Financing Community Development:
Learning from the Past, Looking to the Future
Summary of the 2007 Federal Reserve System Community Affairs Research Conference

BY LORETTA J. MESTER

The Federal Reserve System's 2007 Community Development Research Conference, "Financing Community Development: Learning from the Past, Looking to the Future," was held in Washington, D.C., on March 29-30, 2007. This conference was the fifth in a biennial series that the Federal Reserve System established in 1999. The responsibility for organizing the conference program rotates among the Federal Reserve Banks. The staffs of the Federal Reserve Bank of Philadelphia's Community Affairs Department and Research Department took the lead in organizing the 2007 program. The intention of the conference series is to encourage the application of rigorous economic analysis to issues related to community development because without such state-of-the-art research, policymakers cannot hope to devise effective economic development policies and programs. In this article, Loretta Mester provides a summary of the conference.

The conference was organized around six key questions: (1) Is subprime loan pricing fair or predatory? (2) Are legislative remedies to limit predatory lending really remedies? (3) What determines who defaults or goes bankrupt, and how do they fare? (4) What should and can be done to enhance borrowers' knowledge of their credit risk? (5) Does the financing of small businesses differ for minority-owned businesses and for businesses in low-income areas? and (6) Can alternative financial services products help the underbanked? Although the research did not provide definitive answers to these questions, the presentations and discussions did advance our knowledge and provided several interesting avenues for further research.*

Jeffrey Lacker, president of the Federal Reserve Bank of Richmond and chair of the Conference of Presidents' Committee on Research, Public Information, and Community Affairs, opened the conference. He pointed out the value of careful, objective research on consumer financial markets, which have experienced much innovation in recent years. Financial innovation creates opportunities but also entails risk. Lacker would like researchers to study borrowing and other household financial decisions from an ex ante viewpoint, that is, to look at the full distribution of possible outcomes and their relative probabilities. Otherwise, it is difficult to know whether any particular credit market product is beneficial on net or whether the benefits of any proposed method for curtailing adverse outcomes outweigh the costs from restricting credit that the method may entail. He also pointed out one of the limitations of the data collected under the Home Mortgage Disclosure Act. Even with recent enhancements, these data include information from lenders only and do not contain much information about borrowers, so Lacker

Loretta Mester is senior vice president and director of research in the Philadelphia Fed's Research Department. This article is available free of charge at www.philadelphiafed.org/econ/br/.

* Revisions of some of the papers presented at this conference have been published in a special issue of the *Journal of Economics and Business*, 60, Nos. 1-2, 2008. Part of this summary is taken from my introduction to this special issue. The conference papers are available on the Federal Reserve System's website at www.federalreserve.gov/communityaffairs/national/2007researchconf/default.htm.

is pessimistic about their usefulness for understanding the effectiveness of credit markets. Lacker suggested that researchers try to partner with credit rating bureaus so that lender-supplied data can be combined with data on households to better illuminate borrowers' credit decisions and outcomes. In his view, further research will help us better understand the costs and benefits of market practices and government interventions.

Indeed, turmoil in the subprime mortgage market took center stage in mid-2007, underscoring the importance of further research on this market segment. Six papers at the conference studied various aspects of the subprime mortgage market, including pricing, possible predatory practices and policy responses, foreclosures, and delinquencies.

SESSION 1: IS SUBPRIME LOAN PRICING FAIR OR PREDATORY?

"Predatory Lending Practices and Subprime Foreclosures: Distinguishing Impacts by Loan Category," by **Morgan Rose**, examines the foreclosure behavior of subprime mortgages. While the rise in subprime mortgage lending has increased access to credit for some borrowers, it has also raised concerns about possible predatory pricing practices within this market segment. The recent increase in subprime mortgage foreclosures has prompted calls for more regulation to curb predatory lending, and some municipalities and states have passed such legislation. But distinguishing predatory lending from legitimate lending is a difficult task. Rose's analysis indicates that the impact of prepayment penalty periods, balloon payments, and reduced documentation — characteristics often cited as consistent with predatory lending — on the foreclosure behavior of subprime refinance and home purchase mortgages is not at all straightforward. To the extent that these factors are not associated with foreclosures resulting in loss of wealth and tax base, the empirical basis for some of the new regulations enacted at the municipal and state level is questionable. These laws might restrict legitimate access to credit for low-income borrowers without offering much benefit. The results also suggest that our understanding of these loans must advance before effective federal legislation to limit predatory lending can be designed, and that the recent regulatory guidelines emphasizing prudent loan terms and underwriting standards may be a better approach than placing restrictions on loan characteristics.

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Rose uses quarterly data collected by LoanPerformance, Inc. on subprime refinance and home purchase mortgages originated in 1999Q1 through 2003Q2 on properties located in the Chicago metropolitan area and which have been securitized into private-label mortgage-backed securities. Chicago provides a good laboratory for study, having experienced a significant increase in foreclosures in recent years. Focusing on a single geographic region can help control for regional differences in housing markets. However, the limited time period means the loans studied are not seasoned and many of the new types of mortgage instruments, like "piggyback" mortgages, cannot be included. Rose combines these data with 2000 Census Bureau data, which include information by ZIP code on median household income, race, education, and adult population. Over 31,000 loans were used in the empirical analysis, with over 200,000 loan-quarters of observations.

Rose estimates multinomial logit models that explain for each of four loan types (fixed-rate purchase, fixed-rate refinance, adjustable-rate purchase, adjustable-rate refinance) the probability of a loan's entering foreclosure, prepayment, or remaining active in the quarter. Explanatory variables include macroeconomic, demographic, and vintage control variables, and features of the loans, including whether the loan requires a balloon payment, whether it has a prepayment penalty period longer than 36 months from origination, whether it is a low- or no-documentation loan, the loan-to-value ratio, interest rate at origination, the borrower's FICO score at origination, and, for refinance loans, whether the borrower withdrew cash. The first three of these loan characteristics are often cited as features of predatory loans. Standard errors were adjusted to allow for clustering by loans, since loans can remain in the data set for multiple quarters.

The empirical findings indicate that the relationship between outcome (foreclosure, prepayment, active), loan characteristics, and demographic variables differs among the four loan types, making it difficult to reach a general conclusion about whether particular loan characteristics or combinations

of characteristics are associated with higher probability of foreclosure. For example, having a prepayment penalty period longer than 36 months is associated with a statistically significant higher probability of foreclosure for purchase fixed-rate mortgages and refinance adjustable-rate mortgages, but not for refinance fixed-rate mortgages or purchase adjustable-rate mortgages. Low- or no-documentation is associated with a statistically significant higher probability of foreclosure for refinance loans of either type and a statistically significant lower probability of foreclosure for purchase fixed-rate mortgages, and is not significantly associated with the probability of foreclosure for purchase adjustable-rate mortgages. Rose also examines the impact of combinations of the three loan characteristics often considered characteristics of predatory loans. In most, but not all cases, the results indicate that the effect of the combination on the predicted probability of foreclosure is greater than the sum of the individual impacts.

Based on the analysis, Rose concludes that the relationships between foreclosures and loan characteristics often cited as predatory are much more complex than previous analysis suggests, and that prohibitions on these loan characteristics may not have the desired effects intended by legislators. This suggests the need for a model of borrower and lender behavior to better understand the consequences of restricting various loan characteristics on the supply and demand for these types of credit.

