Optimal Default Retirement Savings: Theory and Evidence from OregonSaves

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State Perspectives on Retirement Savings

- State governments think people are not saving enough
- 1/3 of private sector employees do not have access to employment-based retirement plans (SIPP, 2012)

Policy initiative to help increase savings:

- Introducing state-sponsored retirement plans

New State Mandates

- Employers **must** provide either an employer-sponsored retirement plan or access to a state-sponsored retirement plan

- 8 states have passed the legislation to launch a state-sponsored retirement plan (OR, CA, IL, MD, CT, NJ, CO, VA)
  - OregonSaves (2017), 5% default saving rate +1% auto-escalation/year up to 10%
  - Employees can opt out of the default rate (or the plan entirely)

Research Question

- Auto-enrollment and the default saving rate increase retirement savings (Madrian and Shea, 2001) and total savings (Chetty et al., 2014)

Question remained:

- What is the optimal default saving rate in state-sponsored retirement plans?

Preview of Findings

- Determinants of optimal default rate:
  - How people respond to the default rate:
    - Half of passive savers stop saving at default when it rises 1 percentage point
  - High default rate when savers are reluctant to make an active choice
  - Low default rate when active undersavers
    - Little evidence of present bias

- Policy recommendation:
  - Implied OregonSaves optimal default rate 7%

OregonSaves

- State-based "Roth IRA" mandated for private sector employers w/o retirement plans
- 5% default contribution with annual auto escalation (to 10%)
- Default investment:
  - First $1,000: Money Market Fund
  - Target-Date Fund
- No employer contributions
- One individual can contribute to the same account through multiple employers

Statistics

- As of April 2020:
  - OregonSaves had accumulated $51 million
  - Average monthly contribution: $120
  - Average account balance (if positive): $750
- OregonSaves covers a low-income population with volatile incomes
  - Largest industries: food services, health care, business support
  - Average annual income: $29,000
- More discussion in Chalmers, Mitchell, Reuter, and Zhong (2021)

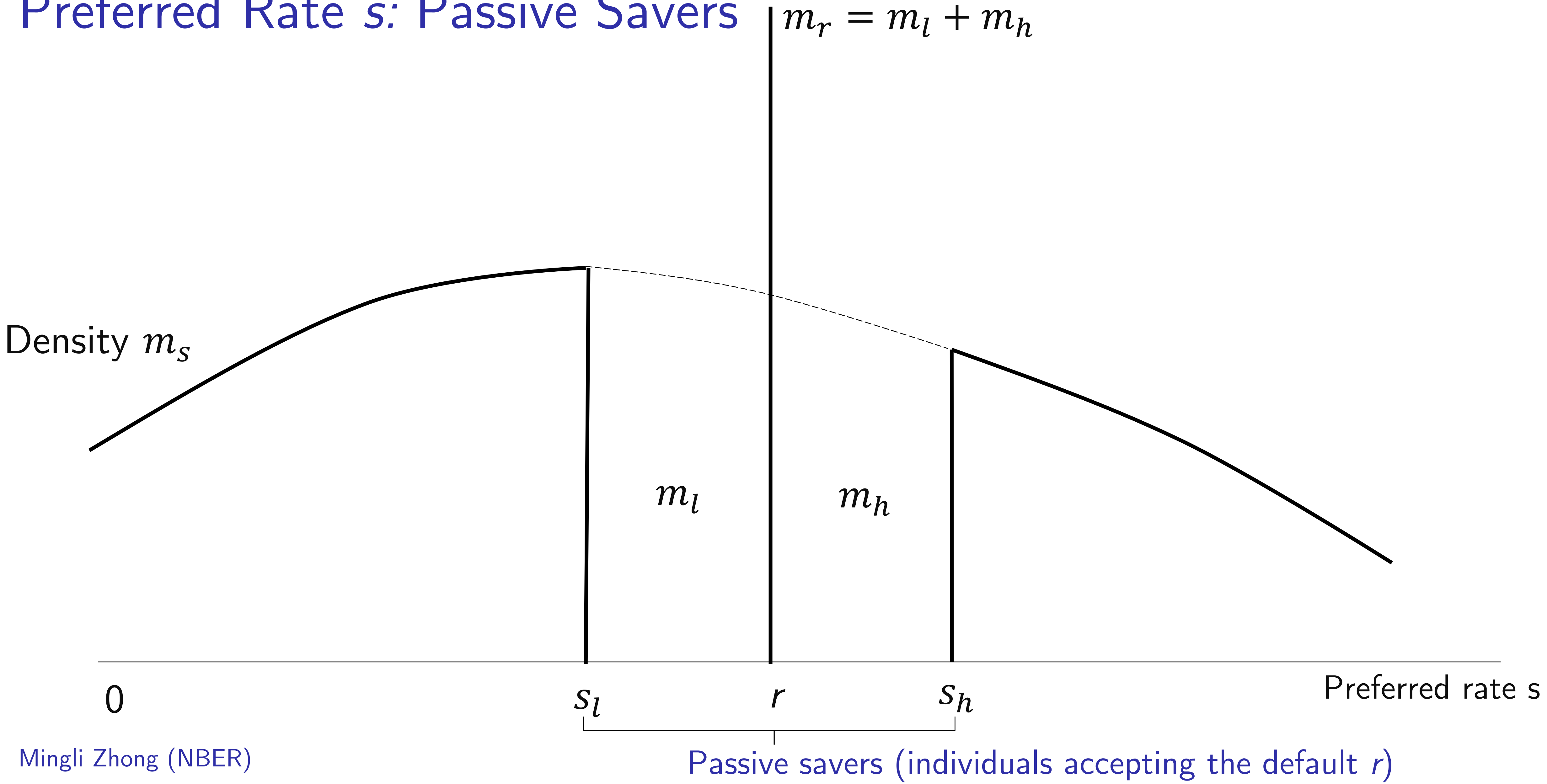
Optimal Default Saving Rate: Model

- Individuals decide between default saving rate r and preferred rate s to maximize their perceived intertemporal utility

