
Do Financial Counseling Mandates Improve Mortgage Choice and Performance? Evidence from a Legislative Experiment

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Motivation

- Recent research
 - households fail to understand key features of financial contracts
 - these mistakes are consequential

- The ongoing credit crisis intensified policy focus on ensuring financial literacy
 - “People can make their own (optimal) choices”
 - “People need to be protected from excessively easy credit”

- How should it be done?
 - President Obama, as part of the Homeownership Affordability and Stabilization Plan of 2009, has proposed mandatory financial counseling to certain borrowers
 - Sheila Bair has also advocated increased intervention by policymakers in the credit markets

Financial Education Mandates

- Often take the form of disclosure requirements and/or “anti-predatory” lending laws
- “Anti-predatory” lending programs either impose outright prohibitions on certain credit products and/or practices or require people taking on such products to undergo counseling
- The State of Illinois foray into this territory – The Illinois Predatory Lending Database Law of 2006 (HB 4050)

HB 4050: A Rough Sketch

- Passed in 2005 “to curtail predatory lending practices”, went into effect on September 1, 2006 as a “4-year pilot program”
- Required “high-risk” borrowers working with state-licensed lenders to go through HUD-accredited loan counseling prior to closing
- HB 4050 applied to the following ...
 - ▶ Borrowers:
 - ▶ If FICO < 620, counseling is mandatory
 - ▶ If 620 < FICO < 650, get counseling only for certain mortgage products
 - ▶ Interest-only loans, loans with negative amortization, loans adjustable within three years or less, loans with prepayment penalties, loans with less than 5 percent down payment, loans with closing costs in excess of five percent:
 - ▶ Lenders: all Illinois mortgage licensees – primarily mortgage bankers
 - ▶ Geographic areas: 10 contiguous ZIP codes on Chicago’s Southwest Side

The Short (Un)Happy Life of HB4050

- Mobilization of aggrieved groups
 - Borrowers and sellers in affected ZIPs – why us!!?
 - Mortgage brokers and bankers – why us???
 - Real estate groups
 - Outside parties (NAACP) – discrimination

- Highly publicized lender withdrawals, public protests, lawsuits, and mayhem at public hearings

- Claims that house prices and sales volume decline disproportionately (Bates and VanZandt 2007)

- January 17, 2007 – HB 4050 is effectively killed

- July 1, 2008 – resurrected in a modified (but permanent) form that covers all of Cook County
 - First time buyers, and refinancees with “risky” products

Research Questions

- Is mandatory financial counseling an effective policy?
 - Ex post loan performance
 - Choice of “less risky” loans

- What are the effects of financial counseling legislation on market participants?
 - Supply of credit
 - Demand for credit

- Why might financial counseling be effective?
 - Selection of borrowers and lenders
 - Change in the behavior of borrowers (better information) and lenders (stricter oversight)

Main Results

- Effects of legislation:
 - Lower delinquency and default rates
 - Some borrowers choose less risky products
 - Lower market activity; no effect on house prices

- Effects on market participants:
 - Exit of lenders
 - Exit of borrowers
 - Higher rejection rate by lenders

- What caused these effects?
 - Not selection
 - Avoiding counseling led borrowers to choose less risky products
 - Tighter screening by lenders due to increased oversight through counselors
 - Not as much evidence for improvement due to *informational* content of counseling

Data

1. HMDA (Home Mortgage Disclosure Act):
 - All mortgage applications
 - Includes: lender, loan characteristics, borrower income, outcome
2. Cook County Recorder of Deeds:
 - All transactions and mortgages taken in the County
 - Includes: prices, mortgage amounts
3. LoanPerformance (we are replicating results with McDash)
 - All subprime and Alt-A mortgages that were securitized
 - Includes: mortgage terms, borrower terms, foreclosure status
4. Counseling data:
 - From one agency

Data period: 2005 until 2007

Empirical Analysis: Approach (standard)

