

The Delinquency of Subprime Mortgages

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Subprime Literature

- **Where and when is subprime used?**
 - High-risk locations
 - Low-income, minority census tracts
 - High foreclosure rate census tracts
 - High proportion of individuals with “very low credit score”
 - Lower house price appreciation areas
 - Less knowledgeable and high transition rates
- **Performance**
 - Higher default for third party originations
 - Less responsive to interest rates
 - Higher loss severity
 - Hybrids terminate early

Option Theory Literature

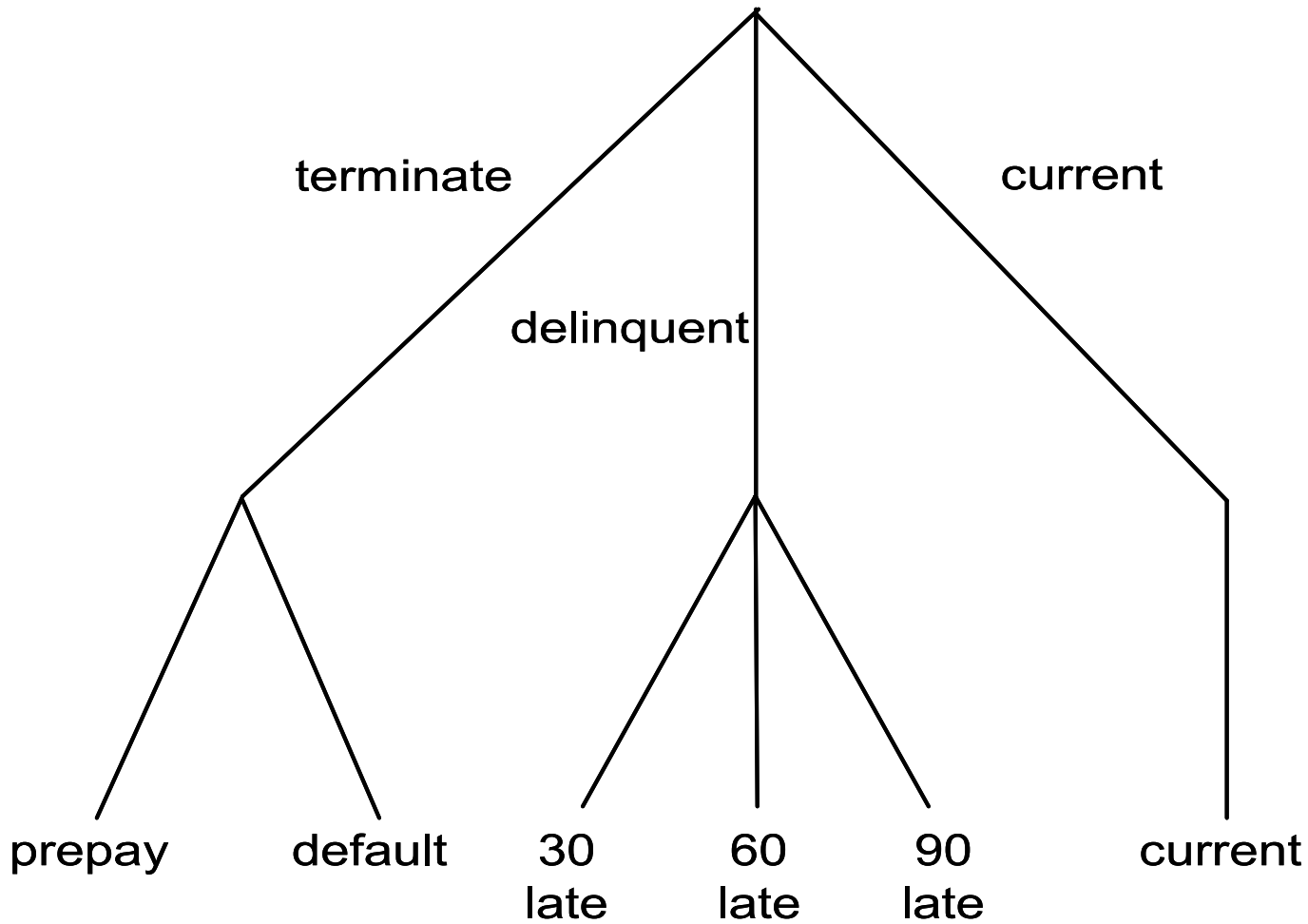
- **Traditional mortgage model**
 - Default, prepay, current (continue or alive)
 - Ruthless default
- **Value of delay -- option pricing framework**
 - Kau and Keenan, REE 1994
 - Ambrose, Buttimer, and Capone, JMCB1997
 - Expected and realized value of property matters
 - Delay of foreclosure assumed exogenous
 - Longer delay and higher LTV -- leads to default
 - Short delay and more variance -- leads to default
 - Long delay and very high variance \leftrightarrow Prob(default) \downarrow

