

Panel 4 Discussion:

Credit, Wealth, and Consumption

Scott Schuh (WVU)

2024 FDIC Consumer Research Symposium

March 15, 2024

Observations common to both papers

1. **About consumption and...**

- unique form of wealth (crypto)
- credit availability (limit increases)

2. **Fun and enlightening!**

- Interesting, well-done applications to important topics in the field

3. **Forgot to cite me! 😊**

One more (substantive) common observation

Gentle reminders about sampling theory...

1. Following do not guarantee representativeness:
 - Large numbers of observations
 - Demographics similar to national shares
 - Customer of a very large bank, FI, FinTech, or data aggregator
2. Selection effects are:
 - Always prevalent (even if we hope not)
 - Usually unobserved and hard to identify
 - ✓ Especially without a representative sample for comparison

Best to concede limitations and argue data is relatively better!

Johnson *et al*, “Cryptocurrency”

Three things I really like

1. Unified assessment of crypto impact on real economy
2. Innovative use of rich, proprietary transactions data
3. Main result is that crypto is a “normal” asset!

(One thing I hate – I’m working on a very similar paper with a different data set but not as far along and don’t have a draft yet...)

(Semi-)Unified assessment – a brief history

Three Phases:

1. Payments – Bitcoin: “A Peer-to-Peer Electronic Cash System”

- “Free,” anonymous, private money (no inflation, rising BTC/\$)

~~**2. Blockchain** – secure historical record storage~~

- ~~➤ Many other apps (healthy, assets, etc.); CBs → no payments (exc. CBDC)~~

3. Speculative investment – new “intrinsically worthless” assets

- Very high return, volatility; many new coins issued

This paper’s contribution: truly insightful linkage of #1 and #3!

- A2A transfers (BTC-to-\$) first, then pay for expenditures
 - But where are direct crypto payments (like BTC)?...

Innovative data use

1. **Source** – Large, rich proprietary data (not sole users)

- Great but still imperfect provision of all HH financial info
- Not quite representative (sorry, it's not...)
 - ✓ *Next slide: representative data, direct measurement of crypto*

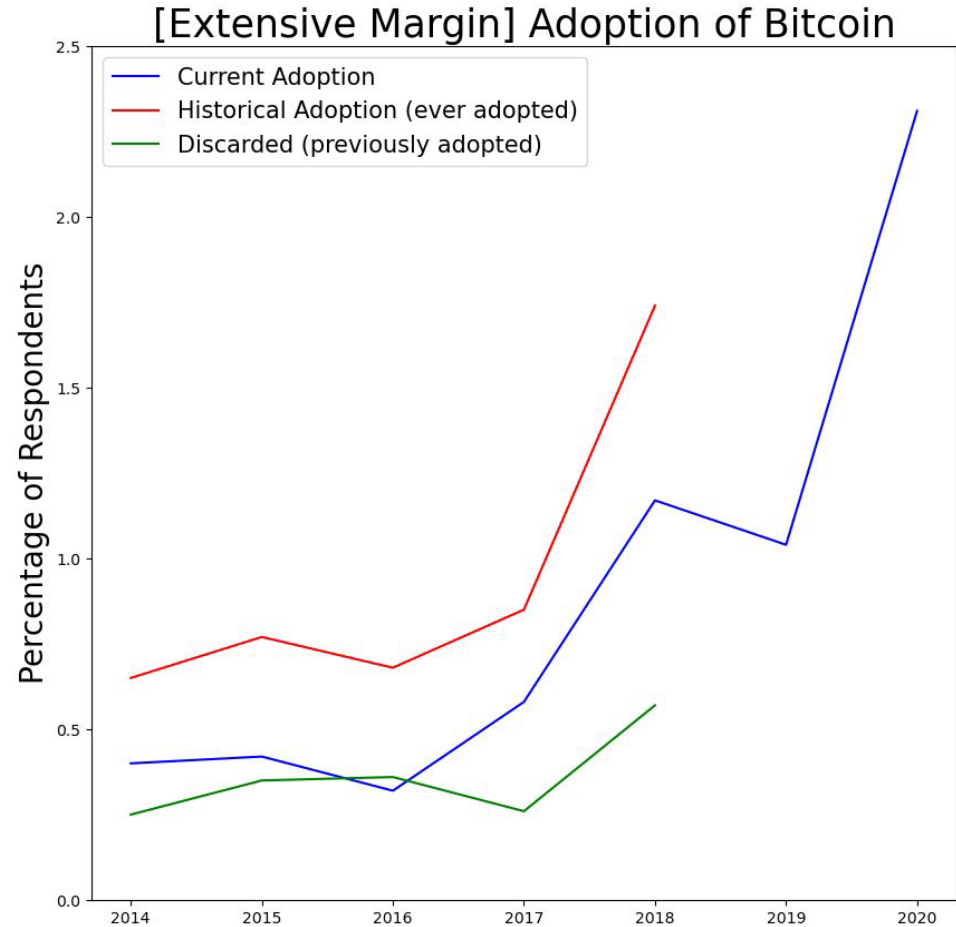
2. **Construction** – A2A transaction flows → crypto funds for C, I, A