The association between subprime lending and minorities is the focus of **"Race, Ethnicity, and Subprime Home Loan Pricing,"** by **Debbie Gruenstein Bocian, Keith Ernst,** and **Wei Li.** The paper examines whether African-American and Latino borrowers receive a disproportionately larger share of higher-rate home loans, controlling for borrower riskiness. This paper uses the 2004 data collected under the Home Mortgage Disclosure Act (HMDA), which for the first time included information on the costs of subprime home loans. For first-lien loans, lenders were required to report the spread between the annual percentage rate (APR) of the loan and the yield on a U.S. Treasury security of comparable maturity if the spread was three percentage points or higher. By matching these data to a proprietary database on subprime lending, the authors are able to address a significant weakness of earlier studies of race and loan pricing, namely, the inability to control for the risk characteristics of the borrowers and loans at the time of origination. In particular, the proprietary data allow them to control for a borrower's FICO score, loan-to-value ratio, and whether the loan was covered by private mortgage insurance. The resulting data set contains over 177,000 subprime loans originated in 2004.

The analysis covers subprime loans that have been securitized where the loans are secured by first liens on owner-occupied properties, and excluding loans secured by manufactured housing units, backed by private mortgage insurance, those with nonstandard amortization schedules, and those with origination amounts above the Fannie Mae and Freddie Mac limit (which was $333,700 in 2004). Separate analyses are performed on six different subgroups of loans, defined by whether the loan is fixed or variable rate, included a prepayment penalty or not, and was for purchase or for refinancing. Following a method of Ambrose et al. (2004), the authors use three-stage least squares to estimate a logistic model relating the probability of receiving a loan designated as a higher-rate loan in the HMDA data to borrower, loan, economic, and geographic characteristics, allowing for endogeneity between the loan-to-value, loan amount, and loan interest rate. (Unlike the Elliehausen et al. paper discussed below, this paper does not account for potential simultaneity between the presence of a prepayment penalty and other loan terms.)

Overall, the results of the analysis suggest that for many types of loans, African Americans and Latinos are more likely to receive a higher-priced loan compared to non-Latino white borrowers with similar characteristics. For example, the authors estimate that African Americans are 1.84 times and Latinos are 1.7 times more likely to receive a higher-rate fixed-rate purchase loan with prepayment penalties, all else equal, than a non-Latino white borrower. These estimates are statistically different from one at the 1 percent and 5 percent levels, respectively.

It is beyond the scope of the paper to identify the causes for such a disparity in pricing. It could be that even the better measures of borrower risk that are used in the analysis still do not completely control for differences in risk. However, the results suggest that other explanations must also be considered, for example, are minority borrowers steered to higher-priced loans? The authors suggest some enhancements to the HMDA reports that would aid in further research, for example, including information on loan-to-value and credit scores, and also on the type of originator.

Alan White of Community Legal Services, Philadelphia, discussed the Rose and the Bocian et al. papers. In his view, both papers provide further evidence on the harm to consumer welfare caused by deregulation of mortgage markets. He thinks there has been little empirical work documenting the welfare benefits of the

expansion of the subprime lending market. Although their existence appears to be the received wisdom, he is skeptical that on balance such benefits outweigh the costs. Indeed, he proposes two alternative hypotheses: that subprime loans have displaced other credit products, like FHA loans, and that subprime lending has expanded credit not by bringing in more borrowers, but by increasing the amount of funding available to individuals who had access to credit before the rise of the subprime market. Regarding discriminatory pricing, White suggested that researchers evaluate whether the loan-pricing matrices used by lenders to match risk factors with price are correctly calibrated. Do minority borrowers pay higher prices because their cost to the lender is higher? White also underscored one of the lessons from Rose: the subprime market is very heterogeneous — subprime loans that were made in 2000 are different from subprime loans that were made in 2006, and loans made for purchase and loans made for refinance are different, with the latter often better thought of as a consumer credit product rather than as a mortgage.

SESSION 2: ARE LEGISLATIVE REMEDIES TO LIMIT PREDATORY LENDING REALLY REMEDIES?

"The Effect of Prepayment Penalties on the Pricing of Subprime Mortgages," by **Gregory Elliehausen, Michael Staten,** and **Jevgenijs Steinbuks**, also investigates prepayment penalties on subprime loans. Similar to Rose's research, the results of this paper suggest that restricting certain loan characteristics, in particular prepayment penalties, may have unintended consequences. Previous research has indicated that loans with prepayment penalties have higher value to lenders, and the prepayment penalty mitigates some of the prepayment risk faced by the lender. However, studies have yielded conflicting results about whether the rates that borrowers pay are lower for loans that include prepayment penalties. Elliehausen et al. advance the existing literature by examining the relationship between prepayment penalties and loan rates using simultaneous equation estimation techniques, which recognize that prepayment penalty, loan rate, and loan-to-value ratios are set simultaneously by the lender. Previous studies have failed to recognize this endogeneity and so have potentially produced biased estimates of the effect of a prepayment penalty on the loan rate.

Previous research has indicated that loans with prepayment penalties have higher value to lenders, and the prepayment penalty mitigates some of the prepayment risk faced by the lender.

This study uses the subprime mortgage database of the Financial Services Research Program, which contains data on all originations of the subprime subsidiaries of eight large financial institutions from 1995Q3 to 2004Q4. This database covers nearly one-quarter of loans reported as higher-priced mortgages made for purchase or refinancing of owner-occupied homes in the 2004 HMDA data. The analysis includes close-ended first mortgages with loan-to-value ratios of 90 percent or less. The average loan amount for these loans in 2004 was $130,000.

Because pricing schedules differ by loan type, the authors estimate separate loan pricing models for fixed-rate, variable-rate, and hybrid mortgages with a 30-year term to maturity. A three-equation simultaneous equation system is estimated, with loan rate premium (the difference between the loan rate and the rate on a Treasury security of comparable maturity), loan-to-value ratio, and presence of a prepayment penalty as dependent variables. Loan-to-value and prepayment penalty are included as explanatory variables in the loan rate premium equation; loan rate premium is included as an explanatory variable in the loan-to-value and in the prepayment penalty equation. Loan characteristics included in the model as controls are loan amount, home value, loan-to-value, and whether the loan was a low-documentation loan. Borrower characteristics included are borrower income, FICO risk score, and whether the home is owner-occupied. The analysis also controls for whether the mortgage was originated by a mortgage broker and whether the loan was used for refinancing. Instruments are used to identify the system. The prepayment penalty equation is a probit equation used to predict the probability that the loan includes a prepayment penalty. This predicted value is included in the loan rate premium equation and then the interest equation and loan-to-value equations are estimated by two-stage least squares.

The empirical results show that controlling for potential endogeneity is important: The single equation

ordinary least squares results and the three-equation system results differ. Results for the three-equation system indicate that the presence of a prepayment penalty is associated with lower loan rates: 38 basis points lower for fixed-rate loans, 13 basis points lower for variable-rate loans, and 19 basis points lower for hybrid loans. The authors report that these interest rate reductions are similar to those found in lenders' wholesale loan pricing rate sheets. This result raises the possibility that a restriction on the use of prepayment penalties may have the unintended consequence of raising loan rates.