Difference-in-Differences Framework:

$$\begin{aligned} \text{Response}_{ijt} = & a + \beta_1 \text{Treatment}_{jt} + \gamma_1 \text{Time dummies}_t \\ & + \delta_1 \text{Zip code}_j + \theta \text{Controls}_{ijt} + \varepsilon_{ijt} \end{aligned}$$

- Set of time and location fixed effects, classic design
- But treatment selection is patently non-random
 - For instance, low-income ZIP codes may be inherently more vulnerable to economic shocks and so time dummies will not be able to filter those out uniformly

Empirical Analysis: Approach (modified)

- Take advantage of the pilot program design
- Recall that only certain borrowers in treated areas were subject to treatment
 - $FICO \leq 620$
 - $620 < FICO \leq 650$
- This allows us to exploit within-ZIP code heterogeneity to identify treatment effects
- Specifically, we treat each zip code \times FICO range as “separate cells”
- Results are robust to choosing alternative ways of doing this (e.g., zip code \times month, or zip code \times log of ZIP income fixed effects)

Main Result: Borrowers Perform Better

	Delinquency (x 100)	Default (x 100)
	(1)	(5)
HB 4050 x Low FICO	-4.09** (1.77)	-3.19*** (1.17)
HB 4050 x Mid FICO	1.61 (2.05)	2.24 (1.52)
HB 4050 x High FICO	-1.18 (1.28)	0.08 (1.04)
Borrower Controls	Yes	Yes
Contract Controls	Yes	Yes
Property Type FE	Yes	Yes
Date * FICO Range FE	Yes	Yes
Zipcode * FICO Range FE	Yes	Yes
Observations	165,969	165,969
Adj. R ²	0.09	0.06

Other controls include: FICO score, log of valuation, LTV, as well as indicators for full doc loans, ARM loans, negative amortization loans, investor loans, loans with prepayment penalties, cashout refi loans