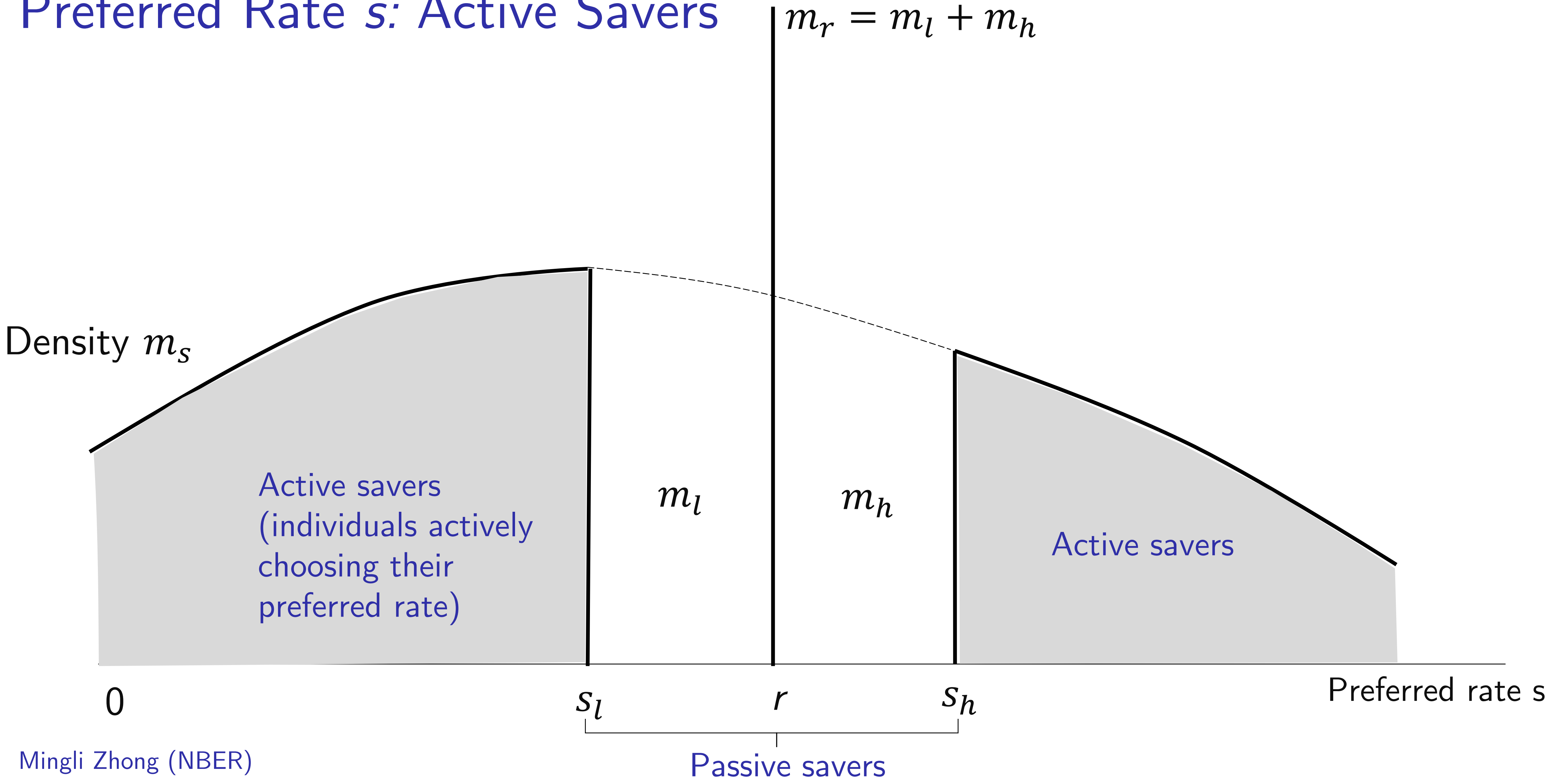
- Given individual choices, the policymaker sets the optimal default rate r^* to maximize the sum of individual actual utility

- Objective: Derive a formula for the optimal default rate depending on statistics that can be empirically estimated

