

RESEARCH REPORT

STATE ANTI-PREDATORY LENDING LAWS:
Impact and Federal Preemption Phase I Descriptive Analysis

October 5, 2009

Center for Community Capital
Research and analysis on the transformative power of capital



Institutional Affiliations

Lei Ding, Assistant Professor, Department of Urban Studies and Planning, Wayne State University

Roberto G. Quercia, Director Center for Community Capital, Professor of City and Regional Planning, University of North Carolina at Chapel Hill

Alan M. White, Assistant Professor of Law, Valparaiso University

Acknowledgments

We gratefully acknowledge the help of the following people: Pat A. McCoy, Susan M. Wachter, Anthony Pennington-Cross, and Ronald J. Mann for their insightful and timely comments; Kevin Park and Lilah Besser for their excellent research support, Carolina Katz Reid for producing the zip code analysis of the LPS data; and Eleanor Howe for her careful review of an earlier draft of the report.

This work was made possible by a grant from The National State Attorneys General Program at Columbia Law School which received funding from the Consumer Protection Fund of the North Carolina Department of Justice.

While the people and institutions cited above deserve our thanks for making the work possible, the paper's authors take full responsibility for the contents, findings and conclusions of the paper.

Table of Contents

Executive summary.....	ii
1. Introduction.....	1
2. Literature review	4
3. Law coding and data.....	11
3.1 Classifying state mortgage laws.....	11
3.2 Federal preemption of state laws.....	14
3.3 Data.....	16
4. State anti-predatory lending laws and foreclosure rates.....	18
4.1 Analysis plan	19
4.2 State laws and prevalent loans characteristics	20
4.3 State laws and mortgage default rates	21
4.4 Summary and discussion.....	23
5. The impact of federal preemption.....	25
5.1 Analysis plan	25
5.2 Federal preemption and lending activity of preempted lenders	27
5.3 Summary and discussion.....	30
6. Summary and next steps	31
References.....	33

Executive Summary

Federal preemption of state anti-predatory lending laws has received increased scrutiny in recent debates over the subprime crisis. This is because federal laws regarding mortgage lending had been substantially less restrictive than many state laws in recent years and because lending by preempted lenders accounts for a significant share of the mortgage market. As policy makers try to deal with mounting foreclosures, it is important to understand whether or not federal preemption is to blame, at least in part, for the current crisis. The overall goal of this study is to document the impact of state anti-predatory lending laws (APLs) and the impact of federal preemption, particularly the Office of the Comptroller of the Currency's (OCC) preemption in 2004, which coincided with the explosion in subprime lending. We present a preliminary descriptive analysis in this Phase I report.

To examine the impact of both state anti-predatory lending laws and federal preemption, we developed a coding system that allows us to identify states with anti-predatory lending laws that are more or less restrictive than federal regulations and to examine the impact of specific restrictions contained in some state laws, such as regulation on a verification of a borrower's ability to pay, the coverage of mortgage loans with high points and fees, and the restriction of prepayment penalties. The coding system provides a strong foundation for the descriptive analysis in this study.

Unlike most early studies on the impact of APLs, which focused primarily on subprime credit and its overall cost, this study looks at the link between state laws and mortgage default rates, specifically whether APLs are associated with lower rates of residential mortgage default. Overall, we observe a lower default rate for neighborhoods in APL states, in states requiring verification of borrowers' repayment ability, in states with broader coverage of subprime loans with high points and fees, and in states with more restrictive regulation on prepayment penalties. We believe that these findings are remarkable, since they suggest an important and yet unexplored link between APLs and foreclosures. Moreover, given the wide range of factors influencing foreclosures, including house price declines, rising unemployment, and differences in state foreclosure processes, these descriptive statistics are likely to result in an underestimation of the positive impacts of APLs. These findings also point to the need to understand how federal preemption affected the effectiveness of state APLs.

To provide a preliminary analysis of this question, we also undertake descriptive analyses of the impact of federal preemption on subprime loan originations. Using Home Mortgage Disclosure Act (HMDA) data, we compared trends in subprime application and origination before and after preemption by different types of institutions and for states with or without APLs. Our *a priori* expectation was that after the OCC preemption, depository lenders, especially national banks, would increase their subprime activity in states with APLs because they were no longer required to abide by more stringent state regulations. Although the results provide some support to our contention, the nationwide

results were too aggregated to capture the nuances of the interaction of preemption and APLs in different states. Moreover, the HMDA data is not perfectly suited to understanding changes in subprime lending after 2004. Using the HUD subprime lender list is less than ideal since the distinction between prime and subprime lenders became increasingly blurred during this time period, while loan pricing information, which helps identify at least one subprime loan characteristic directly, was not made available in HMDA before 2004.

Because of the descriptive nature of this analysis, the findings here should be considered preliminary. Regression analysis is needed to derive more definite conclusions. In Phase II of the study, we will expand and improve upon the analysis in two ways. We will rely on more rigorous multivariate methods and use an enriched and expanded HMDA database. These and other techniques should allow us to isolate the impact of state anti-predatory lending laws and the 2004 OCC preemption. With the expanded HMDA data, we should be able to examine detailed loan characteristics and the performance of preempted loans compared with those still covered by state laws. By focusing on a random sample of mortgages originated by different lenders before and after preemption and tracking their performance over time, we should be able to identify whether the 2004 ruling contributed to the foreclosure crisis that followed.

1. Introduction

Prompted by growing concerns over the explosion in subprime lending, many states enacted state anti-predatory lending laws (APLs) to expand legal protections for consumers in the mortgage market and deter the origination of loans with characteristics considered detrimental to consumers. Those features include home equity stripping, loan flipping, abusive interest rates and fees, inclusion of unwarranted prepayment penalties, and others. To the extent that such loan characteristics depleted the equity held by borrowers, these characteristics can be expected to increase the exposure of borrowers to negative equity and thus to increase the risks of default and foreclosure. States enacted anti-predatory lending laws to complement and address perceived weaknesses in consumer protection laws at the federal level that made such lending possible. From this perspective, they can be said to fill a regulatory gap in the residential mortgage lending market.

Responding to industry concerns regarding this new legal landscape, federal regulators aggressively used their preemption powers to avoid having state laws apply to the institutions they supervise. For instance, in 1996, the Office of Thrift Supervision (OTS) issued a regulation that broadly preempted federally chartered savings and loan institutions, including their subsidiaries, from numerous state mortgage regulation laws. In February 2004, the Office of the Comptroller of the Currency (OCC) officially preempted national banks and their operating subsidiaries from most state laws regulating mortgage credit, including state anti-predatory lending laws, arguing that they should only be subject to federal laws regulating mortgage credit. The issue of federal preemption has received increasing attention because federal laws had been substantially less restrictive than many state laws, particularly before 2008, and mortgage lending by preempted lenders accounted for a significant share of the market. The share of high-cost loans¹ that were preempted in APL states increased from 16 percent in 2004 to 46 percent in 2007. Considering the ever-growing share of subprime mortgages originated by national banks, thrifts, and their subsidiaries that were preempted by federal laws, there is some debate whether such preemption is to blame, at least in part, for the current foreclosure crisis (Belsky and Essene 2008; Bostic, Engel, McCoy, Pennington-Cross, and Wachter 2008a).

The purpose of this study is to examine the impacts of both state anti-predatory lending laws and federal preemption, especially the 2004 OCC preemption. The study has important policy implications for current regulatory reform debate. After the federal preemption, federally chartered banks and thrifts and their operating subsidiaries were immune from state anti-predatory lending laws, while state laws continued to apply to other mortgage lenders. Of course, OCC did adopt rules advising national banks on how to avoid engaging in predatory lending. The existence of different state laws and the

¹ Although “high-cost” and “higher-priced” are not strictly analogous to “subprime,” many researchers use these terms interchangeably with subprime. In adding the “high-cost” loan data in HMDA, the Federal Reserve intended that the reporting thresholds for higher-priced loans would help to identify subprime mortgages, which had previously been identified based on the HUD list of subprime lenders.

federal preemption by OCC and OTS provides us an opportunity to evaluate the relatively effectiveness of different types of regulations.

Early studies have investigated the impact of anti-predatory lending laws on the availability of subprime lending (Ernst, Farris, and Stein 2002; Harvey and Nigro 2004; Quercia, Stegman, and Davis 2004; Li and Ernst 2007; Bostic, Engel, McCoy, Pennington-Cross, and Wachter 2008b), the overall levels of the cost (Li and Ernst 2007; Pennington-Cross and Ho 2008), and product substitution (Pennington-Cross, Chomsisengphet, Bostic, Engel, McCoy, and Wachter 2008). At the aggregate level, the literature generally suggests APLs did not cause a significant decline in subprime lending in general and did not drive up credit costs. We extend this literature by looking explicitly at the links between the regulatory environment across states and across different lenders to contemporary mortgage default rates.

We contend that APLs have impacts on the mortgage market through various channels. There is good evidence that some types of loan features tend to be used less and restrictive laws can reduce the flow of subprime credit (Pennington-Cross et al 2008). Beyond the availability of credit, the change in loan features may also change the performance of loans in aggregate. If APLs are binding restrictions on OCC regulated banks, federal preemption allows preempted lenders to do what they want to maximize profits. Of course, the APL may not be a binding restriction due to internal underwriting standards or regulatory oversight of loan quality and capital requirements. Therefore, only if the APLs restricted the behavior of the bank should we see a change in product mix and originations when the APLs were preempted. Eventually, reduced lending of risky products or the changed product mix should lead to changes in the performance of loans originated by preempted lenders. If the APLs helped to slow features that lead to the subprime meltdown then preemption may have helped to cause it and make it worse.

We can test these contentions by examining the composition, quality, and performance of mortgages originated by lenders subject to different regulators in states with or without APLs. The findings of this study should be able to shed some light on the debate surrounding federal preemption and consumer protection: whether federal regulators should set a regulatory floor (but not ceiling) allowing states to enact stricter requirements. Should we implement the best of state laws at the national level, or should we allow states to pursue their own legal structure? Which would lead to better outcomes for consumers?

To examine these questions, we developed a coding system to classify state anti-predatory lending laws. Typically, although not always, state laws were modeled after the federal Homeownership Equity Protection Act (HOEPA) adopted in 1994. The coding in the study allows us to identify whether a state law was more or less restrictive than HOEPA. Moreover, the coding allows us to examine the impact of state laws that incorporate specific restrictions, such as regarding a borrower's ability to pay, level of points and fees trigger, and the inclusion of prepayment penalties. Overall, these are significant contributions over prior work and provide a strong foundation for the

descriptive analysis in this Phase I report and the multivariate predictive analysis to be included in the Phase II report.

In this report, we examine first whether APLs are associated with lower rates of residential mortgage default. Specifically, we compared the foreclosure and delinquency rates of neighborhoods in states with APLs (and different types of APLs) with those in states without such laws. We rely on loan performance information obtained from a large proprietary dataset covering over 50 percent of the market. Overall, we find that APLs matter. We find lower default rates, measured by 90+ day delinquency rates and by foreclosure rates at the zip code level, in APL states. Moreover, we find that the specific restrictions in the law also matter. APLs that require a lender to consider a borrower's ability to pay and ban prepayment penalties are associated with significantly lower default rates. Regression analysis will be conducted in Phase II to examine more deeply the impact of APLs on default rates.

Second, we also undertake a preliminary descriptive analysis of the impact of federal OCC preemption. Using Home Mortgage Disclosure Act (HMDA) data, we compare trends in subprime application and origination before and after preemption by different types of institutions and for states with or without APLs. Our *a priori* expectation was that after the federal preemption, national banks and federal thrifts would increase their subprime activity in states with APLs because they were no longer required to abide by these more stringent regulations. The results of our descriptive analysis provide support to our contention that preempted lenders operated more freely in the subprime market after the OCC preemption. In Phase II of this project, we will examine this issue, analyzing enriched and expanded Home Mortgage Disclosure Act (HMDA) dataset to define subprime loans consistently over time and conduct multivariate regression analysis to better capture the impacts of preemption on mortgage default rates. (The HMDA data used for the Phase I analysis are too aggregated to capture the nuances of the interaction of preemption and APLs in different states and do not provide pricing information before 2004. Also, the HUD subprime lender list seems to misclassify too many lenders to allow us to identify subprime loans across our study period in a manner we deem consistent and satisfactory.)

This Phase I report is organized as follows: Section 2 reviews the recent studies on the impact of state anti-predatory lending laws. Section 3 describes methodological considerations, including the APL coding and the two primary datasets used. Section 4 presents the descriptive results of the relationship between APLs and foreclosure rates. Section 5 presents the results of our preliminary examination of the impact of the federal preemption. In the last section, we summarize the results and derive implications for the next research steps to be undertaken in Phase II of the study.

2. Literature Review

Since North Carolina passed the first state anti-predatory lending law—a kind of “mini-HOEPA”—in 1999, researchers have been working to understand how APLs impact the mortgage market. A number of studies have examined the effect of state mini-HOEPA laws on credit flows and loan prices. Some of these studies focus on one jurisdiction’s law; others analyze outcomes nationally. As policy makers attempt to address abusive lending and mounting foreclosures, recent research started to investigate how APLs affected the use of more exotic loan types and how state laws impact mortgage foreclosure rates across states and neighborhoods. In this section, the impact of APLs will be reviewed on credit flows, cost of credit, mortgage product substitution, and neighborhood foreclosure rates.

2.1 Impact on Credit Flows

Overall, there is strong evidence that the introduction of state anti-predatory lending laws in some markets reduced the number of subprime loan originations, especially loans with abusive characteristics. However, taken as a whole, the national data show a lack of overall relationship between state laws and credit flows.

One group of studies that focused on the first state anti-predatory lending law, in North Carolina, found that the subprime market diminished in size as a result of the passage of the law (Ernst et al. 2002; Quercia et al. 2004; Elliehausen and Staten 2004; Harvey and Nigro 2004), which is consistent with other studies that have looked at APLs and subprime lending in Chicago, Philadelphia and New Jersey (Harvey and Nigro 2003). While most of these studies agreed that subprime originations fell disproportionately after passage of the law in North Carolina compared to its neighboring states, there is controversy about why.

According to Elliehausen and Staten (2004), subprime originations in North Carolina dropped for low- and moderate-income borrowers (with annual household incomes of \$50,000 or less) but rose for higher-income borrowers. A report by Burnett, Finkel, and Kaul (2004), which used HMDA data and cross-tabulations, found that loan originations fell in North Carolina relative to South Carolina and Tennessee after passage of the law. But the authors suggested the North Carolina decline was due to declines in loan applications in North Carolina relative to the control states, and that denial rates for the applications that were made were lower. Similarly, using multivariate regression, Harvey and Nigro (2004) found that the probability of subprime loan applications and originations fell in North Carolina post-passage but the probability of subprime loan denials did not, relative to the control states. Thus, they attributed the falloff in North Carolina originations to reduced demand, not reduced supply. Contrary to Elliehausen and Staten, they reported that the law had no differential effect on North Carolina borrowers with household incomes of \$25,000 or less. Quercia et al. (2004) found that the decline in subprime lending in North Carolina was primarily confined to the refinance market and to loans with predatory features. Almost 90 percent of the reduction in

subprime mortgages in North Carolina post-law consisted of subprime loans with at least one predatory feature.² In the opinion of the authors, the law effectively eliminated abusive loans without restricting the supply of subprime mortgage capital for borrowers with blemished credit records: “The NC Act [was] doing what it [was] supposed to do” (p.586).

With the growth in state mini-HOEPA laws, more recent studies have examined the effects of the state laws on a national scope. Because there is significant variation in the coverage and strength of APLs across different states, most researchers have developed a set of indices to quantify the substantial variation in the laws. Ho and Pennington-Cross (2006) created a two-component index of state laws. The first component, “coverage,” reflects the extent to which a law extends market coverage beyond HOEPA; the second component, “restriction,” reflects the extent to which a law restricts or requires specific practices on covered loans. Bostic et al. (2008b) further added the enforcement index, which includes measures of assignee liability and enforcement against originators.

Studies using these state-level indices find that APLs appear to have little impact on subprime originations, applications, or rejections at the aggregate level. But APLs with stronger restrictions are associated with a decrease in subprime lending (Ho and Pennington-Cross 2006; Elliehausen, Staten, and Steinbuks 2006; Bostic et al. 2008b).