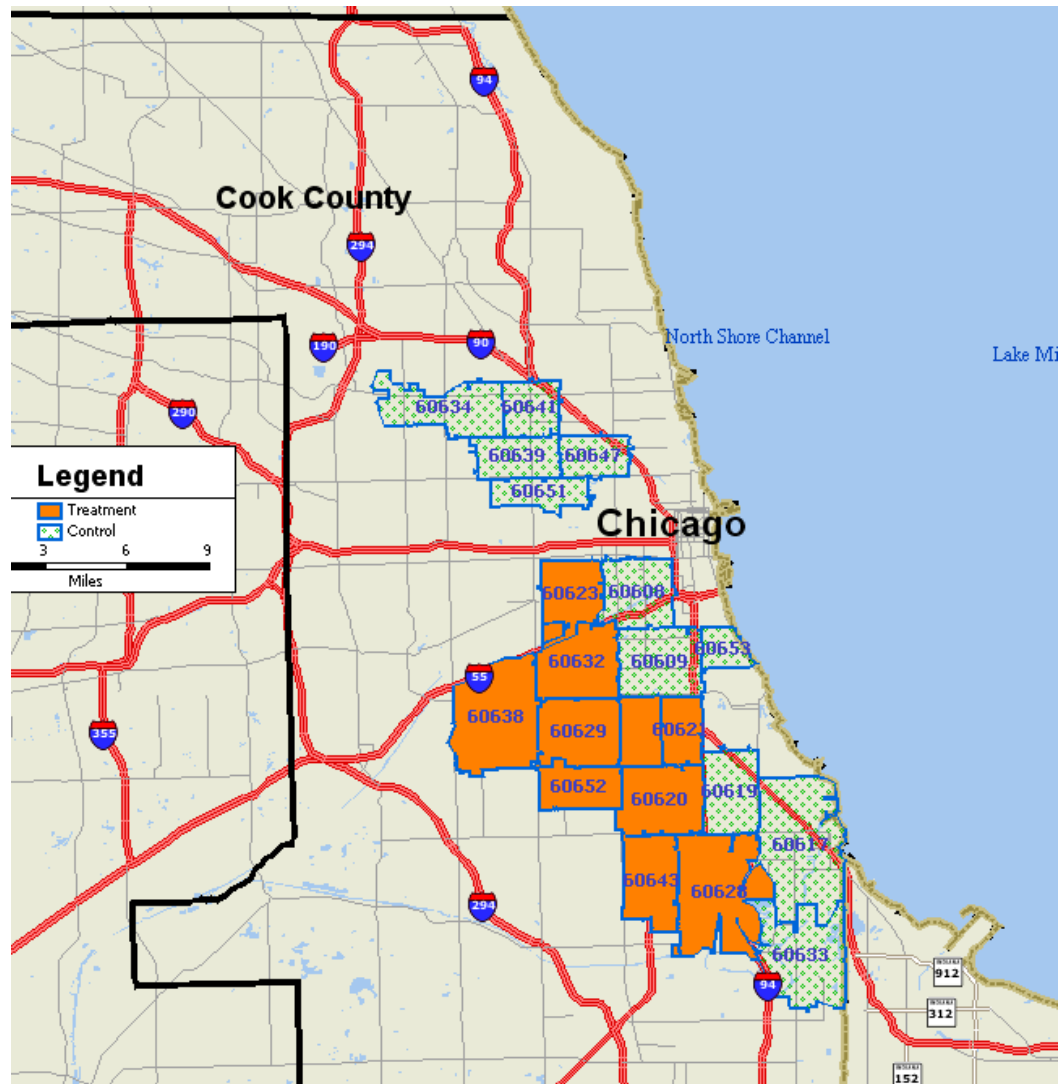
Empirical Analysis: Control Sample

- Another (complementary) way to assuage non-random treatment sample concerns is to identify a set of “comparable” zip codes not subject to HB 4050

	HB 4050 ZIPs (10 zip codes)	Comp ZIPs (10 zip codes)	Rest of Cook County (148 zip codes)
Total population (18 plus)	499,966	537,745	3,156,397
Total # of households	220,274	247,652	1,610,035
<u>Subprime loans</u>			
Loans issued since 2005	24913	20647	100717
Delinquency rate (%)	34.2	32.3	30.8
Default rate (%)	12.4	11.8	10.3
<u>Alt-A loans</u>			
Loans issued since 2005	5301	6326	41044
Delinquency rate (%)	20.9	19.2	15.5
Default rate (%)	7.2	6.2	4.6
Unemployment rate (%)	14.3	13.4	6.1
Below poverty rate (%)	17.0	18.8	8.2
Share on public assistance (%)	9.6	9.5	3.3

Demographic characteristics are based on the 2000 Census data

HB-4050 Treated and Control Zip Codes



Main Result: Alternative Sample

	Default (x 100)	
	Entire Cook Co.	HB4050 + Comparable
HB 4050 x Low FICO	-3.19*** (1.17)	-4.09*** (1.26)
HB 4050 x Mid FICO	2.24 (1.52)	2.50 (1.79)
HB 4050 x High FICO	0.08 (1.04)	-0.52 (1.17)
Borrower Controls	Yes	Yes
Contract Controls	Yes	Yes
Property Type FE	Yes	Yes
Date * FICO Range FE	Yes	Yes
Zipcode * FICO Range FE	Yes	Yes
Observations	165,969	55,241
Adj. R ²	0.06	0.08

Explaining the Improvement

Changes in sample composition:

1. Selection of borrowers

- Low-credit borrowers do not apply
- We control for salient characteristics (FICO score, house characteristics)

2. Selection of lenders

- Shady lenders exit
- We control for “Active” lenders, who remain in the market

Changes in behavior:

