

# Demand, Regulation, & Welfare on the Margin of Alternative Financial Services

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# Our Research Agenda

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Estimate demand for check cashing using transaction data  
→ a \$60 billion market affecting 8% of U.S. households

## Evidence from a Price Cut

Response following cut identifies how sensitive customers are to price in this market



## Two Key Margins

- Customers much more sensitive to service fees than travel costs
- Customers much more sensitive to check-clearing times than check-cashing fees

## Optimal Policies

- State regulated fee cap & entry restrictions should favor lower fees
- Accelerating check-clearing times would have large impact on consumer welfare

## Background on Check Cashing

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“Check cashing” outlet converts checks into cash for a fee

- Used by those without a bank account or who want cash immediately
  - 17 million households unbanked
  - ~8% of U.S. households use check cashing each year
  - ~40% regularly receive paper checks
  - Average customer spends \$370 per year on fees
  - 2% fee on \$1000 to avoid 2-day check hold → 3992% APR
- Typically done at specialized, free-standing storefronts
  - Usually bare-bones facilities staffed by hourly-wage workers
  - Also provide services such as utility bill pay & money orders
  - Often located in low-income areas without banks
  - Have several systems in place to avoid cashing bad checks

## Regulation and Policy on Mainstream-AFS Margin

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Extensive area of regulation and policy

- FDIC's Advisory Committee on Economic Inclusion working to move consumers from AFS to mainstream accounts
- Federal Reserve Bank working to improve U.S. payments system (ACH)
- Dodd-Frank created CFPB and gave it authority to federally regulate CC
- Check cashing regulated by 36 states
  - NY rate cap currently at 2.01%, indexed annually to "inflation"
  - Entry limited to 0.3 miles of competitor (to promote "stability")




No previous work on check cashing or accelerated payments based on transaction data

## Previous Work in Economics on Use of AFS

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Why do some consumers use high-fee AFS instead of mainstream banking?

- Liquidity constraints?
  - Elliehausen & Lawrence (2001) payday survey
  - Agarwal, et al. (2007) and Cole, et al. (2008) work on tax rebates
- Lack of alternatives or high search costs?
  - Agarwal, Skiba, & Tobacman work on payday loans and credit cards
- Lack of trust?
  - Christelis, et al. (2010) and Cole & Shastry (2009)
- Cognitive biases or lack of financial understanding?
  - Bertrand & Morse (2009) and Skiba & Tobacman (2008)



Several surveys of check cashing:  
Berry (2005), Rhine, et al. (2006), Barr (2012)