"State and Local Anti-Predatory Lending Laws: The Effect of Legal Enforcement Mechanisms," by **Raphael Bostic, Kathleen Engel, Patricia McCoy, Anthony Pennington-Cross,** and **Susan Wachter,** takes another look at anti-predatory lending laws and their effect on subprime mortgage lending. On the one hand, such laws could restrict the availability of this credit and raise its price. On the other hand, they could allay consumer concerns about predatory lending by raising the cost to lenders that engage in abusive practices, thereby increasing the demand for this credit. The authors' analysis shows that in order to understand the effect of these laws, it is important to look at the individual provisions, including the types of mortgages covered, restrictions on pricing, and enforcement mechanisms. The study finds that these components have independent effects on the supply of and demand for subprime mortgages. In particular, broader coverage, which was a provision in the newer anti-predation laws, and enhanced enforcement are associated with a greater likelihood of subprime origination, while restrictions on pricing are associated with a lower likelihood of subprime origination.

The Home Ownership and Equity Protection Act (HOEPA), passed in 1994, is a federal law that regulates loans considered to be "high-cost loans." The act defines these as first mortgages with an annual percentage rate at origination 8 percentage points or more above the yield on Treasury securities of comparable maturity; subordinate liens with a spread of 10 percentage points or more; or loans with total points and fees that exceed

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the greater of 8 percent of the loan amount or $400 (subject to annual indexing). While HOEPA imposes significant restrictions on the credit terms of these loans, it is estimated to cover only a small portion of subprime mortgages. Several states have passed their own laws; many of these lower the HOEPA pricing triggers, thereby expanding coverage. The laws differ in enforcement mechanisms: Some allow only government enforcement, and others allow borrowers to sue particular parties, with some restricting private lawsuits to compensatory damages only.

Bostic et al. examine the impact of anti-predatory lending laws on the three different outcomes: the probability of applying for a subprime loan relative to a prime loan, the probability of originating a subprime loan relative to a prime loan, and the probability of a subprime loan's being rejected. The analysis includes all types of anti-predatory lending laws, both pre- and post-HOEPA, and finds an additional 16 state laws that previous studies in the literature have not identified. Building on previous research (Ho and Pennington-Cross, 2006), the authors create two variants of a legal index that measures the breadth of coverage, type and severity of restrictions on loan terms, and enforcement mechanisms. Higher values of the index correspond to laws with broader coverage, more stringent restrictions, and stronger enforcement mechanisms.

The authors use 2004 and 2005 HMDA data. They identify subprime loans in two different ways. For 2004 and 2005, they designate loans as subprime if they are reported on HMDA as having an annual percentage rate in excess of the rate on a Treasury security of comparable maturity of 3 percentage points or more. This information is available only on loan originations and not on applications for loans that were not originated. For 2004, they also had a list of subprime lenders that was generated by the U.S. Department of Housing and Urban Development (HUD) through industry trade publications, HMDA data analysis, and phone calls to determine the extent of the institutions' subprime lending. Thus, for 2004 they were able to repeat their analysis for this definition of subprime, which also allowed them to investigate applications for subprime loans, as well as originations.

To focus on the effect of anti-predatory lending laws on the market and to help control for other factors that might affect loan markets, the analysis includes only loans that were made in counties along a state border, where at least one of the states has an anti-predatory lending law. The authors then estimate three separate logit regressions to predict the three outcomes described above (the probabilities of applying for, originating,

or being rejected for a subprime loan relative to a prime loan), as a function of the legal index, a fixed effect designating the state border pair in which the loan is located, controls for borrower characteristics, such as borrower income (but not borrower FICO score, which is not available in the HMDA data), and location characteristics such as county unemployment rate. They also include a control for whether the institution is regulated by the Office of the Comptroller of the Currency (OCC), since the OCC has interpreted the National Banking Act as exempting national banks from state and local anti-predatory lending laws.

The empirical results indicate that the existence of a state anti-predatory lending law has little effect on credit flows in the subprime mortgage market: It has no effect on the odds of applying for or entering into a subprime loan, but it reduces the odds of being rejected for a subprime loan by 7 percent. However, the results also show that individual components of the laws can have significant and sometimes offsetting effects. Although the effects differ somewhat across year (2004 vs. 2005) and subprime loan definition (HUD list vs. HMDA price criteria), in general, the results suggest that tighter loan-term restrictions do not have a significant effect on the probability of a subprime loan application's being made but do increase the odds of a subprime loan application's being rejected, and they reduce the odds of subprime loans' being originated. These effects are somewhat offset by provisions resulting in broader coverage of the laws. Broader coverage is associated with lower odds of subprime loan applications but also with lower odds of rejection and higher odds of origination. This is consistent with the hypothesis that anti-predatory laws help reassure potential borrowers, thereby attracting them to this market. There is weak evidence that stronger enforcement is associated with higher probability of subprime origination and lower probability of rejection of a subprime application. Similar to the Rose and Elliehausen et al. papers discussed above, one conclusion to be drawn from the paper is that the impact of laws intended to improve the functioning of the subprime mortgage market can be complex, resulting in unanticipated outcomes.

Michael Calhoun of the Center for Responsible Lending discussed the Elliehausen et al. and Bostic et al. papers. In Calhoun's view, the mortgage delivery system is an important component of the subprime mortgage market, and he focused several of his comments on the research results concerning mortgage brokers. One of the many findings in Elliehausen et al. is that loans from brokers are significantly more likely to carry a prepayment penalty, all else equal, than loans from retail lenders. Calhoun pointed out that this is consistent with a hypothesis discussed in Ernst (2005), namely, that brokers may be more likely to place borrowers in subprime loans with prepayment penalties in order to maximize their own compensation. Calhoun discussed three sources of compensation for brokers: They can be (but rarely are) paid in cash from the borrower, their fees can be financed into the loan amount, and they can receive a payment from the lender for placing a borrower with a higher interest rate than the lender requires to compensate it for the given borrower's risk profile. The lender will be more likely to make such a payment if the loan includes a prepayment penalty, which helps to ensure that the borrower remains in the loan long enough for the lender to recoup this payment. Calhoun calculates based on typical prepayment penalties that the interest rate reductions found for loans with prepayment penalties in Elliehausen et al. are not large enough to offset the cost of the prepayment penalty for many subprime borrowers with hybrid adjustable rate mortgages. He also suggests that loans that are more profitable for the broker to deliver are not necessarily the best deal for the borrower. Calhoun also suggested that it is important to consider the mortgage delivery system when assessing anti-predatory lending laws as in Bostic et al. In Calhoun's view, the HOEPA triggers for high-cost loans may be too narrow, as they do not include prepayment penalties or payments to brokers for delivering loans with rates above the lender's minimal acceptable rate. Several states now include a broader definition of high-cost loans in their anti-predatory lending regulations.

The luncheon speaker on the first day of the conference was **Mary Lee Widener**, president and CEO of Neighborhood Housing Services of America, Inc. (NHSA). In her presentation, Widener said she expected the fallout from the current problems in the subprime market to be widespread but noted that credit markets have faced and handled large challenges in the past. There are likely lessons to be learned from the current experience to help borrowers, lenders, community development organizations, and policymakers handle future challenges. In Widener's view the most important factors for advancing community development financing are collaboration, affordability, and borrower support. Collaboration between community development organizations, regulators, policymakers, and lenders was essential for eliminating redlining, a common practice in the 1960s and 1970s. Development of fair lending practices followed, taking more collaboration. By the mid-1980s, the Community Reinvestment Act had resulted in hundreds of local partnerships between

lenders and nonprofits and local governments that delivered capital into many local communities. Collaboration with private-sector lenders was important for achieving affordability, and affordability included responsible underwriting so that borrowers could meet the long-term obligations of their mortgages. Borrower support was also needed — both pre-purchase and post-purchase counseling. In Widener's view lenders' commitment to forbear and not foreclose when temporary life events interrupted the borrower's ability to repay loans was also an important element in helping families in low-income communities remain homeowners. Further advancements in the low-income mortgage market were made by NHSA through its collaboration with the mortgage insurance industry, the secondary market through Freddie Mac and Fannie Mae, and the rating agencies. This allowed loans to low-income borrowers to be financed through the capital markets.