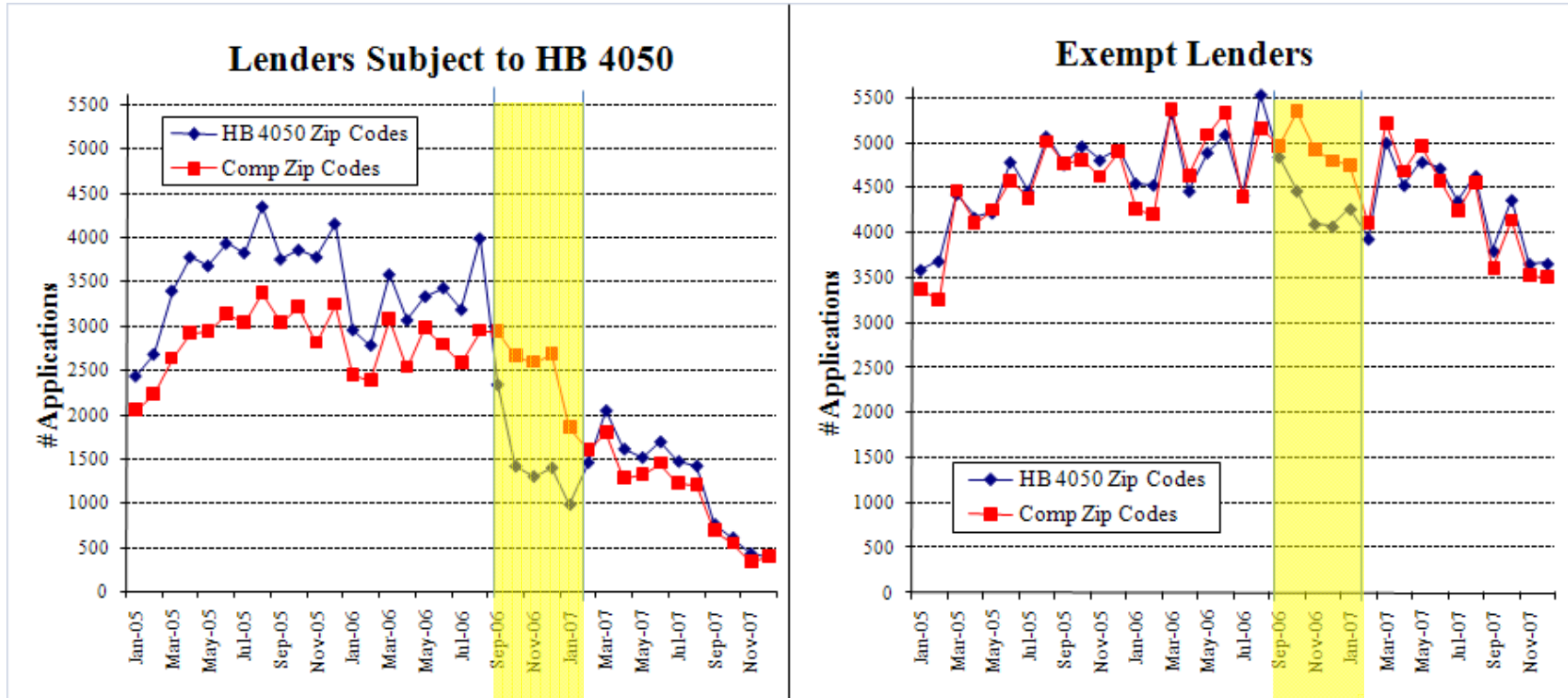
3. Change in behavior of borrowers

- Borrowers choose more suitable products

4. Change in the behavior of lenders

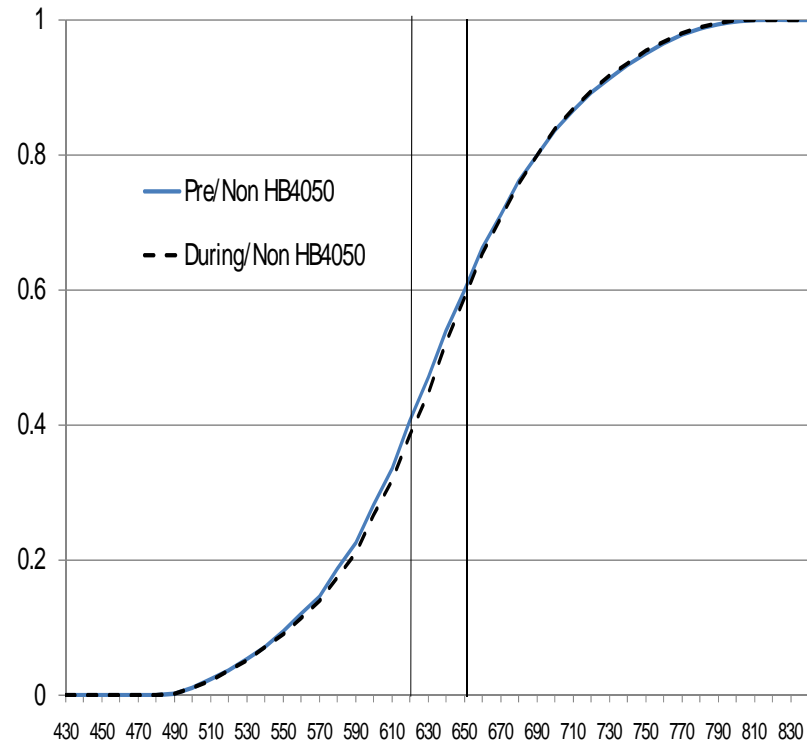
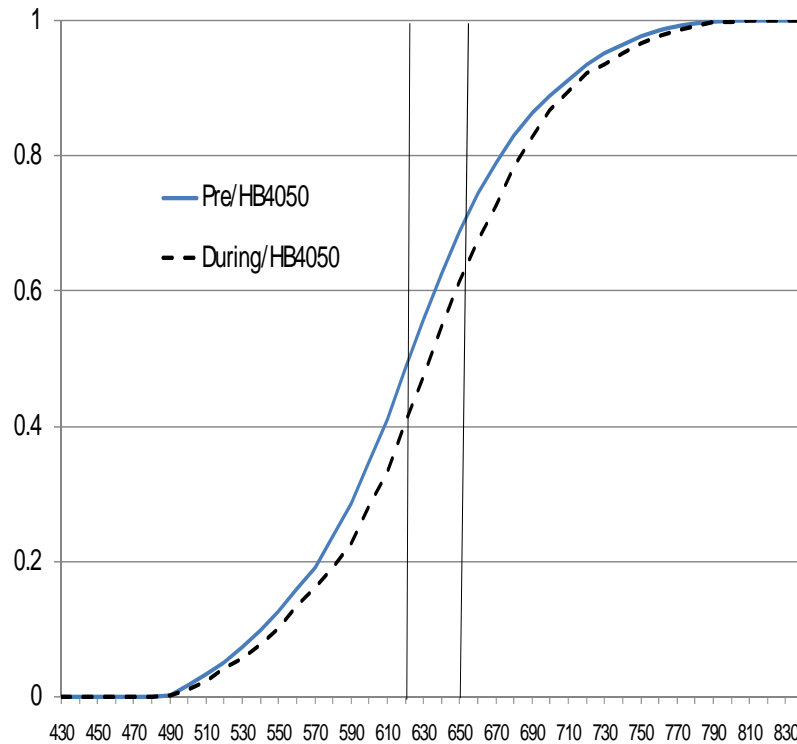
- Lenders screen better

Loan Application Volume by Segment



Evidence of Credit Rationing

Cumulative distribution of mortgages before and during the HB-4050 period in HB-4050 zip codes, as function of FICO scores