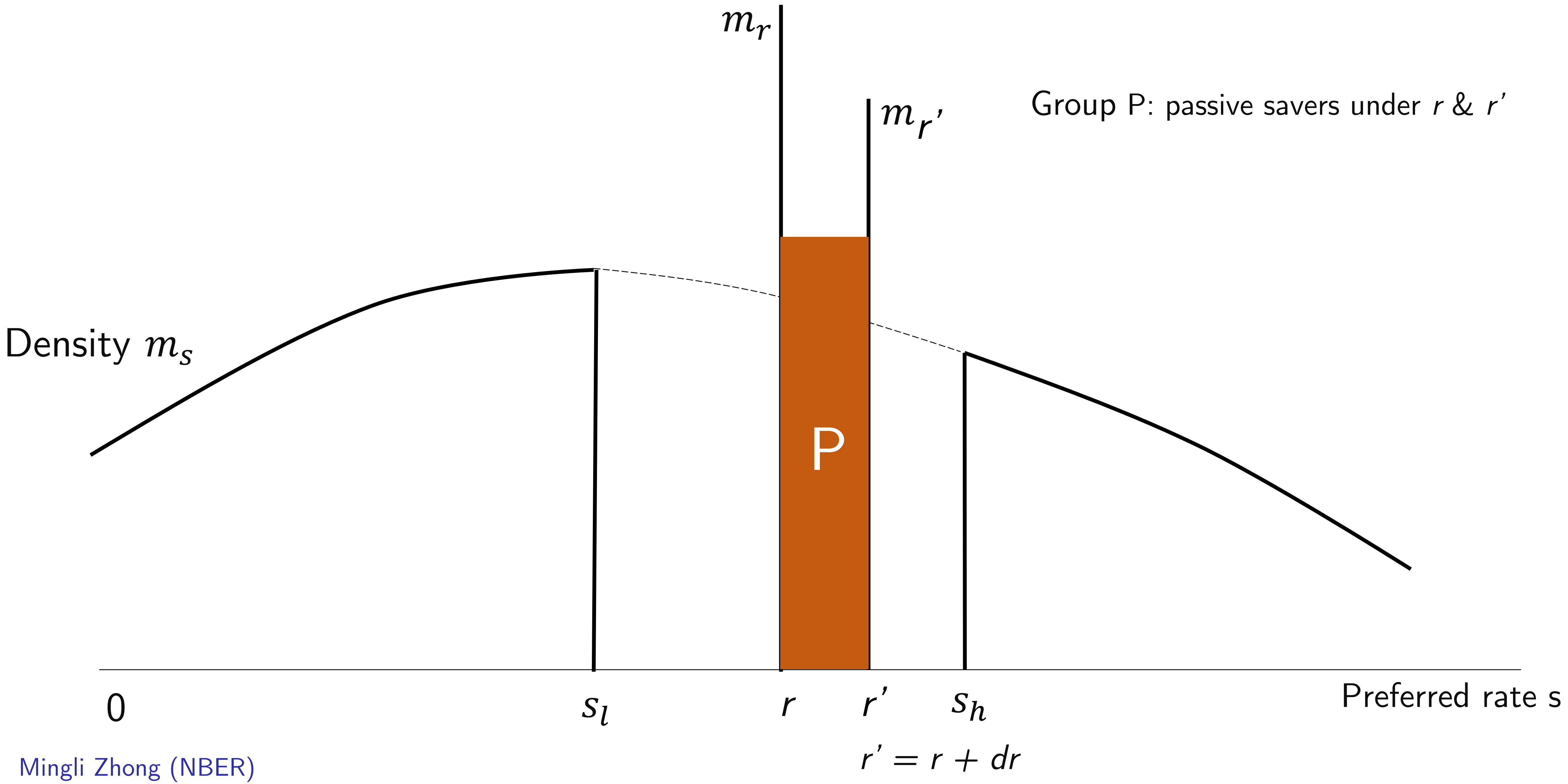
How Individuals Decide between Default Saving Rate *r* and Preferred Rate *s*: Passive Savers



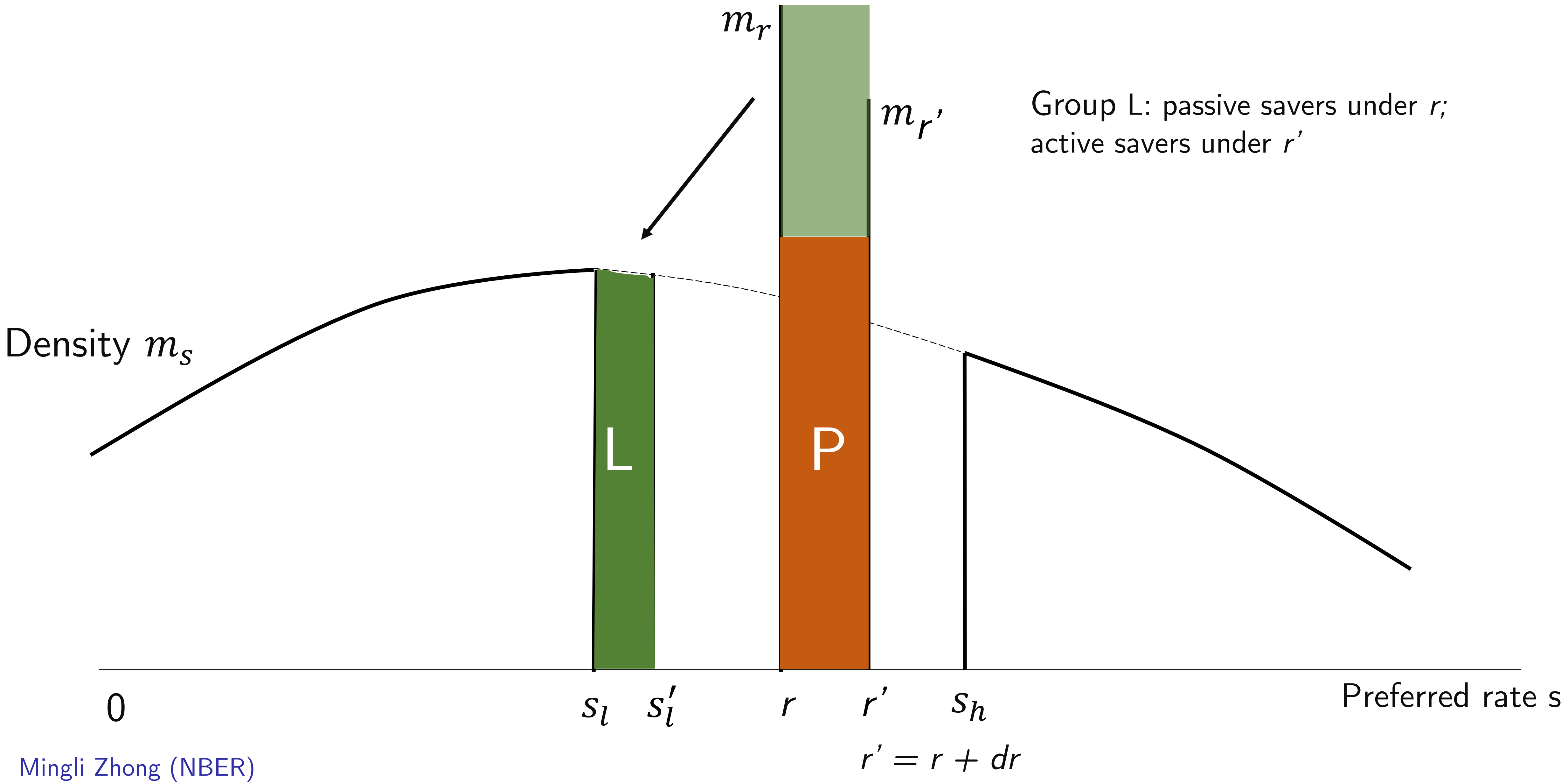
How Individuals Decide between Default Saving Rate *r* and Preferred Rate *s*: Active Savers



