

Have Differences in Credit Access Diminished in an Era of Financial Market Deregulation?

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Abstract Over the past few decades, financial markets became increasingly deregulated and household debt expanded, sometimes rapidly. It is thus possible that greater deregulation led to improved credit access and lower cost of credit for typically underserved groups, such as minorities and low-income families, relative to their counterparts. Credit access is measured here by loan denials, discouraged applications. The cost of credit is measured by debt payments relative to debt. Differences in credit access and the cost of credit should have diminished over time, particularly after 2000, after large-scale deregulation had taken place. Differences by demographic groups over time are tested using multivariate tests based on data from the Federal Reserve's Survey Consumer Finances from 1989 to 2004. While some minority groups found increasing credit access after 2000, credit became increasingly more expensive relative to whites due to a less advantageous composition of debt or higher interest rate differentials. Importantly, growing differences in debt composition and interest rates contradict the expectation of credit market equalization after deregulation.

Keywords: financial market deregulation, household credit, financial constraints, cost of credit

INTRODUCTION

Credit is both a means for families to invest in their future and to provide some short-term insurance against economic risks. Most families need to borrow money to buy a home, pay for a college education, or start their own business. Families also borrow to smooth out income fluctuations.

Review of Social Economy

ISSN 0034-6764 print/ISSN 1470-1162 online © 2010 The Association for Social Economics

<http://www.informaworld.com>

DOI: 10.1080/00346760902908690

Traditionally, families did not enjoy equal access to credit or faced the same cost of borrowing. Low-income families and minorities often had less access to bank credit than their counterparts and therefore were more likely to borrow from non-bank sources, such as payday lenders or pawnshops, among others. Also, minorities and low-income families tended to be burdened with more costly forms of credit. These differences can impede the economic mobility and financial security of minorities and lower-income families.

Financial deregulation, particularly since the early 1990s, was meant to reduce the differences in access to bank loans in the cost of credit. The existing evidence, though, suggests that differences in access to bank loans were reduced, but not eliminated. Moreover, very little evidence exists on changes in the cost differential of credit by demographic characteristics.

In this paper, I consider if low-income and minority borrowers experienced improved credit market access, both in terms of credit constraints and costs of credit, since 1989. This research contributes to the existing literature in several important ways. First, it looks at trends in the cost of all forms of bank credit, while previous research was limited to one time period or to just a few forms of credit. Second, it explicitly studies differences in loan types and loan sources to test for the effects of deregulation on borrowers' credit access after financial deregulation. Third, it extends the time frame under investigation to see if prior results of shrinking access to bank loans held after 2000.

I find that despite deregulation differences in loan access and the cost of credit not only persisted, but that they also did not universally shrink from 1989 to 2004. Specifically, I find that there is an indication that gaps in credit access stayed the same or widened from 1989 to 2004. In addition, there is some evidence that cost differentials for separate demographic groups actually increased over time, so that minorities ended up paying more for debt than whites. This seems to be partially a result of continued market segmentation with respect to lending institutions and loan products.

The rest of the paper is structured as follows. The second section reviews the relevant literature, followed by some summary data in the third section. The fourth section presents multivariate tests for differences in credit access and the cost of credit between groups and over time. Concluding remarks follow in the final section.

LITERATURE REVIEW

Families primarily borrow to buy, expand or renovate a home (Weller and Douglas 2007). They also borrow to pay for their children's college education

and to purchase consumer items, particularly cars. Moreover, debt allows families to smooth consumption when income temporarily drops (Bloemen and Stancanelli 2005; Krueger and Perri 2002, 2005).

Greater credit access can contribute to a more equitable income distribution. For instance, homeownership may give families access to better educational opportunities for their children. Neighborhoods with a higher concentration of home ownership tend to have better educational outcomes (Green and White 1997; Haurin *et al.* 2002). Also, education seems to be an important contributing factor to growing income inequality in recent decades (Mishel *et al.* 2007). In addition, greater volatility in income and earnings seems to be a contributing factor to greater inequality, too (Gottschalk and Moffitt 1994). One explanation seems to be that lower-income families have fewer resources to insure against adverse shocks. In a similar vein, credit constraints tend to limit workers' ability to seek additional training after job loss (Chapman *et al.* 2003). Consequently, credit access can reduce income inequality (Bertola and Koeninger 2007).

Additionally, greater access to bank credit can facilitate self-employment. The self-employed are generally assumed to be credit constrained (e.g. Fender 2005; Astebro and Bernhardt 1999), which is supported by empirical research (Maloney and Gonzalez 1999; Bruce *et al.* 2002). This constraint seems to be larger for African-Americans than for whites (Kawaguchi 2005; Herring 2004). Limits on self-employment may reduce income mobility, limit opportunities to stabilize income after job loss, and hamper the transition into retirement, among other consequences.