Widener explained that several challenges remain. One is trying to overcome the reluctance of many communities to allow development of affordable housing. Another challenge is making the borrower support and development systems sustainable. One aid to doing this is showing that loans to low-income borrowers with proper support systems perform better than is commonly thought, which is what NHSA has experienced. The subprime lending market poses another challenge. When the terms under which subprime lending is available become predatory, such lending has a negative impact on communities. Better consumer education and development of alternative loan products better suited to lower-income borrowers can help. Widener discussed several such products that have been developed via collaborations among NHSA, other nonprofits, and the private sector.

SESSION 3: WHAT DETERMINES WHO DEFAULTS OR GOES BANKRUPT AND HOW DO THEY FARE?

"The Delinquency of Subprime Mortgages," by **Michelle Danis** and **Anthony Pennington-Cross,** analyzes the dynamics of the payment behavior of subprime mortgage borrowers using more sophisticated econometric techniques than have heretofore been used to study this issue. Payment dynamics are an important determinant of loan pricing. For example, delinquencies will increase the price of these loans to borrowers by increasing the cost of servicing these loans and of guaranteeing timely payments. The paper's goal is to identify the key factors that drive delinquency.

At any point in time a mortgage can be current, delinquent, or terminated. Within each of these branches of possibilities, there are further alternatives (called nests). If delinquent, the mortgage can be 30, 60, 90, or more days late. Termination can be due to either prepayment or default (that is, foreclosure). Notice that the status of the mortgage is the result of actions of both the borrower and the lender. To capture the multiplicity of possible outcomes, the authors estimate (via full-information maximum likelihood) a nested logit model of loan outcomes as a function of explanatory variables, including loan characteristics (age of loan, loan-to-value, whether the loan is a low-documentation loan, whether the loan is a no-documentation loan, and whether the loan includes a prepayment penalty), borrower's FICO score at time of origination, and variables controlling for economic conditions in the state in which the property is located (change in house prices, volatility in house prices, unemployment rate, and mortgage rate change (which does not vary by state)). The nested logit model has an advantage over multinomial logit, which is often used to investigate such multichoice situations. The multinomial logit model requires that the ratio of the probabilities of any two alternative choices (that is, the odds ratio between the two alternatives) be independent of any other alternative. This makes estimation easier but is often not a good description of behavior. For example, the multinomial logit model would imply that if prepayment were taken away as an option, we'd see proportionate changes in the probabilities of all other alternatives. But the nested logit model would imply that any change in the probabilities of delinquency is evenly distributed over 30, 60, or 90+ days, but there would not need to be proportionate increases in the probabilities of the remaining alternatives in the other nests (that is, default and current). Thus, the nested logit model is less restrictive, and the authors present tests indicating that the more restrictive multinomial logit model is rejected for their data.

The authors' loan data are from LoanPerformance, which provides data on pools of nonagency, publicly placed securitized loans. They use monthly data on the payment status of single-family 30-year fixed-rate subprime mortgages on owner-occupied property originated between January 1996 and May 2003. Over 97,000 loans are included in the analysis. State-level data on house price level, house price volatility, and the unemployment rate, and national prime mortgage rates are matched to the loan data. However, the time period is too early to cover the recent period of sharp increases in subprime mortgage delinquencies. The authors present estimates of the change in the probability of the outcome associated with a one-standard-deviation increase and one-standard-deviation decrease in an explanatory variable, holding the other variables

constant at their means. (The changes are not symmetric for increases and decreases in explanatory variables.) They are unable to report standard errors for these elasticity estimates, which are highly nonlinear functions of the explanatory variables and coefficients. However, most of the coefficient estimates are significantly different from zero at the 5 percent or better level.

The empirical results show that some of the relationships between the explanatory variables and the probability of delinquency, default, and prepayment are as expected but others are not. A borrower's credit score appears to be a robust predictor of default and delinquency, with higher credit scores associated with lower likelihood of delinquency or default. The estimated probability of 90-day or more delinquency is 0.75 percent for a borrower with a FICO score at the mean 649; it is 1.89 percent for a borrower with a FICO score one standard deviation lower, at 579.

The empirical results also show that for borrowers with credit scores below 630, higher credit scores are associated with higher likelihood of prepayment. This might reflect the borrowers' ability to migrate to prime loans as their credit scores improve. However, for scores above 630, an increase in credit score is associated with a lower probability of prepayment. This seems counterintuitive. The authors suggest this might reflect something unique about these borrowers that is not controlled for in the estimation – these borrowers seem to have credit scores that would qualify them for prime mortgages, yet they have taken out subprime mortgages.

Prepayments on mortgages are known to be difficult to predict, and the paper's results do not contradict this. As expected, the probability of prepayment is very responsive to changes in interest rates, with the probability of prepayment increasing as mortgage rates decline. But the probability of prepayment is fairly unresponsive to changes in house prices, which is an unexpected result.

An interesting finding is that factors that imply increased probability of delinquency do not necessarily imply increased probability of default. For example, higher loan-to-value at origination implies a higher probability of delinquency but not of default.

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This is a reminder that movement from delinquency to default is partly determined by actions of the lender. Another surprise is that higher state unemployment rates do not seem to trigger higher probability of delinquency or default in the authors' data. The interaction between local economic conditions and loan performance presents an interesting avenue for future research and is one of the issues addressed in the Grover et al. paper discussed below.

"The Anatomy of U.S. Personal Bankruptcy Under Chapter 13," by **Hülya Eraslan, Wenli Li,** and **Pierre-Daniel Sarte,** analyzes the performance of consumers who file for personal bankruptcy under Chapter 13, one of two chapters of the U.S. bankruptcy code under which households can file for bankruptcy. Under Chapter 7, filers turn over all of their assets above an exemption level that varies by state in exchange for having their debts discharged. Under Chapter 13, filers need not turn over their assets but must complete a plan that indicates how they will repay their debts out of future income. The repayment plan under Chapter 13 must propose to pay at least as much as the value of the assets creditors would have received under Chapter 7.

The Bankruptcy Abuse Prevention and Consumer Protection Act, enacted in 2005, introduced a means tests on filers, whereby filers deemed to have sufficient income would be required to file under Chapter 13. The act presumes that higher-income filers will end up paying off more of their debt under Chapter 13, while at the same time receiving a fresh start. But there is little, if any, empirical evidence about how debtors and their creditors actually fare under Chapter 13. This paper provides such evidence using a data set that the authors painstakingly constructed from public court docket records of all Chapter 13 bankruptcy filings between 2001 and 2002 in Delaware. The analysis, based on data from over 900 filings, casts doubt on the success of Chapter 13 filings.