30-years of Delinquency Research

- Examine one or two states of delinquency in isolation
 - Assume Independence
 - Ignore competing risks
 - Termination (default or prepayment)
 - Remarkable consistent results
 - LTV at origination
 - Income
 - Other financial assets
 - Contemporaneous economic conditions
 - Housing and labor market
 - Credit scores
 - Lender behavior/characteristics

Nested Logit Model

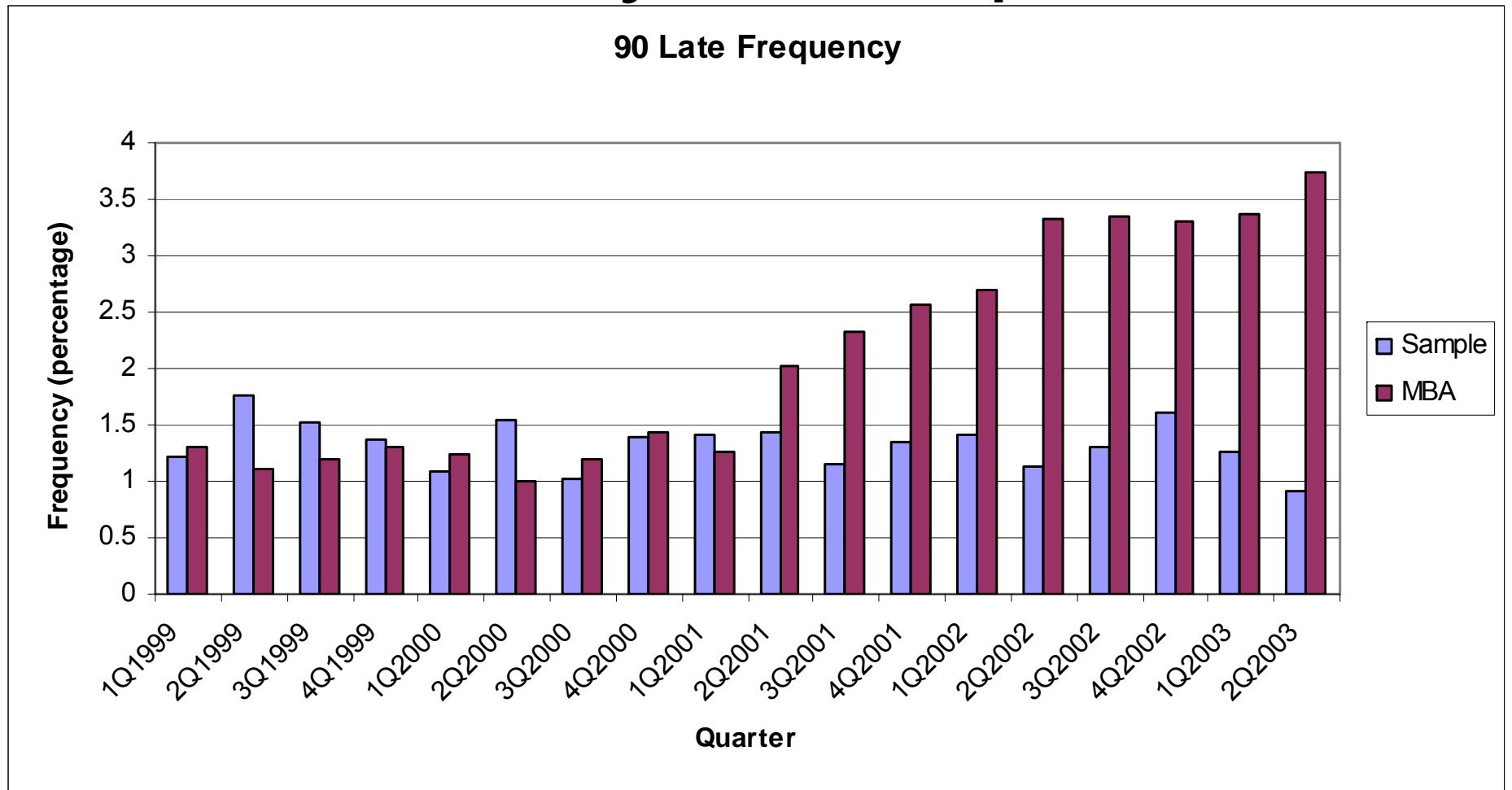
Loan Performance