Credit is often rationed (Stiglitz and Weiss 1981). Credit rationing tends to vary by several factors, including family size, marital status, living arrangements, race and ethnicity. A number of studies document that loan denial rates vary by race with non-whites experiencing higher loan denial rates than whites, even after controlling for other relevant characteristics (Blanchflower *et al.* 2003; Canner *et al.* 1994; Cavalluzzo and Wolken 2005; Dymski 2001; Gabriel and Rosenthal 1991; Holloway and Wyly 2001; Munnell *et al.* 1996; Ross 2005). In addition, Crook (1996) finds that income and age matter, with loan denial rates falling with income and rising with age. Also, credit applications may be denied because of issues associated with a loan, e.g. a lender may be prohibited from making a particular loan, and because of reasons specific to a lender, e.g. a necessary, non-existent past lending relationship (Chakravarty 2002).

Loan conditions can also vary by demographic characteristics. Very high cost loans include payday lending, car title loans, and overdraft loans (CU 2003; James and Smith 2006). For instance, interest rates on payday loans

average typically about 400 percent (CRL 2006). Fox and Guy (2005) also estimated that the median annual interest rate for a car title loan is about 300 percent and Duby *et al.* (2005) argued that overdraft fees can quickly translate into triple-digit annualized interest rates.

Minorities and lower-income families disproportionately depend on higher-cost loans (Barr 2001; CFA 1998, 1999; Stegman and Faris 2003). For example, payday lenders target African-American families, low-income families, and military families (CRL 2005; DOD 2006; Graves and Peterson 2005; Tanik 2005). Also, repeat users of overdraft loans are more likely than not to be lower-income and non-white (James and Smith 2006). And, car title loans tend to be more prevalent among lower-income families and military families than among others (Fox and Guy 2005).

Also, credit card debt, which carries high interest rates and large fees (Westrich and Bush 2005), is relatively more prevalent among lower-income and minority families than among other families (Bird *et al.* 1999; Black and Morgan 1999; Manning 2000; Yoo 1996). Moreover, the terms and conditions of credit cards tend to be worse for low-income families than for higher-income ones (Ausubel 1997; Stavins 2000).

Finally, minority and low-income borrowers disproportionately receive subprime mortgages (Bocian *et al.* 2006; Fishbein and Woodall 2006).

The cost of a loan can vary by the source of loan due to credit market segmentation. Lenders, for instance, can take advantage of borrowers' limited information to segment the credit market. The evidence, for instance, shows that more financial education would allow families to build wealth on better terms (Fox and Hoffman 2004; Hilgert *et al.* 2003; Weinberg 2006), with particular benefits for minorities and low-income families (Choudhury 2002; Finke *et al.* 2005; Lyons and Scherpf 2004; Lyons *et al.* 2006a; Lyons *et al.* 2006b; Schug *et al.* 2006; Yao *et al.* 2005). Also, regulatory restrictions, such as limits on credit union activities, can lead to market segmentation.¹ Lastly, lenders will limit the geographic scope of their activities based on limited resources or discriminatory practices, such as red-lining (Munnell *et al.* 1996; Newman and Wyly 2004; Wyly and Hammel 2004).

¹ Limitations on credit unions' scope and activities with respect to personal finance have decreased over time. For instance, in the 1980s, credit unions were permitted to offer first mortgages and in the late 1990s, credit unions have been allowed to offer membership to multiple groups (Leggett and Strand 2002; Tripp and Smith 1993). Following the greater scope of credit unions, they have experienced strong growth (Goddard *et al.* 2002; Kaushik and Lope 1994). Even non-members benefit since the competition with credit unions seems to have lowered the costs of financial services at banks that directly compete with credit unions (Emmons and Schmid 2000; Feinberg 2001; Feinberg and Rahman 2001).

Proponents of deregulation argue that all forms of segmentation should diminish, if not vanish after deregulation, at least for borrowers of equal creditworthiness. Greater deregulation in the US financial markets led to greater profitability and less risky loan portfolios of banks, which could have laid the foundation for banks offering more banking services to previously underserved borrowers. The US financial market has become deregulated since the early 1990s, when interstate banking prohibitions were ended in 1994 and limits on financial service cross-shareholdings were reduced with the passage of the Gramm-Leach-Bliley Financial Services Modernization Act of 1999. This latter legislation was meant to allow for greater consolidation in the financial services industry to take advantage of economies of scale. Consumers in turn were supposed to receive more services at lower cost from each bank. Greater deregulation resulted in a wave of merger and acquisition activities and consolidation in the financial services industry (Rhoades 2000; Wheelock and Wilson 2004). Evaluations of the wave of bank consolidations generally found that banks became more profitable and their loan portfolios less risky (Akhigbe and Madura 2004; Akhigbe *et al.* 2004; Al Mamun *et al.* 2005; Yildirim *et al.* 2006). This should have resulted in an equalization of credit access and the cost of credit, especially since consumers should have become more equal in their use of particular loan types and in borrowing from specific sources of debt.