The authors approach their investigation by constructing a theoretical model of the bankruptcy decision. Debtors, when considering bankruptcy, decide first whether to file under Chapter 7 or Chapter 13. The authors do not model this decision and focus only on the decisions filers make after they have chosen Chapter 13. These Chapter 13 filers must decide on the length of the repayment plan to propose (typically three years or five years). Once the plan is proposed, the court-appointed trustee must decide whether to recommend that the court confirm the plan or dismiss it. If the plan is dismissed, the creditors can re-

sume debt collection measured against the filer. If the plan is confirmed, the filer begins making payments according to the plan. Over time, the debtor may experience unexpected changes in income and the plan can be modified. If the debtor completes the (perhaps modified) plan, any remaining debts are discharged. If for some reason the debtor cannot or will not complete the payments according to plan, the case is dismissed. The debtor might try to convert the case to Chapter 7 or go back to face his or her creditors without the protection of the bankruptcy provisions. The authors use maximum likelihood techniques to estimate their structural model relating several outcomes — the choice of plan length, whether the plan is confirmed or dismissed, the creditor recovery rate under the plan, and whether the plan is brought to conclusion — to exogenous debtor characteristics.

The Chapter 13 filers in the sample have significantly more debt but fewer assets than nonfilers — filers' median total debt is about $121,000, about 6.6 times the national median, while the median value of their total assets is about $103,000, less than half the national median. The filers are somewhat less likely to be unemployed than the average Delaware resident, but their average monthly income is about 30 percent less than Delaware's average adjusted gross income and they experienced a significant decline in income prior to filing. The median credit recovery rate under Chapter 13 is quite low, about 12 percent of total debt; the mean recovery rate is about 28 percent; and a relatively small fraction of Chapter 13 filers are actually successful in getting their cases discharged. Moreover, 20 percent of the debtors who want to file under Chapter 13 are never successful in getting their repayment plan approved by the bankruptcy court – and this was at a time when these filers were voluntarily choosing to file under Chapter 13 instead of Chapter 7.

The authors' estimation results indicate that the amount that creditors ultimately recover from borrowers that file for Chapter 13 is significantly related to whether debtors are experiencing bankruptcy for the first time, the amount of their past-due secured debt at the time of filing, and the amount of income they have in excess of what is required for basic maintenance. Also, changes in the debtors' financial conditions while in bankruptcy affect their outcomes under Chapter 13. The authors perform some policy experiments using their estimated model. One of the provisions of the new law prohibits debtors with income above the state median to file a plan with less than five years' duration. Their model suggests that this provision will likely result in only a minimal increase in recovery rates for creditors but may lower the likelihood that filers emerge from the bankruptcy process with a fresh start and their cases discharged.

> Who should bear the responsibility for medical problems or job problems that might trigger bankruptcy?

Katherine Porter of the University of Iowa College of Law discussed the Danis and Pennington-Cross and the Eraslan et al. papers. Two key questions important to these papers are: How do we define success in lending markets, and what enables this success? As Porter pointed out, the definition of success will likely differ for creditors and for debtors. From a policy perspective, one must decide what a tolerable level of failure is and then determine how one might respond to failure, be it via bankruptcy relief, government or private aid, or restrictions on the availability of credit.

Porter suggested that it is not altogether obvious how policymakers should treat certain trigger events. For example, who should bear the responsibility for medical problems or job problems that might trigger bankruptcy? In most cases, family income plays a primary role in determining the success of any type of remedy. But both the level and the stability of income have been shown to be important to successful outcomes under Chapter 7 in previous research and under Chapter 13 in the Eraslan, et al. paper. Porter suggested that further investigation into the effect of income stability on outcomes might prove to be fruitful in furthering our understanding of the bankruptcy process.

SESSION 4: WHAT SHOULD AND CAN BE DONE TO ENHANCE BORROWERS' KNOWLEDGE OF THEIR CREDIT RISK?

"Targeting Foreclosure Interventions: An Analysis of Neighborhood Characteristics Associated with High Foreclosure Rates in Two Minnesota Counties," by **Michael Grover, Laura Smith,** and **Richard Todd,** examines the predictability of outcome – in this case, the probability that a mortgage moves into foreclosure – based on neighborhood characteristics. If one can predict which neighborhoods are likely to have a high rate of foreclosure, programs designed to help sustain homeownership could be targeted to neighborhoods with the greatest need.

The paper uses public data on foreclosures in two counties in Minnesota, Hennepin and Ramsey, in 2002.

(Minneapolis is located in Hennepin and St. Paul is located in Ramsey.) Data on 1,178 foreclosed properties were used in the analysis. Street addresses of the properties involved were matched to their census tract, so that Census Bureau data from 1990 and 2000 could be matched to the foreclosure data. Additional data on lender, interest rates, and mortgage riders and conditions were obtained from the property-records departments of the two counties. Census-tract level credit score data were obtained from PCI Corporation and CRA Whiz; HMDA data were also used. The authors found that it was very difficult to determine from the mortgage documents whether the loan was for home purchase or for refinancing, and it was sometimes difficult to determine the lender. The painstaking nature of the data collection limited the analysis to one year and two counties. In the authors' data set, foreclosed mortgages are disproportionately of recent origin, with a median duration from origination to foreclosure sale of 2.6 years. Compared to other mortgages originated in the same neighborhood during the same period, the foreclosed mortgages tended to have higher interest rates and smaller loan amounts and were more likely to have been originated by a nonbank or subprime lender and to have had another mortgage on the property. Reflecting strong house price appreciation in the time period studied, the data also show that the sheriff's sale typically brought in more than the outstanding mortgage balance. Thus, had borrowers chosen to sell their homes before defaulting, they could have paid off their mortgages and gotten some equity. It remains an interesting research question as to why borrowers did not do this.

The authors' analysis indicates that of seven variables available in advance of foreclosure, neighborhood credit score is singly the most accurate in identifying census tracts with the highest foreclosure rates, which is consistent with the Danis and Pennington-Cross findings, discussed above. In particular, the 1999 neighborhood credit score correctly ranks 36 of the 50 tracts with the highest foreclosure rates and its correlation with the foreclosure rate is 0.64. The authors also perform a multivariate analysis of the association of foreclosure rate with variables available in advance of or concurrently with foreclosure. They estimate a logit model that predicts the probability of foreclosure with census-level variables measuring credit risk, minority homeownership transition, and other demographic factors. Because foreclosure is a relatively rare event, to accurately predict the probability of foreclosure, one needs a large number of mortgaged units. Since the number of mortgaged units varies considerably over the census tracts in the sample, the variance of prediction error might vary systematically with the number of mortgaged units in the census tract. To allow for this potential heteroscedasticity in the error term, the authors estimate the logit regression using the minimum chi-squared estimator.

This multivariate analysis indicates that the percentage of neighborhood adults with very low credit scores and the change in the share of minority homeowners between 1990 and 2000 (a measure of neighborhood transition) are the strongest predictors of foreclosure rate; both are positively associated with foreclosure rate. Based on their findings, the authors suggest that there may be social benefits from making mortgage and foreclosure records and credit scores by neighborhood more readily available to the public and foreclosure mitigation practitioners, but a cost-benefit analysis of this suggestion is beyond the scope of the paper.

Several papers in this volume have found that a borrower's credit risk score at origination is associated with mortgage outcome, with lower scores associated with higher rates of delinquency and default. An interesting question is whether borrowers have an accurate assessment of their own credit score and whether the accuracy of their assessment varies with the level of their score. If higher risk borrowers have less accurate perceptions of their own credit risk, they may be more likely to enter into loan contracts for which they are not well suited (if such contracts are offered to them), and this could partly explain the higher rates of foreclosure and delinquencies seen for these borrowers.