For instance, using HMDA data, Ho and Pennington-Cross (2006) used the legal index to examine the effect of state anti-predatory lending laws on the probability of subprime applications, originations, and rejections. A state anti-predatory lending law had no effect on the probability of origination and only a scant negative effect on the probability of applications, while it reduced the likelihood of being rejected. But stronger restrictions reduced the likelihood of applications and originations. In contrast, stronger coverage had the opposite effect, suggesting that anti-predatory lending laws with lower triggers boost demand by reducing consumer fears about abusive lenders.

Elliehausen et al. (2006) used a proprietary database of subprime loans originated by eight large lenders from 1999 to 2004. The study used both a binary variable representing the presence or absence of a state law and the combined Ho and Pennington-Cross index to examine the effect of state laws on subprime originations. They found that the presence of a law was associated with a decrease in total subprime mortgages, including both the high-cost and non-high-cost variety. For the vast majority of laws with high combined scores for coverage and restrictions, high-cost originations fell while non-high-cost subprime originations remained the same or grew. The authors construed these findings as evidence that lenders shifted lending from covered high-cost loans to uncovered loans in response to the enactment of state mini-HOEPA statutes.

Bostic et al. (2008b) used the HMDA data and an updated dataset on APLs to study the effect of APLs, including three components—coverage, restriction, and enforcement—on

² In the study, a predatory feature was defined as a prepayment penalty of more than three years, a balloon payment, and/or a combined loan-to-value ratio of 100 percent or more.

subprime lending. They found that when considered at the aggregate level, state APLs appear to have little impact on subprime originations, applications, or rejections. The lack of an overall relationship can be explained by the opposing effects of restrictions and coverage. Consistent with Ho and Pennington-Cross (2006), Bostic et al. (2008b) found that more restrictive state laws reduced subprime originations and increase the likelihood of subprime rejections. Regarding coverage, although laws with broader coverage are associated with reduced subprime application propensities, they are also associated with lower subprime rejection rates. On balance, the reduction in rejection propensity appears to outweigh the application effect, as higher subprime origination propensities were found in states with broader coverage. Finally, variation in enforcement is not consistently associated with subprime origination or application likelihood, but there is a significant reduction in rejection probabilities as enforcement methods strengthen.

Li and Ernst (2007) used Loan Performance data on securitized subprime loans to analyze the effect of state laws from January 1998 through December 2004. Instead of constructing a single legal index, they ranked state laws according to the type of loans covered, points-and-fees triggers, substantive legal protections, and remedies available to borrowers. The advantage of this approach is that it is easier to derive policy implications based on these measures. The authors concluded that state APLs reduced the prevalence of predatory loan terms but failed to reduce subprime loan originations (except in Georgia and New Jersey), compared with unregulated states. In Georgia and New Jersey, as Keys, Mukherjee, Seru, and Vig (2008) have documented, the demand for securitization of mortgage loans fell drastically when the two states passed APLs in 2002 and 2003, respectively. The authors attributed the dramatic decline in subprime originations to these states' APL terms, which allowed for unlimited punitive damages when lenders did not comply with the provisions.³

Some qualitative studies suggest that the typical law did not have much impact on the overall flow of credit. In fact, an early survey of subprime branch managers by Posner and Meehan (2002) found that expectations of subprime growth in states with more aggressive regulations were similar to expectations in less regulated states. They also reported that respondents found that the increased disclosures associated with new laws helped to boost consumer comfort, leading to an increase in loan volumes. *Inside B&C Lending* (2001) documented that lenders still offered a full menu of loan products with little or no effect on loan prices, based on a review of the rate sheets of several large subprime lenders who were active in North Carolina after enactment of that state's law.

Overall, while the introduction of the first APL in North Carolina seems to have reduced the flow of credit with abusive characteristics in that state, at the aggregate national level APLs appear to have little impact on subprime activity. There are some possible explanations. First, there is a fundamental difference between the states that extended restrictions on subprime mortgages beyond federal requirements, and states that simply

³ In response to the market, the Georgia Legislature amended Georgia Fair Lending Act in early 2003, removing many ambiguities and eliminating covered loans. Similarly the New Jersey Homeownership Security Act of 2002 was amended in June 2004 in a way that relaxed requirements and eased lenders' concerns.

copied federal HOEPA restrictions into their state statutes. Some state laws did not extend coverage beyond mortgages covered by federal law. In several instances, the intent of these laws was to preempt local laws and ordinances that imposed greater restrictions than federal law. So it is important to distinguish between these two types of state laws when comparing results.

Second, the empirical evidence also suggests that more restrictive state laws reduce subprime originations and increase the odds of subprime rejection. Studies suggest that laws designed with very few restrictions were associated with a relative increase in subprime lending and that laws with stronger restrictions were associated with a decrease in subprime lending. However, increasing the coverage of a state law seemed to mitigate the dampening effect of stronger restrictions on subprime loan volumes (Bostic et al. 2008b). In fact, the subprime market can actually grow after enactment of an APL because potential applicants may feel more comfortable applying for a subprime loan if a lending law covers their application. Industry may also feel more comfortable with the unambiguous regulatory framework provided by strong APLs. It seems the different components of the composite index of state laws may have “slider effects” in which the strength of the coverage component offsets the effects of the restriction component.

Finally, in addition to examining overall credit flows, it is also important to examine which segment of the subprime market declined, which remained stable, and which increased. Since APLs were intended to reduce the number of predatory or abusive subprime loans, a decline in subprime lending, especially of loans with these traits, is not surprising. If anti-predatory lending laws have curbed so-called predatory practices while permitting non-abusive subprime lending to develop, the laws have done what they were intended to do. Except for Quercia et al. (2004) and Pennington-Cross et al. (2008), current research has not examined this issue closely.

2.2 Impact on the Cost of Credit

If there are costs in complying with regulatory requirements, then these costs are likely to be, at least in part, passed on to the consumer through higher interest rates or higher points and fees. However, the evidence suggests that APLs generally do not drive up loan prices. Although more restrictive laws may drive up the cost of borrowing through higher interest rates, this effect is limited to fixed-rate loans and its magnitude is typically fairly small (Li and Ernst 2007; Pennington-Cross and Ho 2008).

Using a sample of subprime loans originated from January 1998 through December 2004, Li and Ernst (2007) found nominal interest rates on mortgages stayed level or dropped in all states with anti-predatory lending laws except Georgia and Virginia, compared with the controls. Nominal interest rates on fixed-rate, 30-year subprime mortgages without prepayment penalties rose an average of 15.4 basis points in Georgia, while interest rates on adjustable-rate 2/28 hybrid mortgages without prepayment penalties rose 17.3 basis points on average in Virginia.

Pennington-Cross and Ho (2008) used the two-component legal index (restriction and coverage) to study the effect of APLs on the cost of credit based on 2004 HMDA data and the Loan Performance data. They found that subprime loans that originated in states with APLs had lower annual percentage rates (APRs) than loans in unregulated states. Increasing a law's strength had the same effect. In both cases, greater coverage rather than stronger restrictions explained the lower APRs in regulated states. A comparable analysis using Loan Performance data from 1998 through 2005 in the same study yielded somewhat different results. State anti-predatory lending laws modestly increased nominal interest rates on fixed-rate loans but lowered them on adjustable-rate loans. For both types of loans, laws with more restrictions displayed the same or higher spreads, while laws with greater coverage displayed lower spreads.

2.3 Impact on Mortgage Product Substitution

Since APLs were intended to reduce the number of predatory or abusive subprime loans, it is important to examine how APLs impacted the use of unconventional loan types. Which components of subprime lending declined and which alternatives have been adopted? Pennington-Cross et al. (2008) examined whether the APLs were associated with the increased use of more exotic loan types. They hypothesized that since many laws also restrict the use of extremely high interest rates and prepayment penalties, lenders and borrowers are likely to find substitute mortgage terms that increase affordability so that a borrower can still qualify for a loan. Possible alternative mortgage terms include the use of longer or bigger teasers, interest-only payments, and balloon payments.

They found strong evidence that many laws very effectively reduced the use of prepayment penalties. In fact, the laws reduced the odds of having a prepayment penalty by over 40 percent. There is also consistent evidence that adjustable rate, hybrid rate, balloon payment, and interest only loans all decline in use after a law is in effect. In addition, APLs reduced low-documentation loans and investor loans, the latter typically by 8 percent to 28 percent. When a state anti-predatory lending law strongly restricts loans with prepayment penalties, balloon features become more prevalent and investor and second-home loans less so. In other words, balloon payments substituted for prepayment penalties in locations with strong prepayment restrictions. These are all important policy outcomes that indicate that the laws had the intended impact – reducing the use of certain types of loan characteristics.

2.4 Impact on Foreclosure Rates

One line of research has started to investigate whether differences in regulatory environment, including state anti-predatory lending laws, contribute to differences in the quality of loans originated and subsequent rates of foreclosure. Many of the features covered under APLs, such as the use of prepayment penalties, balloon payments, lack of verification of borrowers' repayment capacity, and very high interest rates and fees, have been associated with higher default risk. Calhoun and Deng (2002) and Quercia, Stegman, and Davis (2007) found that subprime adjustable rate mortgages (ARMs) have a higher risk of foreclosure because of the inherited interest-rate risk. At the aggregate

level, the share of ARMs appears to be positively associated with market risk, as measured by house price declines (Immergluck 2008). Subprime hybrid ARMs, which usually have prepayment penalties, bear particularly high risk of default at the time the interest rate is reset (Ambrose, LaCour-Little, and Huszar 2005; Pennington-Cross and Ho *forthcoming*).

As to prepayment penalties and balloons, Quercia et al. (2007) found that compared to loans without these features, refinance loans with prepayment penalties are 20 percent more likely to experience a foreclosure, while loans with balloon payments are about 50 percent more likely. Prepayment penalties also tend to reduce prepayments and increase the likelihood of delinquency and default among subprime loans (Danis and Pennington-Cross 2005). Ding, Quercia, Li, and Ratcliffe (2008) identified that ARMs, prepayment penalties, and broker originations all contribute significantly to subprime loans' increased risk of default.

Although the literature does document a clear link between these product features and foreclosures, given the limited publicly available information on loan performance, very few studies have linked state APLs explicitly to local- or state-level foreclosure rates. After controlling for housing market conditions, we would expect to find lower foreclosure rates in states with better mortgage market regulations. In a working paper, Goodman and Smith (2009) suggest that the laws governing mortgage underwriting, mortgage foreclosures, and the potential costs to the lender differ substantially across states. They hypothesize that the existence of state anti-predatory lending laws or state foreclosure laws increases both lenders' costs and their incentive to tighten underwriting standards. Based on the foreclosure rate data constructed from Lender Processing Services Applied Analytics, Inc. (LPS) data and a hierarchical linear model, they found some evidence that mini-HOEPA laws reduce the level of foreclosure. The results suggest that higher lender costs for foreclosure and stringent controls on predatory lending are connected to lower foreclosure rates. But the study is limited because Goodman and Smith used a cross-sectional dataset for one particular month and the law index from Bostic et al. (2008b). With some seasoned loans in the dataset, the results may be biased, because many loans were originated before the enactment of state laws. It is also unclear whether the results can be generalized to other time periods. A model using a panel dataset or loan-level data that allows for a control of borrower and loan characteristics explicitly will overcome some of the study's limitations. Particularly as regulations are being proposed and amended to address the current mortgage crisis, further research in the area of laws and regulations, and the measurement of their effectiveness is needed (Richter 2008).

2.5 Impact of Federal Preemption

There has been almost no serious research and only minimal discussion on the impact of federal OCC preemption. Harvey and Nigro (2004) suggest that the APL in North Carolina might have a unique impact on non-bank lenders, which are generally not subject to the same federal oversight as their bank competitors and therefore are perceived as being more likely to engage in predatory lending than banks. However, non-

bank lenders wanting to avoid the anti-predatory lending law may have used the strategy by being acquired by national banks.

Burnett et al. (2004) found a shift in subprime lending from non-banks to banks in North Carolina after the 1999 passage of the APL, as well as a change to a significantly higher share of originations by subprime bank lenders in North Carolina than in the control states. The consolidation in the financial services industry—in particular, the acquisition of subprime lenders by bank holding companies—during the study period may help to explain this finding. However, another possible explanation, as the author suggested, was the bank lenders' expectation that the state anti-predatory lending law would eventually be preempted by federal laws for federally regulated institutions. Similarly, Harvey and Nigro (2004) found that, following adoption of the law, subprime lending by bank lenders held steady while subprime lending by non-bank lenders fell in North Carolina, in comparison with the control states.

But important questions regarding the impact of federal preemption remain. Federal preemption fundamentally changed the legal structure for national banks and federal thrifts, softening lending restrictions at a time when underwriting standards overall were declining (Demyanyk and van Hemert 2008). How did the federal preemption impact subprime flows of credit at the national level? After the 2004 preemption, did the originations of prime, subprime, and loans with predatory characteristics shift from the covered to non-covered institutions? How did preemption affect the default rates of loans originated by national banks and federal thrifts? Did preemption lead to looser underwriting standards and higher foreclosures? The existence of federal preemption and APLs creates a natural experiment for an evaluation of the effectiveness of different modes of regulation.

2.6 Summary

Overall, there is strong evidence that the introduction of the first state anti-predatory lending law in North Carolina reduced the number of applications for and originations of subprime loans. Nationally, however, research has found no consistent relationship between APLs and subprime activities. The significant difference in the strength of APLs across states may help explain this. Studies suggest some laws with strong restrictions were associated with a decrease in subprime lending. Increasing the coverage of a state law, however, helped mitigate the dampening effect of stronger restrictions on subprime loan volumes. Studies also found strong evidence that many of the laws very effectively reduced originations with exotic loan terms, such as prepayment penalties, adjustable and hybrid interest rates, and interest-only payments. In addition, APLs reduced the use of low documentation and investor purchases.

Finally, some preliminary study results suggest that an effective APL improves the quality of loans originated by giving lenders an incentive to tighten underwriting standards and ultimately to reduce the default and foreclosure rates.

As to the cost of credit, the evidence suggests that APLs generally do not drive up loan prices. Although more restrictive laws may drive up the cost of borrowing through higher interest rates, this effect is limited to fixed-rate loans and is typically fairly small.

Because of the collapse of the subprime sector, it is important now to investigate the link between mortgage market regulation across states and across different types of lenders and how regulations influence mortgage performance. This preliminary analysis, together with Phase II regression analysis, will contribute to the literature by examining whether APLs are associated with lower rates of residential mortgage default and whether federal preemption of state laws lead to looser underwriting and higher foreclosures.

3. Law Coding and Data

Evaluating the impact of the state anti-predatory lending laws and federal preemption on the mortgage market poses considerable challenges in designing an appropriate set of law-related variables. Several studies used the presence or absence of a state law as a binary variable in their study of the impact of APLs (Elliehausen and Staten 2006, Pennington-Cross et al. 2008). Ho and Pennington-Cross (2006) and Bostic et al. (2008b) used a single index to quantify the differences in the local laws. The higher the index, the stronger the law is. However, it is not easy to interpret the results based on one single index and it seems different components of the composite index of the strength of state laws may have “slider effects”. In this section, we describe our coding system of state laws based on the coverage and strength of laws regulating the subprime market and the methodology to identify lenders that were exempt from state laws because of federal preemption. We also introduced two datasets used in this analysis, the LPS data and HMDA data.

3.1 Classifying State Mortgage Laws

During the period leading up to the subprime foreclosure crisis, from 2000 through 2007, many states adopted laws regulating subprime mortgage lending. The laws were intended to curb so-called predatory practices while permitting nonabusive subprime lending to develop (Li and Ernst 2007). Most of these state laws were modeled after the federal HOEPA law,⁴ adopted in 1994, although there are several states that took various different approaches. The federal HOEPA statute restricts loan terms for mortgages with high prices, based on either the APR or the total points and fees imposed. The mini-HOEPA laws, in turn, can be divided between those that replicated the federal coverage and restrictions, and those that extended HOEPA to either cover more loans, or restrict more contract terms, or both.

⁴ Homeownership Equity Protection Act, Pub. L. No. 103-325, subtit. B of tit. I, §§151-158, 108 Stat. 2160 (1994).

