

Born to be (sub)Prime: An Exploratory Analysis

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Economic Mobility in Credit Markets

- How mobile are **Credit Markets**? Underexplored question.

Despite importance of access to credit:

- invest in education (Solis, 2017)
- start businesses (Evans and Jovanovic, 1989; Banerjee and Newman, 1993)
- smooth consumption (Zeldes, 1989; Jappelli, 1990; Deaton, 1991)
- relocate across space (Bilal and Rossi-Hansberg, 2021; Giannone et al., 2023; Molloy et al., 2022)

This paper:

- Analyzes credit **mobility patterns using credit bureau data**.
- Documents remarkable **persistence in credit scores** and credit access.
- Highlights the importance of **initial conditions**.

Institutional Context: Credit Access

Who gets access to credit? Those who are expected to repay it.

EU Stable income, potentially collateral assets.

US Those who paid their debts in the past.

⇒ Credit Scores (CS) summarize creditworthiness: estimated probability of default.

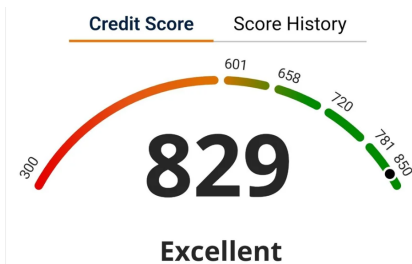
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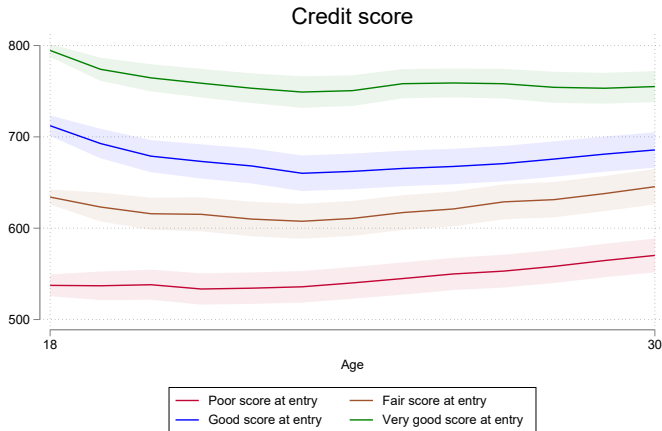
Data from Experian

We observe the determinants of the credit score and the credit score itself.

- Panel of anonymized credit data, yearly 2004 - 2016.
 - ▶ 1% random sample of US consumers with valid reports in 2010 (~ 2.2 m)
 - ▶ Over 400 variables reporting credit outcomes
- For each type of transaction:
 - ▶ number of transactions, balance, available credit
 - ▶ 30/60/90/180 days delinquencies/derogatory/charged off
 - ▶ hard inquiries
- Plus credit scores (CS), and (limited) demographics Credit Scores
 - ▶ date of birth
 - ▶ ZIP of residence

Sample: 6, 064 Borrowers born in 1986. 18 years old in 2004.

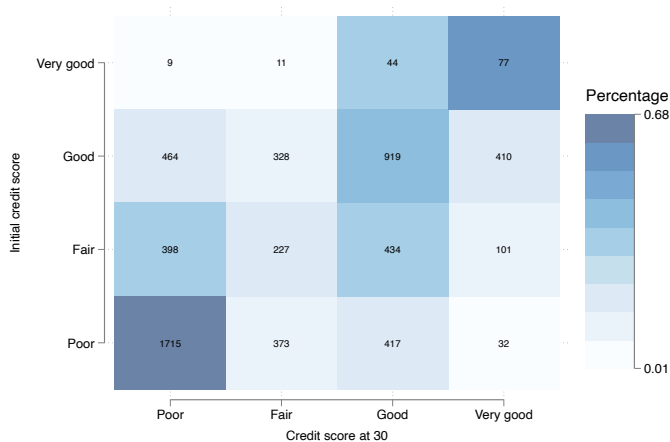
Credit Score Life-Cycle Persistency



Initial CS: first reported CS, if observed before the age of 23.