Concerns have been voiced, though, about the impact on communities that bank consolidation may lead to fewer services for already underserved communities. An often-studied example is credit access of small businesses. This may serve as a bellwether for credit access for minorities and low-income borrowers. The limited empirical evidence suggests that small business access to credit did not shrink in the wake of financial service consolidation over the past two decades (Avery and Samolyk 2004; Cavalluzzo *et al.* 2002; Carow *et al.* 2006; Hein *et al.* 2005; Rauch and Hendrickson 2004; Rose 1993).

It is possible that adverse effects from bank consolidation were offset by other factors. The simultaneous proliferation of new technologies could have helped to equalize credit access (Berger 2003; Ely and Robinson 2001; White 2002). In addition, regulatory tools, in particular the Community Reinvestment Act, and targeted loan programs, may have equalized credit access (Bostic *et al.* 2002; Bates 2000).

Several studies documented a decline in differences in credit access. Cavalluzzo and Cavalluzzo (1998), for instance, found that differences in credit constraints and the costs of capital are smaller in markets, where banking concentration is lower. Also, Dymski (2001) found that the

difference in racial inequality for credit access persisted, but has been declining in many US cities between 1992 and 1998. Further, Lyons (2003) argued that between 1992 and 1998 all families saw improved credit access with particularly strong improvements for black families and families with low earnings. Also, Brown (2007) finds that total debt and credit card debt became more widespread among lower-income and middle-income families over time. Tymoigne (2007), however, shows that debt relative to income grew fastest for high income families from 2001 to 2004.

The existing evidence, though, is limited and thus does not allow for a clear conclusion on the effectiveness of deregulation. For one, most studies stop with data for the late 1990s, when the latest and arguably most significant round of deregulation, the Gramm–Leach–Bliley Act, had not taken effect yet. Consequently, this study looks at whether the period after deregulation, captured here by the year 2004, was significantly different from the period before deregulation, specifically the year 1989. Also, prior studies were limited in their scope, either by geography or debt type. The data used here are nationally representative. Finally, most previous studies did not look at differences in the cost of credit, which is included here. Given the existing evidence, my expectation is that both differences in credit access and credit cost diminished between demographic groups as financial markets became increasingly deregulated.

SUMMARY STATISTICS

This paper uses the Federal Reserve’s tri-annual Survey of Consumer Finances (SCF), which includes comprehensive information on household debt and assets. The survey covers all forms of financial and non-financial assets and bank credit. The last available survey year is 2004. The SCF is designed to get an accurate picture of financial assets and bank credit in the US. This has two implications. First, the SCF selects its sample to get a representative sample of asset and debt holdings. Since many asset and debt categories are more prevalent among higher income families, the survey oversamples higher income families. To account for this, the survey provides weights that represent the original distribution of the wealth sample, incorporates adjustments for factors impacting the non-response and allows for the best possible estimation of population statistics, given all known variables. Should new information become available, the Federal Reserve recalculates the weights of all SCF surveys back to 1989 (Kennickell 2000), which eliminates biases over time. This analysis uses only weighted data, thus correcting for all known biases of this particular survey at the time of the

analysis. In addition, the calculations by income use income limits derived from a representative sample for personal income, the Current Population Survey (Census 2007). The calculations thus should give an accurate picture of the distribution of household debt by income.

Second, the SCF only includes complete information on bank credit and does not provide information on non-bank credit, such as payday loans, pawnshop lending, etc. The share of families who feel discouraged from applying for a loan and whose applications are denied, though, should give an approximate sense of the reliance on non-bank credit. Many families that considered applying and did not apply and those who were denied a loan likely still demanded a loan, but from non-bank sources.

Debt Trends

The discussion of differences in credit access occurs against the backdrop of an unprecedented debt boom starting in 2001. The share of families with any debt increased from 75.1 percent in 2001 to 76.4 percent in 2004, with particularly large increases for white families and low-income families (see Table 1). These trends were largely a continuation of the increases in access since 1989.