- Share of sub-620 borrowers in treated ZIP codes shrank by 10 pct points

Main Result: more controls for borrower quality

	Default (x 100)	
	Entire Cook Co.	HB4050 + Comparable
HB 4050 x Low FICO	-3.14*** (1.18)	-3.99*** (1.27)
HB 4050 x Mid FICO	2.20 (1.55)	2.40 (1.82)
HB 4050 x High FICO	0.26 (1.04)	-0.35 (1.19)
Loan Spread (%)	1.16*** (0.07)	1.22*** (0.12)
Lender FE		
Borrower Controls	Yes	Yes
Contract Controls	Yes	Yes
Property FE	Yes	Yes
Date * FICO Range FE	Yes	Yes
Zipcode * FICO Range FE	Yes	Yes
Observations	165,969	55,241
Adj. R ²	0.07	0.08

Selection of Borrowers: Summary

1. Number of applications declines
2. Greater application declines at lenders specializing in subprime applicants
3. Pool of approved mortgage applicants improves in terms of credit quality (FICO scores)

But...

The improvement in default rate is robust to salient characteristics of borrower credit quality

Selection of Lenders

- Count the number of active lenders (> 20 loan applications per month)

	Dependent: log(# Lenders)			
	State-Licensed Lenders		All Other Lenders	
	Specializing in Subprime loans		All Other Lenders	
	Entire Cook Co.	HB4050 + Comparable	Entire Cook Co.	HB4050 + Comparable
	(1)	(2)	(3)	(4)
HB 4050	-0.216*** (0.028)	-0.286*** (0.041)	-0.036* (0.019)	-0.095*** (0.032)
Date FE	Yes	Yes	Yes	Yes
Zipcode FE	Yes	Yes	Yes	Yes
Observations	5437	756	5472	756
Adj. R ²	0.918	0.951	0.970	0.965

active lenders are defined as those filing at least 20 HMDA applications per month in HB4050 or Comp geographic areas, or 50 HMDA applications per month in the entire Cook Co.

- Exit of lenders, especially those specializing in subprime loans and lack of substitution towards HB4050-exempt subprime lenders

Main Result: control for lender composition

	Default (x 100)	
	Entire Cook Co. Active Lenders Only	
HB 4050 x Low FICO	-3.73** (1.61)	-3.68** (1.63)
HB 4050 x Mid FICO	3.03* (1.72)	3.10* (1.74)
HB 4050 x High FICO	-0.99 (1.18)	-0.89 (1.18)
Loan Spread (%)		0.84*** (0.11)
Lender FE		
Borrower Controls	Yes	Yes
Contract Controls	Yes	Yes
Property FE	Yes	Yes
Date * FICO Range FE	Yes	Yes
Zipcode * FICO Range FE	Yes	Yes
Observations	63,563	63,556
Adj. R ²	0.06	0.06

Selection of Lenders: Summary

1. Lenders exited the market
2. No clear difference between those who left and those who stayed

But...

The improvement in default rate is robust to restricting sample to lenders who stayed in the market

Change in the Behavior of Borrowers

Did Borrowers Move Away From “Risky” Products?

	ARM (x 100)			IO mortgage (x 100)			Low Documentation (x 100)		
	Full	Comp	Active	Full	Comp	Active	Full	Comp	Active
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
HB 4050 x Low FICO	0.14 (2.13)	-0.60 (2.21)	-0.06 (2.56)	-0.25 (0.66)	-0.37 (0.84)	-1.38** (0.59)	-4.89*** (1.71)	-7.16*** (1.99)	-3.92** (1.64)
HB 4050 x Mid FICO	-6.60*** (1.76)	-6.66** (2.50)	-9.39*** (1.96)	-1.78 (1.31)	-2.97* (1.62)	-1.88 (1.63)	-5.39*** (1.88)	-4.55* (2.42)	-7.10*** (2.67)
HB 4050 x High FICO	-3.34** (1.63)	-3.04 (1.98)	-6.77*** (1.99)	1.12 (1.49)	1.12 (1.92)	1.06 (2.16)	-2.17* (1.31)	-2.14 (1.73)	-3.02 (2.59)
Borrower Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Contract Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Property FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Date * FICO Range FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zipcode * FICO Range FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	165969	55241	63563	165969	55241	63563	165969	55241	63563
Adj. R ²	0.14	0.15	0.13	0.16	0.13	0.17	0.22	0.23	0.20