- BTC-to-DDA = withdrawals for expenditure (C), capital goods (I)
- DDA-to-BTC = deposits for financial investments (A)

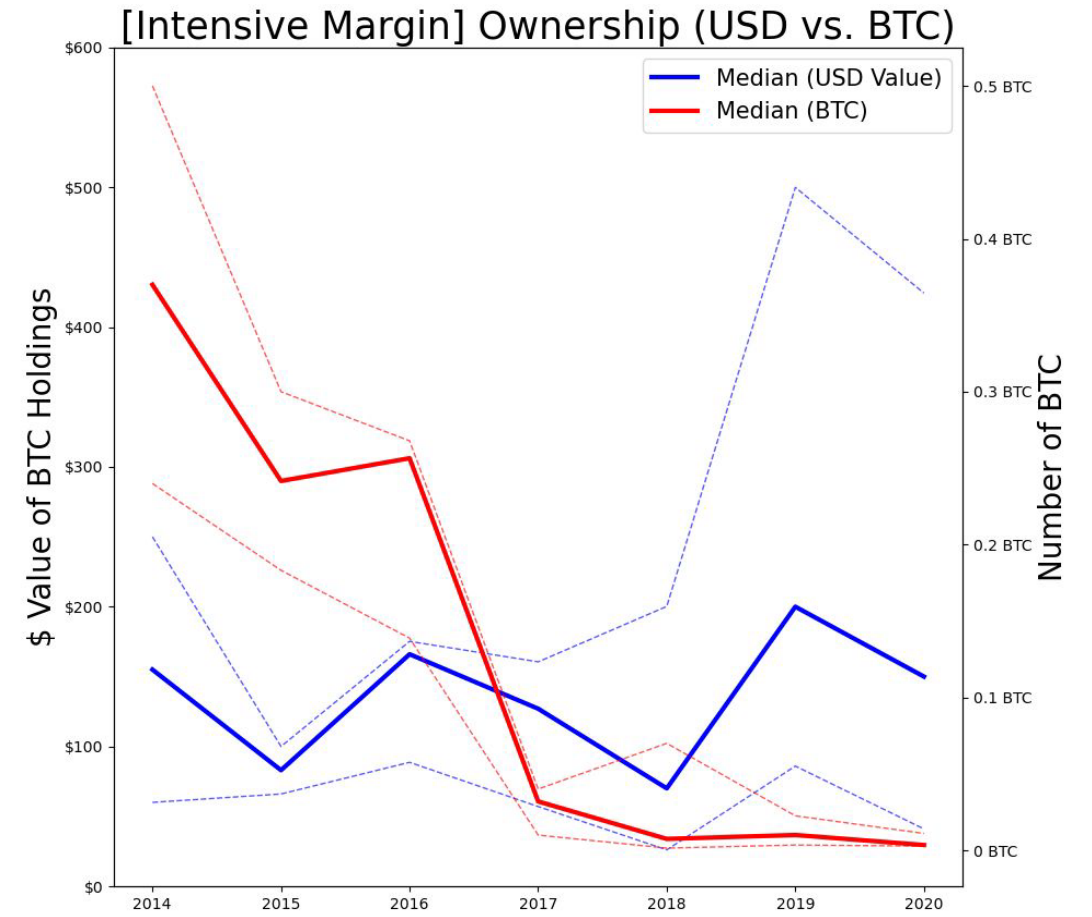
3. **Regressions** – leverage events and heterogeneity

