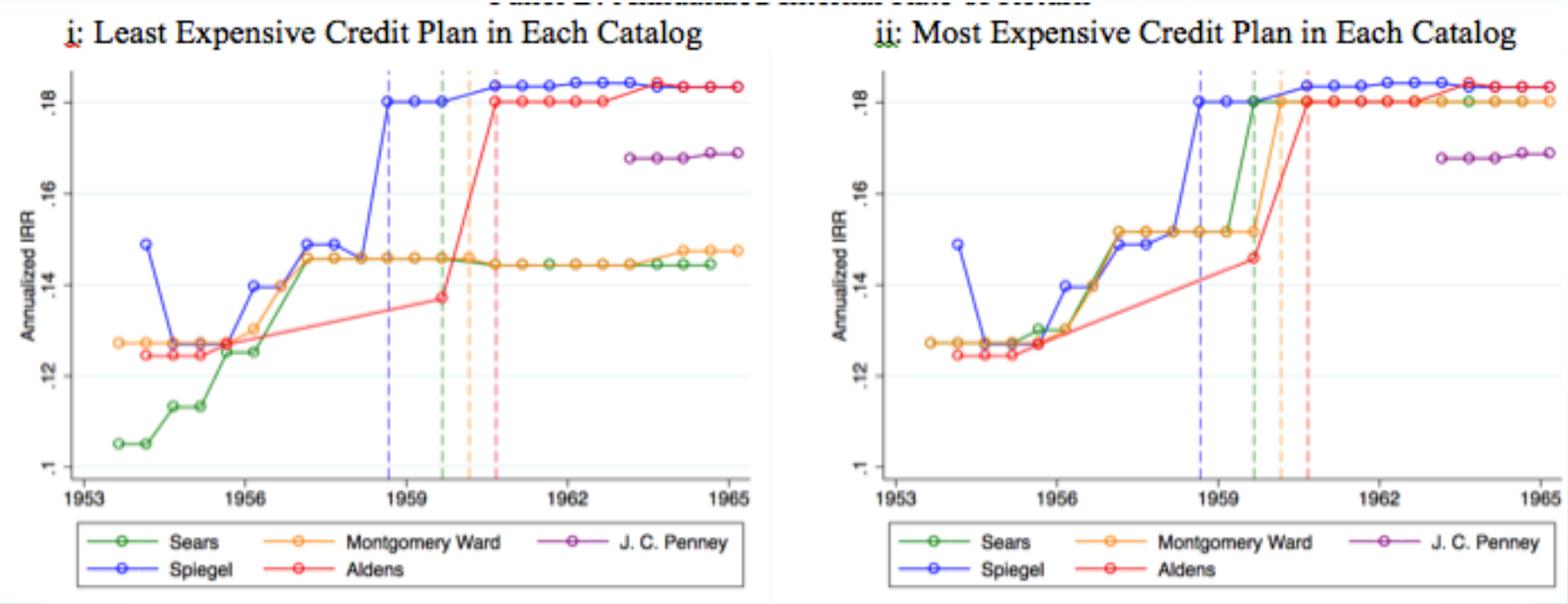
Creditor Behavior

- How did innovation of revolving credit impact creditor behavior?
- Construct a new data set of credit terms found in the major U.S. mail-order catalogs of the twentieth century:
  - Sears, Montgomery Ward, J.C. Penney, Aldens, and Spiegel
  - Span 1920s to 1990s
- Retailers were historically a major source of (nonautomobile and nonmortgage) consumer credit in U.S.