Mini-HOEPA laws were adopted in 25 states and the District of Columbia.⁵ In addition, five states (Michigan, Minnesota, Nevada, Texas and West Virginia) passed significant subprime mortgage regulation statutes that were not HOEPA extension statutes and not based on rate and fee triggers. A number of other states had laws adopted prior to 2000 that restricted prepayment penalties, balloon payments, or negative amortization for all mortgages.

Of the mini-HOEPA laws, eight (Utah, Pennsylvania, Nevada, Oklahoma, Ohio [prior to 2007], Maine [prior to 2007], Kentucky, and Florida) did not extend coverage beyond mortgages covered by federal law. In several instances, the intent of these laws was to preempt local laws and ordinances that imposed greater restrictions than federal law. For example, the Ohio statute provides:

The purpose of sections 1349.25 to 1349.36 of the Revised Code is to bring Ohio law into conformance with the [federal HOEPA law and regulations], in order to facilitate the uniform administration and enforcement of state and federal laws on the regulation of certain high-cost mortgages. Ohio Statutes §1349.32.

There is thus a fundamental difference between the states that extended restrictions on subprime mortgages beyond federal requirements, and states that simply copied federal HOEPA restrictions into their state statutes. Given that the federal statute applies in all states, one would not expect a state law that strictly mimics the federal statute to cause any difference in mortgage credit supply, pricing, or terms vis-à-vis any other state.

Measuring the impact of these state laws on the mortgage market poses considerable challenges in designing an appropriate set of law-related variables. To develop a state law coding system for high-cost or predatory mortgage laws, we reviewed the existing studies, including Pennington-Cross et al. (2008), Bostic et al. (2008b) and Li and Ernst (2007). We also reviewed the description of state laws in several treatises, including Renaut, Keest, Carter, Wu, and Cohen (2009), and Nelson and Whitman (2007), reviewed various rate matrices that reflect mortgage originators' understanding of state laws, particularly for prepayment penalty restrictions, and then reviewed statutory language itself. We did not include any laws or amendments enacted after December 31, 2007. We then developed and coded four variables to describe state laws that could affect the type of subprime mortgages made and the default and foreclosure rates of mortgages in a given state: *ineffect*, *pointstrigger*, *prepaymentpenalty*, and *repaymentability*.

The binary variable *ineffect*, modeled on Pennington-Cross et al. (2008) and Bostic et al. (2008b), in combination with the effective date variable for the same state and law, is intended to identify states with mortgage statutes that could plausibly have an impact on high-cost or subprime mortgage lending (Table 1 and Figure 1). A value of 1 was assigned for the *ineffect* variable to the states judged to have significant restrictions on charging or financing points and fees, credit insurance, prepayment penalties, balloon

⁵ Arkansas, California, Connecticut, District of Columbia, Florida, Georgia, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Nevada, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, and Wisconsin.

payments, negative amortization, determination or documentation of income or repayment ability and/or significant counseling requirements, so long as the state law covers any share of the subprime (or the entire) mortgage market below the HOEPA rate and/or fee triggers.

A value of zero (0) was assigned to the *ineffect* variable for the eight states with HOEPA copycat statutes, i.e. statutes whose APR and points and fees triggers mirrored the federal triggers. This is a departure from some prior studies. During the study period, virtually no mortgages were made nationwide that would have been covered by HOEPA's high-cost thresholds. While some of these eight statutes imposed minor additional restrictions not found in federal law on high-cost loans above the HOEPA triggers, it is doubtful that a difference in regulation of a negligible slice of the mortgage market would affect the outcome variables.

To test this coding decision, we also tested an alternative specification of the *ineffect* variable, *ineffectb*, which codes these eight states with a value of 1, i.e. treats them as having a law in effect (Figure 2). As we expected, the alternative specification of the *ineffect* variable resulted in a smaller difference in foreclosure rates between states coded as having an APL and states without an APL.

To further measure the reach of state laws, an additional variable was created, the *pointstrigger* variable. Most states' laws that do not cover all mortgages use HOEPA-like price triggers in an attempt to cover only subprime, or higher-cost, loans. The *pointstrigger* variable is calculated as the numeric difference between the federal HOEPA threshold for points and fees, and the corresponding state law trigger. For example, the North Carolina law covers loans with points and fees exceeding 5 percent, compared with the HOEPA trigger of 8 percent. The value for the *pointstrigger* variable for North Carolina would be 3, the difference between the federal and state trigger levels.⁶ The larger the value, the greater is the share of the mortgage market that is affected by the statute.

A state law that prohibits points and fees above a certain threshold is treated as having a *pointstrigger* at that price level. West Virginia, for example, prohibits points and fees in excess of 3 percent for most mortgages, and so is assigned a *pointstrigger* value of 5 (8 percent HOEPA trigger minus the 3 percent state law trigger.) The maximum value for the points and fees trigger is 8, i.e., the difference between the 8 percent HOEPA points and fees trigger and an imputed state trigger of 0 for a statute that covers all mortgages. This means that usury ceilings are treated the same as high-cost loan restriction triggers. For states with no mini-HOEPA law that have only a statute restricting or banning prepayment penalties, no value is assigned to the *pointstrigger* variable. Of course, state APL laws also vary somewhat in the types of loans covered, with some including

⁶ The separate APR trigger for determining whether mortgage loans are covered by HOEPA was reduced to cover more loans in only three states, and each of those three states also used a significantly lower points-and-fees trigger. States were much more likely to vary the points-and-fees trigger to include more loans, and therefore the points-and-fees trigger, rather than the APR trigger, is used as a measure of the market coverage of state laws.

categories covered by HOEPA and others extending coverage to categories such as reverse mortgages that are excluded under HOEPA.

Prepayment penalties were frequently included in subprime mortgages and have been found to increase the risk of foreclosure. Many state laws limit the ability of lenders to impose prepayment penalties.⁷ The *prepaymentpenalty* variable captures both the scope and extent of prepayment penalty restrictions on a scale of 0 to 4. A statute banning all prepayment penalties for all, or nearly all, residential mortgages is coded as 4. Statutes restricting but not banning prepayment penalties for all, or nearly all, mortgages are coded as 3. Statutes banning prepayment penalties but only for a subset of mortgages, based on loan amount or price are coded as 2, and statutes banning prepayment penalties only beyond 24 months and covering only a subset of mortgages are coded as 1.

Prepaymentpenalty variable scales include:

- 0: No prepayment penalty restrictions
- 1: Statute covers less than 100 percent of market by loan amount or price AND restricts prepayment penalties, but only after 24 or more months for that market segment
- 2: Statute covers less than 100 percent of market by loan amount or price AND prohibits prepayment penalties for that market segment
- 3: Statute covers 100 percent of residential mortgage market and restricts amount or duration of prepayment penalty but does not prohibit prepayment penalties.
- 4: Statute covers 100 percent of residential mortgage market and prohibits prepayment penalties.⁸

The *repaymentability* variable is binary, and identifies states in which a significant portion of the mortgage market was subject to a requirement that repayment ability be determined and/or verified, or that borrowers receive counseling as a precondition to obtaining a mortgage loan, and that these requirements be subject to some enforcement or sanction. This variable necessarily includes some judgmental assessment of various state law provisions. State laws that impose repayment ability standards, but only on loans above the federal HOEPA triggers, or that do not regulate mortgage repayment ability, were assigned a value of 0. See Table 1 for a summary of all these state law variables described above.

3.2 Federal Preemption of State Laws

⁷ Prior to 2003, federal law overrode state laws banning or restricting prepayment penalties for all lenders but only for some mortgages. However, the federal preemption of prepayment penalty restrictions was lifted by the OTS effective July 1, 2003. The separate impact of federal preemption of state laws for federally regulated banks and thrifts is treated separately, below.

⁸ States naturally fall into these four categories. They prohibit all penalties, impose restrictions on all prepayment penalties, or restrict or prohibit penalties after 24, 30, 36, or 60 months.

Certain mortgage lenders were exempted by their federal banking regulators from complying with the state mortgage laws discussed above. In particular, the OTS exempted federally chartered thrifts from state anti-predatory mortgage laws (and broadly from many credit regulations) in 1996, and the OCC exempted federally chartered banks from state laws beginning in 2003 and becoming effective nationally in February 2004. As a result, any measurement of the impact of state laws must take account of the fact that certain mortgage lenders were free to disregard these state laws as a result of federal preemption, and therefore mortgage loans made by these lenders would be unaffected by state laws.

The OTS issued a regulation in 1996 that broadly exempted federally chartered savings and loan institutions from state laws regulating credit. OTS-regulated institutions were therefore free to disregard the state laws discussed above throughout the study period.

On August 5, 2003 the OCC issued a Preemption Determination and Order stating that the Georgia mini-HOEPA statute would not apply to National City Bank, a national bank, or to its operating subsidiaries, including non-bank subprime mortgage lender First Franklin Financial Company. State regulators and consumer advocates viewed this OCC Order as a departure from prior law, although it was consistent with a trend in prior OCC preemption rulings. The OCC then issued broad preemption regulations, effective February 12, 2004, that exempted national banks and their operating subsidiaries from most state laws regulating mortgage credit.⁹ Thus, prior to August 5, 2003, national banks and their subsidiaries were likely subject to state mortgage laws, while after February 12, 2004 they clearly were not. Of course, federal banking regulators had a different set of regulatory techniques during the housing bubble to address concerns about lax loan underwriting. The federal regulators addressed the repayment ability issue through non-binding guidelines, bank examinations, supervisory orders and sanctions. Thus, preemption did not entirely eliminate regulation of repayment ability, but it displaced binding state laws with the less stringent federal regulatory structure.

The HMDA data includes a field for agency code, identifying the bank regulator that supervises the lender in question. Mortgage loans made by lenders with agency code 1 (OCC) or 4 (OTS) are treated as not subject to state laws due to preemption, from February 2004 forward and for the entire study period, respectively. Lenders with other bank regulators are treated as subject to state laws throughout the study period.¹⁰

⁹ 12 C.F.R. 34.3.

¹⁰ This simplified approach has certain limitations. For example, some states made provisions in their anti-predatory mortgage laws that permitted state-regulated banks to avoid the laws to the same extent that OCC- and OTS-regulated federal banks could. Thus, loans made by such lenders may have been unaffected by state APLs. Most subprime and high-cost mortgages affected by APLs generally, however, were made either by non-banks or by federally regulated banks, so that the simplified treatment of state-chartered banks should not affect the results substantially.

3.3 Data

In conducting this descriptive analysis, we use two data sources: LPS data aggregated the zip code level for the mortgage default analysis in Section 4, and HMDA data for the preemption analysis in Section 5.

Lender Processing Services (LPS) Data

To accurately calculate default rates at the state and zip code level, we rely on proprietary loan performance information compiled by Lender Processing Services Applied Analytics, Inc. (LPS), which provides loan information collected from large loan-servicing organizations. Originally created by a company called McDash Analytics, the dataset is still generally called the “McDash data,” although LPS acquired McDash in July 2008.

The LPS data is rich in detail, including over 70 variables related to loan characteristics and performance such as FICO score, debt-to-income ratio (DTI), loan amount, property value, contract rate type (fixed or adjustable), loan purpose (purchase or refinance), loan type (conventional, FHA, VA, or subprime), occupancy status (owner-occupied or not), documentation status (full documentation or not), existence of a prepayment penalty, loan term to maturity, origination channel (wholesale or retail), and delinquency and foreclosure status in each month—as well as each property’s zip code. Additionally, the performance of each loan can be monitored over time. For each month in which a given loan is in the dataset, we know its outstanding balance, the current interest rate, and the borrower’s payment status (that is, current; 30-, 60-, or 90-days delinquent; in foreclosure, etc.). We also know whether a loan ended in prepayment or foreclosure.

As to its representativeness, from 2004 to 2006 LPS data covered roughly 40 percent of that of the HMDA data, while its coverage in the conventional market varies from year to year (Ernst et al. 2008). The LPS dataset has grown over time as new servicers have been added, with a substantial increase in coverage of the market in 2005.¹¹ Based on our estimation using Mortgage Bankers Association (MBA) data of active loans, the LPS covered about 50 percent of active mortgages in the United States during the period from June 2006 to June 2008 (48 percent in 2006 and 53 percent in 2008).

One strength of the LPS dataset is that it is one of the few loan-level databases that include both conforming prime loans and subprime loans, and both securitized subprime loans and those that are held in portfolio. We can tell whether a loan in the dataset is prime or subprime and whether it was securitized or not. One major concern with the LPS is its coverage in the subprime market: Nationally, as of June 2006, the share of subprime loans among all active loans in the LPS was about 2.8 percent, lower than the 13.4 percent of subprime reported by MBA (2008). But LPS only counts B&C loans as subprime, which inevitably underestimates the size of the subprime market. As Ding et

¹¹ A servicer’s whole portfolio is included when a new servicer joins the dataset. Future loans from that servicer are added to the dataset a month or two after the loans close. This pattern has the potential to introduce some unrepresentative seasoned loans into the data.

al. (2008) documented, the LPS coverage in the subprime market by volume increased from 14 percent for the 2004 cohort to over 30 percent for the 2006 cohort. While any empirical approach needs to consider the changing nature of the LPS data, it is not a serious problem here since we focus on active loans in very recent years in this descriptive analysis, when the coverage of LPS was significantly expanded. In the Phase I analysis, we use zip code level mortgage performance measures constructed from the LPS data.

Home Mortgage Disclosure Act (HMDA) Data

We use HMDA data to analyze the pattern of mortgage originations and applications before and after preemption in the APL states and in control group states. HMDA data is useful for this study for a number of reasons. Firstly, compared with other mortgage loan databases, the HMDA dataset is a broadly representative picture of home lending in the United States. The Home Mortgage Disclosure Act requires that all lenders with assets of \$33 million and up as of 2004 and branches in metropolitan areas report their originated loans. The loans reported in HMDA are estimated to represent 80 percent of all home mortgage lending in the United States (Avery and Canner 2008). An additional strength of the dataset is the availability of variables at the level of the lender, loan, applicant, and census tract. HMDA data provide rich information on the lenders who originated the mortgages, demographic and other information on borrowers, the geographic location of the property securing the loan, and some characteristics of the home mortgages.

However, one major challenge of using HMDA for this analysis is identifying subprime mortgages, the target population that APLs were designed to regulate. There is no universally accepted definition of *subprime mortgage*; the three most common definitions are 1) those categorized as such by the secondary market, 2) those originated by a subprime lender as identified by the HUD's annual list, and 3) those that meet the "high-cost" criteria in HMDA after 2004 (Gerardi, Shapiro, and Willen 2007). Since 2004, HMDA has identified mortgages with APRs above designated thresholds; these are usually referred as "high-cost" or "higher-priced" loans. Since borrowers usually pay higher prices because they tend to pose greater credit risk, these high-cost loans fall into subprime or near-prime (Alt-A) market categories (Mayer and Pence 2008).

Because HMDA data before 2004 did not include information such as the interest rate to identify subprime loans, for the preemption analysis, subprime loans can only be identified using characteristics of the lender. HUD developed a list of subprime lenders based on an analysis of industry publications, lending data, and interviews. Merging the HUD subprime lender list with the lender information in HMDA allows us to identify loans originated by subprime lenders. This list varies by year because of exits and entrances into the subprime lending market and changes in business strategy and market focus. Given that some conventional lenders make subprime loans and some subprime lenders make conventional loans, it is only an approximation of a subprime loan based on the lender originating the loan. Especially, for our study period, prime lenders became more involved in subprime lending, usually by acquiring an existing subprime lending operation. As a result, the distinction between prime and subprime lenders has become

increasingly blurred. This reduced ability to identify subprime loans in HMDA may result in an underestimate of subprime loan volumes for recent years.

Identifying which institutions were affected by federal preemption of state regulations is facilitated by the fact that these institutions do not just operate under different rules, they also report to different regulatory agencies, with the Federal Financial Institutions Examination Council (FFIEC) collecting all loan records required by HMDA from these separate supervisory bodies. The OCC regulates national banks and their subsidiaries, and the OTS regulates federally chartered savings associations (thrifts) and their subsidiaries. Meanwhile, the Board of Governors of the Federal Reserve System and the Federal Deposit Insurance Corporation (FDIC) oversee state-chartered banks. The Federal Reserve Board also oversees nonbank mortgage lenders owned by bank holding companies, without intermediate ownership by national banks or federal thrifts. The National Credit Union Administration (NCUA) supervises credit unions. Finally, HUD regulates non-depository independent mortgage companies. Consequently, institutions indicating either the OCC or OTS as their supervisory body in their HMDA reporting can be identified as subject to federal preemption, while other mortgage lenders were not.