Poor: ≤ 600 ; Fair: 601-660; Good: 661-780; Very Good: >780

Credit Score Life-Cycle Persistency



Color gradient: probability of CS at 30, conditional on initial CS.

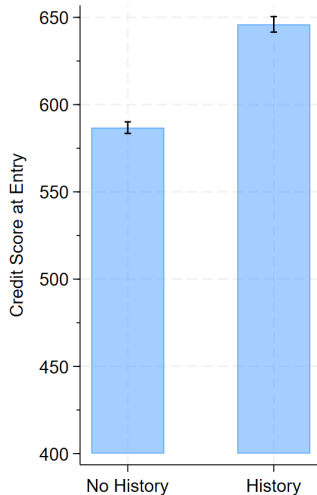
66% of Born Subprime remain Subprime at 30.

→ Implications

Initial Conditions: Length of Inherited History at Entry

- At entry into the credit market, $\sim 30\%$ have **a history predating their first line of credit.**
- Potential explanation: **joint accounts with parents.**

Initial Conditions: Length of Inherited History at Entry



- At entry into the credit market, $\sim 30\%$ have **a history predating their first line of credit.**
- Potential explanation: **joint accounts with parents.**
- Those with inherited history **start ahead:**
+60 points (10%) in entry CS.
- Similar CS evolution, conditioning on initial CS.

Go

Conclusions: Types or Credit Trap?

- Initial conditions are extremely persistent.
- Alone, they predict CS at 30 with an accuracy of 80%.
- Adding 10+ years of credit behavior increases accuracy to 90%.

Random Forest

⇒ Credit behavior plays only a marginal role in **escaping initial conditions**.

Conclusions: Types or Credit Trap?

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Credit scores are designed to predict creditworthiness, but:

- Are they **describing types** of borrowers?
- Are they **creating types** of borrowers?

⇒ Important implications, explored in the next chapter.

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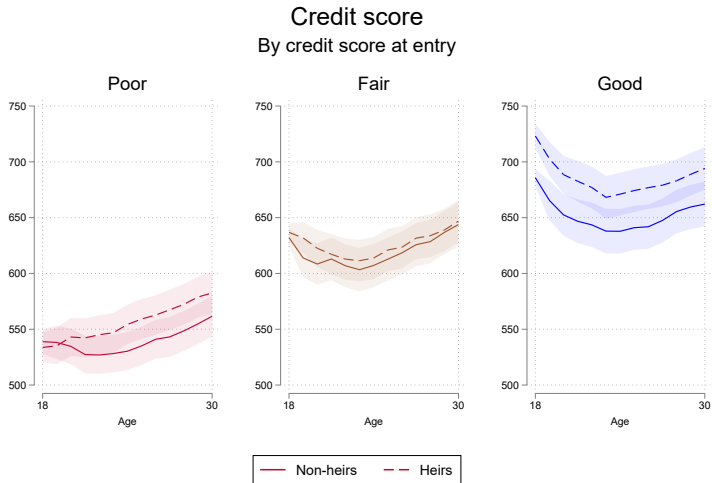
Random Forest: Initial Conditions or Behavior?

- Goal: Predict whether a borrower will be subprime ($CS < 620$) at 30.
- Split sample in training (75%) and test (25%).
- Builds multiple decision rules based on subset of training data.
- Picks the most accurate rule.