# Empirical Setting

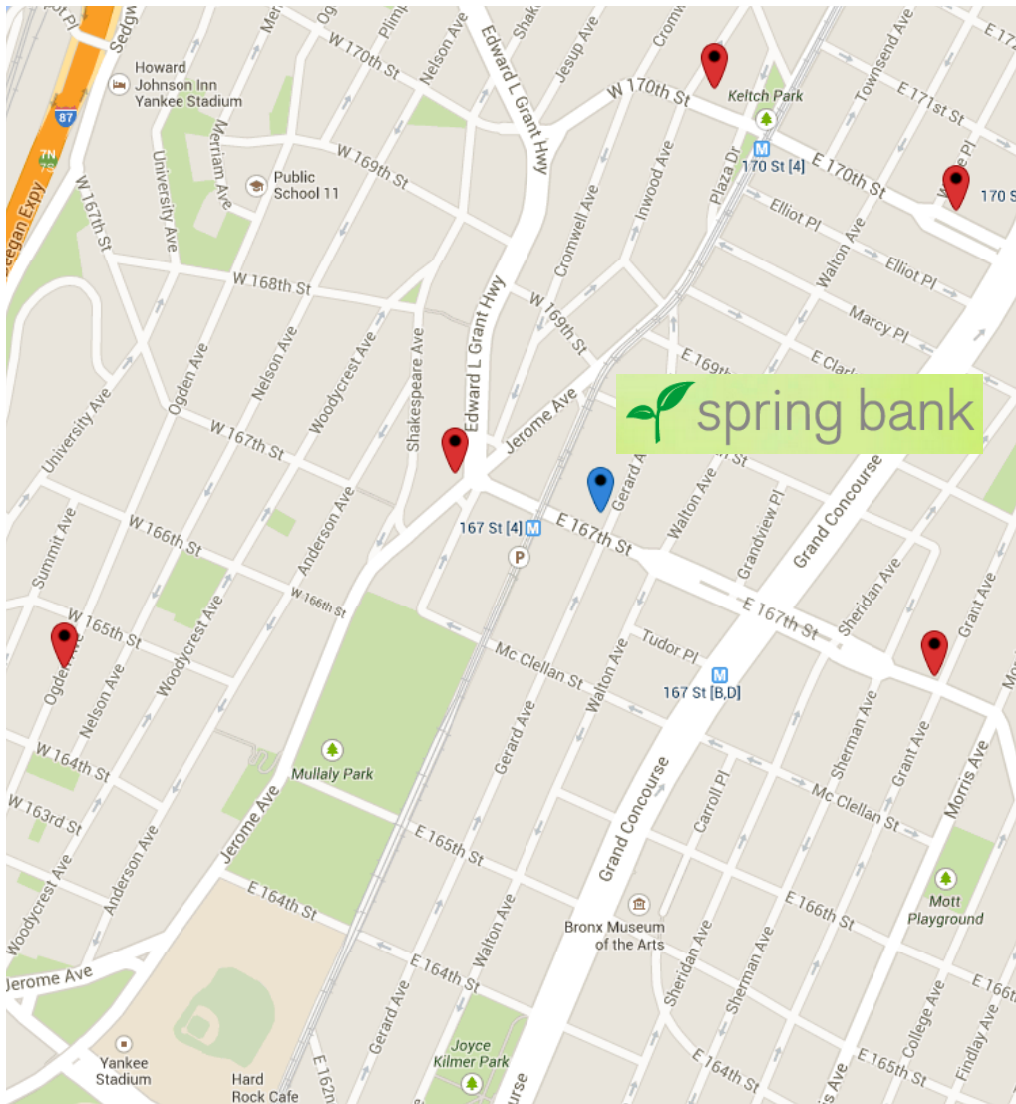
## Spring Bank

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Opened in 2008 with stated mission to serve the under-banked population

- First new bank opened with headquarters in the Bronx since 1982
- Offers mix of financial services, including check cashing
  - Unique research opportunity
- Will cash checks for non-account holders
  - Few banks do this
- Account holders charged a fee only on “uncovered” portion of check
- Inside connection for acquiring data (Aaron is on BOD)