4. State Anti-predatory Lending Laws and Foreclosure Rates

In this section, we examine whether differences in state anti-predatory lending regulations are correlated with differences in the quality of loans originated and, ultimately, in the rates of foreclosure. The role of anti-predatory lending laws is to restrict the origination of loans with unfair or abusive terms, such as prepayment penalties, balloon payments, equity stripping fees, interest only, and lack of verification of borrowers' repayment capacity, all of which are believed to be associated with high default risk. If better regulations lead lenders to adopt more rigid underwriting standards, we expect to observe lower foreclosure rates in the APL states. In this Phase I descriptive analysis, we examine the default experience of loans in states with APLs relative to loans in states without APLs. Specifically, in assessing mortgage performance, did it matter whether the APL in a state imposed underwriting standards on borrowers' repayment ability? Did it matter whether a state's APL restricted or prohibited long prepayment clauses? Finally, since some state laws did not extend coverage beyond mortgages covered by federal law, does it make a difference that the APL imposed greater coverage and restrictions than federal law?

It is important to emphasize that this study is descriptive only, and we cannot in this phase control for local economic conditions and other important borrower, loan, and mortgage market characteristics. However, we find evidence to suggest that differences in anti-predatory lending regulations across states are correlated with differences in neighborhood mortgage foreclosure rates. More narrowly, the results suggest that more stringent regulations are correlated with lower delinquency and foreclosure rates. This suggests the need for more rigorous research in this area, and Phase II will employ

multivariate regression analysis to tease out whether or not this association in the descriptive findings remains significant.

4.1 Analysis Plan

The most detailed geographic information provided in the LPS data is the 5-digit zip code. Since we are interested in how neighborhood foreclosure rates are related to the state anti-predatory laws, we aggregated mortgage performance data at the zip code level. Specifically, we constructed two measures of neighborhood mortgage default rates. One is the serious delinquency rate (90+day but not in foreclosure) for all loans originated from January 2002 to December 2006 in LPS, while the other is the share of loans in foreclosure process (not including real estate owned properties, or REOs). We focus on originations from 2002 to 2006 only because most APLs were enacted after 2001, and because the policy environment for mortgage origination changed radically after 2007 as a result of the housing crisis. To observe how mortgage performance changed over time, we constructed the zip-code delinquency and foreclosure rates data in June 2006, June 2007, and June 2008.

As has been noted elsewhere (Pennington-Cross 2006; Cutts and Merrill 2008), the length of the foreclosure process varies by state. As a result, two similar neighborhoods may exhibit different foreclosure rates depending on the state in which they are located. So the foreclosure rate measures the stock of loans in foreclosure at a particular time, not the rate of completed foreclosures.

After dropping the zip codes with relatively small numbers of active mortgages (less than 25 loans as of June 2008), we had a total of 23,592 zip-code observations from a cross-sectional dataset of over 23 million individual loan records. In short, we focus on three snapshots of the status of active loans in medium size and large zip codes in this analysis. We calculate the zip-code means of serious delinquency rates, foreclosure rates, FICO score at origination, debt-to-income ratio (DTI), loan-to-value ratio (LTV), and the share of loans with exotic features in APL states and non-APL states. We conducted a simple t-test to test the significance of the mean differences.

To better capture the correlation between APLs and foreclosure rates, we incorporated in the analysis the cross-border approach similar to the one used by others (Bostic et al. 2008b; Pennington-Cross et al. 2008), which takes into account intrastate variation in economic conditions that can significantly influence mortgage performance. The approach focuses on zip codes located on state borders (with the center of the zip code within 5 miles of the state lines), where one of the two bordering states had an anti-predatory lending law. By focusing on state border zip codes, we got a reduced sample of 1,832 zip codes in 41 states.

In this analysis, we consider different specifications of state laws: *ineffect* and *ineffectb*. Unless otherwise noted, we classify APL states and non-APL states based on the more stringent *ineffect* definition for this analysis. We also take into account specific restrictions in state laws. These include *pointstrigger*, *prepaymentpenalty*, and

repaymentability. For instance, if the corresponding state law triggers are lower than the federal HOEPA thresholds for points and fees, the *pointstrigger* is coded as 1, and 0 otherwise. As discussed earlier, the *prepaymentpenalty* variable captures both the scope and extent of prepayment penalty restrictions on a scale of 0 to 4. *Repaymentability* is a binary variable that identifies states in which a significant portion of the mortgage market was subject to the requirement that repayment ability be determined and/or verified, or that borrowers receive counseling as a precondition to obtaining a mortgage loan, and that these requirements be subject to some enforcement or sanction.

4.2 State Laws and Prevalent Loans Characteristics

Before discussing the impact of APLs on neighborhood foreclosure rates, we first take a look at the prevalent loan characteristics of the active loans as of June 2006 for states with different APLs (Table 2 and Table 3).¹² Descriptive statistics seem to suggest the active loans in APL states were originated using stricter underwriting standards. The average origination FICO score of zip codes in APL states was slightly higher than that in the non-APL states (706.5 versus 705.6). The mean DTI and the mean LTV of zip codes in the APL states were significantly lower than those in the non-APL states. For example, the average LTV was 69.9 percent in APL states, slightly lower than the 72.9 percent in other states. In zip codes on state borders, the mean DTI and mean LTV were quite similar in different types of states (insignificant at the 0.05 level), but the mean FICO score was lower in APL states (700.5 versus 703.0). Of course, we need to mention that the DTI variable is not well populated in the LPS data for early vintages and the results of LTV do not account for any other liens on the same property, so the results of DTI and LTV are only suggestive.

At the aggregate level, the share of subprime mortgages in the APL states was significantly lower than in non-APL states (6.2 percent versus 6.5 percent). When we focus on the border zip codes, the difference was similar (6.5 percent versus 7.0 percent). With regard to specific loan features, when we used the *ineffect*, *prepaymentpenalty*, *pointstrigger*, or *repaymentability* specifications to capture differences in APLs, the results show that APLs were consistently associated with a smaller share of loans with prepayment penalties. This is consistent with expectations, since most of the state laws were designed to limit the availability of subprime mortgages with features considered risky, especially prepayment penalties. However, the magnitude of the impact seems to depend on the coverage and restrictiveness of the regulation: The share of loans with prepayment penalties was the smallest in states where statutes ban all prepayment penalties for all, or nearly all, residential mortgages (*prepaymentpenalty*= 4). A decrease in the scope and extent of restrictions (or a smaller value of *prepaymentpenalty*) was generally associated with an increase in the use of prepayment penalties. The exception

¹² For the loan feature analysis, we focus on the zip-code-level data as of June 2006. The composition of active loans generally did not change much in the short period from June 2006 to June 2008, though some old originations entered the dataset after June 2006 and some other loans were terminated before June 2008 because of prepayments and foreclosures. It should be noted that some active loans were originated before the passage of state laws, so we are using this dataset to identify the association, instead of the causal relationship, between APLs and the prevalent loan characteristics at the zip code level.

was category 3, in which statutes restrict, instead of ban, prepayment penalties for all mortgages. One possible reason is that category 3 includes California, which had a relatively high share of loans with prepayment penalties at origination (over 21.3 percent of all active loans as of June 2006).

When using all zip codes we found that the share of interest-only and adjustable-rate mortgages, of jumbo loans and loans with balloon payments, and of non-owner occupied properties were all higher in APL states than in non-APL states. Again, the popularity of nontraditional mortgages in California, an APL state, may help explain much of the difference here. In fact, once we excluded California from the APL sample, the share of loans with exotic features was more similar in the APL and non-APL states and the share of cash-out refinance loans became even lower in the APL states. Of course, it is difficult to give the results much consideration since there are no controls on the data. When we focused on zip codes along state borders, the pattern was very obvious: loans with these features were consistently less prevalent in APL states, with the exception of the insignificant difference for the cash-out refinance term.¹³

When we further consider those states with HOEPA copycat statutes as APL states (*ineffectb*), the share of loans with exotic features was generally higher in the APL states, but the differences for the subprime share and prepayment penalty share were insignificant. In other words, the states with nominal laws seem to have a higher share of nontraditional loans than states without such laws. In fact, the eight states with HOEPA copycat statutes, especially Florida and Nevada, had a higher share of risky loans than other APL states. The Phase II regression analysis should help illuminate this. But when we used the cross-border approach, the zip codes in APL states generally had a smaller share of loans with exotic features, consistent with the results when using the *ineffect* variable.

Some components of state regulations, especially the requirement to verify a borrower's repayment ability, are associated with a reduced use of loans with exotic features. They are also associated with a reduced use of subprime mortgages overall. Similar to the *ineffect* variable, we found that the *pointstrigger* variable, which has broader coverage on points and fees for high-cost loans, is significantly associated with the reduced use of subprime loans and loans with prepayment penalties. But the variable is also associated with a higher share of loans with other risky features—again, very likely because of the wide use of these nontraditional products in California (*pointstrigger*=1 for California). However, there is a consistent pattern that nontraditional mortgages are less popular in border zip codes in APL states.

4.3 State Laws and Mortgage Default Rates

In the next stage of the analysis, we looked at loan delinquency and foreclosure rates. For all the active loans originated from 2002 to 2006 in LPS, the 90+day delinquency

¹³ Of course, the results from the state border analysis may be partly due to the fact that in the West, particularly in California, the “hot” real estate market was located along the coast or in the middle of the state and therefore would not be represented in the cross-border analysis.

rate was 0.6 percent as of June 2006 and 2.0 percent by June 2008. The share of loans in foreclosure (not including REOs) increased from 0.34 percent to 1.62 in the same period.

For the state-level analysis, we found that, in general, neighborhoods in APL states had lower delinquency and foreclosure rates across different years. Table 4 and Table 5 summarize the serious delinquency rates and foreclosure rates by different APLs. When using all zip codes, the results suggest on average neighborhoods in APL states had slightly lower delinquency and foreclosure rates across different years, compared to those of zip codes in other states. For example, when we use the *ineffect* variable, as of June 2006, the mean 90+day delinquency rate was 0.74 percent in APL states, significantly lower than the 0.87 percent in non-APL states. The average foreclosure rate was 0.53 percent, similar to but slightly lower than the 0.54 percent in non-APL states. As of June 2008, the average 90+day delinquency rate increased to 1.94 percent in the APL states, slightly lower than the 1.96 percent in non-APL states. But the foreclosure rate was significantly lower at 1.36 percent than the 1.52 percent in non-APL states. The results are very consistent when we used the cross-border approach: the delinquency rates in 2008 and the foreclosure rates in 2007 and 2008 were significantly lower in the APL states and for other years the signs of the difference are also consistent with the state-wide analysis, though the differences are insignificant.

When we further included those states with HOEPA copycat statutes as APL states (*ineffectb*), the mean delinquency rate and foreclosure rate were generally higher in the APL states across different years, except the delinquency rate in 2006. In other words, the states with laws in effect seem to have a worse performance, i.e., higher defaults and foreclosures, than states without laws, when we treat the states with nominal state laws as APL states. This is not surprising, since the eight states with HOEPA copycat statutes had a higher share of subprime loans and loans with nontraditional features, which very likely are associated with higher default risk. Of course, local economic conditions and house price dynamics in these markets also played an important role in determining the level of default, especially in states like Nevada and Florida.

As expected, the individual components of the legal framework turn out to be important. We observe lower delinquency rates where state laws require lenders to verify borrowers' affordability (*repaymentability*=1). This is consistent with our contention that more careful underwriting, by requiring lenders to better verify borrowers' repayment ability, improves both the quality of mortgages and the mortgage performance. The mean foreclosure rates in 2006 and 2007 were higher in *repaymentability* states, though the pattern reverses in 2008. Some of this could be reflected in the differences in the geographic spread of foreclosures over this time period: states with higher levels of foreclosures at the start of the crisis (e.g., Ohio and Illinois) include repaymentability provisions, while states that saw their foreclosure rate accelerate in late 2007 and 2008 (e.g. California and Arizona) do not. We also observe that states with laws that had a broader coverage on points and fees (*pointstrigger*=1) had significantly lower delinquency rates in 2006 and 2007 (insignificant in 2008). The average foreclosure rate between states with and without broader coverage on points and fees was insignificant.

Finally, while the results are a little mixed, the descriptive analysis generally suggests that neighborhoods in states with more restrictions on prepayment penalties have lower delinquency rates. For example, in 2008, neighborhoods in states with more coverage and more restrictions on prepayment penalties (*prepaymentpenalty*=4) had the lowest delinquency rate, 1.64 percent. The exception was the category with restriction but not prohibition of prepayment penalties for all mortgages' (*prepaymentpenalty*=3); again, the high foreclosure rates in California may help explain the results. Contrary to expectations, the results on foreclosure rates are not very consistent and states without restriction or prohibition on prepayment penalties seem to have low neighborhood delinquency and foreclosure rates. We will examine this issue in more detail in the Phase II multivariate analysis.

4.4 Summary and Discussion

With few exceptions, the results support our expectations that a substantial state APL is associated with lower mortgage risks. Although the magnitude of the effect is not large, we find initial evidence of lower delinquency and foreclosure rates in neighborhoods of APL states. These are states with laws that extended HOEPA coverage and/or restrict more contract terms, with required verification of borrowers' affordability, with broader coverage on subprime loans with high points and fees, and with more restrictive regulation on prepayment penalties. While results on foreclosure rates are generally consistent, the correlation was insignificant or in the opposite direction in some cases, such as in 2006 when using the *ineffect* variable and in 2006 and 2007 when using the *repaymentability* variable. When we used the cross-border approach, the results are quite consistent. As expected, the individual components of the legal framework—especially the requirement for better verification of borrower affordability and regulation on prepayment penalties—turn out to be important. Both of these factors are associated with a lower neighborhood default rate. In contrast, we find that state laws that did not extend beyond federal law are not associated with reduced risky loans or defaults.

Other factors also need to be considered when comparing the default rates between states with and without anti-predatory lending laws (Table 6). First, the adoption of APLs may be a response to a rapid expansion of exotic loans, and as a result, there would be a positive association of APLs with exotic loan features and the resulting higher foreclosures. But this is not because APLs caused it, rather the popularity of exotic loans which caused the introduction of APLs also caused the unsustainable expansion of risky credit and APLs could not stop it by themselves. In other words, some states had less exotic loans and lower foreclosure rates not because they have no APLs, but because the expansion of risky credit was not a serious problem there. As a result, they did not adopt APLs. This may explain some of the marginal or insignificant differences in loan characteristics and foreclosure rates between APL states and non_APL states and this issue will be closely examined in Phase II report.

Second, there are many factors that influence the length and cost of the foreclosure process, such as variations in state regulations on the foreclosure filings (Pennington-Cross 2006; Cutts and Merrill 2008). Using Freddie Mac's experience with lenders, Cutts

and Merrill (2008) provided data across different states on the average time between the due date of the last paid mortgage installment and the foreclosure sale. Based their data, we estimate that the average length of a foreclosure was significantly longer for neighborhoods in the APL states than in the non-APL states (309 days versus 282 days). Since the length of the foreclosure process was longer and lenders need to hold the property for a longer period in the APL states, it is possible that the share of foreclosure is higher even though the accumulative foreclosure rates were similar or lower in APL states.