Table 1: Share of Families with Debt, 1989 to 2004

Year	1989	1992	1995	1998	2001	2004	1989 to 2001	2001 to 2004	1989 to 2004
Total	72.2	73.3	74.5	74.0	75.1	76.4	2.9	1.3	4.2
White	73.2	74.3	75.4	74.9	75.8	77.9	2.7	2.1	4.8
Black	65.1	69.2	71.1	68.6	74.0	74.5	8.9	0.5	9.4
Hispanic	72.4	69.3	75.4	72.3	71.3	70.3	-1.1	-1.0	-2.2
Bottom quintile	48.9	51.7	80.4	50.2	50.3	52.8	1.4	2.6	4.0
Second quintile	64.9	69.0	72.2	68.9	71.3	70.1	6.3	-1.2	5.1
Middle quintile	79.5	79.7	83.0	81.0	83.0	84.2	3.5	1.2	4.7
Fourth quintile	86.8	85.0	88.7	89.1	86.5	86.3	-0.4	-0.2	-0.5
Top quintile	90.2	87.8	88.0	88.9	88.2	89.2	-2.0	1.0	-1.0

Notes: All figures are in percent. Changes are in percentage points. Author's calculations based on BOG (2006). Income limits for quintiles are taken from Census (2005).

Also, families owed more debt relative to income than before. From 2001 to 2004, the median ratio of debt to income rose from 77 percent to 107 percent, after rising more gradually from 52 percent in 1989 (Weller and Douglas 2007). The debt boom was reflected more in faster indebtedness of households that already had access to debt than with a broadening of credit access.

Credit Access

Credit access is typically measured by the share of families, whose loan applications were denied. A loan denial occurs if a borrower applied for credit, was turned down and could not secure the full amount afterwards. In 2004, the share of families with loan denials was 13.0 percent, up from 11.6 percent in 1989 and from 12.3 percent in 2001 (Table 2).² There is no sign that loan denial rates declined over the years, contrary to previous research that had indicated declining denial rates by 1998 (Lyons 2003).

Loan denial rates vary by race, ethnicity, and income. The denial rate for African-Americans in 2004, 22 percent, was about twice as large as that for white families, 10.8 percent (Table 2). In addition, families with incomes in the top fifth of the income distribution had denial rates of 4.5 percent in 2004, compared with 15.7 percent for families in the middle quintile.

For almost all groups, loan denial rates were higher in 2004 than in 1989 and in 2001. In addition, differences in denial rates widened by income—families in the top 40 percent of the income distribution over time had increasingly lower denial rates than other families—by race, and narrowed between Hispanics and whites.

Another measure of credit access is the share of families who felt discouraged from applying for a loan out of fear of being turned down. This share remained constant or increased.³ Specifically, 6.9 percent of all families felt discouraged in 2004, slightly down from 7.0 percent in 2001, but up from 5.5 percent in 1989 (Table 2). Moreover, minorities were substantially more likely to feel discouraged from applying than whites and lower-income families tended to be more discouraged than

2 1989 and 2001 are chosen as reference points since they are the closest data years to the last two business cycle peaks. Comparisons between 2004, 2001, and 1989 thus control for business cycle effects and can provide an indication of the impact of deregulation, which took place in the latter part of the 1990s.

3 To avoid double counting, only families who felt discouraged and were not denied credit are included here. See also Lyons (2003) for more details.

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Table 2: Share of Families, Who Were Credit Constrained, 1989 to 2004

Year	1989	1992	1995	1998	2001	2004	1989 to 2001	2001 to 2004	1989 to 2004
<i>Applied, denied, and could not get full amount elsewhere</i>									
Total	11.6	14.8	12.1	12.6	12.3	13.0	0.7	0.7	1.4
White	10.1	12.4	10.3	11.5	10.8	10.8	0.8	0.0	0.7
Black	13.0	25.4	20.2	20.0	18.3	22.0	5.3	3.7	9.0
Hispanic	20.6	21.6	17.0	13.9	16.1	18.1	-4.5	2.0	-2.5
Bottom quintile	11.9	17.2	13.0	12.7	12.2	13.2	0.3	1.0	1.3
Second quintile	17.1	17.8	15.1	15.4	17.0	19.4	-0.1	2.4	2.3
Middle quintile	11.3	16.8	13.0	16.7	15.0	15.7	3.6	0.7	4.4
Fourth quintile	12.2	12.6	12.0	10.4	11.0	12.7	-1.2	1.7	0.5
Top quintile	4.8	8.1	6.1	7.0	5.8	4.5	1.0	-1.3	-0.3
<i>Did not apply because of fear of being turned down</i>									
Total	5.5	5.3	8.3	6.7	7.0	6.9	1.5	-0.1	1.4
White	3.4	3.7	5.7	4.4	4.1	4.9	0.7	0.7	1.5
Black	13.5	8.6	21.3	15.2	16.6	14.9	3.2	-1.8	1.4
Hispanic	10.5	14.6	13.8	17.3	16.5	11.9	6.0	-4.6	1.4
Bottom quintile	10.8	8.8	15.2	12.5	13.6	11.9	2.8	-1.7	1.2
Second quintile	5.9	5.9	8.7	8.3	9.7	10.2	3.9	0.5	4.4
Middle quintile	3.6	4.9	8.3	4.6	5.8	6.6	2.2	0.8	3.0
Fourth quintile	2.7	3.4	3.4	3.4	3.3	2.6	0.7	-0.7	0.0
Top quintile	2.8	2.0	2.3	2.1	1.5	2.9	-1.3	1.3	0.1
<i>Shares of household who are credit constrained</i>									
Total	17.1	20.0	20.4	19.3	19.3	19.9	2.2	0.6	2.8
White	13.5	16.1	15.9	15.9	15.0	15.6	1.5	0.7	2.2
Black	26.5	34.1	41.5	35.2	34.9	36.9	8.4	2.0	10.4
Hispanic	31.1	36.2	30.8	31.2	32.6	30.0	1.5	-2.6	-1.1
Bottom quintile	22.7	26.0	28.3	25.2	25.8	25.1	3.2	-0.7	2.4
Second quintile	22.9	23.8	23.9	23.7	26.7	29.6	3.8	2.9	6.7
Middle quintile	14.9	21.7	21.3	21.3	20.8	22.3	5.9	1.5	7.4
Fourth quintile	14.8	16.0	15.4	13.8	14.3	15.3	-0.5	1.0	0.5
Top quintile	7.6	10.1	8.4	9.1	7.3	7.4	-0.3	0.0	-0.2