# The Market



- South Bronx, New York
  - Large minority population on the financial margins → 75% have no discretionary income, 50% have no bank account
  - High travel costs
  - Few full-service banks → 1/20,000 residents vs. 1/3,000 in Manhattan
- Five nearest SB competitors
  - All charge the state cap for check cashing



## A Brief History of Spring Bank's Prices

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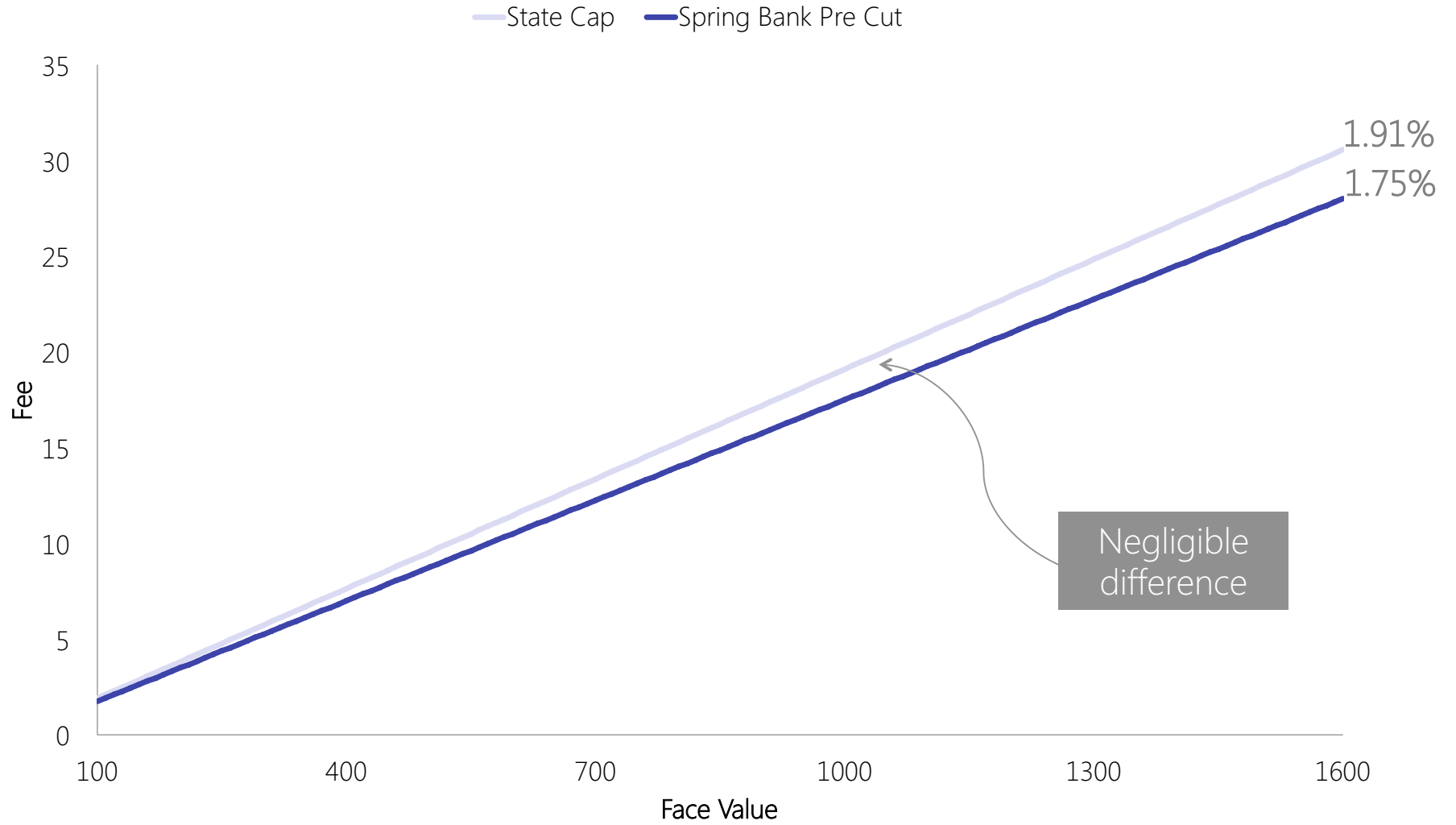
Opened in 2008 and charged state cap of 1.75%