Furthermore, national banks and federal thrifts, as well as their subsidiaries, were subject to less regulation because of federal preemption. Without preemption, these lenders would have originated different loans and the mortgage performance differences between APL states and non-APL states would likely be larger. Based on Avery and Canner (2008), depository institutions and their subsidiaries together made 37.4 percent of all higher-cost loans reported in HMDA in 2004, 35.8 percent in 2005, 41.6 percent in 2006, and 34.6 percent in 2007. Although not all these loans were shielded by federal preemption, we estimate that in 2006 alone at least 26 percent of high-priced loans in APL states were originated by national banks and federal thrifts and their subsidiaries covered by the federal preemption.¹⁴

Finally, missing from the analysis are the deteriorating local economic conditions and sharp house price declines in the APL states, which likely play a key role in mortgage default rates. Based on the state-level house price index from the Office of Federal Housing Enterprise Oversight (OFHEO), we estimate that the appreciation in home prices from the second quarter of 2006 to the second quarter of 2008 was only 0.4 percent for neighborhoods in APL states, significantly lower than the 3.9 percent appreciation in non-APL states. Even worse, the average unemployment rate in neighborhoods in the APL states was about 5.76 percent rate in June 2008, significantly higher than the 5.13 percent in the non-APL states. By June 2009, the average unemployment rate in APL states had jumped to 9.77 percent, compared to 8.69 percent in non-APL states. With a higher unemployment rate and a more rapidly declining house price, APL neighborhoods would be expected to have a higher foreclosure rate. Instead, we observed generally lower delinquency and foreclosure rates, suggesting that our results may actually underestimate the importance of APLs. We will examine this issue in more detail in our Phase II multivariate regression analysis.

¹⁴ As mentioned in Section 3, some state banks were also subject to a certain degree of preemption.

5. The Impact of Federal Preemption

As stated previously, in 1996 the OTS preempted federally chartered savings institutions and their subsidiaries, from state APLs, and in 2004 the OCC followed suit, effectively shielding national banks and their subsidiaries from anti-predatory lending laws that were enacted before that. The result is that state APLs, whether passed before or after 2004, apply only to most state-chartered banks and independent mortgage companies, while national banks and federal thrifts and their subsidiaries are exempt from such regulations.

In this section, we examine the impact of the federal preemption on several measures of lending activity before and after 2004 in states with and without APL in place at the time. The analysis is primarily based on HMDA. Because national banks were no longer required to abide by states' more stringent anti-predatory lending regulations, we expect to see an increase in their subprime activity after the OCC preemption. We expect an increase in their origination of loans with characteristics proscribed in APLs because the federal HOEPA regulation is usually less strict than state APLs. Thus, we expect to see a decrease in subprime denial rates, an increase in loans originated with high debt-to-income ratios and rate spreads, and an increase in second-liens after the OCC preemption.

We observed that national banks gained market share in the high-cost market after 2004. When we combine loans originated by any preempted lenders together, including national banks and federal thrifts, the share of preempted high-cost mortgages increased significantly and this increase was higher in the APL states than in non-APL states. While the results from the HUD lender list approach provide some support for the contention that national banks operated more freely in the subprime market after the OCC preemption, we were unable to identify subprime lenders in a fully satisfactory manner to be able to capture the impact of the OCC preemption. Nevertheless, our results do point towards a need for further research that can more accurately assess the impact of the regulatory environment on bank lending patterns.

5.1 Analysis Plan

To determine the impact of the OCC preemption on loan originations, we first used the HUD subprime lender list approach to compare changes in subprime activity among national banks and their subsidiaries before and after preemption. The OCC preemption was first introduced in August 2003 in Georgia and became effective nationally in February 2004 and as a result the OCC preemption of state APLs took effect transitionally during that period. Very likely, lenders and borrowers were getting ready for and adjusting to the preemption during the transitional period. To better capture the impact of the OCC preemption, we compared the lending behaviors of different types of lenders in 2002 and 2005 since the legal environment was changing in both 2003 and 2004.

This approach identifies subprime loans by merging the HUD subprime lender list with the HMDA dataset. The overriding benefit of this approach for our analysis is that HUD's subprime data is available for our entire study period, 2002 to 2005, whereas

HMDA's high-cost data is available only for 2004 and after. This analysis redefined APL states as those having regulations more stringent than the HOEPA regulations before 2003. If a state was identified as having an APL beyond HOEPA regulations, and if the law was enacted in or before 2002, that state was treated as having an APL; a total of 8 states met those criteria. If a state did not have an APL that came into effect before 2005, then it was designated as a non_APL state. Other states were considered as a mixed group ("MIX") since they instituted a law in the intervening period (in 2003 or 2004) and it is difficult to isolate the impact of preemption from the impact of APLs. Using this definition, we compared 8 APL states, 32 non-APL states, with the remaining 10 states that adopted APLs during the transitional period (*MIX*).¹⁵

We used a range of measures of loan activity to examine the impact of OCC preemption when using the HUD lender list approach. First, we calculated the share of total loan applications and originations by national banks and the denial rate among applications. We also calculated the share of subprime originations among all originations by national banks. In addition, we used mean DTI to capture the change in debt ratios, which was calculated by dividing the total requested loan amount by the annual household income of the applicant.¹⁶ We calculated each of these measures in 2002 and 2005, for all loans and for subprime loans.

We then examined the temporal changes in each of the measures (applications, denials, originations, subprime share, DTI) in terms of relative change before and after preemption. We did this by APL status for each measures of interest. By focusing on differences that occur over time as the preemption came into effect, the relative change allows for a more objective comparison of changes by APL status. All national estimates were calculated by pooling the loan data for all states of a given APL status but we also conducted sensitivity analyses to test the robustness of our results with respect to our method for calculating national estimates, our definition of APL status, and our definition of preempted institutions.¹⁷

Generally, the HUD list approach allows us to conduct a difference-in-difference analysis of the effect of the OCC preemption rule. So we try to compare the experience of national bank lenders versus other lenders before OCC preemption was adopted in 2004 and with the same experience afterwards. We assume the OCC preemption may have a unique impact on national banks, since the 2004 preemption applied to national banks and their subsidiaries only. So we focus on OCC regulated national banks and their subsidiaries when using the HUD list approach.

¹⁵ The 8 APL states include West Virginia, North Carolina, Texas, Connecticut, District of Columbia, California, Maryland, and Michigan. The 10 "MIX" states include Minnesota, Georgia, New York, Colorado, Arkansas, New Jersey, Illinois, New Mexico, South Carolina, and Massachusetts.

¹⁶ Our measure serves as a proxy for the typical DTI measure, because the HMDA dataset lacks information on actual monthly mortgage payments.

¹⁷ This included comparing the national estimates calculated by pooling state estimates to national estimates calculated by taking a simple average of state estimates. In another sensitivity analysis, we compared our results that used all the states to an analysis restricted to counties on the border of APL states. Additional sensitivity analyses were conducted based on various definitions of APL status and an alternative analysis restricted to OCC- and OTS-regulated lenders.

We also adopted the HMDA “high-cost” approach to study the trend of subprime lending by national banks, as well as national thrifts, after 2004. Compared to the HUD lender list analysis which is a before-and-after difference-in-difference analysis, the high-cost approach has a different objective than the HUD lender list analysis. Because HMDA did not report pricing data before the OCC rule was promulgated in 2004, the HMDA high-cost approach cannot perform the same before-and-after analysis. Different from the HUD list approach, this high-cost method cannot take into account the baseline difference before adoption of the rule. Instead, the HMDA high-cost analysis asks a different question: after the OCC rule, were there any differences in the lending patterns of preempted and non-preempted lenders?

Using high-cost loans as a proxy for subprime loans, we calculated the share of high-cost mortgages originated by the preempted lenders. We also compared the trend in the mean debt ratio, mean rate spread for high-cost loans, and the share of second liens among loans originated by national banks and federal thrifts in APL states to non-APL states. Under this approach, APL states were defined as those with an APL stronger than HOEPA regulation effective before the year being analyzed. Since both OCC- and OTS-regulated institutions have been preempted after 2004, we focused on national banks and federal thrifts in this analysis. But in order to make it comparable to the results from the HUD lender list approach, we also calculated some measures using national banks only.

5.2 Federal Preemption and Lending Activity of Preempted Lenders

The descriptive analysis in this section examines the relationship between the federal preemption and prevalent loan characteristics before and after preemption. These characteristics include total and subprime originations and the associated denial rates, loan amount to income ratios, interest rates (high-cost loans only), and the share of second-liens (for years from 2004 only). Although in general the findings somewhat support expectations, we find the HMDA data used in the analysis to be too limited to capture impacts in a consistent manner.

Results from the HUD Subprime List Approach

When using the HUD list approach, we find that the national banks’ share of total applications and originations declined from 2002 to 2005 and the decline was greater in APL states than in other states. In 2002, national banks accounted for 28.4 percent of all applications in APL states, 31.0 percent in non-APL states, and 32.4 percent in states that were in transition (*MIX*). The shares of originations were quite similar to those application shares (Table 7). In 2005, the national banks’ share of total applications in APL states decreased to 20.6 percent, a 28 percent relative decline from the 2002 level, higher than the 24 percent decline for non-APL states and the 25 percent for states in transition. Similarly, during the same period, changes in the share of total originations by national banks were slightly higher in APL states than in other states (Table 7). This is contrary to our contention that OCC lenders would be able to increase their market share

in APL states (at least relative to that in other states) due to the advantage of operating under a different set of rules, but when using the HUD list approach the OCC shares of total applications and originations actually declined in APL states, and at a rate greater than in non-APL states.

The results are somewhat mixed when looking at measures of subprime activity. From 2002 to 2005 the share of subprime applications and originations by national banks declined significantly in all types of states (at least 80 percent decline) (Table 7). The declines in national banks' share of subprime applications and originations were generally greater in APL states than in other states. For example, the share of subprime originations by national banks decreased from 13.1 percent in 2002 to just 0.34 percent in 2005 in APL states, an over 97 percent relative decline, higher than the 95.6 percent decline in transitional states, and 94.5 percent in non-APL states (Figure 3). Overall, national banks accounted for a small share of total subprime loan applications and originations and the declines were greater in APL states than in other states.

Among total originations by national banks, the subprime share was under 5.0 percent in 2002, with the share declining during the study period (Figure 4). And after preemption, the relative decline in the subprime share of national banks' originations was relatively higher in APL states than in other states (93.3 percent for APL states, 86.9 percent for non-APL states, and 87.7 percent for other states). In contrast, the share of subprime had increased from 2002 to 2005 for national thrifts and other lenders (Table 7). In other words, subprime loans as a share of total lending declined for OCC lenders across the board, but actually slightly more in APL states, while other types of lenders increased their subprime share of originations during this time period.

National banks denied 40 percent to 50 percent of subprime applications in 2002 and the denial rate generally increased in 2005 (Table 7). The relative increase in subprime denial rates among national banks was substantially higher among APL states than other states (20.6 percent in APL states compared to 10.2 percent in non-APL states and -3.0 percent in transitional states). The DTI ratio among originations by national banks increased in both APL and non-APL states during the study period. The increase was slightly higher in APL than in non-APL states (14.8 percent for APL states versus 11.0 percent and 14.1 in other types of states). However, the DTI ratio of subprime originations by national banks had increased at a lower rate from 2002 to 2005 in APL states than in other states.

Overall, results based on the HUD list approach provide limited support to our contentions. We find a relatively sharper decline in the overall applications and originations, a sharper decline in the share of subprime applications, and a greater increase in the denial rate for national banks in APL states after the OCC preemption. We conducted sensitivity analyses to test the robustness of our results with respect to our method for calculating national estimates, our definition of APL status, and our definition of national banks. In all cases, the results were not substantially different from the results presented above.

Results from the HMDA High-cost Approach

When using the high-cost approach, the results are generally quite different. High-cost loans were first identified in the 2004 HMDA, (i.e., when preemption occurred) which allows us to develop an estimate of the number of loans originated that would have been subject to state APLs but were not because they were made by national banks and federal thrifts. Between 2004 and 2007, this number of mortgages originated by national banks and federal thrifts in APL states exceeded 10.7 million, accounting for 43 percent of the overall market in these states and 20 percent of the national market. During the same period 1.3 million high-cost loans that would have been covered by state APL laws were preempted. The number of preempted high-cost loans averaged 25 percent of all high-cost loans in APL states and 11 percent of high-cost loans nationwide over the four years.

National banks and federal thrifts were gaining market share in the high-cost market. For the share of preempted loans increased steadily, from 16 percent in 2004, to 26 percent in 2006, and to over 46 percent in 2007 in APL states (Figure 5). More importantly, the growth in the share of high-cost loans originated by preempted national banks and federal thrifts between 2004 and 2006 was significantly faster in APL states (with a 30 percent increase) than in non-APL states (which increased 26 percentage points) (Figure 5). When focusing on OCC-regulated national banks alone, we found a similar pattern: the share of high-cost loans increased from 9.3 percent in 2004 to 20.4 percent in 2007 in APL states, an absolute increase of 11.1 percent, which was greater than the 9.2 percent increase in non-APL states (Figure 6).

After 2003, we see an increased use of second liens and an increase in rate spreads of high-cost loans originated by national banks and federal thrifts (Figure 7 and Figure 8). The growth of second-liens among national bank and thrift loans was faster in APL states than in non-APL states (Figure 7). The share of second liens of all OCC- and OTS-originated loans in APL states increased from 10 percent in 2004 to 30 percent in 2006, compared to an increase from 11 percent to 28 percent in non-APL states. After the subprime crisis started in 2007, the share of second-liens dropped in both APL and non-APL states but was still higher in APL states (22 percent versus 21 percent). There was also a slightly faster increase in the mean rate spread among high-cost loans originated by national banks and federal thrifts in APL states during the period of 2004 to 2006 (Figure 8). During the same period, the average debt ratio (loan amount divided by household income) for first-lien mortgages originated by national banks and federal thrifts was consistently higher in APL states (Figure 9). This is especially important given the higher likelihood of getting a subordinate lien, i.e., national banks and federal thrifts were both loading up their first liens with debt and adding piggyback loans.

Possible Explanations of the Inconsistencies

As can be seen from the presentation above, there are some inconsistencies between the results based on the HUD lender list and the high-cost approach (2004 and beyond). For example, looking at national banks, we observed a significant increase in high-cost

lending in APL states but no increase in subprime originations when using the HUD list approach.

We undertook additional analyses to assess the way that relying on the HUD lender list may affect the findings. More narrowly, we analyzed HMDA data for 2004 and 2005, the only years with data from both the rate spread variable and the HUD lender list. We find a high degree of difference in the subprime definition between the two approaches. In 2004, only 16 percent of high-cost loans made by OCC/OTS institutions were captured in the HUD list; in 2005 it was only 14 percent. So while the HUD list says only two percent of OCC/OTS loans were subprime, according to the rate spread variable, 10 percent were. As Table 8 shows, for national banks a vast majority of high-cost loans (about 96 percent, or 8.6 percent of the total of 9.0 percent high-cost loans) were originated by lenders not identified as subprime lenders by HUD. This holds true for loans originated by other lenders as well: only 58 percent of “high-cost” loans would be captured using the HUD lender list. In other words, a total of 42 percent of high-cost loans in 2004 and 2005 were originated by lenders not on the HUD list.

This is consistent with prior findings in the literature. Mayer and Pence (2008) documented before the early 2000s that most subprime loans were originated by subprime specialists. In more recent years, subprime loans were increasingly originated by lenders that formerly operated in the prime market. As a result, the HUD list approach is likely to miss large shares of subprime originations, especially for national banks and federal thrifts. Despite not being considered subprime lenders in the HUD lists, these entities likely increased their subprime lending significantly during the study period. As suggested by Mayer and Pence (2008), the HMDA high-cost measure provides the most comprehensive coverage compared to the HUD list approach. Because of this, the use of the HUD list likely underestimates the subprime lending activity of preempted lenders.

5.3 Summary and Discussion

Overall, although not necessarily consistent across all measures examined, we find some evidence that federal preemption may have affected the lending patterns of national banks. The share of high-cost loans originated by national banks in APL states increased significantly after 2004, and these increases were higher than in non-APL states. Similarly, the share of high-cost origination by all preempted was higher in APL states than in non-APL states. The DTI ratios of loans originated by preempted lenders were higher in APL versus non-APL states. Taken together, these results suggest that national banks and all preempted lenders together may have operated more freely in the subprime sector after the OCC preemption.

However, the descriptive analysis presented here is insufficient to improve our understanding of the effectiveness of state anti-predatory lending laws and the impact of federal preemption. First, given that HMDA data only began collecting high-cost data in 2004, we were unable to use a consistent definition of “subprime” over our entire study period. The HUD list approach seems to misclassify too many lenders to be reliable for the analysis. The high-cost approach has some shortcomings too since it does not capture

many Alt-A products, including Alt-A interest-only loans, option ARMs, and low-documentation and no documentation loans. Finally, with limited information on loan characteristics, HMDA data does not allow us to assess the impact of the OCC preemption on the quality of subprime loans.