- Massive price appreciations → withdrawals identify certain C, I
- Regional crypto wealth → heterogeneity identifies home purchase, price

Evidence from representative survey (SCPC), p1

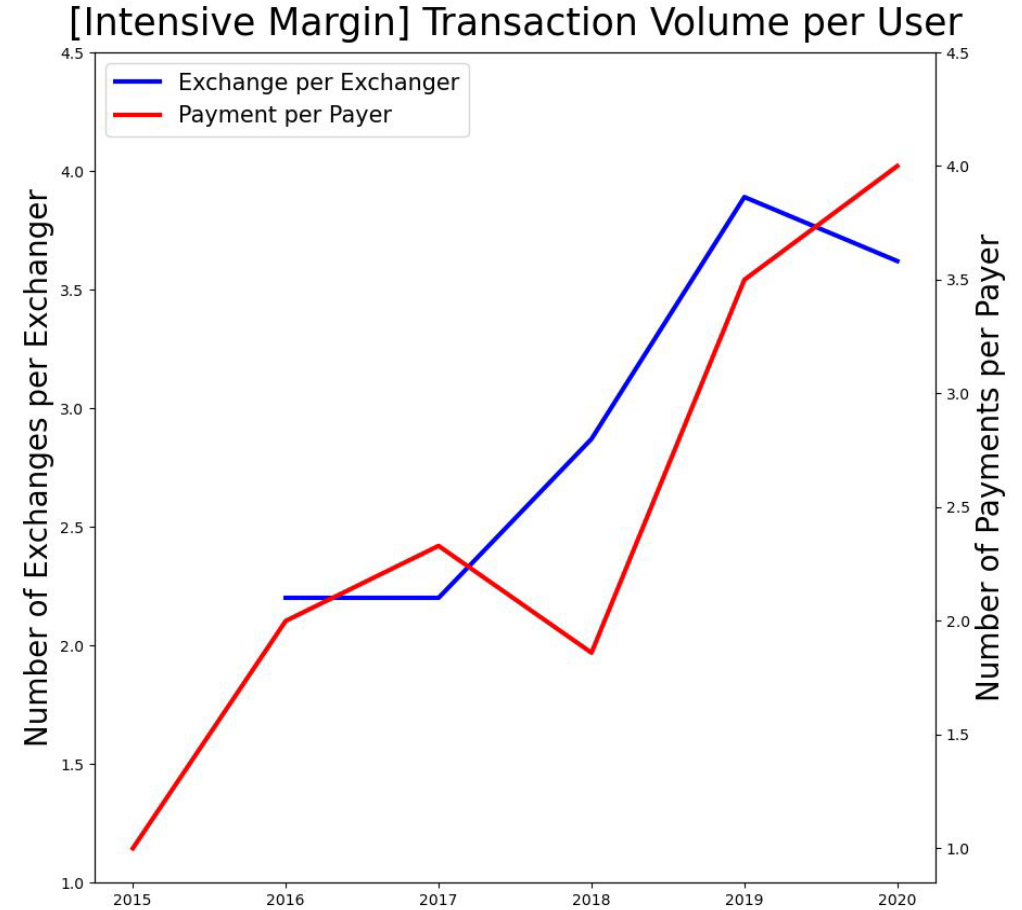
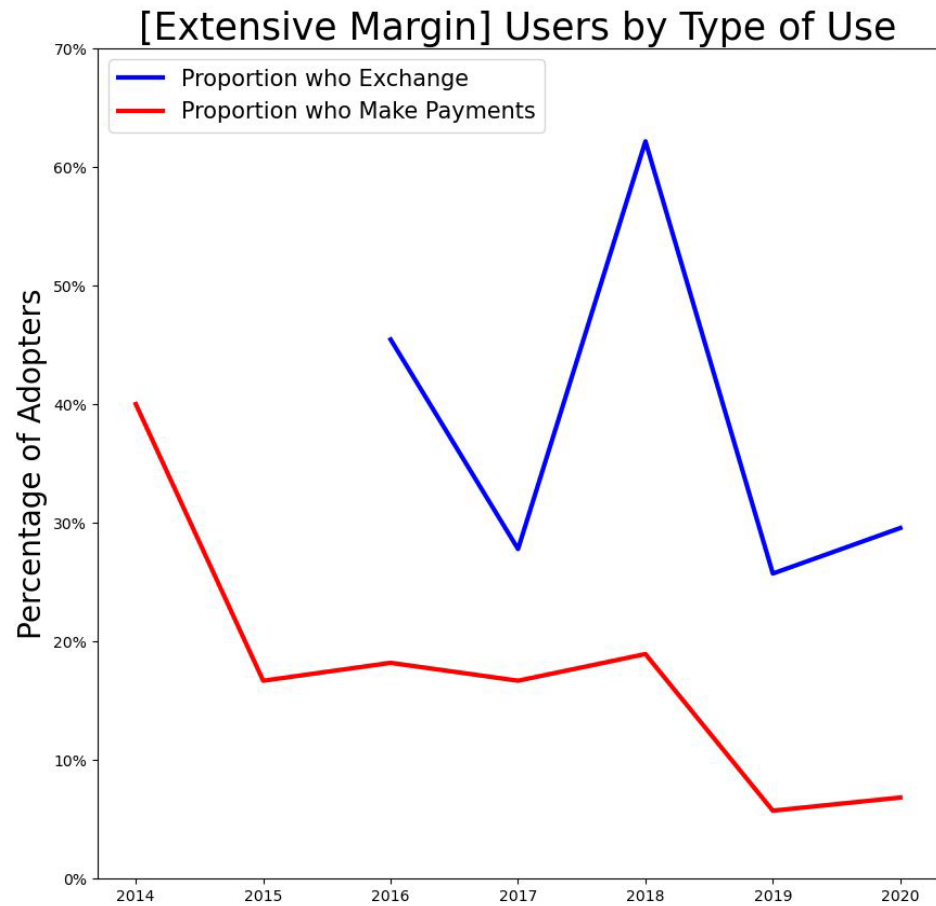