Notes: Levels in percent, changes in percentage points. Author's calculations based on BOG (2006). Income limits for quintiles are taken from Census (2005).

higher-income ones, and these gaps stayed constant or widened from 1989 to 2004 (see Table 2).

Trends of loan denials and discouraged applications both show no clear trend of shrinking differences in credit access by race, ethnicity and income.

Cost of Credit

Differences in the cost of credit should have shrunk, too, due to deregulation, particularly after 1999, when the Financial Modernization Act went into effect. The ratio of debt payments to debt is used to measure the cost of credit. This ratio captures several cost components: interest, fees, and other conditions, e.g. maturity and source of loan. It also includes payments on all loans, instead of just the interest rate on the most recent loan.

Several factors are at play here since this is a composite measure. First, the composition of debt matters as some types of debt are lower cost than others. Second, the source of debt matters as some types of lenders offer higher cost loans. Third, payment conditions are included. The discussion will subsequently try to address these issues separately.

The median ratio of debt payments to debt declined over time. It was 16.8 percent in 2004, down from 28.2 percent in 1989 (Table 3). This decreasing trend holds for all groups from 1989 to 2004, but is most pronounced for African-Americans and middle-income families.

Still, large differences remained. Minorities tended to pay more relative to their debt than whites and low-income families paid more than higher-income ones. In particular, African-Americans paid 22.1 percent of their debt in debt payments in 2004, compared with 19.7 percent for Hispanics, and 15.7 percent for whites.

Cost Components

To confirm that the differences are a reflection of market conditions (interest and fees) and do not mirror systematic differences in people's choices of payment conditions, I look first at differences in interest rates, keeping in mind that these are only recorded for the most recent loan in a specific category. Average interest rates tended to be higher for minorities than for whites and for low-income families than for higher-income ones (Table 4). Also, the share of minorities and low-income and

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moderate-income families, who paid very high interest rates, was greater than for their counterparts. For example, the share of African-Americans with mortgages that had interest rates that were at least 8 percent above the prime rate was 7.7 percent in 2004, compared with 2.2 percent for Hispanics and only 0.9 percent for whites. A similar pattern exists for low-income and moderate-income families.

To gauge the importance of people's choices for payment conditions, the share of adjustable rate mortgages (ARMs) is considered since they initially offer lower payments.⁴ There is no systematic difference in the average share of ARMs out of total mortgages by race and ethnicity.⁵ Thus, the differences in the ratio of debt payments to debt show differences in fees and interest rates for our comparisons by race and ethnicity. In comparison, the share of ARMs out of total mortgages was high for low-income and high-income families and lower in the middle of the income scale, suggesting that lower-income families sought lower payments through differences in payment terms. Put differently, differences in the level and in the changes of debt

Table 3: Trends in Debt Payments Relative to Debt, 1989 to 2004

Year	1989	1992	1995	1998	2001	2004	1989 to 2001	2001 to 2004	1989 to 2004
Total	28.2	24.9	23.7	21.6	20.8	16.8	-7.4	-4.0	-11.4
White	25.5	23.0	22.0	20.4	19.6	15.7	-5.9	-3.8	-9.7
Black	36.0	30.0	30.0	29.4	28.6	22.1	-7.5	-6.4	-13.9
Hispanic	29.9	30.0	25.0	29.7	25.9	19.7	-4.0	-6.2	-10.2
Bottom quintile	36.6	30.0	30.0	30.0	30.0	27.7	-6.6	-2.3	-8.9
Second quintile	30.0	30.0	30.0	30.0	30.0	23.2	0.0	-6.8	-6.8
Middle quintile	30.0	27.3	25.7	24.0	24.6	17.4	-5.4	-7.1	-12.6
Fourth quintile	23.1	22.0	20.0	17.8	18.7	16.0	-4.5	-2.7	-7.2
Top quintile	20.3	17.6	17.1	16.7	15.9	13.3	-4.3	-2.6	-7.0

Notes: All figures are in percent. Author's calculations based on BOG (2006). Income limits for quintiles are taken from Census (2005).