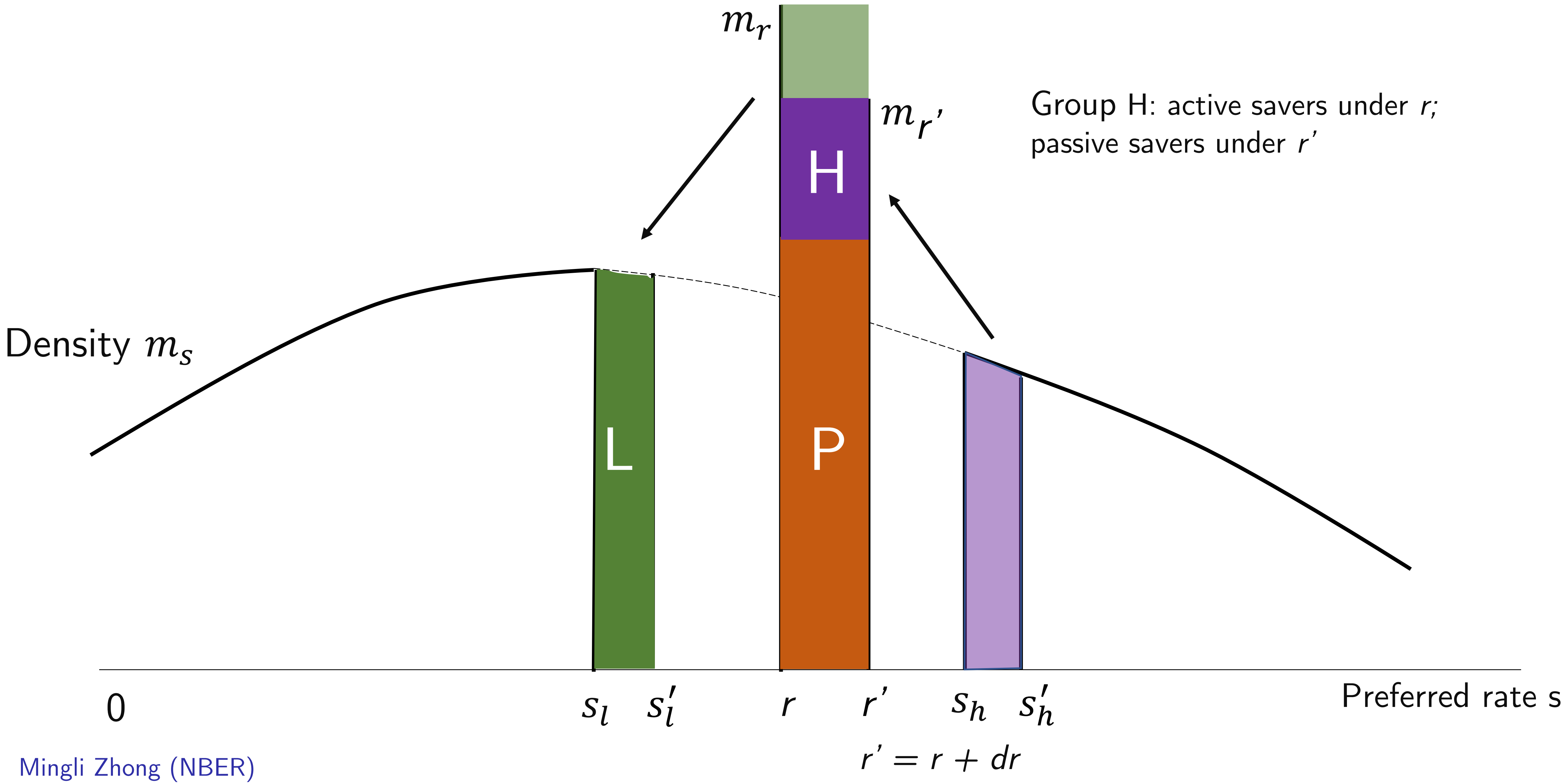
Shifting Composition when Default Changes from r to r'