Note: The historical adoption question was dropped in 2018; discards are calculated from current and historical adoption



NOTE: The solid line is the sample median; dashed lines denote the 33-th and 67-th percentiles.

Evidence from representative survey (SCPC), p2



Main result: “normal” asset!

- 1. MPCs** – crypto wealth \approx traditional wealth (house, stocks)
 - Apparently, volatility/uncertainty don't diminish asset value!
- 2. Best results** – my preferred comparison...
 - MPC(crypto) = **\$0.07** (Table A.3, 2SLS, broad index)
 - MPC(traditional) = **\$0.04-0.05** (literature; why can't you estimate?)
- 3. Housing markets** – crypto wealth effects on ownership, price
 - Largely similar to effects of traditional wealth in literature
 - Statistically significant but economically small in the aggregate?

QUESTION: Why emphasize differences rather than similarities?

Most important concerns – Johnson

1. **Spending regressions** – not quite ideal

- Lagged $Y \neq E(Y)$ – expected income matters a lot!! (Gilyard-Schuh 2023)
- Omitting non-crypto wealth worries me
- Direct crypto payments missing

2. **Crypto flows** – clever but...how much measurement error?

- Get/use direct measures of crypto & flow values? – need more info!

3. **Housing section** – potentially cool but...another paper?

- Regressions lack literature's standard housing market controls

4. **Missed opportunity** – learn about HH financial management

- How good are consumers at timing crypto investment (benefitting C, I)?

Yin, “Limit Learning”

Three things I really like

1. New evidence on link between limits and B, C
2. Improved inference from RCT + survey data
3. Thought-provoking theory about info in limit changes

Important new evidence

1. **Not enough known!** – Why do banks change limits?

- See Fulford and Schuh (2023, 2024) referee reports!...
- Policy proposals to prohibit unsolicited changes (require opt-in)

2. **Limits increased** – Sample of Chinese bank customers

- Standard tracking of B, C responses (6 mos) with transactions data

3. **Extension** – Similar to Aydin (2021/AER) experiment in Turkey

- But investigates the role of information to consumers in bank action
 - RCT with differential information among customers
- Asks consumers!
 - Conduct follow-up survey to elicit hidden info

Improved inference

1. **Selection of customers** – June 19-23

- Control versus treatment samples

2. **Random notification** – July 3

- T1 = standard bank limit increase announcement only
- T2 also gets more info: “limit-increase event”; “good credit”; “random”

3. **Random survey offer** – July 3-12 (~67% response, CNY 15)

- S=yes (half) gets 21 questions online (one mode)
 - 13 personal finances to enhance RCT data
 - 5 macro conditions to evaluate $E(Y)$
 - 3 hypothetical about limit changes (2), implicit discount rate measurement
- S=no (half)

Thought-provoking theory

1. **Agent thoughts** – what did they decide?

