Unbanked Households: Evidence of Supply-Side Factors

Claire Célerier, Adrien Matray
University of Zurich and HEC Paris

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Outline of the talk

- Motivation
- Identification strategy and data
- Results
- Robustness checks
Outline of the talk

- Motivation

- Identification strategy and data

- Results

- Robustness checks
The Unbanked Phenomenon

- 10% to 20% of all American households are **unbanked**
  - 40% among **low income** households
  - 60% among **low income** and **black** households

**Unbanked households:**

- Are at the mercy of “**fringe banks**”
- Face **savings deficit**
- Are more exposed to **behavioral biases**
The Unbanked Phenomenon

``The fact that these families often rely on informal means to manage their financial lives suggests that the formal sector is not meeting their needs"

National Poverty Center, 2008
Competing Reasons for Being Unbanked

- **“Demand-side”**
  - Cultural determinants
    - Distrust financial institutions
    - Lack “culture of saving”
  - Low financial literacy

- **“Supply-side” (bank practices)?**
  - Fewer branches in disadvantaged neighborhood
  - Minimum account balance to open an account
  - High overdraft fees
What We Do

- **Hypothesis**: Bank practices partially account for the high share of unbanked households

- **Identification Strategy**: competitive shock on banks to assess the role of supply

- **Shock**: changes in interstate branching regulation in the U.S. after 1994
Key Finding
Outline of the talk

- Motivation
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Data

- Survey of Income and Program Participation (SIPP), 1993 - 2010
  - 20,000 to 30,000 households per wave, 15 waves
  - 410,678 households residing in 45 states
  - Focus on low income households (< 200% poverty line)

- U.S. Bureau of Economic Analysis: Time varying state controls
### Determinants of Being Unbanked

<table>
<thead>
<tr>
<th>Household characteristics</th>
<th>Coefficient</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>-0.162***</td>
<td>(0.05)</td>
</tr>
<tr>
<td>Married Couple</td>
<td>0.091***</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Single Female-Headed</td>
<td>0.035***</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Household Size</td>
<td>-0.020***</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Age</td>
<td>0.004***</td>
<td>(0.00)</td>
</tr>
<tr>
<td>Elementary Education</td>
<td>0.091</td>
<td>(0.080)</td>
</tr>
<tr>
<td>High School Education</td>
<td>0.193**</td>
<td>(0.080)</td>
</tr>
<tr>
<td>College Education</td>
<td>0.308***</td>
<td>(0.082)</td>
</tr>
<tr>
<td>Monthly Household Income</td>
<td>0.00***</td>
<td>(0.00)</td>
</tr>
<tr>
<td>Income &lt; Poverty Threshold</td>
<td>-0.059***</td>
<td>(0.005)</td>
</tr>
<tr>
<td>Receive Social Security</td>
<td>0.013*</td>
<td>(0.007)</td>
</tr>
<tr>
<td>Receive transfer income</td>
<td>-0.139***</td>
<td>(0.007)</td>
</tr>
<tr>
<td>Head unemployed</td>
<td>0.012**</td>
<td>(0.004)</td>
</tr>
</tbody>
</table>
The Shock: Interstate Branching Deregulation

- The adoption of the IBBEA in 1994 allowed the entry of out-of-state bank branches

- **BUT** states had the right to erect 4 possible restrictions to out-of-state entry

- **Deregulation index** = 4 – number of barriers
  - 0 = fully **regulated**
  - 4 = fully **deregulated**

- 57 episodes of deregulation in 43 different states between 1994 and 2005
Evolution of Deregulation

Number of Deregulation in 1994

Change in Regulation

1994

[Map showing the number of deregulation changes in 1994 across the United States]
Evolution of Deregulation

Number of Deregulation in 1995

Change in Regulation:
- 0
- 1
- 2
- 3
- 4

1995
Evolution of Deregulation

Number of Deregulation in 1996

Change in Regulation:
- 0
- 1
- 2
- 3
- 4

1996
Evolution of Deregulation

Number of Deregulation in 1997

1997

Change in Regulation

- 0
- 1
- 2
- 3
- 4
Evolution of Deregulation

Number of Deregulation in 1998

Change in Regulation

1998
Evolution of Deregulation

Number of Deregulation in 2000

Change In Regulation
- 0
- 1
- 3

2000
Evolution of Deregulation

Number of Deregulation in 2001
Evolution of Deregulation

Number of Deregulation in 2002

Change In Regulation

0
1

2002
Evolution of Deregulation

Number of Deregulation in 2004

[Map showing the number of deregulation changes in 2004 across the United States.]
Evolution of Deregulation

Number of Deregulation in 2005

Change In Regulation
0
2

2005
Significant Out-of-State Bank Penetration

N. of Branches Operated by FDIC-insured Commercial Banks

- Non-Interstate Branches
- Interstate Branches

Likelihood that a \textit{household} \(i\) in \textit{state} \(s\) at \textit{year} \(t\) holds a bank account

\[
\Pr\{\text{BankAccount}_{ist}\} = \beta \text{Deregulation}_{st} + \theta X_{ist} + \delta \text{StateControls}_{st} + \gamma_s + \eta_t + \varepsilon_{ist}
\]
Outline of the talk