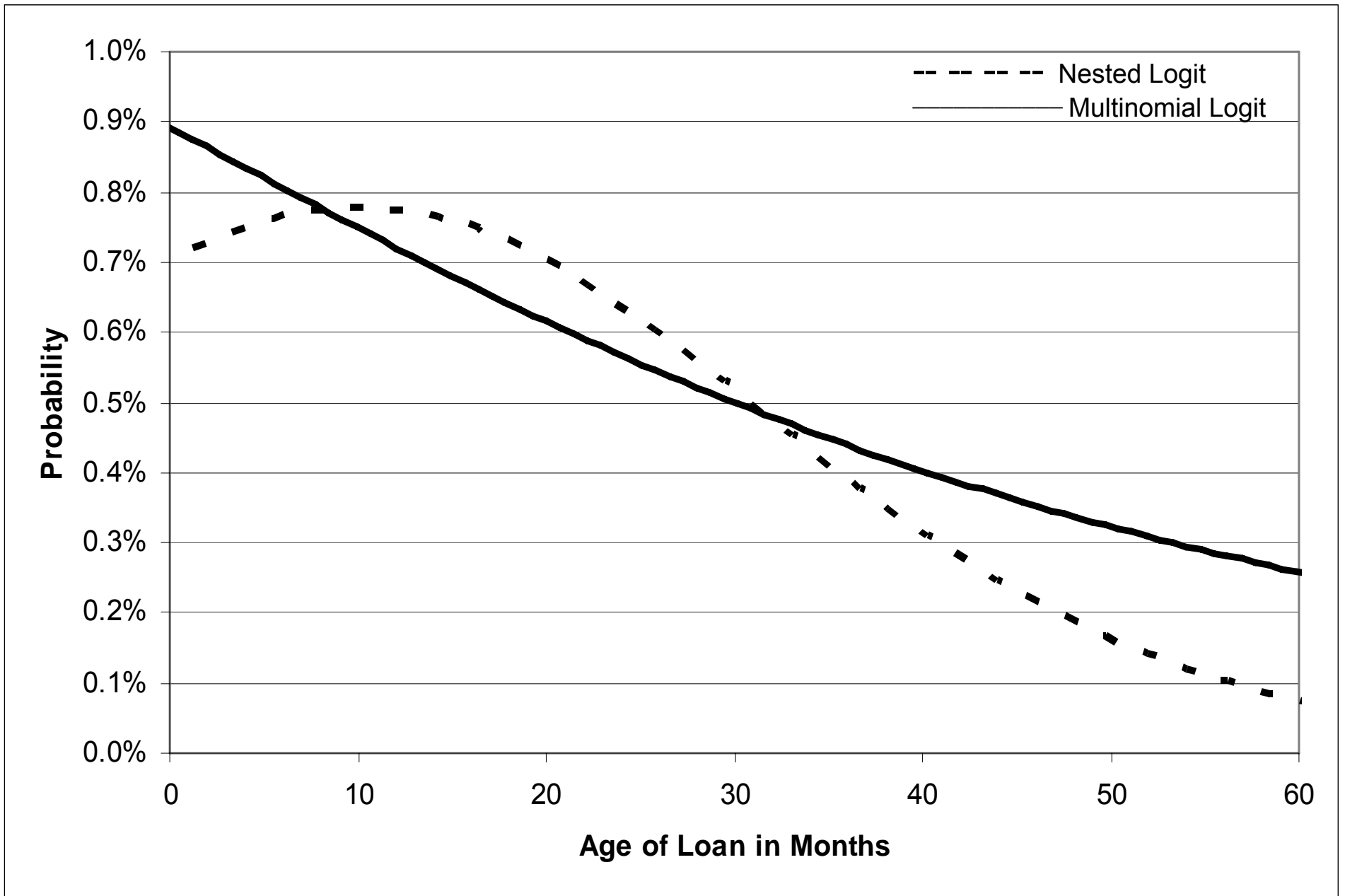
“branches”
indexed by l

outcomes in
“nests”
indexed by j

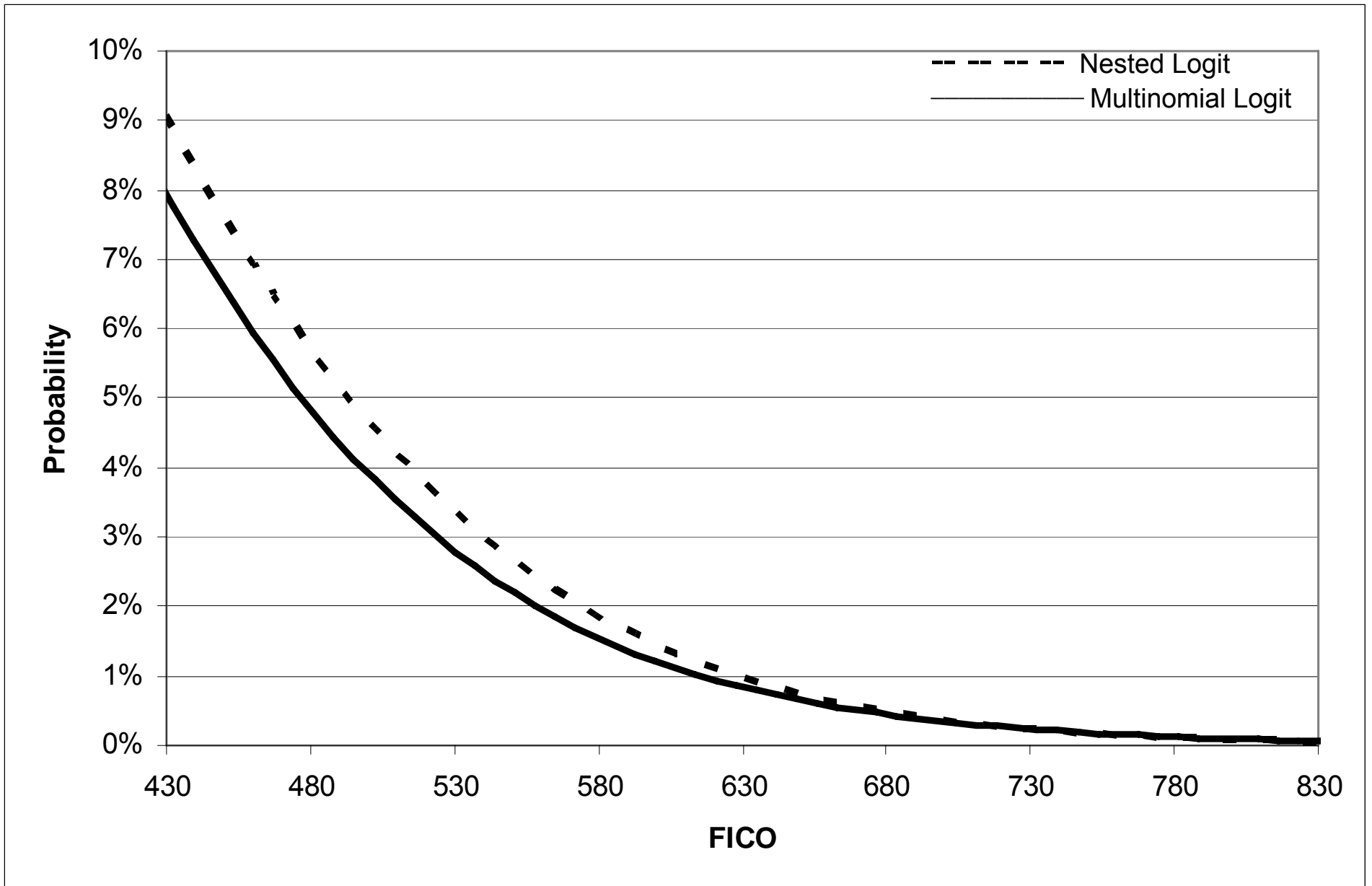
90+ Days Delinquent



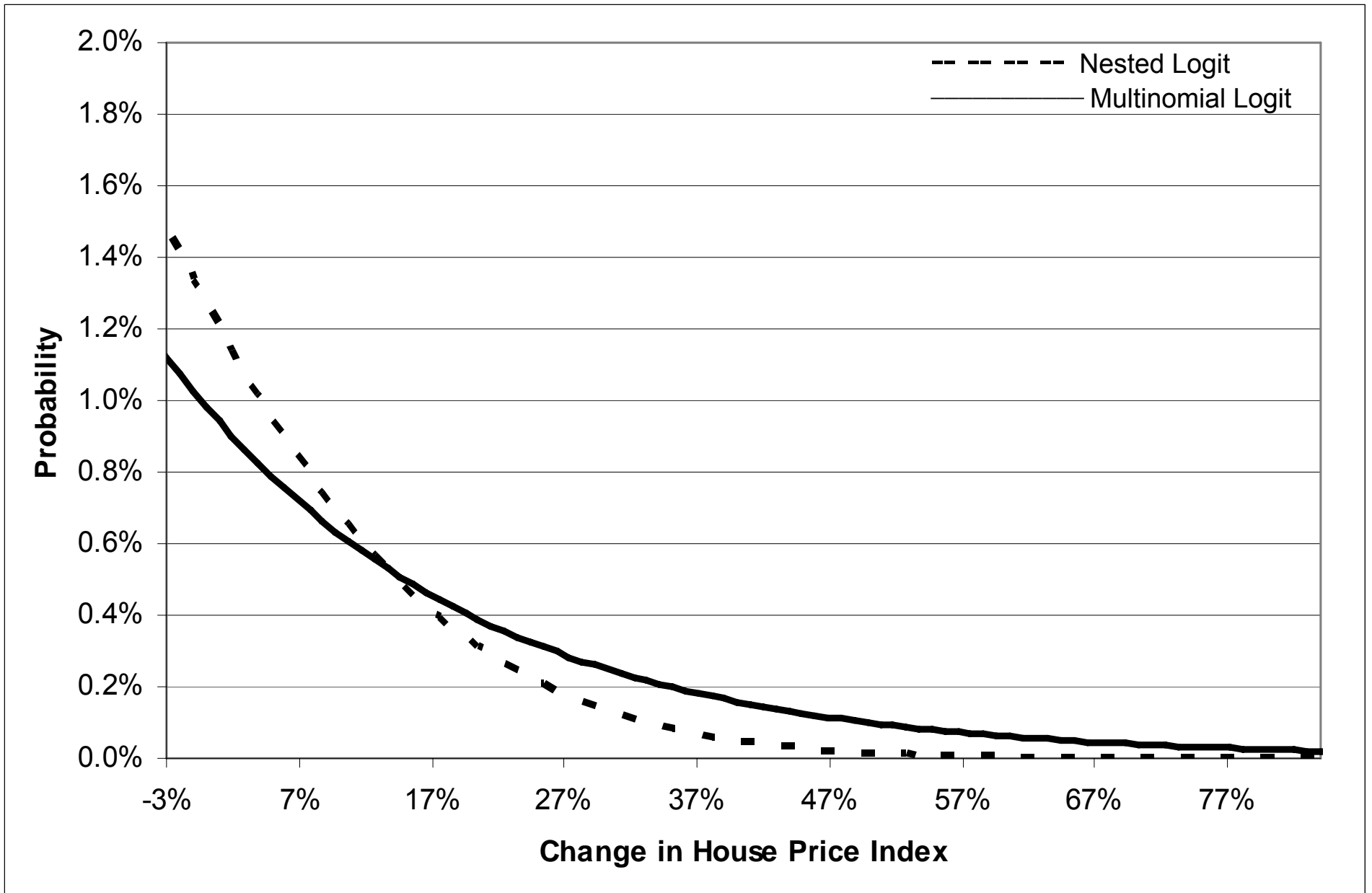
90+ Days Delinquent and Age of Loan