- BANK → “credit-score model suggested higher limits” (p. 16)
- CONSUMER → bank is signaling my $E(Y_i)$ increased?
- Increased B, C...*and* $E(Y)$? Only if bank knows more!

2. **Agent actions** – what did they do?

- BANK → raised limits of only specific consumers
- CONSUMERS → those with higher limits raised B, C, and *allegedly* $E(Y)$
 - T1 increase > T2 → clearly random notification had some effect

3. **Questions** – I’m less sure than the author...

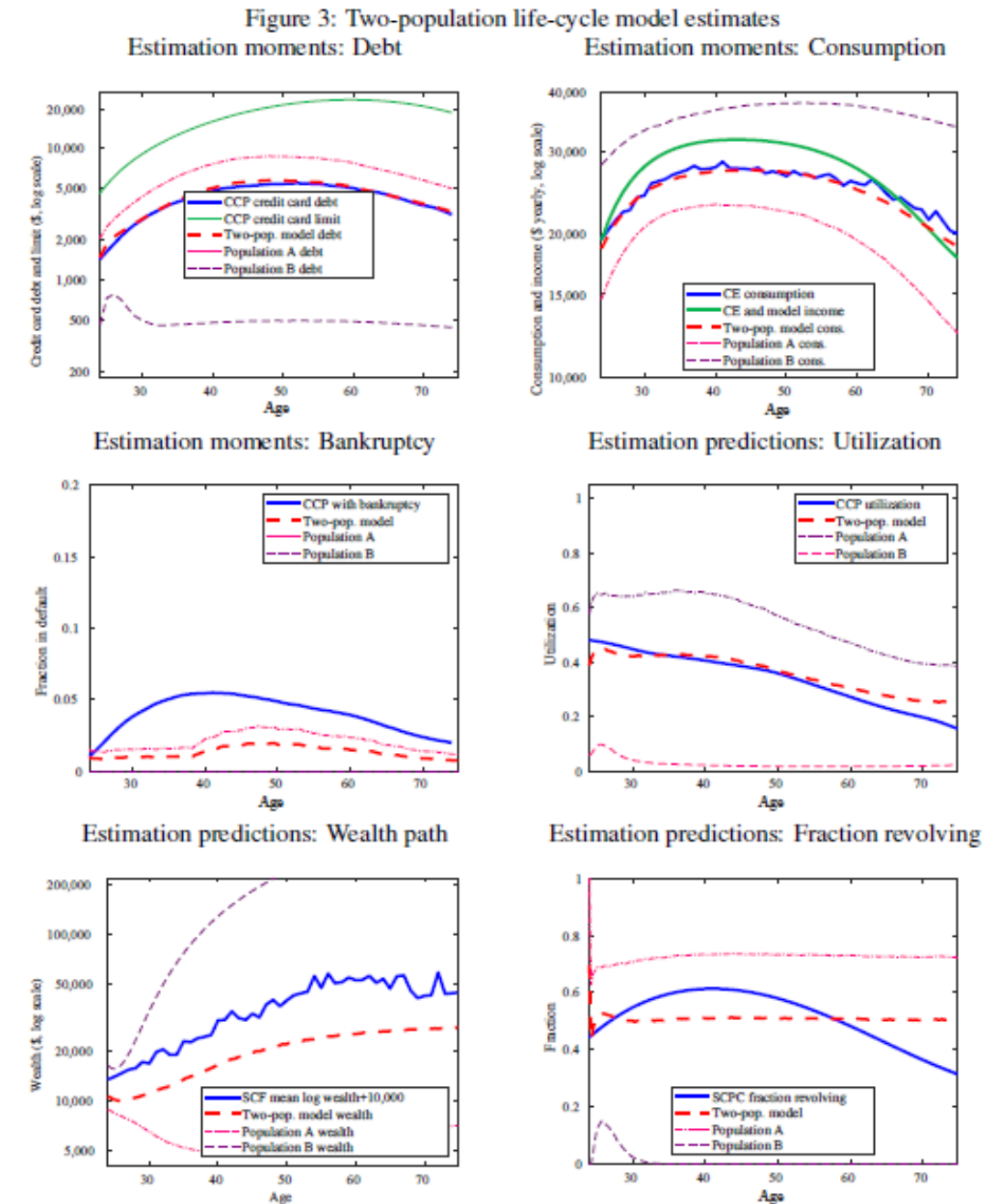
- Q1: why would bank and consumer perspectives be so different?
- Q2: what does the typical consumer actually think?
 - ANECDOTES -- Not higher $E(Y)$! “Want me to spend/borrow more, increase profits!”
 - Elena Botella, formerly Capital One (2019, *New Republic*): “...push people into debt who would rather avoid it”
 - Elena Botella (2022), *Delinquent: Inside America’s Debt Machine*