Shifting Composition when Default Changes from *r* to *r'*

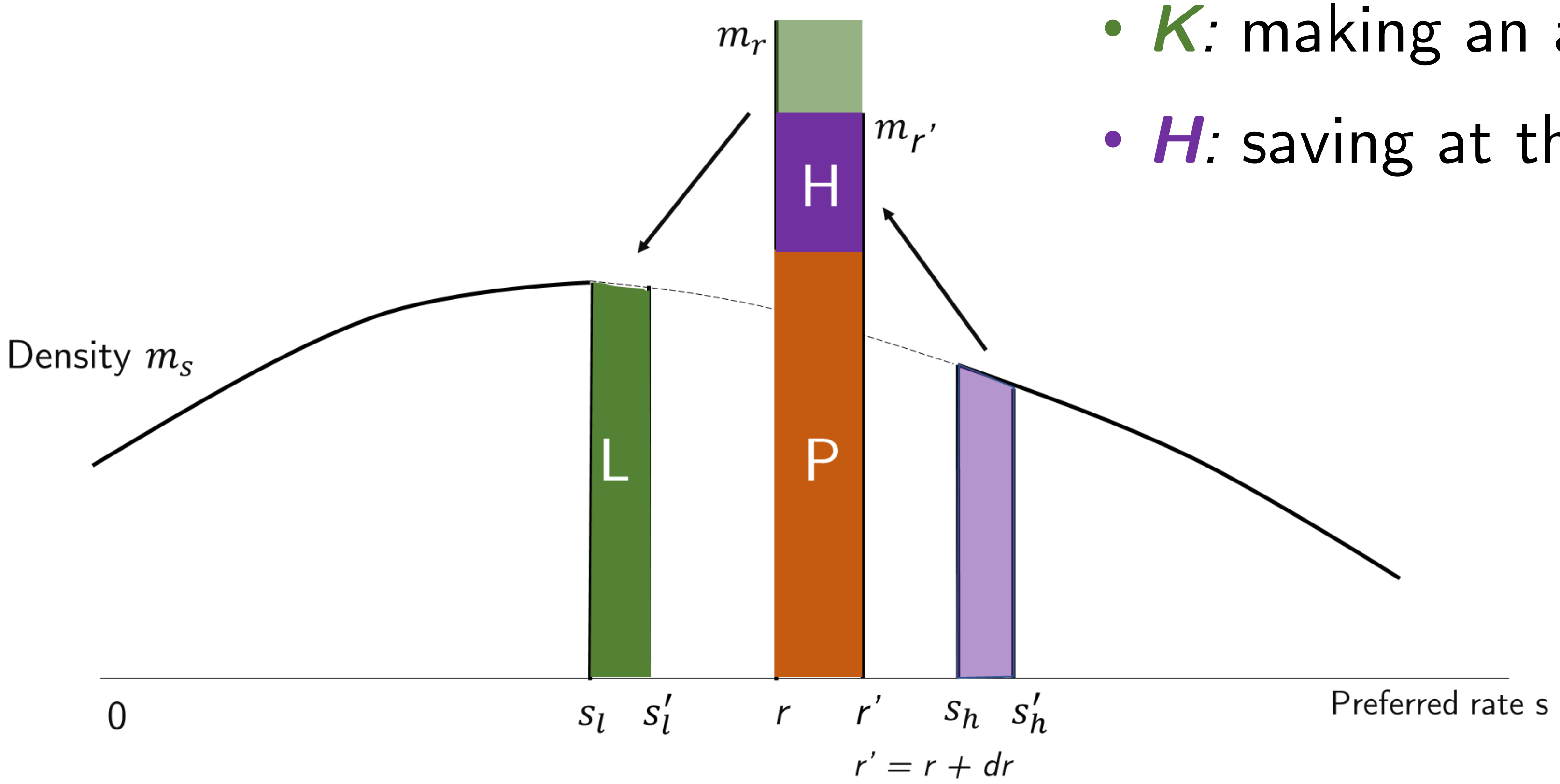


Shifting Composition when Default Changes from *r* to *r'*



Formula for the Optimal Default Saving Rate $r*$

$$r^* = \frac{P - L + K}{-H}$$



$r*$ is determined by

- ***P***: saving at the default
- ***L***: choosing the preferred rate
- ***K***: making an active choice
- ***H***: saving at the default

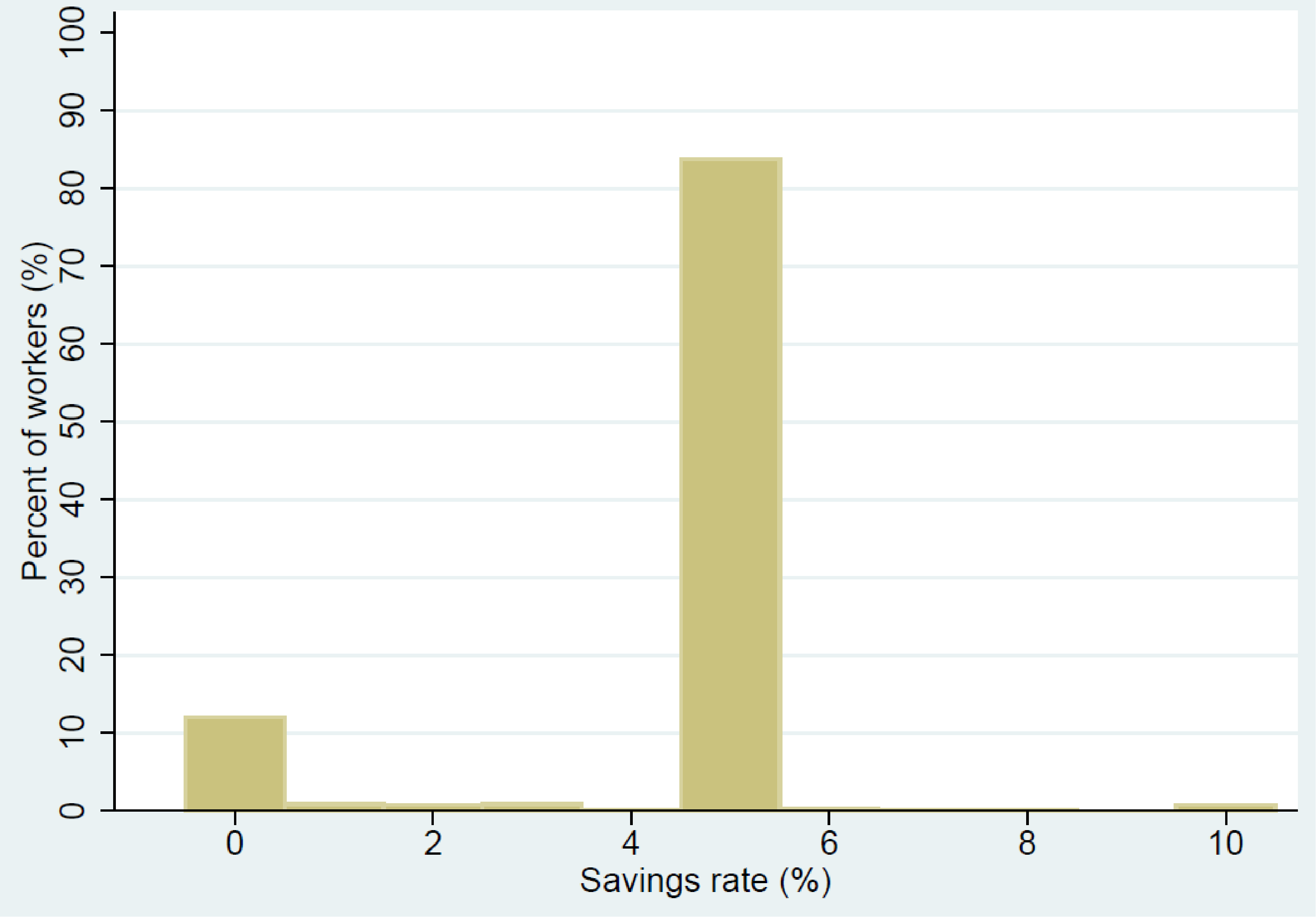
Optimal Default Saving Rate: Empirical Estimation