4 ARMs out of total mortgages serves as indicator for a family's desire to have lower monthly payments.

5 See Weller and Sabatini (2008) for details.

Table 4: Summary Statistics on Select Interest Rates, 2004

	Credit cards	Mortgages	Car loans	Education loans	Line of credit	Installment loans
<i>Average interest rates on specified loans</i>						
Total	12.7	6.3	7.7	4.9	5.7	12.3
White	12.6	6.2	7.2	4.7	5.7	12.1
Black	13.2	7.4	10.0	5.7	6.4	12.6
Hispanic	13.6	6.7	9.2	4.6	5.8	12.7
Bottom quintile	13.3	7.2	9.0	5.2	5.6	14.2
Second quintile	13.4	7.0	8.9	5.3	6.6	14.0
Middle quintile	13.0	6.6	8.8	4.8	6.4	11.3
Fourth quintile	12.4	6.2	7.3	4.6	5.8	11.1
Top quintile	12.0	5.7	5.9	4.8	5.1	9.7
<i>Shares of families with interest rates 8 pct. pt. above prime rate in 2004</i>						
Total	46.7	1.6	11.2	1.6	3.9	40.4
White	46.0	0.9	8.9	0.9	3.8	37.1
Black	47.3	7.7	23.3	5.4	7.8	48.7
Hispanic	53.1	2.2	18.5	0.7	0.0	51.3
Bottom quintile	52.5	4.2	13.6	3.8	2.1	52.4
Second quintile	50.9	4.0	16.5	4.3	8.2	51.6
Middle quintile	48.2	1.7	16.5	1.3	8.4	37.1
Fourth quintile	43.8	1.7	10.0	0.5	2.9	28.9
Top quintile	43.2	0.2	3.3	0.0	2.0	25.1

Notes: All figures are in percent. Author's calculations based on BOG (2006). Income limits for quintiles are taken from Census (2005).

payments to debt are likely understating the differences in market costs (interest and fees) by income.

These figures indicate that differences in the cost of credit by race and ethnicity reflect persistent cost differences and that the widening in the relative cost differences by income may actually be larger than the figures here suggest. The discussion below provides formal multivariate tests for differences in cost of credit over time and across demographic groups, which support these initial, tentative conclusions.

Sources and Types of Loans

Another reflection of the effectiveness of deregulation would be an equalization of the types and sources of loan. Minorities and lower-income families, though, continued to borrow more than whites from more costly sources of debt in 2004. The average share of installment loans was 18.2 percent for African-Americans, but only 10.5 percent for whites and 10.9 percent for Hispanics (Table 5). Similarly, low-income families had one fourth of their debt in installment loans, compared to 13.5 percent for families in the third quintile.

Credit unions, which may offer lower-cost credit, account for only 3.6 percent of all debt (Table 6). White families had more credit from credit unions than non-whites families and middle-income families had more credit from credit unions than either low-income or high-income families. Further, traditional lenders were less important for African-Americans and lower-income families than their counterparts. Finally, only minorities received a relatively large share of credit from consumer lenders.

Table 5: Aggregate Shares of Specific Debt Type, 2004

	Mortgages	Other residential real estate debt	Other lines of credit	Credit card balances	Installment credit	Other debt
Total	75.3	8.6	0.7	3.0	10.8	1.6
White	75.8	8.2	0.8	2.9	10.5	1.8
Black	70.5	6.2	0.0	3.7	18.2	1.4
Hispanic	76.8	7.9	0.5	3.3	10.9	0.6
Bottom quintile	60.4	5.6	1.2	5.9	25.0	2.8
Second quintile	70.6	3.6	0.6	5.3	18.7	1.5
Middle quintile	76.8	3.9	0.5	4.7	13.5	0.9
Fourth quintile	79.6	3.9	0.8	3.3	12.4	0.5
Top quintile	74.6	13.1	0.4	1.7	7.2	2.2

Notes: Shares are the ratio of aggregate debt of a specific type for a particular group relative to the total debt for that group. All figures are in percent. Author’s calculations based on BOG (2006). Income limits for quintiles are taken from Census (2005).