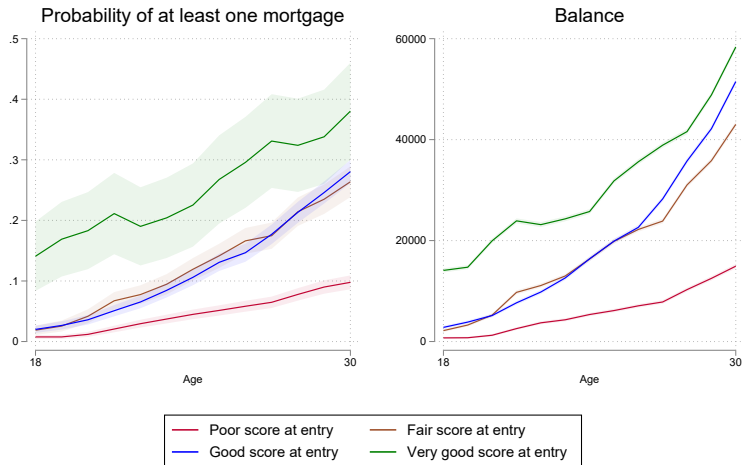
Credit Score at Entry	History at Entry	Credit Behavior (156Vars x 12 Yrs)	Accuracy	Correctly Classified Subprime	Correctly Classified Not Subprime
✓	✓		.68	.69	.67
✓	✓	✓	.85	.85	.86

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Heirs and Non heirs: Similar CS Profiles, Conditioning on Initial CS

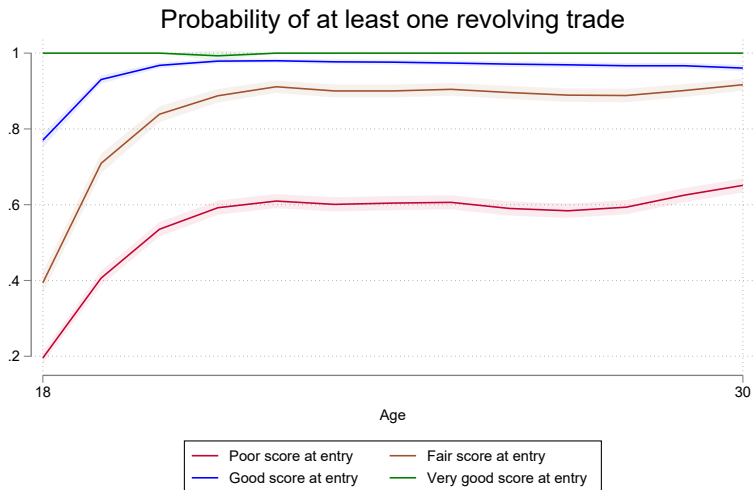


Persistency in Credit Access: Mortgage

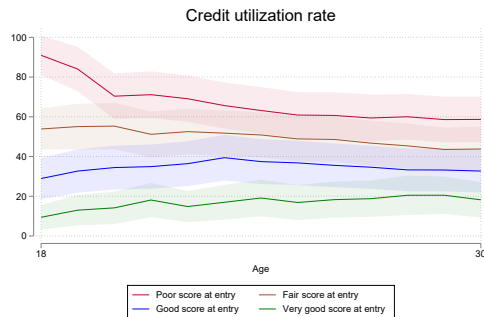
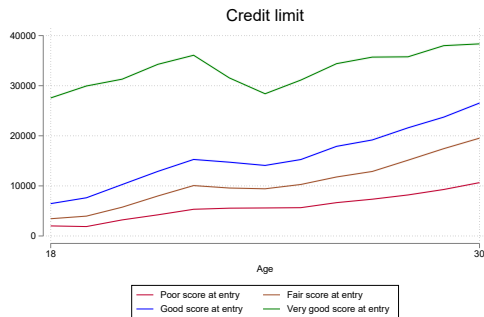


Intensive margin not conditioning on having a mortgage.

Persistency in Credit Access: Credit Cards



Persistency in Credit Access: Credit Cards



Intensive Margin: Average Credit Limit and Utilization Rate conditional on having a Credit Card.

Experian - Credit Score

- **Credit scores** are calculated by major reporting agencies—Experian, Equifax, and TransUnion.
- Using individuals' credit history to predict default.
- How to improve Credit Scores? From Experian website:
 1. **Payment history:** pay on time.
 2. **Low Credit utilization:** do not reach credit limit.
 3. **Number of Open Cards:** be reliable on different lines of credit.
 4. **Minimize Credit Applications:** do not apply for too many cards at once.
- Lenders use these scores to determine which applicants to approve and the terms on new credit accounts.

Credit Score

Score History



829

Excellent