- Competitors also at cap

Maintained 1.75% from 2009-2012

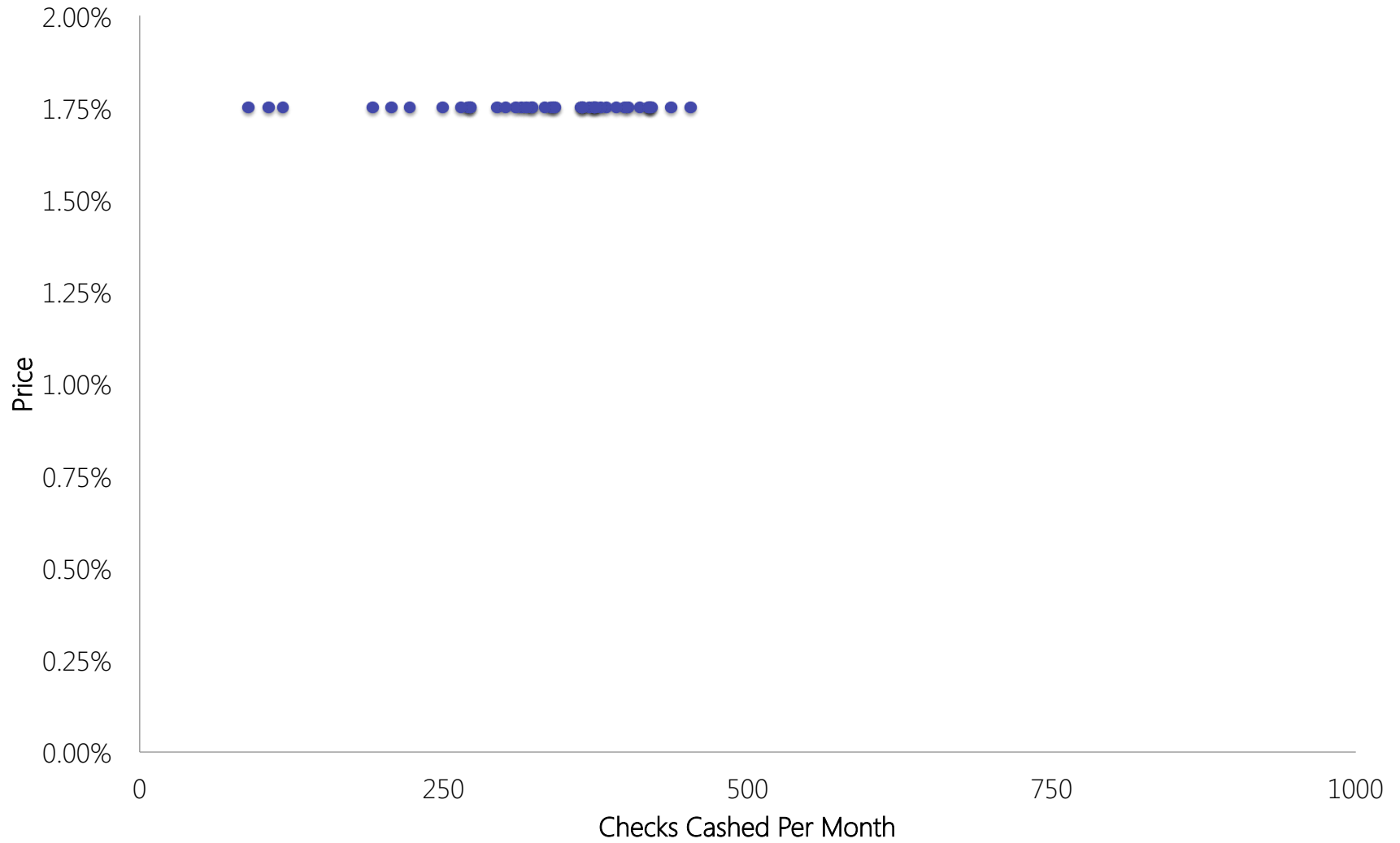
- Competitors at 1.82% (2009), 1.83% (2010), 1.86% (2011)

# Fee Schedule in Early 2012



# Not Enough Price Variation to Estimate Demand

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## A Brief History of Spring Bank's Prices