Table 6: Aggregate Shares of Specific Debt Sources, 2004

	<i>Traditional lenders</i>				<i>Consumer banks</i>			<i>Other</i>	
	<i>Credit unions</i>	<i>Com. banks</i>	<i>Savings & loans</i>	<i>Real estate lenders</i>	<i>Total</i>	<i>Finance cos.</i>	<i>Credit card lender</i>		<i>Total</i>
Total	3.6%	34.8%	7.3%	35.5%	77.6%	8.0%	3.3%	11.2%	7.5%
White	4.0%	36.0%	7.6%	34.0%	77.7%	7.3%	3.2%	10.5%	7.9%
Black	3.9%	31.3%	7.1%	34.0%	72.3%	8.3%	4.2%	12.4%	11.3%
Hispanic	1.6%	28.6%	6.4%	46.0%	81.0%	11.0%	3.7%	14.7%	2.8%
Bottom quintile	2.7%	35.6%	6.9%	24.3%	66.8%	7.4%	5.9%	13.2%	17.4%
Second quintile	4.0%	27.8%	4.5%	35.5%	67.8%	8.5%	5.4%	13.9%	14.4%
Middle quintile	3.8%	30.9%	5.8%	37.4%	74.0%	10.4%	4.9%	15.3%	6.9%
Fourth quintile	4.4%	34.6%	7.5%	36.6%	78.7%	9.0%	3.6%	12.6%	4.3%
Top quintile	3.3%	37.0%	8.1%	35.3%	80.4%	6.7%	2.2%	8.9%	7.4%

Notes: Shares are the ratio of aggregate debt of a specific source for a particular group relative to the total debt for that group. Traditional lenders comprise commercial banks, savings and loans, and real estate lenders. Consumer banks comprise finance companies and credit card lenders. All figures are in percent. Author's calculations based on BOG (2006). Income limits for quintiles are taken from Census (2005).

After prolonged deregulation, substantial differences remained in the types and sources of loans for varying demographic groups by 2004.

MULTIVARIATE ANALYSIS

I perform three tests to see if differences in shares, e.g. loan denial rates, are statistically significant between groups and over time. First, I use a Cochran–Mantel–Haenszel (CMH) test to see if the shares depend on the year. This test assumes a common odds ratio and tests, for instance, if the loan denial rate for African-Americans is independent of that for whites, after controlling for the time period. Second, to test for the robustness of these results, a Breslow-Day (BD) test is performed to test the null hypothesis that the odds ratio is the same over time. Finally, a Mantel–Haenszel (MH) test is performed to see if the odds ratio for the respective demographic breakdown is statistically significantly different from one during all years. An odds ratio of greater than one would imply, for instance, that African-Americans have a greater loan denial probability than whites. In all cases, the control groups are whites and families in the top income quintile.

In comparison, differences in the cost of credit and in interest rates paid by different demographic characteristics are tested using a standard F-test.

The tests compare the years 1989, 2001, and 2004. Thus, the tests control for the business cycle and for the impact of financial market deregulation. The years 1989 and 2001 were the years closest to the last business cycle peak. Also, 1989 proxies for the period before financial deregulation took place in the 1990s, while 2001 and 2004 reflect the period immediately following the last round of deregulation.

To facilitate the presentation, “+” and “–” are used to indicate differences between groups and over time. In a given year, “+” indicates that measure is larger for minorities and lower-income families than for their counterparts. For the comparison between years, “+” indicates that the gap had narrowed by 2004.

Credit Access

Minorities had higher loan denials and a larger share of discouraged applicants than whites, as indicated by the MH test (“+”). Also, lower-income families had a larger chance than families in the top quintile to be denied a loan application or to feel discouraged from applying for a loan (“+”) (Table 7).

Table 7: Tests of Differences Between Groups and Over Time of Loan Denial Rates and Discouraged Application Rates

Ratios to be tested	Test	Loan denials			Discouraged applications		
		2004 to 1989	2004 to 2001	2004 to 1989	2004 to 1989	2004 to 2001	2004 to 2001
African-Americans/ white	CMH	4.01** (216.36***)	2.30 (47.77***)	0.67 (32.61***)	1.64 (56.80***)		
	BD	4.03** (217.54***)	2.30 (47.81***)	0.67 (32.65***)	1.65 (56.88***)		
Hispanics/ white	MH	115.36*** (1274.72***)	151.06*** (2028.83***)	209.03*** (4241.30***)	295.15*** (5301.08***)		
	CMH	0.16 (32.73***)	1.13 (12.82***)	3.71* (20.37***)	4.55*** (134.96***)		
	BD	0.16 (32.76***)	1.14 (12.82***)	3.76** (20.39***)	4.57*** (135.65***)		
Bottom quintile/ top	MH	64.02*** (1153.26***)	54.72*** (646.40***)	77.04*** (1647.48***)	117.52*** (2877.94***)		
	CMH	2.01 (12.12***)	1.45 (49.43***)	1.26 (1.39)	3.02* (119.22***)		
	BD	2.01 (12.12***)	1.45 (49.55***)	1.27 (1.39)	3.05* (120.85***)		
Second quintile/ top	MH	164.69*** (1657.81***)	197.30*** (1535.47***)	224.82*** (2242.23***)	351.98*** (3417.55***)		
	CMH	7.06*** (18.46***)	2.08 (79.52***)	3.82** (63.71***)	2.65* (62.74***)		
	BD	7.13*** (18.48***)	2.08 (79.80***)	3.88** (64.17***)	2.67* (63.23***)		
quintile/ top	MH	271.35*** (3751.96***)	369.91*** (3567.02***)	141.35*** (1132.45***)	264.24*** (2242.40***)		