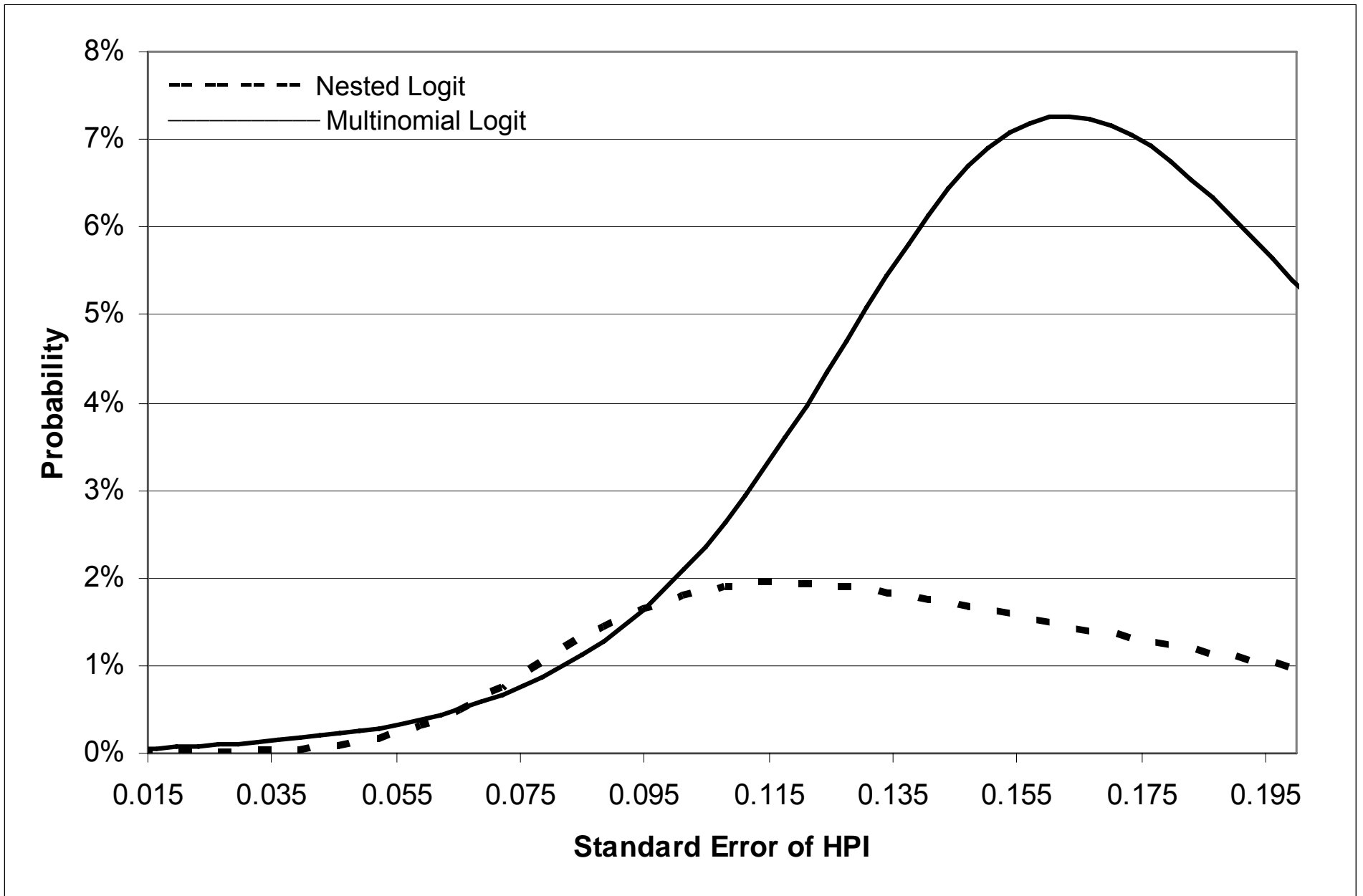
90+ Days Delinquent and FICO



90+ Days Delinquent and House Prices



90+ Days Delinquent & House Price Volatility



Elasticity Estimates

	Current	30-Late	90+-Late	Default	Prepaid
Prepay Penalty	0.7%	7.0%	2.5%	2.6%	-27.6%
Low Doc	-1.9%	87.6%	87.9%	19.8%	1.7%
No Doc	-5.8%	270.7%	336.8%	24.3%	5.8%

The Recipe for Delinquency

Young loans

Moderately volatile and flat or declining
house prices

Low credit scores

Low & no documentation