Key statistics:

- Fraction of passive savers becoming active savers as the default rate changes
  - Individual-level administrative records in OregonSaves
  - Exogenous increase in the default rate:
    - 5% to 6% in 2019
    - 6% to 7% in 2020

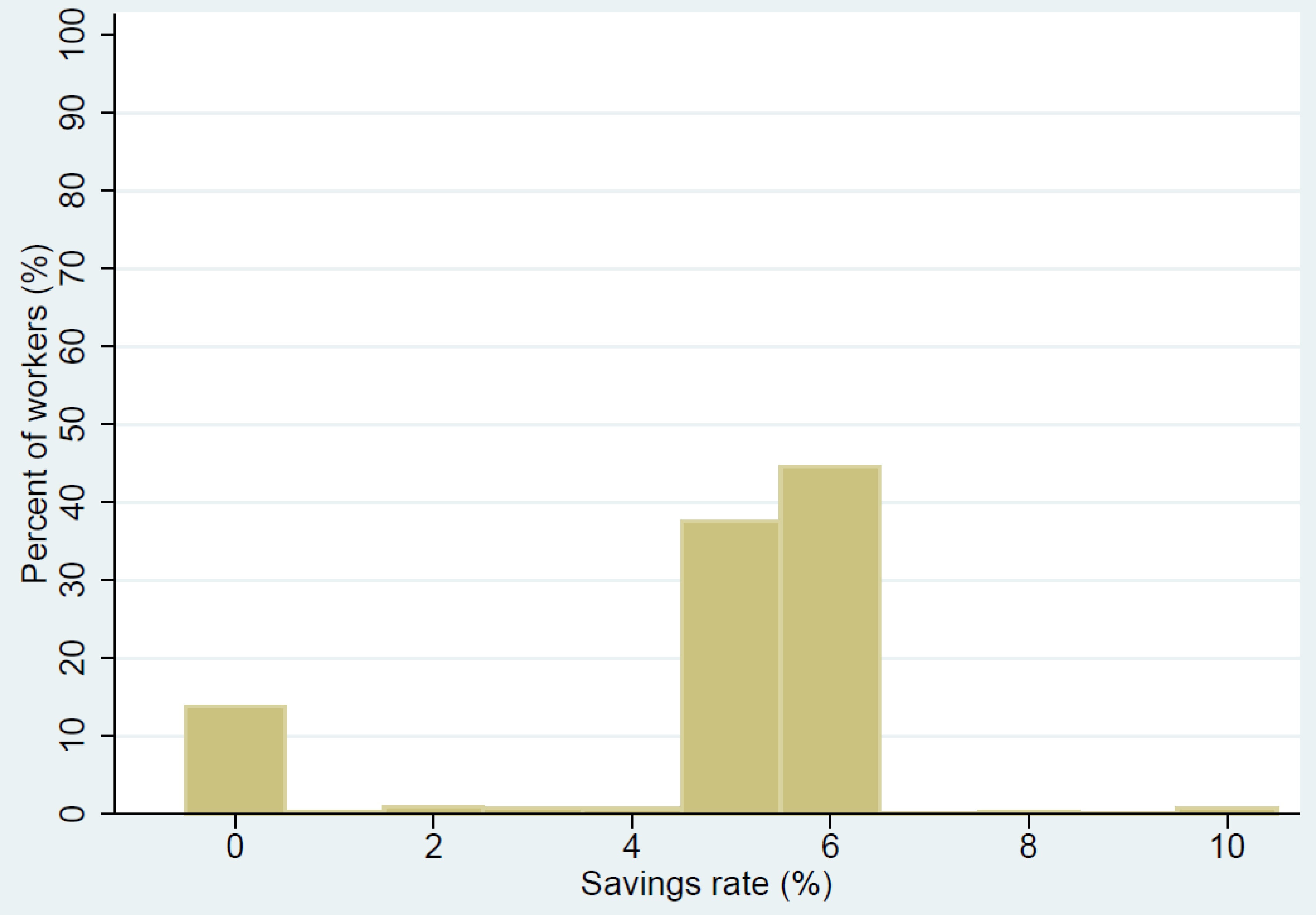
- Degree of undersaving if becoming active savers
  - Survey data to measure present bias

Distribution Before Increase: 5% Default, Dec. 2018



N = 15,974

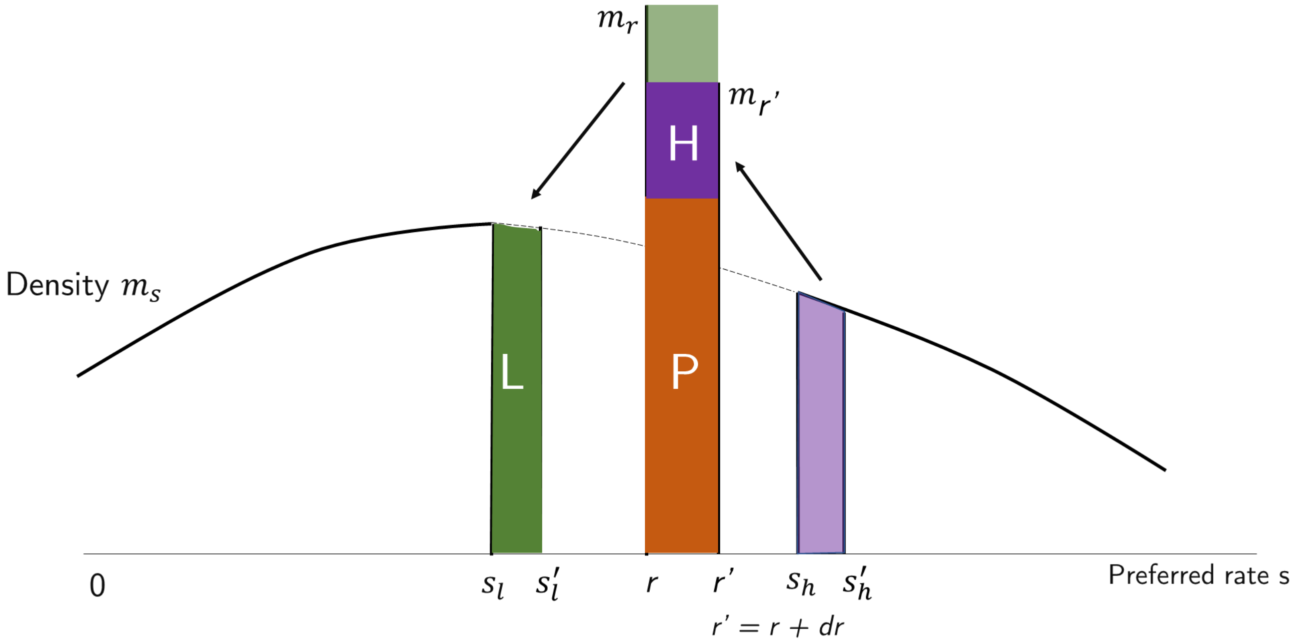
Distribution After Increase: 6% Default, March 2019