- Low doc loans are drastically reduced – counseling requirement to bring income and asset documentation to the session

Change in the Behavior of Borrowers

Did Borrowers Choose Lower Leverage?

Did Borrowers Negotiate Better Deals?

	Loan-to-Value (%)			Debt Service-to-Income (%)			Loan-Spread (%)		
	Full	Comp	Active	Full	Comp	Active	Full	Comp	Active
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
HB 4050 x Low FICO	-1.28*** (0.31)	-0.88** (0.34)	-1.24*** (0.43)	-0.61** (0.28)	-0.53 (0.38)	-0.16 (0.35)	-0.05 (0.05)	-0.09 (0.05)	-0.07 (0.04)
HB 4050 x Mid FICO	-0.25 (0.42)	-0.22 (0.55)	-0.86 (0.60)	-0.23 (0.62)	-0.08 (0.65)	-1.09 (0.82)	0.03 (0.05)	0.06 (0.06)	-0.09* (0.05)
HB 4050 x High FICO	0.62** (0.31)	0.40 (0.51)	-0.14 (0.47)	-0.49 (0.34)	-0.53 (0.37)	-0.68* (0.38)	-0.15*** (0.03)	-0.14*** (0.04)	-0.12*** (0.04)
Borrower Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Contract Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Property FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Date * FICO Range FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zipcode * FICO Range FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	165969	55241	63563	114415	39121	53219	165962	55240	63556
Adj. R ²	0.13	0.12	0.11	0.07	0.08	0.07	0.51	0.47	0.42

Change in the Behavior of Borrowers

Did Counseling Change Borrowers Decisions?

Category	Total Mortgages	Counselor recommendation				
		No issues	Cannot afford or close to it	Indicia of fraud	Loan above market rate	Seek another bid
Total matched originations	97	54	23	14	4	2
No changes at all	50	34	8	5	1	2
Loans with changes post counseling	47	20	15	9	3	0
(percent with changes)		37%	65%	64%	75%	0%

Lower monthly payments		15	9	4	3	0
(percent of all changed loans)		75%	60%	44%	100%	-
Switch from ARM to fixed		1	5	2	0	0
(percent of all changed loans)		5%	33%	22%	0%	-
Lower interest rate		14	10	3	3	-
(percent of all changed loans)		70%	67%	33%	100%	-