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Competition Increases the Share of Banked Households

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>1 if the household holds a bank account</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>Deregulation Index</td>
<td>0.012***</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
</tr>
<tr>
<td>Deregulation (≤ t-4)</td>
<td></td>
</tr>
<tr>
<td>Deregulation (t-3,t-1)</td>
<td></td>
</tr>
<tr>
<td>Deregulation (t+1,t+3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Deregulation (≥ t+4)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Household Controls</td>
<td>-</td>
</tr>
<tr>
<td>State-Year Controls</td>
<td>-</td>
</tr>
<tr>
<td>Year Fixed Effects</td>
<td>Yes</td>
</tr>
<tr>
<td>State Fixed Effects</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>136,176</td>
</tr>
</tbody>
</table>
Is the Effect stronger for Households that are More Likely to be Rationed?

- Black households in states with a history of discrimination
  - Four proxies for black discrimination preferences
- Poor households
- Households living in rural areas
- Educated households
## Competition Reduces Racial Discrimination in States with Preferences for Discrimination

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Deregulation Index</th>
<th>Index x Black</th>
<th>Index x Black x Discr.</th>
<th>Household Controls</th>
<th>State-Year Controls</th>
<th>Year Fixed Effects</th>
<th>State Fixed Effects</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>136,176</td>
</tr>
<tr>
<td>Discrimination Dummy</td>
<td>=1 if the household holds a bank account</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Former Slave State</td>
<td>0.010** (0.004)</td>
<td>-0.002 (0.006)</td>
<td>0.024** (0.010)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Antimiscegenation Law</td>
<td>0.014** (0.005)</td>
<td>0.003 (0.008)</td>
<td>0.018* (0.009)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No Fair Housing Law</td>
<td>0.012*** (0.005)</td>
<td>-0.005 (0.007)</td>
<td>0.028*** (0.009)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Share of interracial marriage</td>
<td>0.014** (0.005)</td>
<td>-0.001 (0.006)</td>
<td>0.023*** (0.008)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>
# Heterogenous Effect of Deregulation Across Household Types

## Table

<table>
<thead>
<tr>
<th>Sample</th>
<th>Dependent Variable</th>
<th>Income Group</th>
<th>Residence</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(=1 if the household holds a bank account)</td>
<td>Poor (1)</td>
<td>Low (2)</td>
<td>Middle (3)</td>
</tr>
<tr>
<td>Deregulation Index</td>
<td></td>
<td>0.016***</td>
<td>0.010**</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>Household Controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>State-Year Controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year Fixed Effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>State Fixed Effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Observations</td>
<td>52,470</td>
<td>83,706</td>
<td>48,343</td>
<td>37,550</td>
</tr>
</tbody>
</table>
Consequences for Households?

- Asset accumulation
- Debt?
## Effect of Bank Deregulation on Household Asset Accumulation

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>=1 if the household holds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Checking Account</td>
</tr>
<tr>
<td>Sample</td>
<td>All</td>
</tr>
<tr>
<td>Deregulation Index</td>
<td>0.007** (0.003)</td>
</tr>
<tr>
<td>Household Controls</td>
<td>Yes</td>
</tr>
<tr>
<td>State-Year Controls</td>
<td>Yes</td>
</tr>
<tr>
<td>State Fixed Effects</td>
<td>Yes</td>
</tr>
<tr>
<td>Year Fixed Effects</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>135,524</td>
</tr>
</tbody>
</table>
## Effect of Bank Deregulation on Household Debt

<table>
<thead>
<tr>
<th>Sample</th>
<th>Dependent variable</th>
<th>Banked HH (1)</th>
<th>Debt-free HH (2)</th>
<th>In debt HH (3)</th>
<th>All (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deregulation Index</td>
<td>Debt</td>
<td>0.001 (0.002)</td>
<td>0.014*** (0.005)</td>
<td>0.007** (0.003)</td>
<td>0.013 (0.020)</td>
</tr>
<tr>
<td>Household Controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>State-Year Controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year Fixed Effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>State Fixed Effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>84,089</td>
<td>63,039</td>
<td>72,660</td>
<td>135,699</td>
<td></td>
</tr>
</tbody>
</table>
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Alternative story: demand effect?

- Deregulation fosters growth and employment: participation could be a “collateral benefit”

**BUT:**

- **Control** for a lot of socio-economic and macro variables
- Does not appear fully consistent with results in *cross section* of households (education)
- Add *finer macro economics variables* specific to black and poor households
- Find no difference between households who are *more or less* likely to be unemployed
Other Robustness

- Test endogeneity

- Other robustness:
  - Periods
  - States
  - Placebo
Take Away

- Supply-side factors contribute to the unbanked phenomenon

- Increase in banking competition
  - Eases access to banking services for low income households
  - Particularly for black households in states with a history of discrimination
  - Which improves asset accumulation
  - And does not appear to be driven by increased demand

- Policy Implication: Can "demand intervention" (financial literacy program) be enough? ➔ How to modify banks' incentives?
Thank You!