"Consumer Credit Literacy: What Price Perception?" by **Marsha Courchane, Adam Gailey,** and **Peter Zorn,** tackles this interesting question. The authors use data provided to them by prime and subprime lenders on 1.2 million mortgage loans originated in 2004 and from a consumer survey conducted in 2000 by Freddie Mac. The loan data include variables collected under HMDA and loan-level variables used in underwriting and pricing the loans, such as FICO score, loan-to-value ratio, and debt-to-income ratio. The survey includes information about consumers' financial knowledge and credit outcomes such as whether they have been denied credit, been evicted, had utilities turned off, or property repossessed. The survey also asked respondents how they would rate their current credit record.

The empirical results suggest that inaccurate self-assessment is not always associated with bad financial outcomes (which might include higher likelihood of being denied credit, being evicted, or declaring bankruptcy) and that the direction of the inaccuracy

matters. The authors use locally weighted polynomial regressions to examine the relationship between the percent of respondents experiencing a bad financial outcome and credit-risk score as measured by FICO score, with separate analyses for respondents that correctly assessed their credit score and for those who did not. They also use probit regressions to investigate this relationship when controlling for other factors, including income and net worth. Both analyses indicate that consumers who assess their credit score to be lower than it actually is (that is, are pessimistic about their credit record) are more likely to experience a bad financial outcome than those who accurately assess their credit score, but consumers who assess their credit score to be higher than it actually is (that is, are optimistic) are less likely to have bad financial outcomes than those who correctly assess their score.

One possible explanation is that there is reverse causality in the survey data. That is, a bad financial outcome might have caused the accuracy of the self-assessment of credit score rather than the other way around. However, in a separate analysis that helps to address this potential reverse causality, the authors still find that optimism is associated with better financial outcomes. The authors next explore an alternative explanation — that consumers are actually more accurate in their assessments of their credit risk than their FICO scores reflect. Using their loan and survey data, the authors construct an alternative credit score and find some support for this alternative hypothesis: a regression of this alternative credit score on FICO score and accuracy of self-assessment (that is, optimism and pessimism) indicates that holding FICO score constant, optimism is associated with higher values of the alternative credit score (that is, lower risk) and pessimism is associated with lower values of the alternative credit score (that is, higher risk).

The authors interpret the results of their research as supporting the value of financial literacy programs to the extent that these programs help educate consumers about not only their credit scores but also a broader set of factors that are important for assessing their credit risk. An alternative interpretation, which differs from the authors', is that consumers do not need (or no longer need) these programs, as they appear to be accurate in assessing their credit risk.

In his discussion, **Glenn Canner** of the Federal Reserve Board staff noted that concerns about foreclosures have increased over time as the credit-quality of the borrower pool has widened, new types of mortgages have emerged, short-term interest rates have risen, and house prices have flattened or begun to fall. He agreed that it was important to try to identify leading indicators of neighborhood foreclosure sales, given the adverse effects foreclosures can have on individuals and their neighborhoods.

Canner discussed two theories of default. The trigger-events theory suggests that borrowers may default when certain life-events – for example, medical problems, divorce, job loss – disrupt their ability or willingness to pay. The options theory suggests that when a borrower takes out a mortgage it is like having a put option on the value of the home – the borrower will choose to default when the mortgage balance exceeds the value of his or her home. These two theories can suggest alternative factors that Grover et al. may want to incorporate into their study of predicting foreclosures. The options theory suggests that areas with falling home prices or where borrowers have little or negative equity might show higher rates of foreclosure. The trigger-event theory suggests that factors that disrupt income flows or lead to unexpected expenses might lead to foreclosure. A trigger event might also be a factor that could affect the accuracy of a borrower's assessment of his or her own credit risk. Canner discussed other factors that could affect self-assessment accuracy, including expectations about one's job prospects and future income, financial literacy, experience in obtaining credit, the reason a payment was missed (a one-time event or a more habitual problem), and changes in one's credit score over time.

Charles Plosser, president of the Federal Reserve Bank of Philadelphia, opened the second day of the conference by discussing the theme that brought together the diverse group of individuals, including government policymakers, academic researchers, community leaders, consumer advocates, and financial service providers. The theme he discussed was that to ensure opportunity for the economically distressed and to promote economic development, we must be guided by accurate information, careful research, and sound policy analysis.

In Plosser's view, "public policy driven by headlines rarely turns out to be good policy" and research can now make a greater contribution to economic development efforts than it could in the past because development efforts have been more diverse and more local in nature. The efficacy of these various programs cannot be discerned without the proper research. Plosser discussed the importance of development strategies that work with the marketplace as it tries to be more responsive to the needs of lower-income households and cautions against the law of unintended consequences that might arise if policymakers try to manipulate economic outcomes. Policies are likely to always have some surprising effects, but careful analysis of proposed policies and careful monitor-

ing of implemented policies can help keep such surprises to a minimum.

SESSION 5: DOES THE FINANCING OF SMALL BUSINESSES DIFFER FOR MINORITY-OWNED BUSINESSES AND FOR BUSINESSES IN LOW-INCOME AREAS?

The last two sessions of the conference turned from mortgages to other aspects of community lending and development. **"Tracing Access to Financial Capital Among African-Americans from the Entrepreneurial Venture to the Established Business,"** by **Alicia Robb** and **Robert Fairlie,** empirically investigates the relationship between wealth, access to financial capital, and the outcomes from African American-owned businesses from the start-up stage through maturity. Business ownership rates for African Americans are considerably lower than those for whites. According to the 2000 census data, nearly 11 percent of white workers are self-employed business owners, while less than 5 percent of African-American workers are. In addition, African American-owned businesses appear to be less successful on average than those owned by whites or Asians, with lower profits and higher closure rates. Understanding the sources of such disparities is an important step toward determining whether entrepreneurship is an effective way out of poverty for minorities. The research can also help in determining whether government programs offering loans to minority-owned businesses can be made more effective or whether a new approach is needed. While previous studies have found that the poorer performance of African American-owned businesses relative to white-owned businesses stems from low levels of start-up capital, education, and business experience, these studies did not trace out the relationship between wealth and access to financial capital over the life of the business.

The authors use data from several sources, including the Census Bureau's Characteristics of Business Owners Survey, the 1998 Survey of Small Business Finances, the Survey of Minority-Owned Businesses, the Survey of Business Owners, and the Current Population Survey, with sample-size varying over the surveys and years. For example, the 1998 Survey of Small Business Finances includes about 3500 businesses that were not equally owned by a minority and nonminority; the 1997 Survey of Minority-Owned Business Enterprises includes over 15 million white-owned firms and over 750,000 African American-owned firms. All the data sets confirm that African American-owned businesses underperform white-owned businesses and tend to be smaller in terms of sales and employment.

Research on entrepreneurship indicates that personal wealth is an important determinant of self-employment. The differences in net worth between whites and African Americans are large: The median net worth of whites, at $67,000, is more than 10 times the median net worth of African Americans, at under $6,200. Results using the Current Population Survey data from 1998 to 2003 indicate that the largest single factor explaining racial disparities in business creation rates are differences in asset levels of the owners prior to self-employment – the authors find that lower levels of assets among African Americans account for 15.5 percent of the difference in the probability of becoming self-employed between whites and African Americans. However, a related question is whether African Americans are less able to raise external funds to start their businesses than are whites and are thereby hampered by undercapitalized businesses to start with. The authors provide some evidence consistent with this: The Characteristics of Business Owner data indicate that African American-owned businesses have lower levels of start-up capital compared to white-owned businesses. Less than 2 percent of African American-owned businesses start with $100,000 or more in capital, compared with nearly 5 percent of white-owned businesses, and 6.5 percent of African American-owned businesses start with $25,000 to $100,000 in capital, compared with about 11 percent of white-owned businesses. The empirical results also show that lower start-up capital accounts for 14.5 percent of the difference in profitability of white-owned and African American-owned businesses. However, as the authors discuss, the amount of start-up capital available for investment in new businesses may be related to the predicted performance of the business. That is, it could be that African American-owned businesses have lower start-up capital because investors perceive that

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their probability of success is lower. Or they could have less access to capital because they have less personal wealth to borrow against.