Most important concerns – Yin

- 1. Model too simple** – Fulford and Schuh (2024) better suited
 - Infinite horizon, RA/single preference, no R vs C, are not frontier
 - Need life-cycle consumption with CC debt and CC payments
 - Revolving versus convenience use is essential to identify preference (discount) heterogeneity!
 - Match utilization (B/L) behavior over longer time
- 2. Announcement interpretation** – clever but unclear
 - Other sensible interpretations of the limit increase?
 - Attitudes toward banks are negative and suspicious in US
- 3. Survey improvements** – some potential improvements....
 - Why not ask consumers how they interpreted limits (after they happened)?!
 - Ask consumers their own expected income (before the limit increase)
 - Use multi-mode for those who don't have/like online?
- 4. Missed opportunity** – see last slide

LC BS models and data

- One-preference model can't fit B and C
- Two-preference model can:
 - Impatient (revolving) $\beta = 0.885$
 - Patient (convenience) $\beta = 0.965$
- Scott Fulford and Scott Schuh (2024), "Credit Cards, Credit Utilization, and Consumption," *revise & resubmit*
- Scott Fulford and Scott Schuh (2023), "Revolving and Convenience Use of Credit Cards: Evidence from U.S. Credit Bureau Data," *Journal of Money, Credit, and Banking*, 55(7), 1667-1701.



Notes: Life-cycle paths from simulated population using the estimates in columns 3 of Table 3.

Credit utilization (CU = B/L)

- CU is remarkably stable
 - Individual, life-cycle, and business cycle (not pictured)
- CU almost 100% back to fixed effect within 2 years
- Limit and income shocks similar...

Table 4: Effects of temporary cash infusion or permanent credit increase

| | Two populations | | | One population | |
|---------------------------------|--|----------------------|---------------------|----------------------|-----------------------|
| | Full pop. | Pop. A | Pop B. | Cons. model | Debt model |
| | Δ Expenditure from previous quarter | | | | |
| Transitory income increase | 0.225*** (0.0107) | 0.337*** (0.0119) | 0.0289 (0.0207) | 0.0145 (0.0155) | 0.205*** (0.00997) |
| Observations | 533,288 | 338,548 | 194,740 | 533,288 | 533,288 |
| R-squared | 0.001 | 0.003 | 0.000 | 0.000 | 0.001 |
| Permanent credit limit increase | 0.159*** (0.0213) | 0.484*** (0.0337) | 0.00542 (0.0302) | 0.0772** (0.0335) | 0.447*** (0.0218) |
| Observations | 533,288 | 338,548 | 194,740 | 533,288 | 533,288 |
| R-squared | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| Age effects | Yes | Yes | Yes | Yes | Yes |