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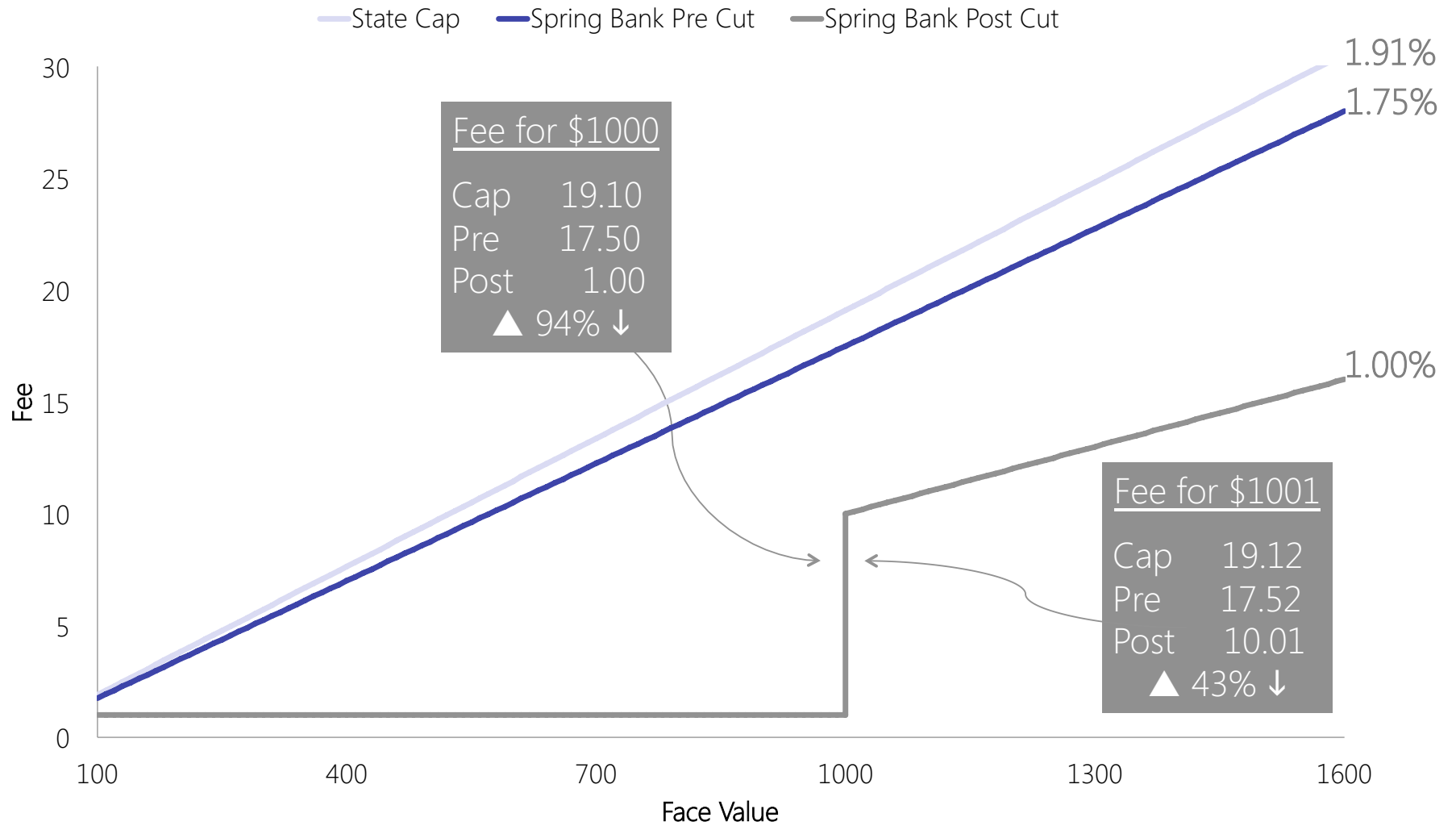
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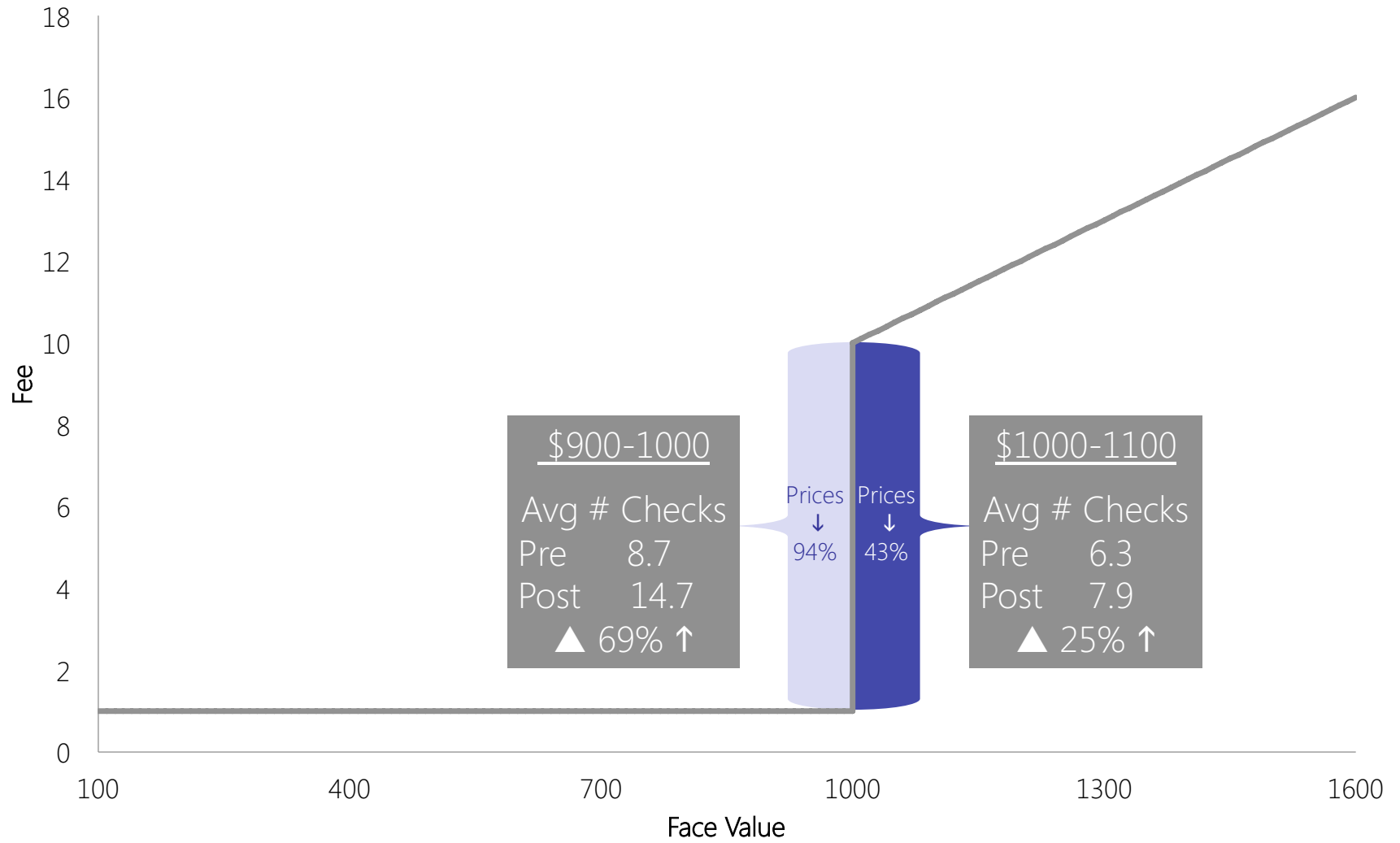
Instituted price cut in 2012