The authors show that some differences in racial borrowing patterns persist even as the businesses mature. Data from the Survey of Small Business Finances indicate that African American-owned businesses are less likely to have an outstanding loan or credit line and more likely to have borrowed on a credit card than white-owned businesses, but the African American-owned firms also have worse credit histories than white-owned businesses, including higher rates of delinquency and bankruptcy. The authors estimated a multivariate logistic equation and found that once credit history is controlled for, the difference in the probability of having an outstanding loan is not statistically significant. However, African American owners are more likely to have been denied credit and to have borrowed on their credit card than white owners, even controlling for credit history. The causes of the differences in credit experiences of white and African American business owners, the effects these differences might have on business outcomes, and the direction of causality (does limited access to credit cause poor performance or does poor performance lead to limited access to credit?) are potentially fruitful avenues to pursue in future research.

Indeed, **"Commercial Lending Distance and Historically Underserved Areas,"** by **Robert DeYoung, Scott Frame, Dennis Glennon, Daniel McMillen,** and **Peter Nigro,** addresses the topic of access to credit by small businesses located in minority and low- and moderate-income neighborhoods, which have typically been underserved by financial services. There is generally little publicly available information about small businesses with which to assess their creditworthiness. The inability to distinguish low-credit-risk small firms from high-credit-risk small firms can result in the rationing of credit to all small firms. Banks, in particular local banks, can help eliminate some of these information problems through repeated interactions with the firm. To the extent that minority and low- to moderate-income neighborhoods have less access to local financial services, they are potentially put at an even greater disadvantage at overcoming the imperfect information problems and gaining access to credit. However, the advent of new technologies, such as credit scoring models for small businesses, can help alleviate the problem of lack of proximate financial services by giving lenders not necessarily physically located in the local neighborhood the ability to distinguish more creditworthy firms from less creditworthy firms. These new technologies can substitute for the local bank-borrower relationship in alleviating imperfect information impediments to lending. Indeed, several previous studies have found an increase in the distance between U.S. small business borrowers and their bank lenders in recent years.

The authors extend the previous literature by examining changes in borrower-bank lender distance for low- and moderate-income areas and predominately (that is, over 50 percent) minority areas. Their data are a random sample of over 27,000 small business loans originated by U.S. commercial banks under the U.S. Small Business Administration loan program from January 1984 to April 2001 with term-to-maturity of three, seven, and 15 years. The data include locations for both borrower and lender, so the authors computed as-the-crow-flies distances for each pair. They then used mapping software to determine whether the borrower was located in a low- and moderate- vs. middle- and high-income census tract or a predominantly minority vs. nonminority census tract.

The univariate analysis looks at borrower-lender distance by type of census tract over time. Their multivariate ordinary least squares regression analysis (which includes loans originated in the period January 1992-April 2001) relates distance to indicators of whether the borrower is located in a low- and moderate-income area, whether the borrower is located in a minority area, a linear time trend, interactions between type of census tract and the time trend, and a set of variables to control for borrower, lender, and loan characteristics at the time of loan origination.

The analyses indicate that during the 1980s and most of the 1990s, borrower-lender distances tended to be stable and shorter, on average, for small businesses in low and moderate-income areas and in predominately minority areas than for those in middle- and upper-income areas and nonminority areas, respectively. By the late 1990s, however, all borrower-lender distances had increased, but those for small businesses in low- and moderate-income areas and in predominately minority areas had increased more, so that the borrower-lender distances are now longer for firms located in these areas compared to firms in middle- and upper-income areas and nonminority areas, respectively. The timing is consistent with the introduction of automated small-business credit scoring models, and smaller loans in the sample (to which these credit scoring models are most often applied) seem to be driving the results. While these results are suggestive, the authors cannot directly test the hypothesis that the introduction of small-business credit scoring models has allowed for increased distance between borrower

and lender. A definitive test is an interesting topic for future research.

In discussing the DeYoung et al. paper, **Leora Klapper** of the World Bank said that two types of credit scoring models are currently being used for small-business lending. The most common produces the personal credit score of the business owner, which measures the probability that the owner will default and is based on data on the owner, including the owner's credit history and indebtedness. The other model, which is growing in usage, produces a business survival score, which measures the probability of business failure and is based on data on the business or business's industry, including information on management quality and industry risk. A business survival score can be derived when owners don't have much personal credit history, and such models are becoming increasingly used in emerging markets like India that don't have credit bureaus collecting data on personal credit histories.

Klapper suggested that more research needs to be done to determine whether the credit scoring models are actually increasing access to credit in low-income neighborhoods. Can these models substitute for bank branches in delivering credit to the smallest businesses? As the financial system moves to more quantitative underwriting models, are owners with limited credit histories able to obtain as much credit as they did under more qualitative relationship lending by a loan officer?

As Klapper pointed out, access to credit by African American business owners was a main theme in the paper by Robb and Fairlie. There is a growing international literature that links access to financial services and entrepreneurship. Aggregate level data show a relationship between economic growth and access to capital. Klapper showed that based on data on 90 countries, there is a strong significant positive relationship between the ratio of aggregate private credit to GDP (a measure of financial development) and entry rates of new businesses. However, empirically it is difficult to separate out the effects of personal wealth and credit history from access to capital to determine their independent effects. Klapper cited some previous literature that looked at the effect of windfall gains on entrepreneurship as a way of isolating the effect of access to capital on the self-employment decision. For example, Lindh and Ohlsson (1996) found that winners of the Swedish lottery are more likely to enter self-employment and remain successfully self-employed, controlling for other factors like demographics and inheritances. This evidence is consistent with access to credit being an important determinant of entrepreneurship.

As the financial system moves to more quantitative underwriting models, are owners with limited credit histories able to obtain as much credit as they did under more qualitative relationship lending by a loan officer?

Klapper suggested that as credit scoring becomes more important in the delivery of financial services and credit to small businesses, helping those in low-income and minority neighborhoods to understand their credit scores and learn ways to improve them will likely become more important in expanding their economic opportunities.

SESSION 6: CAN ALTERNATIVE FINANCIAL SERVICES PRODUCTS HELP THE UNDERBANKED?

The theme of access to financial services was also taken up in the last session, which focused on two particular products: payday lending and prepaid cards. As discussed in **"Strategic Pricing of Payday Loans: Evidence from Colorado, 2000-2005,"** by **Robert DeYoung** and **Ronnie Phillips,** payday lending has arguably extended credit availability to more households, but at what price? In a typical payday lending transaction, a customer receives a specified amount of cash in return for a personal check written to the lender for that amount plus a fee; the lender holds this check for a specified short period, often two weeks or less. At the end of the holding period, the transaction can be terminated by the lender's depositing the check or the customer can pay another fee to roll over the loan. Critics of payday lending say it is credit offered at exorbitant prices — triple-digit APRs are not uncommon — and marketed to unsophisticated borrowers. Others say such lending fills a need for immediate, short-term credit. Why borrowers use payday loans rather than alternative forms of credit is not fully understood. Surveys show, for example, that the typical payday loan customer has a job and a bank account, and half have a credit card.