Finally, in addition to HMDA's own weaknesses, some important information on local market conditions has been inadequately addressed in our descriptive national analysis. In Phase II, we will be able to conduct a multivariate regression using loan-level proprietary data to track the quality of subprime mortgages, instead of just the quantity, as well as control for a much wider range of factors that could have influenced lender originations over this period.

6. Summary and Next Steps

The overall goal of the study is to document the impact of state anti-predatory lending laws and the impact of federal preemption, especially the 2004 OCC preemption. We present preliminary descriptive analysis in this Phase I report. An expanded multivariate regression analysis will be the focus of the Phase II report in early 2010. In this first report, we build upon prior work by examining whether APLs are associated with a lower rate of mortgage default. Overall, we observed a lower default rate for neighborhoods in the APL states, in states with requirement on the verification of borrowers' repayment ability, in states with broader coverage of subprime loans with high points and fees, and in those with more restrictive regulation on prepayment penalties. We believe that these findings are remarkable, since they suggest an important and yet unexplored link between APLs and foreclosures. Moreover, given the wide range of factors influencing foreclosures, including house price declines, rising unemployment, and differences in state foreclosure processes, these descriptive statistics are likely to result in an underestimation of the positive impacts of APLs. These descriptive findings lend weight to our contention that federal preemption of more stringent state APLs may have allowed national banks and federal thrifts to increase their origination of loans with risky characteristics. Coupled with the sharp decline in house prices and rising unemployment, these riskier loans likely resulted in unprecedented rates of default. It is critical to understand how the interplay of state APLs and federal preemption affected these trends, since the current crisis has made it clear that we need to revisit regulations governing consumer mortgage products.

In this Phase I descriptive analysis, we relied on HMDA data to compare trends in subprime application and origination before and after the 2004 preemption, for different types of institutions and for states with and without APLs. National banks and federal thrifts were expected to increase their subprime activity in states with APLs because they could operate more freely in the subprime market after the OCC preemption. While the results from our HMDA analysis provide some support to our contention, we found the nationwide results to be too aggregated to capture the nuances of the interaction of preemption and the regulatory regime in different states. The major challenge of the HMDA analysis was the identification of subprime lenders for our study period around

2004. The HUD list approach is far from perfect, because the distinction between prime and subprime lenders became increasingly blurred after 2004, and HMDA did not provide pricing information before 2004, which helps identify at least one important characteristic aspect of subprime loans.

We plan to expand and improve the analysis by relying on more rigorous multivariate methods and using an expanded HMDA database that merges the HMDA and other proprietary data. We will estimate a panel data regression of the impacts of APLs on foreclosure and delinquency rates based on data aggregated at the zip code level. We will include a set of control variables for loan features, local economic conditions, house price dynamics, and the legal environment in the model. Such a model will allow us to isolate the impact of state anti-predatory lending laws on neighborhood foreclosure rates.

Furthermore, the expanded HMDA dataset is ideal for this study because it has both lender information from HMDA and information on loan features and mortgage performance from other data sources. This will allow us to overcome many of the data constraints in Phase I. We will be able to use a consistent definition of subprime across the entire study period, and we will have detailed information on loan characteristics. In addition, we will be able to assess loan performance controlling for a wide range of loan characteristics and to include variables that will help to control for housing market and economic conditions that also may have affected lender behavior over this time period.

In addition, in this Phase I analysis we treat loans originated by OCC and OTS lenders in the same group in part of the analysis, with a focus on the overall effect of the impact of federal preemption. While both OCC and OTS have the authority—and have exercised that authority—to preempt state regulations, as different supervisory agencies they may have used this authority very differently, and to an extent that may warrant analyzing their affect separately from one another. OTS preemption was in effect much earlier than OCC preemption, which may have a different effect. In the Phase II analysis, we will treat loans originated by OCC lenders and OTS lenders separately.

References

- Avery, R. B. and G. B. Canner. 2008. The 2007 HMDA. *Federal Reserve Bulletin*. December: A107-A146.
- Ambrose, B. W., M. LaCour-Little, and Z. R. Huszar. 2005. A Note on Hybrid Mortgages. *Real Estate Economics* 33(4):765-782.
- Belsky, E. S. and R. S. Essene. 2008. Consumer and Mortgage Credit at a Crossroads: Preserving Expanded Access While Informing Choices and Protecting Consumers. N. P. Retsinas and E. S. Belsky, editors. *Borrowing to Live: Consumer and Mortgage Credit Revisited*. Brookings Institution Press: Washington, DC.
- Bostic, R. W., K. C. Engel, P. A. McCoy, A. Pennington-Cross, and S. M. Wachter. 2008a. State and Local Anti-predatory Lending Laws: The Effect of Legal Enforcement Mechanisms. *Journal of Economics and Business* 60:47-66.
- Bostic, R. W., K. C. Engel, P. A. McCoy, A. Pennington-Cross, and S. M. Wachter. 2008b. The Impact of State and Local Anti-predatory Lending Laws: Policy Implications and Insights. N. P. Retsinas and E. S. Belsky, editors. *Borrowing to Live: Consumer and Mortgage Credit Revisited*. Brookings Institution Press: Washington, DC.
- Burnett, K., M. Finkel, and B. Kaul. 2004. *Mortgage Lending in North Carolina After the Anti-Predatory Lending Law*. ABT Associates: Cambridge, MA.
- Calhoun, C. A. and Y. Deng. 2002. A Dynamic Analysis of Fixed- and Adjustable-Rate Mortgage Terminations. *Journal of Real Estate Finance and Economics* 24(1/2):9-33.
- Cutts, A. C. and W. A. Merrill. 2008. Interventions in Mortgage Default: Policies and Practices to Prevent Home Loss and Lower Costs. N. P. Retsinas and E. S. Belsky, editors. *Borrowing to Live: Consumer and Mortgage Credit Revisited*. Brookings Institution Press: Washington, DC.
- Danis, M. A. and A. Pennington-Cross. 2005. *The Delinquency of Subprime Mortgages*. Working Paper 2005-022A. Federal Reserve Bank of St. Louis: St. Louis, MO.
- Demyanyk, Y. and O. van Hemert. 2008, Understanding the Subprime Mortgage Crisis, Working Paper, Federal Reserve Bank of St. Louis, February 4, 2008.
- Ding, L., R. Quercia, W. Li, and J. Ratcliffe. 2008. *Risky Borrowers or Risky Mortgages: Disaggregating Effects Using Propensity Score Models*. Working Paper. Center for Community Capital, University of North Carolina: Chapel Hill, NC.
- Ellehausen, G. and M. E. Staten. 2004. Regulation of Subprime Mortgage Products: An Analysis of North Carolina's Predatory Lending Law. *Journal of Real Estate Finance*

and Economics. 29(4):411-33.

Elliehausen, G., M. Staten, and J. Steinbuks. 2006. *The Effects of State Predatory Lending Laws on the Availability of Subprime Mortgage Credit*. Monograph 38. Credit Research Center, Georgetown University: Washington, DC.

Ernst, K. S., J. Farris, and E. Stein. 2002. *North Carolina's Subprime Home Loan Market after Predatory Lending Reform*. Center for Responsible Lending: Durham, NC.

Ernst, K. S., D. G. Bocian, and W. Li. 2008. *Steered Wrong: Brokers, Borrowers, and Subprime Loans*. Center for Responsible Lending: Durham, NC.

Gerardi, K., A. H. Shapiro, and P. Willen. 2007. *Subprime Outcomes: Risky Mortgages, Homeownership Experiences, and Foreclosures*. Working Paper 07-15. Federal Reserve Bank of Boston: Boston, MA.

Goodman, A. and B. Smith. 2009. *Hierarchical Modeling of Residential Default: Does State Level Foreclosure and Predatory Lending Legislation Limit "Bad" Loans?* Presented at the AREUEA Mid-Year Meeting, Washington DC.

Harvey, K. D. and P. J. Nigro. 2003. How Do Predatory Lending Laws Influence Mortgage Lending in Urban Areas? A Tale of Two Cities. *Journal of Real Estate Research* 25(4):479-508.

Harvey, K. D. and P. J. Nigro. 2004. Do Predatory Lending Laws Influence Mortgage Lending? An Analysis of the North Carolina Predatory Lending Law. *The Journal of Real Estate Finance and Economics* 29:435-456.

Ho, G. and A. Pennington-Cross. 2006. The Impact of Local Predatory Lending Laws on the Flow of Subprime Credit. *Journal of Urban Economics* 60:210-228.

Immergluck, D. 2008. From the Subprime to the Exotic: Excessive Mortgage Market Risk and Foreclosures. *Journal of the American Planning Association* 74 (1):59-76.

Inside B&C Lending. 2001. Lenders Will Try to Pin Down Effects of NC Mortgage Law. 6(5):3.

Keys, B. J., T. K. Mukherjee, A. Seru, and V. Vig. 2008. *Did Securitization Lead to Lax Screening? Evidence from Subprime Loans*. Presented at the 35th Annual Meeting, European Finance Association, Athens, Greece.

Li, W. and K. S. Ernst. 2007. Do State Predatory Lending Laws Work? A Panel Analysis of Market Reforms. *Housing Policy Debate* 18(2):347-391.

Mayer, C. J. and K. Pence. 2008. *Subprime Mortgages: When, Where and Whom?* Working Paper 14083. National Bureau of Economic Research: Cambridge, MA.

Mortgage Bankers Association (MBA). 2008. National Delinquency Survey. Mortgage Bankers Association: Washington, DC.

Nelson, G. S. and D. A. Whitman. 2007. *Real Estate Finance Law*, 5th edition. West Group: Eagan, MN.

Pennington-Cross, A. 2006. The Value of Foreclosed Property. *Journal of Real Estate Research*. 28(2):193-214.

Pennington-Cross, A. and G. Ho. 2008. Predatory Lending Laws and the Cost of Credit. *Real Estate Economics* 36(2):175–211.

Pennington-Cross, A. and G. Ho. forthcoming. The Termination of Subprime Hybrid and Fixed Rate Mortgages. *Real Estate Economics*.

Pennington-Cross, A., S. Chomsisengphet, R. Bostic, K. C. Engel, P. A. McCoy, and S. Wachter. 2008. Mortgage Product Substitution and State Anti-Predatory Lending Laws: Better Loans and Better Borrowers? Working Paper.

Posner, K. A. and A. L. Meehan. 2002. *Channel Check: Surprisingly Strong Subprime Growth*. Morgan Stanley Equity Research: New York, NY.

Quercia, R. G., M. A. Stegman, and W. R. Davis. 2004. The Impact of North Carolina's Anti-Predatory Lending Law: A Descriptive Assessment. *Housing Policy Debate* 15(3):573-601.

Quercia, R. G., M. A. Stegman, and W. R. Davis. 2007. The Impact of Predatory Loan Terms on Subprime Foreclosures: The Special Case of Prepayment Penalties and Balloon Payments. *Housing Policy Debate* 18(2):311-346.

Renuart, E., K. Keest, C. Carter, C. C. Wu, and A. I. Cohen. 2009. *The Cost of Credit* (3d ed. 2005 and Supplement 2008). National Consumer Law Center: Boston, MA.

Richter, F. 2008. *An Analysis of Foreclosure Rate Differentials in Soft Markets*. Working Paper 08-11. Federal Reserve Bank of Cleveland: Cleveland, OH.

Table 1. Summary of the Coding of Anti-Predatory Lending Laws

State	Pennington-Cross et al. (2008)	Li and Ernst (2007)	Bostic et al. (2008b)	Effective Date	Ineffect	Ineffectb	Prepayment-penalty	Repayment-ability	Points-trigger
Alabama	0	NA	0	5/20/1996	0	0	0	0	.
Alaska	0	8	0	12/31/1968	0	0	4	0	.
Arizona	0	NA	0	.	0	0	0	0	.
Arkansas	0	10	6.56	7/16/2003	1	1	3	1	2
California	1	NA	4.93	7/1/2002	1	1	3	0	2
Colorado	1	NA	4.18	7/1/2003	1	1	1	1	2
Connecticut	1	NA	4.88	1/1/2002	1	1	1	0	3
Delaware	0	NA	0	.	0	0	0	0	.
D.C.	1	11	7.75	5/7/2002	1	1	3	1	3
Florida	1	8	3.75	10/2/2002	0	1	0	0	0
Georgia	1	12	6.83	3/7/2003	1	1	2	1	3
Hawaii	0	NA		1/1/1967	0	0	4	0	.
Idaho	0	7	0	7/1/1996	0	0	3	0	.
Illinois	1	12	8.11	1/1/2004	1	1	4	1	3
Indiana	1	NA	6.76	1/1/2005	1	1	2	1	3
Iowa	0	8	0	4/13/1979	0	0	4	0	.
Kansas	0	7	0	1/1/1994	0	0	4	0	.
Kentucky	1	7	5.86	6/24/2003	0	1	1	0	0
Louisiana	0	NA		.	0	0	0	0	.
Maine	1	8	3.01	12/31/1995	0	1	1	0	0
Maryland	1	8	3.39	10/1/2002	1	1	0	1	1
Massachusetts	1	16	8.44	11/7/2004	1	1	2	1	3
Michigan	1	8	5.99	12/23/2002	1	1	3	0	.
Minnesota	1	10	7.01	1/1/2003	1	1	3	1	.
Mississippi	0	NA		.	0	0	3	0	.
Missouri	0	NA		.	0	0	3	0	.
Montana	0	NA		.	0	0	0	0	.
Nebraska	0	NA	0	3/20/2003	0	0	0	0	.
Nevada	1	NA	2.81	10/1/2003	0	1	1	1	0
New	0	NA	0	1/1/2004	0	0	0	0	0
New Jersey	1	15	7.34	11/27/2003	1	1	4	0	3.5
New Mexico	1	18	9.9	1/1/2004	1	1	2	1	3
New York	1	15	5.82	4/1/2003	1	1	2	1	3
North Carolina	1	17	6.4	7/1/2000	1	1	2	1	3
North Dakota	0	NA	0	.	0	0	0	0	.
Ohio	1	7	3.47	5/24/2002	0	1	1	0	0
Oklahoma	1	NA	4.29	1/1/2004	0	1	4	0	0
Oregon	0	NA	0	.	0	0	0	0	.
Pennsylvania	1	NA	3.47	6/25/2002	0	1	2	0	0
Rhode Island	0	NA	0	12/31/2006	1	1	2	1	3
South Carolina	1	13	4.8	1/1/2004	1	1	4	1	3
South Dakota	0	NA	0	.	0	0	0	0	.
Tennessee	0	NA	0	1/1/2007	0	0	1	0	0
Texas	1	10	4.34	9/1/2001	1	1	2	0	5
Utah	1	NA	3.91	5/3/2004	0	1	1	0	0
Vermont	0	8	0	1/1/1997	0	0	4	0	.
Virginia	0	8	0	6/26/2003	0	0	4	0	.
Washington	0	NA	0	.	0	0	0	0	.
West Virginia	1	17	9	6/8/2000	1	1	4	1	3
Wisconsin	0	7	0	2/1/2005	1	1	1	1	2
Wyoming	0	NA	0	.	0	0	0	0	.

Note: *ineffect*: states with APL laws (not including those with marginal protection); *Ineffectb*: alternative specification of *ineffect* by including those laws with marginal protection.