- \$1 for checks up to \$1000, 1% all others
- Competitors charged state cap 1.91%

# Fee Schedule After Spring Bank's Price Cut



# Basis for Our Identification Strategy



## A Brief History of Spring Bank's Prices

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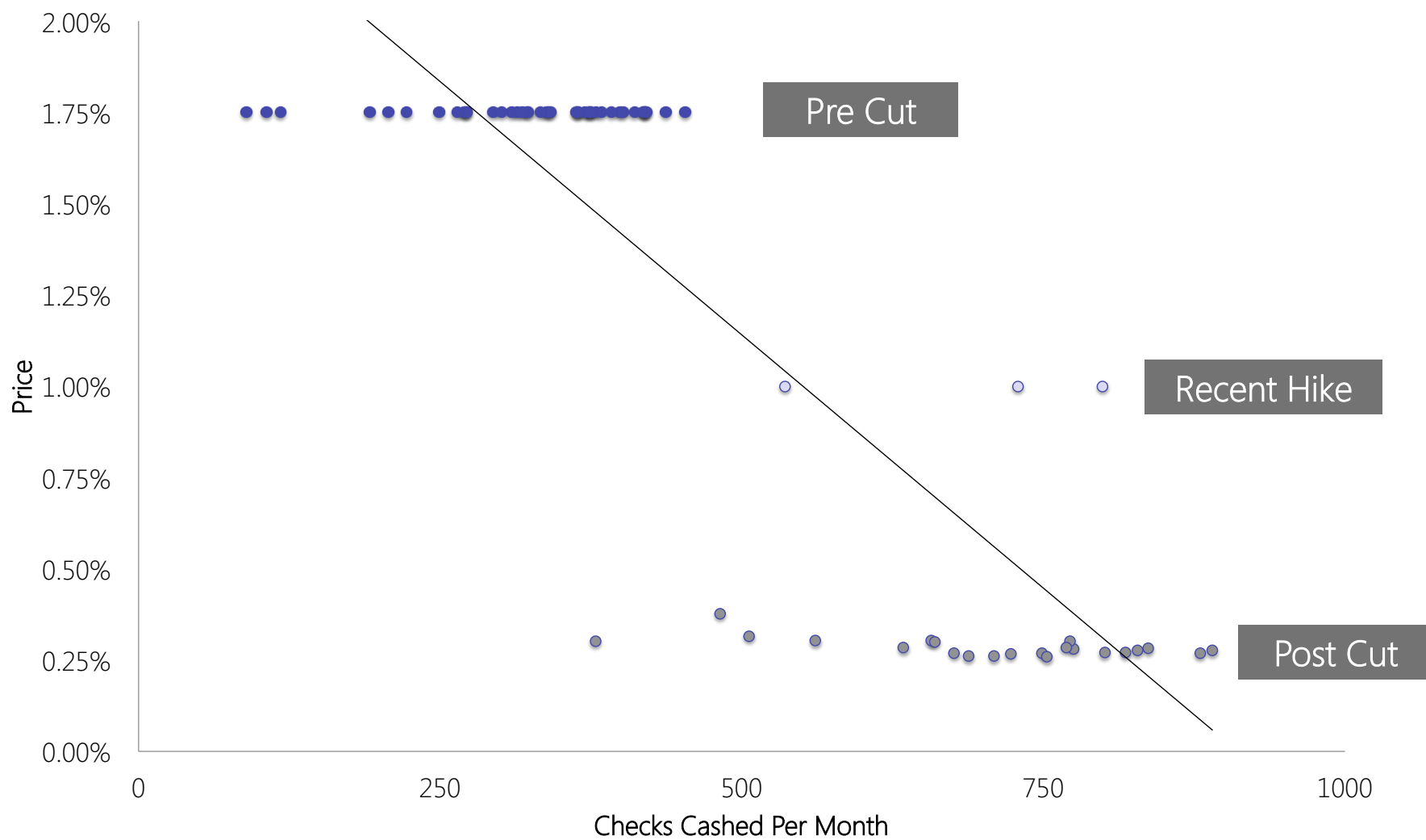
Instituted price cut in 2012

- \$1 for checks up to \$1000, 1% all others
- Competitors charged state cap 1.91%

Spring Bank raised prices in 2014

- 1% for all checks for non-account holders
- \$1 for account holders with at least \$100 balance
- Competitors charged state cap 1.95%

## Variation in Prices After Cut Allows Us to Estimate Demand





# Model + Estimation for Check Cashing

## Data and Model

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Data → Customer ID, date, fee, face value, distance to Spring Bank, distance to five nearest competitors, deposit account with SB

Inferred Data → Fee at competitors, “hypothetical” checks in some cases

$$U_{ijct} = \alpha_1(\text{Fee SB}_{ict} - \text{Fee Cap}_{ct}) + \alpha_2(\text{Dist SB}_{it} - \min\{\text{Dist}_{ijt}\}) + \alpha_3\text{Deposit}_{ijt} + \varepsilon_{ijct}$$

Latent utility for customer  $i$ , check  $c$ , store  $j$ , time  $t$

→ {0,1} for cashing check at Spring Bank vs. nearest competitor

## Identification

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Price → distance fixed, # of transactions increases after price cut

- Fee for \$1000 check varies from \$1 to \$17.50 throughout panel
- Competitors blindly following state cap

Distance → willingness to travel increases with fee savings

- Home not chosen based on location of check cashers

## Spring Bank Monthly Statistics: Before & After Price Cut

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Variable	Mean Pre-Cut	Mean Post-Cut	t-stat
Total Checks Cashed	325.0	704.9	12.97
Total Face Value	186,083.6	362,884.7	8.72
Total Fees	3256.5	1711.8	-4.79
Average Rate	1.75%	0.37%	-29.09
Average Cap	1.83%	1.93%	15.95
CC Customers	191.9	303.1	12.09
New CC Customers	52.0	38.3	-2.62
CC Customers with DA	48.2	102.2	16.98
New CC Customers with DA	1.0	1.1	0.50
Average Distance to SB	0.66	0.74	6.41
Average Distance to Comp.	0.58	0.63	5.63
N	41	25	

Data from 66 months for customers < 3 miles from Spring Bank  
& checks with face value > \$100

## Spring Bank Customer Statistics for Estimation

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Variable	Mean	Min	Max
1[Cash Check at Spring Bank]	0.612	0	1
Face Value of Check	523.28	100	8911.05
Fee at Spring Bank	6.86	1	155.94
Fee at Competitor	9.75	1.75	173.65
Fee Difference	-2.89	-172.65	0
Distance to Spring Bank	0.792	0	2.996
Distance to Nearest Competitor	0.665	0.002	2.803
Distance Difference	-0.127	-0.588	2.183
Deposit Account at Spring Bank	0.202	0	1

Data from 50,550 transactions for 3328 customers < 3 miles from Spring Bank & checks with face value > \$100

## Main Regression Results

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Variable	Coefficient	Std. Err.	Elasticity
Fee Difference ( $\alpha_1$ )	-1.092	0.057	-5.892
Distance Difference ( $\alpha_2$ )	-2.191	0.384	-0.884
Deposit Account ( $\alpha_3$ )	1.719	0.223	
Constant	-0.445	0.136	