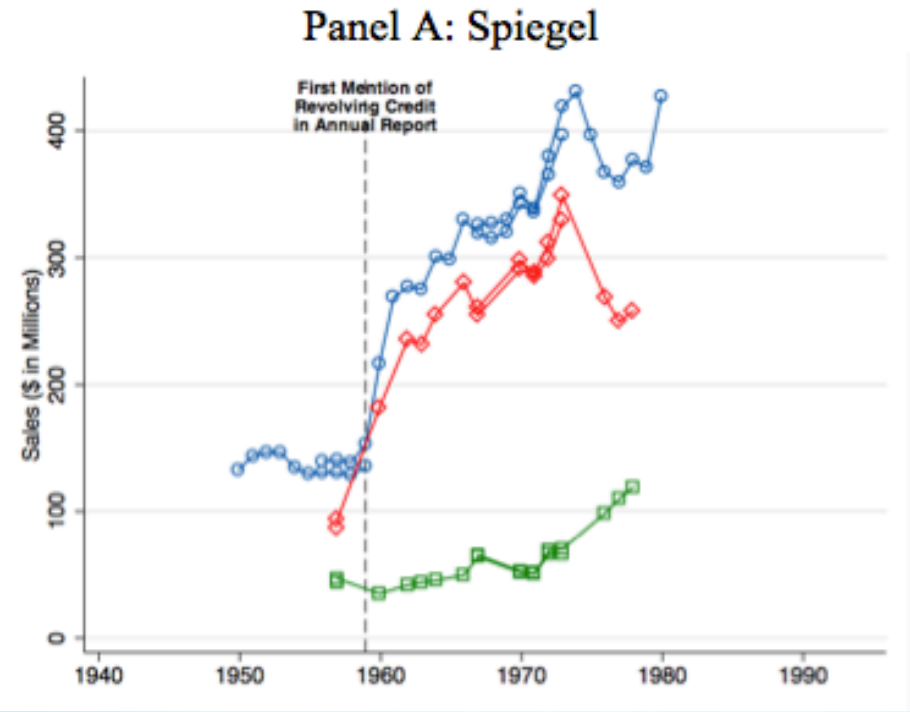
Adoption of Revolving Credit

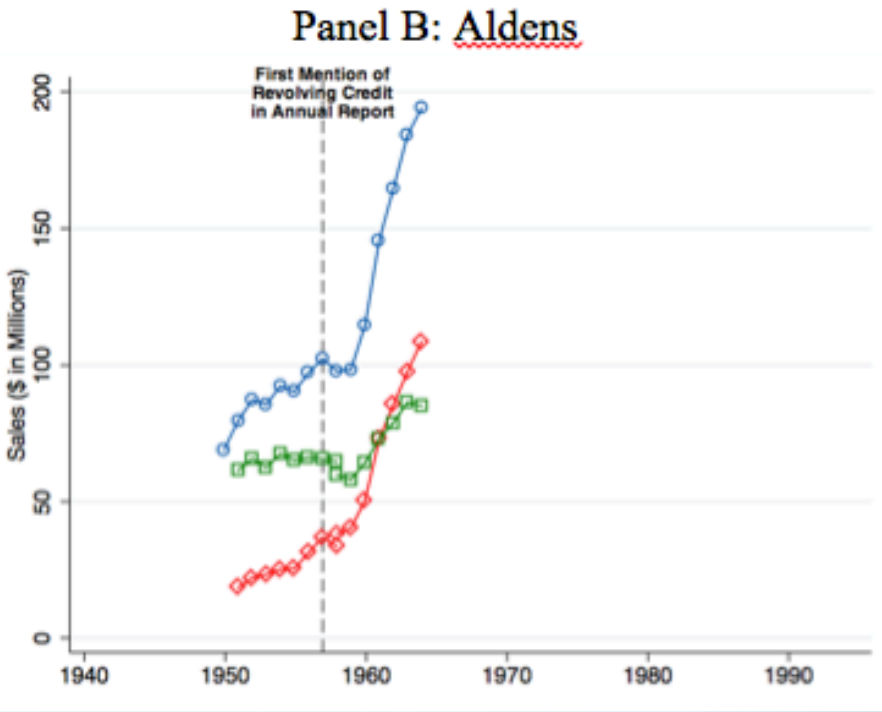
- Less efficient creditors
  - replace installment credit
  - raise credit prices
  - set competitive monthly minimum payment requirements
  - experience a jump in credit vs. cash sales
- Efficient creditors
  - offer both installment and revolving
  - keep installment at competitive terms
  - set higher monthly minimum payment requirements for revolving credit
- Long-term
  - revolving credit prices sticky
    - Decades later same story in Bank credit cards
  - expensive revolving co-exist with cheaper credit for long periods of time
  - Efficient firms drop installment copy terms of non-efficient

Credit Prices Upon Adoption



Credit vs. Cash Sales for Less Efficient Firms





Finding #3

- Revolving credit ushers in shrouding and a dampening of competition
- Other plausible factors have difficulty explaining all observations
- Shrouding brought about by interest rate price disclosures can be added as another explanation for credit card price stickiness (Ausubel, 1991; Calem and Mester, 1995)
- Dispersion in credit card prices (Stango and Zinman, 2016) can be explained by consumers inability to appreciate cost differences between credit instruments when prices are quoted in interest rates
  - consumers may not be motivated nor aware enough to search and switch to cheaper credit