Table 2 Loan Features by State Law Status

Strong APLs (<i>ineffect</i>)						
Variable	State Wide			State Border		
	<i>ineffect</i> =0	<i>ineffect</i> =1	Diff	<i>ineffect</i> =0	<i>ineffect</i> =1	Diff
mean fico	705.6	706.5	0.886*	703.0	700.5	-2.488*
mean dti	38.4	38.0	-0.408*	38.3	38.6	0.307
mean_ltv	72.9	69.9	-3.049*	72.9	72.9	0.076
pct_subprime	6.521	6.187	-0.334*	7.009	6.533	-0.475*
pct_ppp	10.788	10.094	-0.694*	11.042	8.361	-2.681*
pct_balloon	0.659	0.754	0.096*	0.716	0.633	-0.083*
pct_io	3.788	4.998	1.210*	3.625	3.050	-0.574*
pct_arm	14.096	17.212	3.116*	14.360	12.891	-1.469*
pct_cash_refi	11.572	12.148	0.576*	11.916	12.262	0.346
pct_jumbo	2.381	6.328	3.947*	2.997	2.166	-0.831*
pct_non_owner	11.974	11.989	0.016	11.632	11.641	0.009
# of zip codes	10840	12752		1033	828	
All APLs (<i>ineffectb</i>)						
Variable	State Wide			State Border		
	<i>ineffectb</i> =0	<i>ineffectb</i> =1	Diff	<i>ineffectb</i> =0	<i>ineffectb</i> =1	Diff
mean fico	707.5	705.6	-1.908*	706.1	699.3	-6.789*
mean dti	38.8	38.0	-0.892*	38.7	38.4	-0.274
mean_ltv	72.7	70.7	-2.011*	72.2	73.6	1.420*
pct_subprime	6.423	6.310	-0.113	6.548	7.223	0.676
pct_ppp	10.285	10.460	0.175	11.125	9.974	-1.152*
pct_balloon	0.648	0.733	0.086*	0.712	0.654	-0.059*
pct_io	3.480	4.799	1.319*	3.948	3.048	-0.900*
pct_arm	13.238	16.724	3.485*	14.201	13.784	-0.417*
pct_cash_refi	11.156	12.153	0.997*	11.462	12.642	1.180*
pct_jumbo	2.298	5.338	3.039*	3.452	2.010	-1.442*
pct_non_owner	11.499	12.161	0.662*	12.488	11.559	-0.929
# of zip codes	6387	17205		732	1024	
Repaymentability (Repay)						
Variable	State Wide					
	Repay=0	Repay=1	Diff			
mean fico	706.0	706.4	0.378			
mean dti	38.3	38.0	-0.336*			
mean_ltv	71.3	71.2	-0.104			
pct_subprime	6.605	5.843	-0.761*			
pct_ppp	11.656	8.073	-3.583*			
pct_balloon	0.690	0.748	0.057*			
pct_io	4.577	4.187	-0.390*			
pct_arm	16.011	15.345	-0.666*			
pct_cash_refi	11.934	11.789	-0.145*			
pct_jumbo	4.619	4.319	-0.300*			
pct_non_owner	12.061	11.833	-0.228			
# of zipcodes	15408	8184				
Pointstrigger (Points)						
Variable	State Wide					
	Points=0	Points=1	Diff			
mean fico	706.1	706.2	0.106			
mean dti	38.7	37.6	-1.138*			
mean_ltv	72.7	69.7	-3.005*			
pct_subprime	6.453	6.216	-0.237*			
pct_ppp	10.494	10.323	-0.171*			
pct_balloon	0.681	0.743	0.062*			
pct_io	3.812	5.142	1.330*			
pct_arm	14.450	17.259	2.809*			
pct_cash_refi	11.795	11.982	0.188*			
pct_jumbo	2.341	6.932	4.591*			
pct_non_owner	11.874	12.102	0.228			
# of zip codes	12421	11171				

Note: *t-test significant at 0.05 level. zip codes with more than 25 active loans in June 2008 only. *ineffect*: states with APL laws (not including those with marginal protection); *ineffectb*: alternative specification of *ineffect* by including those with marginal protection.

Table 3 Loan Features by Prepayment Penalty Regulation

		State wide		
Prepaymentpenalty	Variable	# of zip codes	Mean	Diff from PPP=0
0: No restriction	mean fico	4,297	709.5	
	mean_dti		38.5	
	mean_ltv		71.1	
	pct_subprime		6.264	
	pct_ppp		11.842	
	pct_balloon		0.672	
	pct_io		5.480	
	pct_arm		16.870	
	pct_cash_refi		11.716	
	pct_jumbo		3.779	
	pct_non_owner		13.834	
1: Restrict prepayment penalties for a subset of market	mean fico	3,783	705.0	-4.445*
	mean_dti		39.3	0.753*
	mean_ltv		72.2	1.076*
	pct_subprime		6.692	0.427*
	pct_ppp		10.037	-1.806*
	pct_balloon		0.688	0.016
	pct_io		4.049	-1.431*
	pct_arm		15.702	-1.168*
	pct_cash_refi		12.706	0.991*
	pct_jumbo		2.700	-1.080*
	pct_non_owner		11.988	-1.846*
2: Ban prepayment penalties for a subset of market	mean fico	6,739	702.4	-7.072*
	mean_dti		36.8	-1.746*
	mean_ltv		72.2	1.046*
	pct_subprime		6.078	-0.187*
	pct_ppp		8.842	-3.001*
	pct_balloon		0.635	-0.037*
	pct_io		3.131	-2.349*
	pct_arm		12.770	-4.100*
	pct_cash_refi		10.322	-1.393*
	pct_jumbo		3.752	-0.028
	pct_non_owner		12.188	-1.646*
3: Restrict prepayment penalties for the whole market	mean fico	4,530	710.3	0.843
	mean_dti		38.5	0.008
	mean_ltv		68.6	-2.477*
	pct_subprime		6.650	0.385*
	pct_ppp		13.948	2.106*
	pct_balloon		0.794	0.121*
	pct_io		6.568	1.088*
	pct_arm		20.704	3.834*
	pct_cash_refi		14.356	2.641*
	pct_jumbo		8.582	4.803*
	pct_non_owner		11.859	-1.975*
4: Ban prepayment penalties for the whole market	mean fico	4,243	705.2	-4.272*
	mean_dti		38.7	0.180
	mean_ltv		72.0	0.852*
	pct_subprime		6.193	-0.072
	pct_ppp		8.022	-3.820*
	pct_balloon		0.799	0.127*
	pct_io		3.554	-1.926*
	pct_arm		14.269	-2.601*
	pct_cash_refi		11.140	-0.576*
	pct_jumbo		3.747	-0.032
	pct_non_owner		9.905	-3.929*

Note: *t-test significant at 0.05 level. zip codes with more than 25 active loans in June 2008 only.

Table 4 Serious Delinquency (90+day) and Foreclosure Rate by Law Status

Strong APLs (<i>ineffect</i>)							
Obs Period	Variable	State wide			State Border		
		Ineffect=0	Ineffect=1	Diff	Ineffect=0	Ineffect=1	Diff
Jun-06	pct_del90	0.868	0.738	-0.130*	0.843	0.784	-0.060
	pct_fc	0.540	0.525	-0.015	0.625	0.600	-0.025
Jun-07	pct_del90	1.183	1.145	-0.038*	1.299	1.264	-0.034
	pct_fc	0.893	0.839	-0.054*	0.917	0.750	-0.166*
Jun-08	pct_del90	1.957	1.935	-0.022	2.147	1.981	-0.166*
	pct_fc	1.519	1.360	-0.159*	1.389	1.252	-0.137*
# of zip codes		10840	12752		1033	828	
All APLs (<i>ineffectb</i>)							
Obs Period	Variable	State wide			State Border		
		Ineffectb=0	Ineffectb=1	Diff	Ineffectb=0	Ineffectb=1	Diff
Jun-06	pct_del90	0.952	0.741	-0.211*	0.810	0.873	0.063
	pct_fc	0.365	0.594	0.229*	0.352	0.796	0.444*
Jun-07	pct_del90	1.134	1.173	0.039	1.257	1.321	0.063
	pct_fc	0.609	0.958	0.349*	0.600	1.116	0.517*
Jun-08	pct_del90	1.807	1.997	0.190*	2.105	2.173	0.068
	pct_fc	0.932	1.619	0.687*	0.988	1.538	0.549*
# of zip codes		6387	17205		732	1024	
Repaymentability (Repay)							
Obs Period	Variable	State wide					
		Repay=0	Repay=1	Diff			
Jun-06	pct_del90	0.842	0.715	-0.127*			
	pct_fc	0.484	0.623	0.139*			
Jun-07	pct_del90	1.182	1.124	-0.058*			
	pct_fc	0.829	0.930	0.101*			
Jun-08	pct_del90	1.978	1.883	-0.095*			
	pct_fc	1.460	1.382	-0.078*			
# of zip codes		15408	8184				
Pointstrigger (Points)							
Obs Period	Variable	State wide					
		Points=0	Points=1	Diff			
Jun-06	pct_del90	0.855	0.734	-0.121*			
	pct_fc	0.530	0.534	0.004			
Jun-07	pct_del90	1.194	1.127	-0.067*			
	pct_fc	0.861	0.866	0.005			
Jun-08	pct_del90	1.943	1.948	0.005			
	pct_fc	1.433	1.433	-0.000			
# of zip codes		12421	11171				

Note: *t-test significant at 0.05 level. zip codes with more than 25 active loans in June 2008 only. *ineffect*: states with APL laws (not including those with marginal protection); *Ineffectb*: alternative specification of *ineffect* by including states with laws with marginal protection; *pct_del90* represents the share of serious delinquent loans of all active loans at of a particular time; *pct_fc* represents the share of loans in foreclosure process at a particular time.

Table 5 Serious Delinquency (90+day) and Foreclosure Rate by Prepayment Penalty Regulation

State wide					
Obs	PrepaymentPenalty	Variable	# of zip codes	Mean	Diff from PrepaymentPenalty=0
2006	0	pct_del90	4297	0.862	
		pct_fc		0.275	
	1	pct_del90	3783	0.765	0.131*
		pct_fc		0.830	0.668*
	2	pct_del90	6739	0.927	0.176*
		pct_fc		0.591	0.370*
	3	pct_del90	4530	0.749	0.065
		pct_fc		0.344	0.137*
4	pct_del90	4243	0.609	-0.205*	
	pct_fc		0.635	0.351*	
2007	0	pct_del90	4297	1.025	
		pct_fc		0.661	
	1	pct_del90	3783	1.301	0.599*
		pct_fc		1.263	0.756*
	2	pct_del90	6739	1.288	0.181*
		pct_fc		0.869	0.244*
	3	pct_del90	4530	1.147	0.292*
		pct_fc		0.645	-0.008
4	pct_del90	4243	0.993	0.032	
	pct_fc		0.939	0.340*	
2008	0	pct_del90	4297	1.912	
		pct_fc		1.607	
	1	pct_del90	3783	2.085	0.820*
		pct_fc		1.770	0.730*
	2	pct_del90	6739	1.981	0.064
		pct_fc		1.259	0.451*
	3	pct_del90	4530	2.099	0.272*
		pct_fc		1.209	-0.056
4	pct_del90	4243	1.635	-0.134*	
	pct_fc		1.471	0.552*	

Note: *t-test significant at 0.05 level. Zip codes with more than 25 active loans in June 2008 only. *PrepaymentPenalty=0* represents no restriction on prepayment penalties; 1 represents restricting prepayment penalties for a subset of the market; 2 represents banning prepayment penalties for a subset of the market; 3 represents restricting for the whole residential mortgage market; 4 represents restricting for the whole residential mortgage market; *pct_del90* represents the share of serious delinquent loans of all active loans at of a particular time; *pct_fc* represents the share of loans in foreclosure process at a particular time.

Table 6 Macroeconomic Environment and Foreclosure Duration by State Law Status

Variable	All			State Border		
	Ineffect=0	Ineffect=1	Diff	Ineffect=0	Ineffect=1	Diff
House Price Change 2000-2006	59.564	63.230	3.666*	60.304	60.096	-0.208*
House Price Change 2006-2007	4.307	2.532	-1.775*	3.904	3.115	-0.789*
House Price Change 2006-2008	3.857	0.395	-3.462*	3.839	2.315	-1.524*
Unemployment rate, June 2008	5.126	5.759	0.633*	4.994	5.469	0.475*
Unemployment rate, June 2009	8.690	9.776	1.086*	8.412	9.346	0.934*
Average Duration of Foreclosure Process	282	309	27*	271	295	24*
# of zip codes	10840	12752		944	888	

Note: *t-test significant at 0.05 level. zip codes with more than 25 active loans in June 2008 only. *ineffect*: states with APL laws (not including those with marginal protection) before 2007. In this preliminary analysis, house price change and unemployment rates are calculated using state level data from OFHEO and Bureau of Labor Statistics.

Table 7 National Banks Lending Activity before and after Preemption by APL Status

		2002			2005			Relative Change		
		APL	MIX	Non_APL	APL	MIX	Non_APL	APL	MIX	Non_APL
National Banks Share										
Total	Application Share	28.42%	32.42%	31.05%	20.58%	24.30%	23.67%	-27.58%	-25.05%	-23.75%
	Origination Share	28.62%	32.01%	30.82%	21.39%	24.99%	24.44%	-25.27%	-21.94%	-20.69%
Subprime	Application Share	15.92%	19.55%	18.29%	1.68%	3.14%	3.60%	-89.44%	-83.93%	-80.34%
	Origination Share	13.12%	12.75%	13.17%	0.34%	0.56%	0.73%	-97.42%	-95.63%	-94.48%
Subprime Share of Originations										
	National Banks	4.60%	3.18%	3.76%	0.31%	0.39%	0.49%	-93.31%	-87.70%	-86.91%
	Federal Thrifts	2.00%	2.65%	2.98%	4.46%	5.83%	7.70%	123.35%	119.80%	158.51%
	Other	15.82%	12.71%	13.36%	30.39%	27.88%	25.23%	92.05%	119.44%	88.78%
Denial Rate										
Total	National Banks	17.00%	17.64%	19.34%	21.90%	21.69%	22.30%	28.79%	23.00%	15.26%
	Federal Thrifts	13.39%	12.49%	12.26%	25.61%	24.43%	23.13%	91.23%	95.59%	88.67%
	Other	21.08%	21.18%	24.34%	28.79%	29.69%	30.06%	36.58%	40.16%	23.47%
Subprime	National Banks	43.20%	49.70%	49.84%	52.10%	48.20%	54.94%	20.60%	-3.03%	10.21%
	Federal Thrifts	27.30%	33.28%	29.70%	45.26%	46.23%	42.68%	65.80%	38.90%	43.71%
	Other	46.14%	50.18%	53.72%	39.97%	43.81%	43.82%	-13.37%	-12.71%	-18.44%
Debt-to-Income										
Total	National Banks	2.03	1.91	1.77	2.33	2.12	2.02	14.78%	10.99%	14.12%
	Federal Thrifts	2.3	2.14	1.9	2.72	2.26	2.15	18.26%	5.61%	13.16%
	Other	2.12	2.12	1.91	2.39	2.22	2.09	12.74%	4.72%	9.42%
Subprime	National Banks	1.55	1.51	1.4	1.8	1.91	1.76	16.13%	26.49%	25.71%
	Federal Thrifts	2.36	2.42	2.09	2.74	2.44	2.29	16.10%	0.83%	9.57%
	Other	2.05	2.16	1.9	2.42	2.34	2.17	18.05%	8.33%	14.21%

Note: APL states include those with laws going beyond HOEPA regulations before 2003 (*Ineffect* =1 before 2003); Non_APL states include those without an APL before 2005. Mix includes all other states that passed APLs between 2003 and 2005; Relative Change = $[(Statistic_{2005} - Statistic_{2002}) / Statistic_{2002}] * 100\%$; Results in bold if consistent with contentions.