Logistic regression using data from N = 50,546 transactions for customers < 3 miles from Spring Bank & face value > \$100. Includes month & day fixed effects

Standard errors clustered by customer

## Results Summary

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- Typical customer with ~\$500 check facing a fee of ~\$10 (state cap of 2.01%) and equidistant from Spring Bank and a competitor
  - Cutting price by 1% (~\$0.10) → 5.9% more likely to come to Spring Bank
  - Moving customer 1% closer → 0.9% more likely to come to Spring Bank
- Customers much more sensitive to price than distance
  - Indifferent between saving ~\$2 and travelling extra mile
- More distant customers are more price sensitive
  - Potential for targeted promotions
- Customers with deposit accounts at Spring Bank are less price sensitive
  - Discounted \$1 fee for those with other accounts may not be necessary
- Wealthier customers more sensitive to distance than price
- Frequent customers very price sensitive

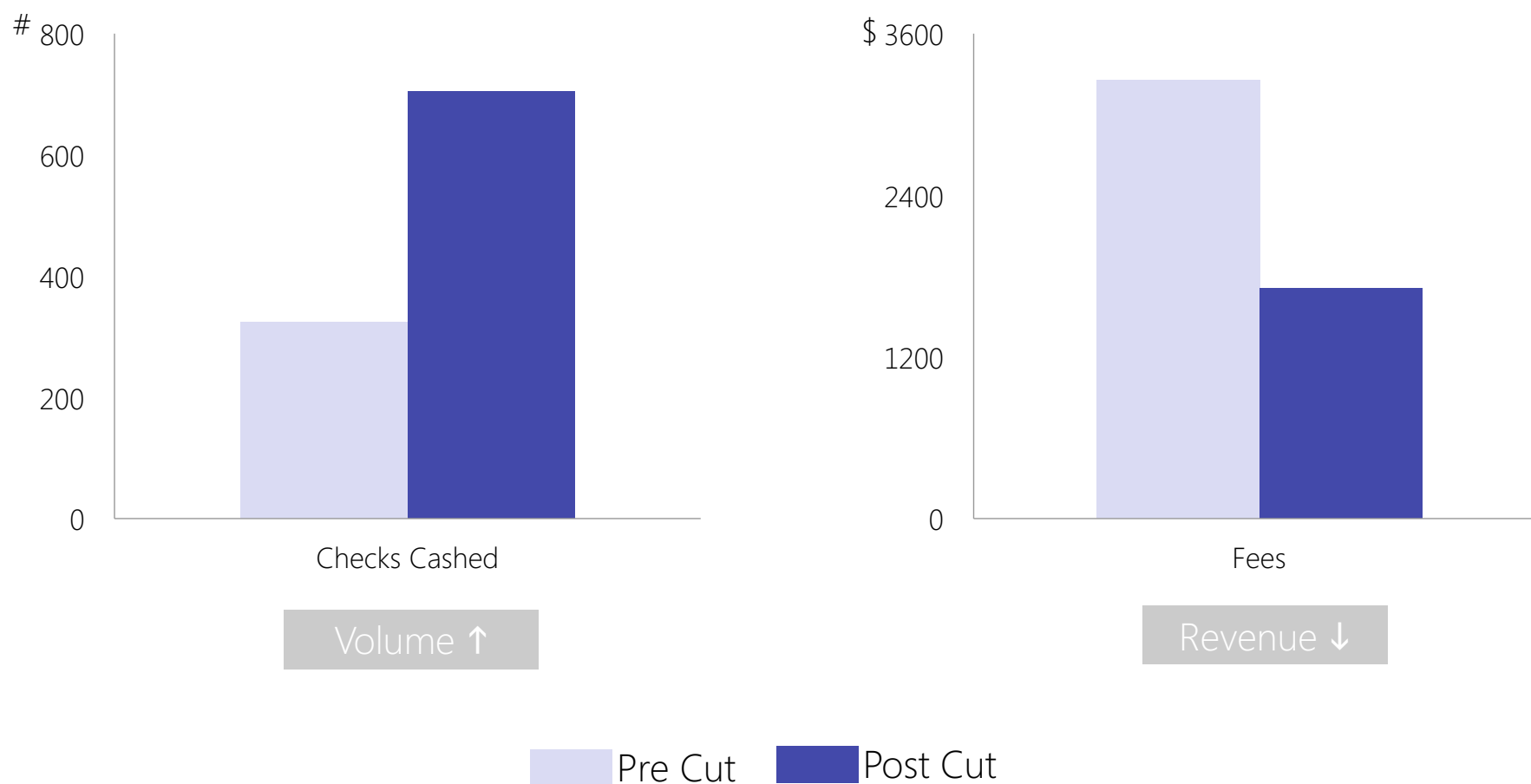
# Implications for Spring Bank



# Changes in Volume & Revenue Following Price Cut

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## Monthly Averages



## Optimal Prices Based on Model Estimates

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Use measure of customers' price sensitivity to determine optimal fee

$$\rightarrow MR = MC = P(1 - 1/|Ep|)$$

- 1.55% when the cost of cashing a check is \$0
- 1.65% when the cost of cashing a check is \$2 + 0.3% bad check rate
- Would need MC of \$8.70 on \$523 check to rationalize charging 2.01%



- Spring Bank's cut went too far
  - Perhaps rationalized by spillovers?
- Analysis suggests optimal fees actually below state cap
  - Focal point collusion?