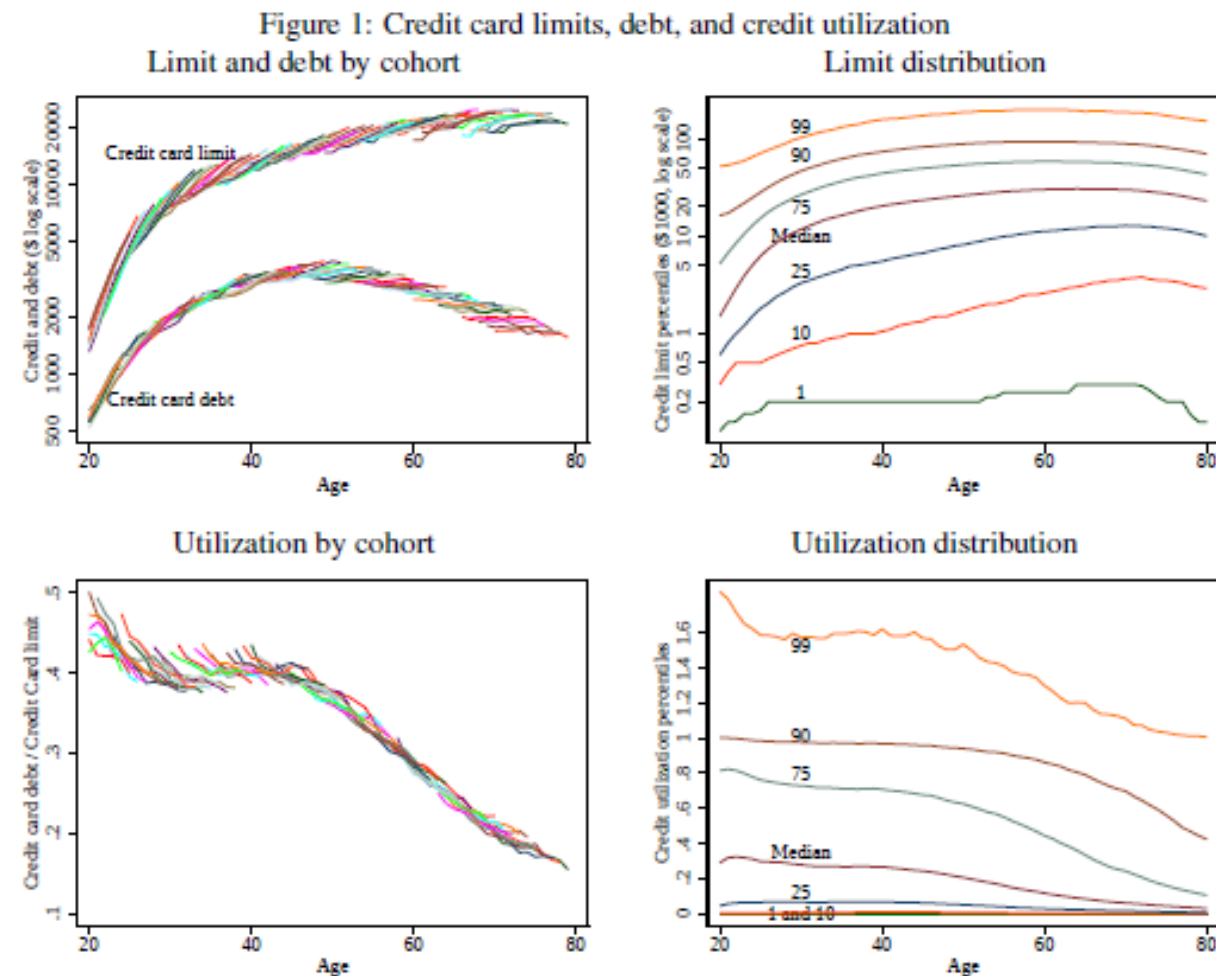


Table 1: Credit utilization dynamics

| | Full sample | Mortgage Only | HELOC Only | Have Public Rec. | Public Rec. IV | log+1 transform | Two-pop. model |
|------------------------|--|------------------------|------------------------|------------------------|--------------------|-----------------------|------------------------|
| | Dependent variable Credit Utilization _t | | | | | | |
| Util _{t-1} | 0.700*** (0.000258) | 0.708*** (0.000419) | 0.675*** (0.000839) | 0.705*** (0.000565) | 0.725** (0.301) | 0.697** (0.000249) | 0.746*** (0.000186) |
| Obs. | 7,918,092 | 2,931,049 | 803,989 | 1,690,125 | 1,690,125 | 8,344,861 | 13,008,240 |
| R ² | 0.765 | 0.784 | 0.776 | 0.700 | 0.700 | 0.779 | 0.563 |
| Frac. var. FE | 0.423 | 0.374 | 0.379 | 0.353 | 0.341 | 0.403 | 0.283 |
| Between R ² | 0.938 | 0.951 | 0.941 | 0.895 | 0.896 | 0.949 | 0.994 |

Missed opportunity – “Show me the money, Jerry!”

- Plot actual Y data!
 - Macro (GDP)
 - Individual customers (Y)
- Study errors = $Y - E(Y)$