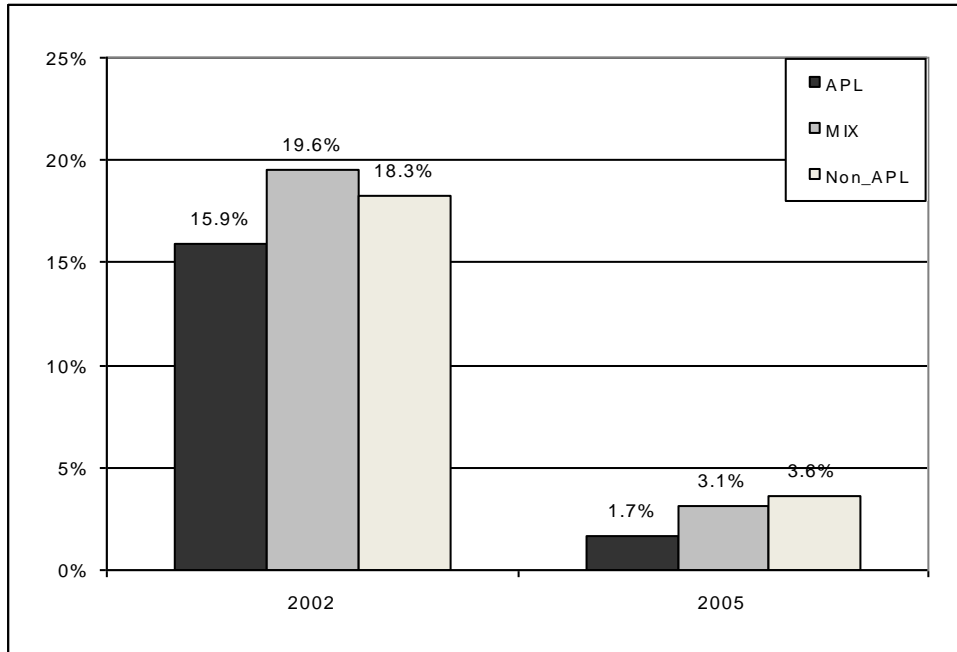
Table 8 Comparison of HUD Subprime Lender List Approach and HUD High-cost Approach

	All Lenders			National Banks/Federal Thrifts			National Banks Only		
	Low Cost	High Cost	All	Low Cost	High Cost	All	Low Cost	High Cost	All
Not on HUD Subprime Lender List	70.7%	8.6%	82.3%	85.4%	8.3%	97.5%	87.2%	8.6%	99.6%
On HUD Subprime Lender List	5.4%	12.0%	17.7%	0.9%	1.5%	2.5%	0.1%	0.3%	0.4%
ALL	76.1%	20.6%	100.0%	86.4%	9.8%	100.0%	87.3%	9.0%	100.0%

*Note: Calculated based on the combined 2004 and 2005 HMDA data. Numbers on the rate spread variable may not add to 100% because some loan applications started before the new reporting requirements went into effect were not required to report their rate spread.

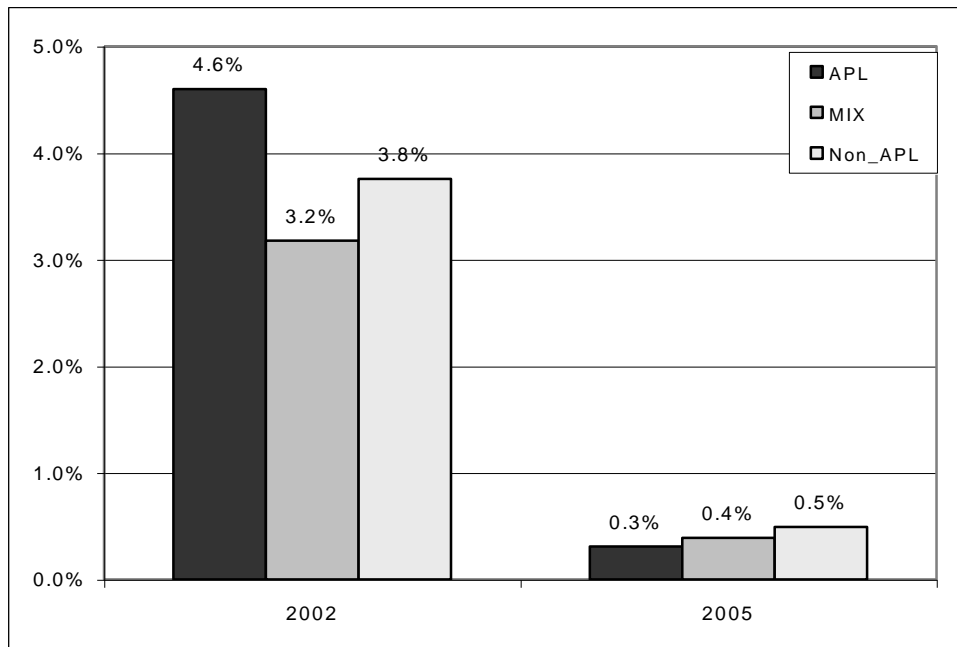
Figures 3 and 4 illustrate the problem of relying on HUD's Subprime List

Figure 3 National Banks Share of Subprime Applications based on the HUD List



Note: APL states include those with laws going beyond HOEPA regulations in 2002 or earlier, Non_APL states include those without an APL before 2005. "MIX" includes other states that passed APLs in 2003 or 2004.

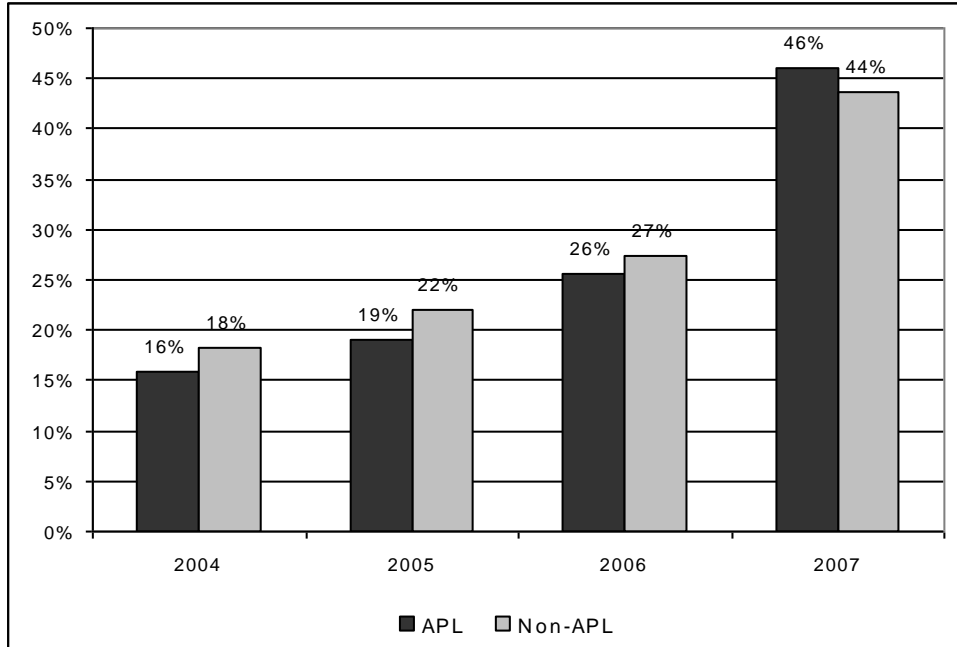
Figure 4 Subprime Share of Originations by National Banks based on the HUD List



Note: APL states include those with laws going beyond HOEPA regulations in 2002 or earlier, Non_APL states include those without an APL before 2005. "MIX" is defined above.

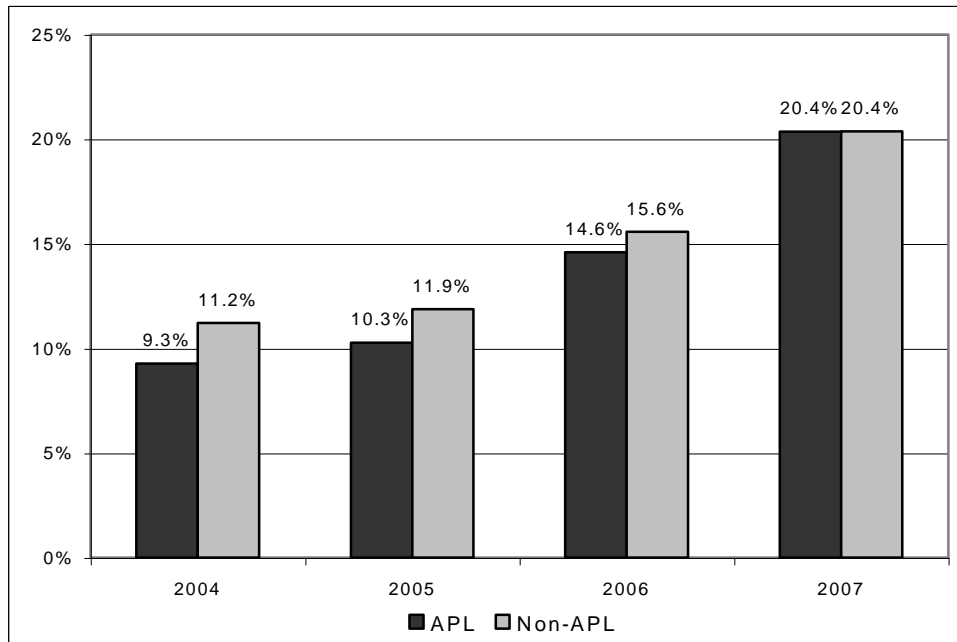
Figures 5 and 6 rely on a better definition (high –cost) and show the opposite

Figure 5 National Banks/Federal Thrifts Share of High-cost Loans in APL/Non-APL States



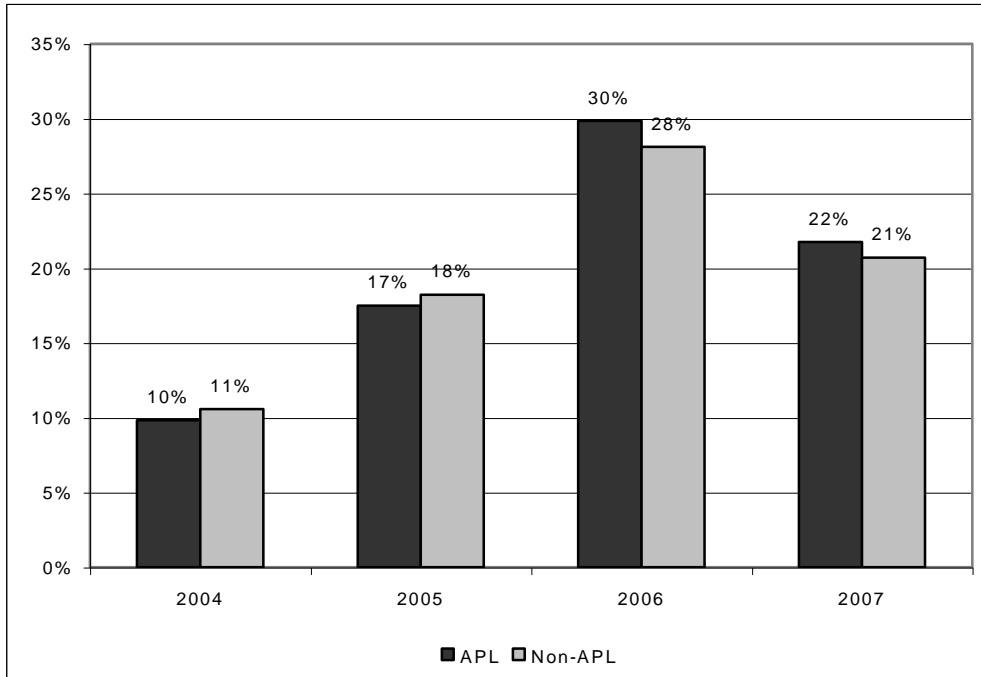
*Note: APL states defined as those with an APL stronger than HOEPA regulation effective before the year being analyzed.

Figure 6 National Banks Share of High-cost Loans in APL and Non-APL States



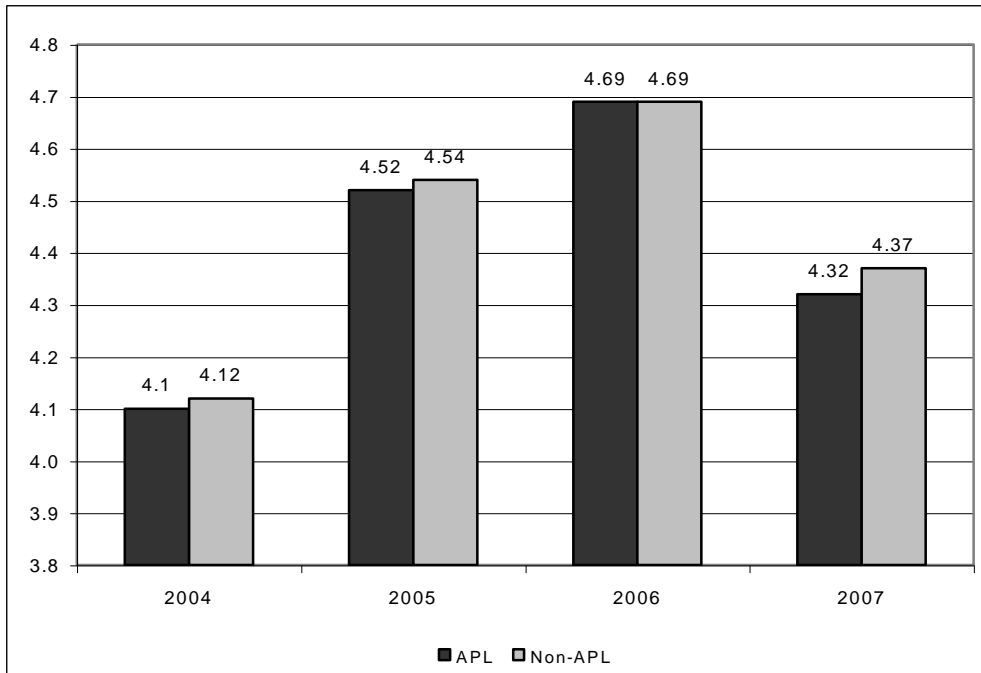
*Note: APL states defined as those with an APL stronger than HOEPA regulation effective before the year being analyzed.

Figure 7 Second-Liens Share of National Banks/Federal Thrifts Originated Loans



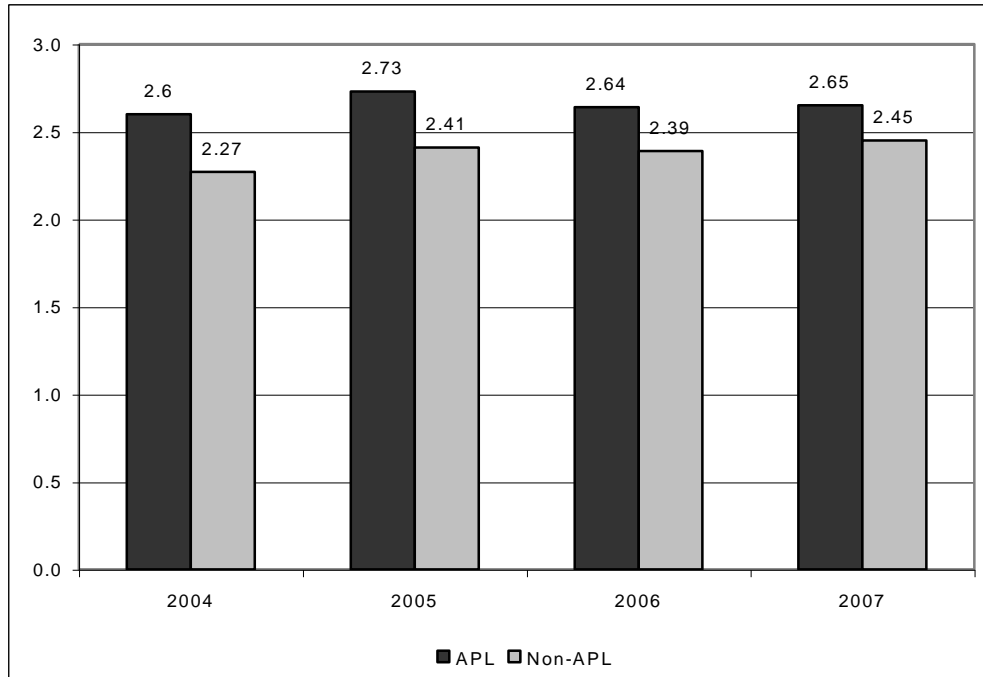
*Note: APL states defined as those with an APL stronger than HOEPA regulation effective before the year being analyzed.

Figure 8 Mean Rate Spread of First-lien High-cost Loans Originated by National Banks/Federal Thrifts



*Note: APL states defined as those with an APL stronger than HOEPA regulation effective before the year being analyzed.

Figure 9 Mean Loan Amount to Income Ratio of Loans Originated by National Banks/Federal Thrifts



*Note: APL states defined as those with an APL stronger than HOEPA regulation effective before the year being analyzed.

*Center for Community Capital
The University of North Carolina at Chapel Hill
1700 Martin Luther King Blvd
Campus Box 3452, Suite 129
Chapel Hill NC 27599-3452
(919) 843-2140
communitycapital@unc.edu
www.ccc.unc.edu*



UNC
COLLEGE OF
ARTS & SCIENCES