# Check Cashing vs. Depositing

## Data and Model

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Data → Customer ID, date, fee, face value, distance to Spring Bank, distance to five nearest competitors, check-clearing time

$$U_{ict} = \alpha_1 \text{Check Cashing Fee}_{ict} + \alpha_2 \text{Check Clearing Time}_{ict} + \alpha_3 \text{Distance}_{it} + \varepsilon_{ict}$$

Latent utility for customer  $i$ , check  $c$ , time  $t$

→ {0,1} for cashing check at Spring Bank vs. depositing

## Spring Bank Customer Statistics for Depositing

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Variable	Mean	Min	Max
1[Cash Check]	0.166	0	1
Face Value of Check	966.21	100.01	5000
CC Fee	9.03	1	87.5
Distance Difference	0.093	-0.588	2.842
Days Until Check Clears	1.512	1	4
Days Until Check Clears – 1	0.752	0	1
Days Until Check Clears – 2	0.013	0	1
Days Until Check Clears – 3	0.205	0	1
Days Until Check Clears – 4	0.029	0	1

Data from 55,478 transactions for 864 customers < 3 miles  
from Spring Bank & checks with face value > \$100 & < \$5000

## Percentage of Checks Cashed Instead of Deposited

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	Days Until Check Clears				
	1	2	3	4	Total
Overall	13.1%	22.5%	27.6%	27.4%	16.7%
Pre Price Cut	9.6%	19.4%	21.1%	22.7%	12.4%
Post Price Cut	16.6%	24.4%	33.2%	33.1%	20.8%
Low Income	17.9%	24.5%	29.7%	33.5%	21.2%
High Income	4.4%	6.7%	2.9%	6.9%	4.3%

## Main Regression Results

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Variable	Coefficient	Std. Err.	Elasticity
Fee ( $\alpha_1$ )	-0.0301	0.0055	\$1 → 2.4%
Days Until Check Clears( $\alpha_2$ )	0.150	0.0445	1 day → 12.9%
Distance Difference ( $\alpha_3$ )	-0.717	0.588	
Constant	-1.840	0.171	

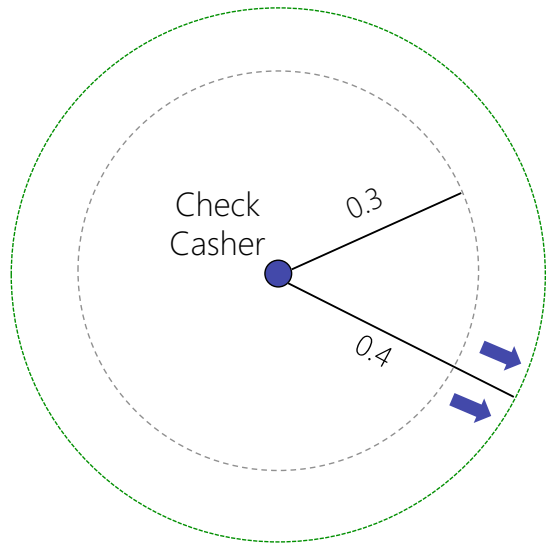
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Standard errors clustered by customer

# Policy Implications



# Counterfactual with Lower Fees + Larger Territories



Protected Area x Cap = "Payoff"

- Larger Protected Area → Lower Cap to maintain same payoff

Protected Territory	Equivalent Cap	Welfare Improvement
0.3 miles	2.01%	Baseline
0.4 miles	1.26%	16.8-32.8%
0.5 miles	0.92%	32.0-47.9%
0.6 miles	0.73%	40.2-56.2%

How much fees + travel costs decrease from baseline for average customer

## Urgent Needs for Cash → Little Use for Mainstream Banking

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Reducing fee cap may cause shift away from mainstream bank accounts

- Price cut led bank account holders to use more check cashing
  - Mean APR implied by those with bank accounts who cash checks to avoid two-day hold (e.g., \$980 today vs. \$1000 in two days → 3,892%)
    - ▶ And check cashing fees much higher in other states
  - 517.5% based on \$4.98 WTP per day on \$966 check
- Mandating one-day check-clearing times would reduce check cashing by 8.3%

# Conclusions

# Conclusions & Future Directions

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## Conclusions

- CC demand highly elastic with respect to price
- Consumers have strong preference for immediate access to cash
- Opportunity to improve welfare
  - Reduce fees and raise travel time
  - Accelerate check clearing

## Future directions

- Model choice to open new bank account
- Include behavioral component
- Consider focal point collusion among check cashers
- Model entry & exit