N = 15,974

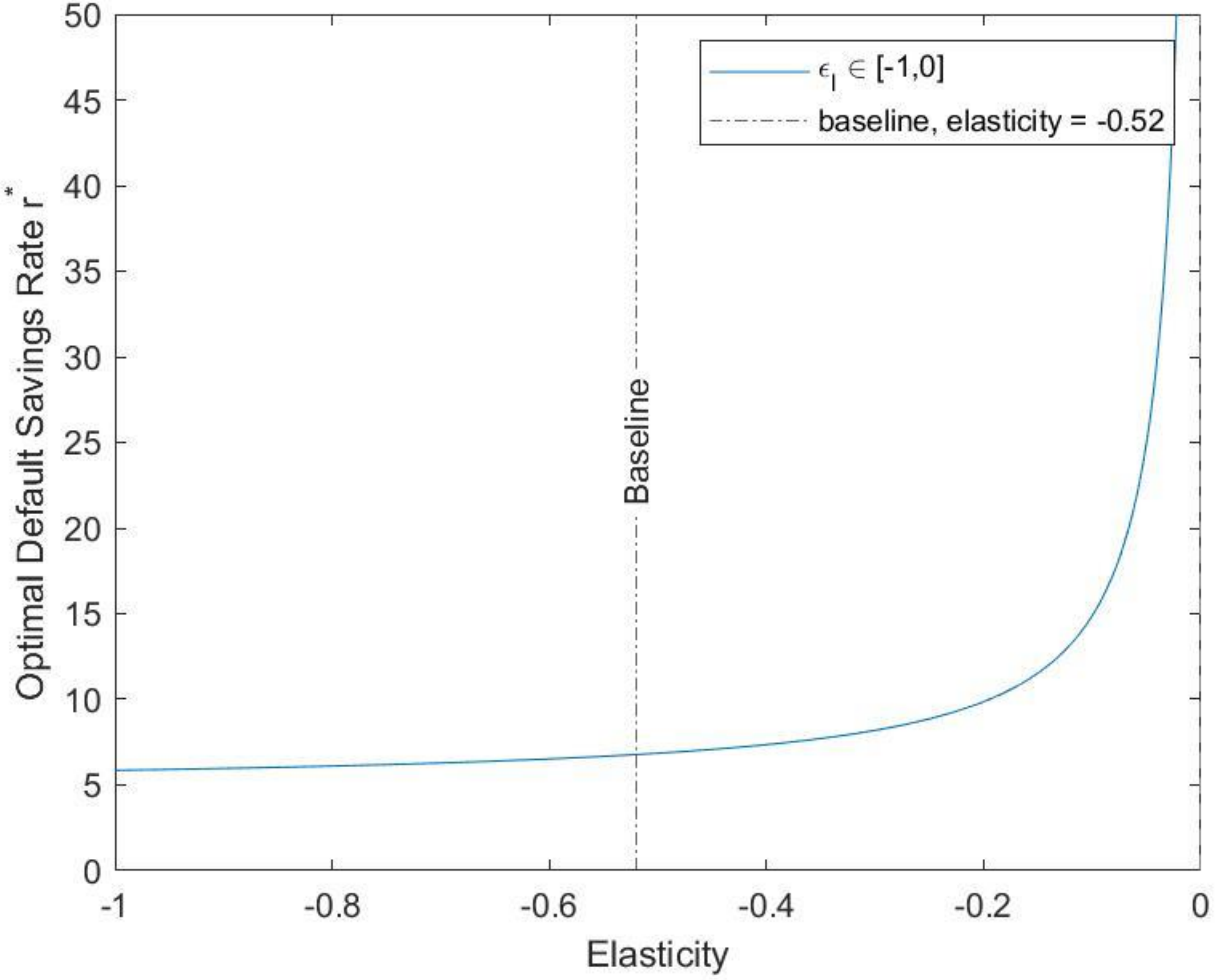
Computing Optimal Default $r*$

1. Key Statistics:
   - Half of passive savers stop saving at default when it rises 1 percentage point
   - Present bias parameter = 0.995
2. Determinants as functions of the statistics
3. Optimal default as a function of determinants