The paper investigates the pricing patterns of payday lenders in Colorado and concludes that these lenders behave strategically when setting their terms and fees. The authors' analysis is based on information on nearly 25,000 payday loans made in Colorado between June 2000 and August 2005.

These loans were made after legislation was passed that limited loan principal to $500 for a term of 40 days or less, limited the finance charge to a maximum of 20 percent of loan principal up to $300 and to 7.5 percent above $300, and permitted only one renewal of the loan. The average APR on the loans is nearly 460 percent, and nearly 90 percent of the loans carried the maximum charge allowed by Colorado law. Because payday loan prices are constrained by the law, the authors use Tobit regressions to investigate the relationship between pricing, competition in the market, and demographic characteristics of the geographic market (ZIP code area) in which the loans are made. Since payday lenders appear in less than a quarter of the ZIP code areas in Colorado and this locational choice of the lenders might be related to the factors included in the Tobit regression (for example, the income in the market), there is a potential sample selection bias; that is, the sample may not be randomly selected. The authors correct for this using the standard two-stage Heckman procedure.

The analysis indicates that over time, payday loan prices in Colorado have drifted to the state-legislated price ceiling, and that this occurred more quickly in markets with more payday lenders where explicit collusion was more difficult. Thus, the legislated price ceiling seems to have behaved as a focal point and may have had an unintended effect of facilitating implicit collusion. The authors' empirical results also suggest that lenders take advantage of borrower switching costs by offering lower prices on initial loans than on refinanced loans (although the difference is small). Lenders that face fewer competitors appear better able to exploit relationships in this way; that is, they charged an even lower initial price than did lenders facing more competition. This intertemporal pricing strategy might be less profitable for lenders in more competitive markets, since they face a higher probability of losing their customers to competitors before being able to make up for the low initial price. Perhaps more surprisingly, the authors also find that payday loan prices are higher in markets with more commercial bank branches. This suggests that commercial bank products are not a substitute for payday loans. Indeed, to the extent that borrowers need a checking account to take out a payday loan, commercial banking services serve as a complement to payday lending.

While payday loans offer an alternative to other forms of credit, prepaid cards offer an alternative to other forms of payment. **"Cardholder Use of General Spending Prepaid Cards: A Closer Look at the Market,"** by **Sherry Rhine, Katy Jacob, Yazmin Osaki,** and **Jennifer Tescher,** studies the current and potential use of this rapidly growing payment instrument. Traditional gift cards are typically used to make small-dollar transactions with specific retailers. In contrast, general spending prepaid cards can hold considerable value and can be used to make payments at a variety of establishments. For example, a firm may offer payroll cards to its employees through which the firm will pay employees their wages in lieu of direct deposit into checking accounts, which some employees may not have. Prepaid cards have also been used to distribute payments after natural disasters. As the authors explain, network-branded general spending reloadable cards offer functions similar to traditional credit and debit cards. Their transactions are processed using the same systems as these network brands (MasterCard, Visa, American Express, or Discover) and the cards can be used to withdraw funds from ATMs, to make retail purchases, or to pay bills in person, online, or by phone wherever the network brand is accepted.

The study uses transactions and cardholder demographic data from four general spending prepaid card providers – a random sample of 500 cardholders was drawn from each of the four firms, resulting in a sample of over 1900 active cardholders. Transactions for each cardholder were tracked over a 12-month period during 2005-2006. These data were augmented with information obtained during discussions with other industry providers. The analysis suggests that many providers are marketing their cards to underbanked customers, a potentially sizable market. Most cardholders spend nearly all of the funds loaded onto their cards each month – they are not using the cards as a store of value but as a transactions method. They use the cards mainly for point-of-sale purchases and not to withdraw cash from an ATM, suggesting that the cards may be acting as a substitute for cash. The analysis indicates that the average cardholder loads funds onto his card once a month and the average amount loaded is $217. The average cardholder makes 3.5 point-of-sale transactions per month, each averaging a little less than $40. And he withdraws funds from an ATM less than once a month, with the average amount of withdrawal a little more than $40. The authors' study is one of the first to document the usage of these types of cards. They suggest that one avenue for future research is to augment their data with information from consumers about their motivations for using such cards.

Victor Stango of Dartmouth College discussed the two papers on alternative financial services. As he pointed out, there are clearly new alternatives available to the underbanked, but given the high cost of these alternatives, the question is whether they are beneficial to their

users. The DeYoung and Phillips paper discusses the high cost of payday lending. Stango indicated that the cost of prepaid cards is also very high. He estimated, based on the data in the Rhine, et al. paper, that the average cardholder has a monthly balance of between $100 and $200 and pays about $20 in fees per month. Stango posed some questions for future research: Why do people use these alternative financial services given their high cost? Do consumers have sufficient information to make informed usage decisions? Are the markets for these alternatives operating as one might expect a competitive market to operate?

The conference concluded with **Federal Reserve Chairman Ben Bernanke** speaking on the Community Reinvestment Act (CRA). As the Chairman explained, the CRA affirmed the obligation of federally insured depository institutions, which benefit from access to the financial safety net, including federal deposit insurance and the Federal Reserve's discount window, to help meet the credit needs of their communities, in a safe and sound manner. But over the 30 years since it was enacted, the CRA has evolved with the financial services industry. When the CRA was passed in 1977, many felt that poor conditions in American cities, and in particular in lower-income and minority neighborhoods, were partly caused by limited credit availability. As Chairman Bernanke explained, the CRA and other legislation passed in the 1970s, including the Equal Credit Opportunity Act, the Fair Housing Act, and the Home Mortgage Disclosure Act, were intended to reduce credit-related discrimination, expand access to credit, and increase the information available to assess lending patterns. The banking industry has undergone significant changes since then, with interstate banking and branching, industry consolidation, the rise of the secondary mortgage market, and securitization. Banks have gained experience in underwriting loans in lower-income neighborhoods. Chairman Bernanke cited a Federal Reserve study that indicated that in general, CRA-related mortgage lending was at least somewhat profitable and usually did not involve disproportionately higher default rates than non-CRA mortgage lending (Avery, Bostic, and Canner, 2000).

In 1995, the CRA regulations were amended to emphasize performance over process and to lessen the compliance burden. Large institutions' compliance with CRA would be judged based on their performance with respect to lending, investments, and services, and small banks would be allowed to meet their requirements via a streamlined examination that focuses on lending activities. In 2005, further refinements were made, including expanding the definition of community development to cover activities that benefit middle-income communities in distressed rural areas and in disaster areas.

Chairman Bernanke said that the CRA will have to continue to evolve to reflect changes in financial markets and in the economy. He concluded his talk by pointing out some of the challenges that lay ahead. First, defining "local community" is becoming more difficult as institutions become more national in scope and with the advent of nontraditional delivery mechanisms like the Internet. Second, nonbank institutions are becoming more important providers of financial services to lower-income communities. But these institutions are not subject to CRA. Third, access to credit in lower-income communities has increased, but more lending does not necessarily imply better outcomes. Distinguishing beneficial from harmful lending poses a challenge for regulators as they seek to ensure that the CRA continues to assist community economic development.

The CRA affirmed the obligation of federally insured depository institutions, which benefit from access to the financial safety net, to help meet the credit needs of their communities, in a safe and sound manner.

The presentations and discussion at the 2007 Federal Reserve System Community Affairs Research Conference help illuminate several aspects of community reinvestment and development finance. They also suggest that much remains to be learned. It is hoped that this conference will inspire further rigorous research in this area.

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