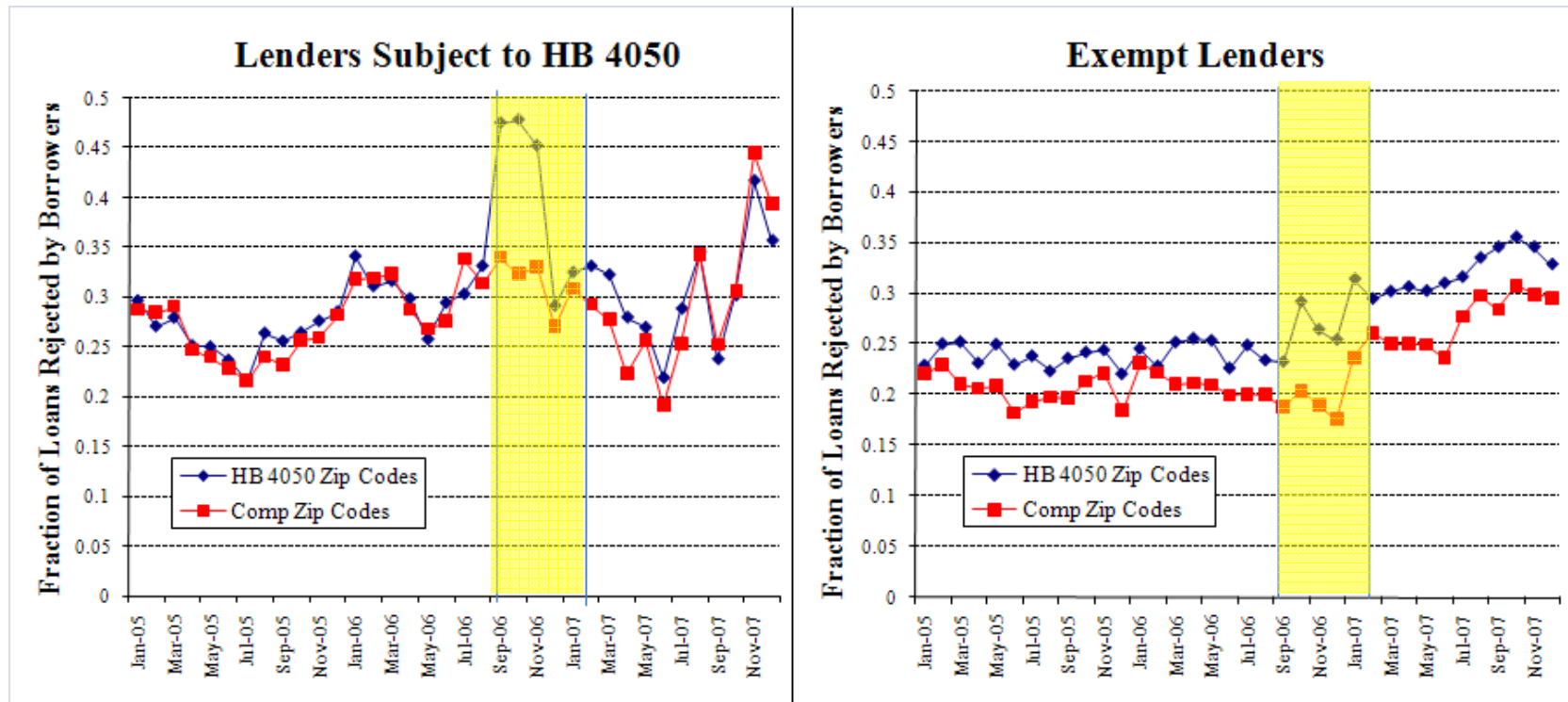
Change in Behavior of Borrowers: Summary

1. Decline in mortgage rejections by borrowers
2. Minor decline in leverage
3. No effect on interest rates
4. No shift towards less risky products by counseled borrowers
5. Shift towards less risky products in order to avoid counseling

But... the improvement in default rate is robust to salient mortgage characteristics

Change in the Behavior of Lenders

- Share of HMDA loan applications rejected by lenders



- Dramatic increase in lender rejections in HB 4050 zip codes
- Consistent with stricter lender screening

Conclusion (I)

- What drives the decline in default and delinquency?
 - Selection of borrowers? Not entirely
 - Selection of lenders? No
 - Change in the behavior of borrowers? Not much; awaiting counseling data
 - Change in the behavior of lenders? Yes

- Results are consistent with the idea that increased oversight drives lenders to screen

- The heavy hand of legislation “helped” borrowers to choose less risky products. Less consistent evidence that informational content was helpful (more analysis required).

Conclusion (II)

- What will be the effects of a nationwide implementation?
 - Results should be generalized with caution
 - Supply effects are probably overstated in the HB 4050 pilot
 - Supply of mortgages less elastic in a nationwide implementation (although capital could move to other segments of the economy)
 - Effects on demand and mortgage choice are likely to remain