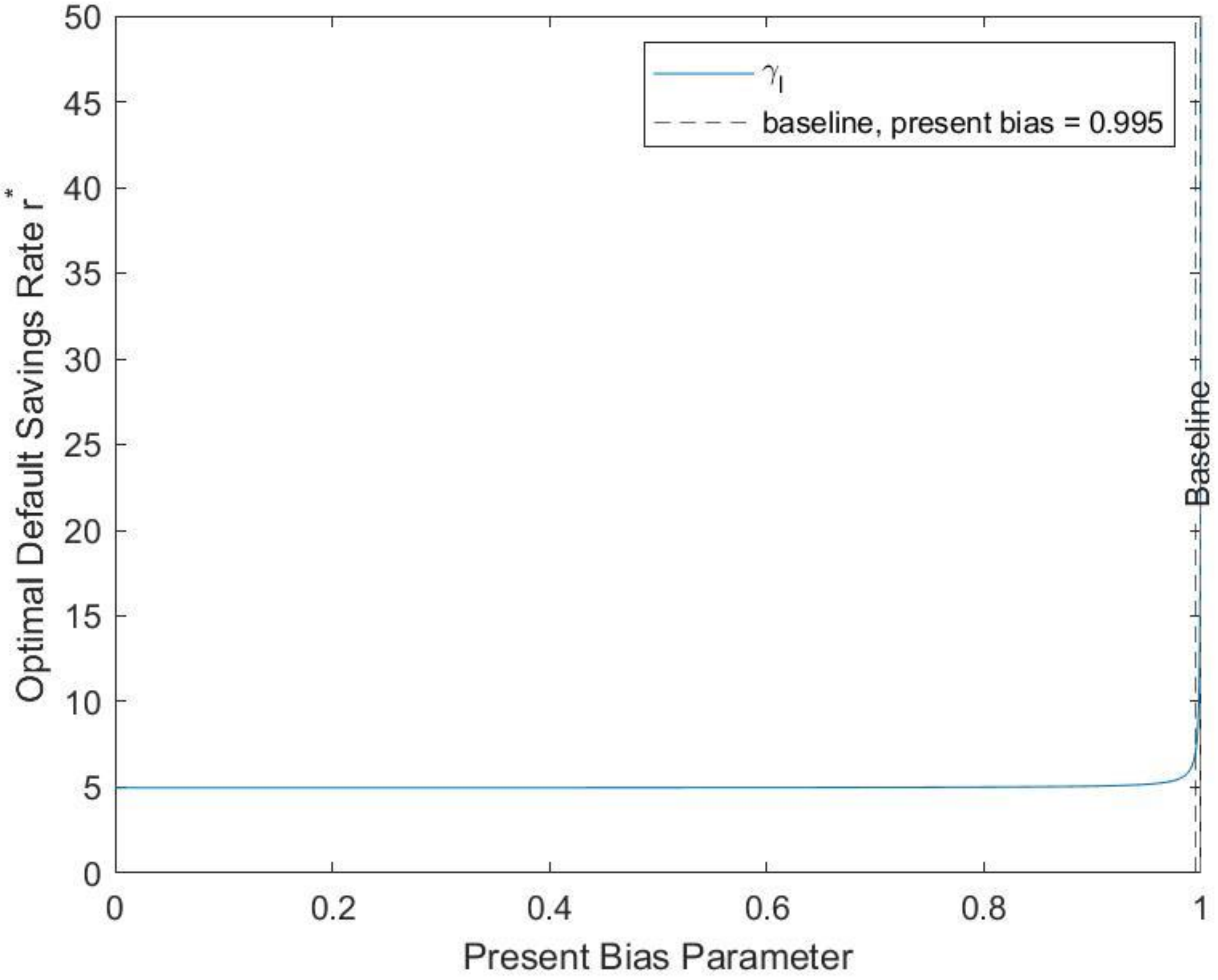


$$r^* = \frac{P - L + K}{-H} = 7\%$$

Sensitivity Analysis: Responsiveness to the Default



Sensitivity Analysis: Present Bias Parameter



Conclusion

- Baseline optimal default rate in OregonSaves: 7%
  - Sensitivity analysis shows the optimal default between 5-10%
  - The optimal formula could be applied to any auto-enrollment plans provided by state governments or private sector employers

- Policy recommendation:
  - More participants: low default
  - More savings per participant: high default

Appendix

Decision Utility vs. Normative Utility

- Individual saving choice: $p = \{r, s\}$
- Decision utility:

$$U(c, p) = u(c) + \lambda\delta v(p) - k\mathbf{1}\{p = s\}$$

  - Normative time preference: δ
  - Behavioral time preference: λ
  - Total perceived opt-out cost: k

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  - Fraction of the normative opt-out cost: π

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  - Fraction of the normative opt-out cost: π

Social Welfare Function

- Policymaker selects the optimal default rate r^* to maximize aggregate normative utility across all types θ:

$$W = \max_{\{c,p\}} \int N(c, p; \theta) d\theta$$

- Perturbation approach: At optimal default r^*

$$\frac{dW(r^*)}{dr} = 0$$

Eliciting Present Bias from Survey

- Ask 16 questions about how workers divide 100 tokens between a sooner time and a later time

- Convex time budget (Andreoni and Sprenger, 2012)
  - Choose allocations along a continuous budget constraint
  - Distinguish time preference from risk preference

- Variations in sooner time (today, in a year), later time (in a year, in 2 years), and interest rate (0, 1%, 2%, and 5%)

Instructions: The following questions are all hypothetical, and your answers will not affect the amount of the gift card you will receive by completing the survey. In each of the following questions, please tell us how you think about tradeoffs between today and the future, by moving the slider. We ask you in each case to click the slider dividing 100 tokens between two dates. Here is an example:

Each token is worth $95 today and $100 in a year. How many tokens would you want to receive today?	0 **70** 100
Amount you will have today	$ 6,650
Amount you will have in a year	$ 3,000

This example shows how someone could divide 100 tokens between 70 today and 30 for a year from today. Each token today is worth $95, while each token for a year from today is worth $100. So this person would choose to receive 70*$95=$6,650 today and 30*$100=$3,000 a year from today.

Please use the slider to select the number of tokens you would like to receive today.

1. Each token is worth $100 today and $100 in a year. How many tokens would you want to receive today? 0 **0** 100

1. Amount you will have today

1. Amount you will have in a year

2. Each token is worth $99 today and $100 in a year. How many tokens would you want to receive today? 0 **0** 100

2. Amount you will have today

2. Amount you will have in a year

3. Each token is worth $98 today and $100 in a year. How many tokens would you want to receive today? 0 **0** 100

3. Amount you will have today

3. Amount you will have in a year

4. Each token is worth $95 today and $100 in a year. How many tokens would you want to receive today? 0 **0** 100

4. Amount you will have today

4. Amount you will have in a year

Results

Annual discount factor	0.987
	(0.005)
Present bias parameter	0.995
	(0.006)
Observations	1,765
N. unique subjects	143