(continued)

Table 7: (Continued)

Ratios to be tested	Test	Loan denials			Discouraged applications			
		2004 to 1989	2004 to 2001	2004 to 1989	2004 to 2001	2004 to 1989	2004 to 2001	
Middle quintile/	CMH “-”	3.76** (63.35***)	“-”	0.85 (45.70***)	“-”	4.07** (59.17***)	“+”	0.84 (40.89***)
top quintile	BD “-”	3.78** (63.61***)	“-”	0.85 (45.80***)	“-”	4.16** (59.69***)	“+”	0.85 (41.14***)
	MH “+”	181.12*** (2029.55***)	“+”	250.47*** (2424.59***)	“+”	59.37*** (309.62***)	“+”	129.97*** (831.81***)
Fourth quintile/	CMH “-”	1.63 (5.07**)	“-”	1.69 (71.09***)	“-”	0.01 (0.33)	“+”	1.14 (93.25***)
top quintile	BD “-”	1.64 (5.07**)	“-”	1.70 (71.34***)	“-”	0.01 (0.33)	“+”	1.15 (94.74***)
	MH “+”	151.83*** (1552.17***)	“+”	129.97*** (1245.52***)	“+”	11.37*** (2.02)	“+”	19.99*** (45.03***)

Notes: CMH stands for Cochran–Mantel–Haenszel test, BD for Breslow–Day test, and MH for Mantel–Haenszel test. Figures are for unweighted data. ***indicates significance at 1 percent level, **indicates significance at 5 percent level, and *indicates significance at 10 percent level. Figures in parentheses are for approximated weighted tests. To allow for test calculations, weights have been divided by 1,000 and rounded. Results do not change materially if weights are divided by 10 or 100. Using full weights exceeds computational limits of software program. “+” indicates that the odds ratio in 2004 was closer to one than in the comparison year, 1989 or 2001, and “-” indicates it further away from one. Income limits for quintiles are taken from Census (2005).

The gap in loan denials widened by race (“–”). The CMH and BD tests suggest that the loan denial rates between African-Americans and whites widened from 1989 to 2004, and from 2001 to 2004 (“–”).

The differences in loan denial rates by ethnicity widened between 2001 and 2004 (“–”). This was not enough, though, to erase previous improvements, so that chances of being denied an application for Hispanics was closer to that of whites in 2004 than in 1989 (“+”), but further away than in 2001 (Table 7).

Also, all lower-income families saw a widening gap in terms of loan denials relative to families in the top quintile from 1989 to 2004 and from 2001 to 2004 (“–”) (Table 7).

For all groups, the gap in the shares of families, who felt discouraged from applying for a loan, narrowed between 2001 and 2004 (“+”). It also narrowed between 1989 and 2004 by race and ethnicity (“+”), but not by income (“–”) (Table 7).

Overall, there was a narrowing gap between groups in their willingness to seek out bank credit from 1989 to 2004, particularly after 2000. However, once families decided to apply for a loan, differences in loan denial rates broadened, at least by race and income.

Widening differences in loan denial rates by race and ethnicity may reflect diverging income trends. I test if the widening gaps hold, after controlling for income, using an MH test for each quintile. A “+” signals that the gaps widened, so that minorities had increasingly higher loan denial rates than whites over time.

The loan denial rates were larger for African-Americans than for whites, regardless of income (“+”) (Table 8). Also, the odds of loan denials did not differ much between Hispanics and whites among families in the bottom 40 percent of the income distribution, especially in 2001 and 2004. For higher-income Hispanic families, though, the odds of loan denials were clearly greater than those of whites (“+”) (Table 8). Thus, the widening gap after deregulation does not reflect increasing income inequality by race and ethnicity.

Cost of Credit

Debt payments relative to debt tended to be higher for minorities than for whites (“+”), especially in 2001 and 2004 (Table 9), and for lower-income families than families in the top quintile, regardless of the year.

Furthermore, the gap between African-Americans and whites and between most lower-income families and those in the top quintile declined from 1989 to 2004 (“+”). This masked a widening of the difference in debt payments by

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Table 8: Tests for Odds Ratios Over Time, by Income

		Loan denials	
		2004 to 1989	2004 to 2001
African-Americans/ whites	Difference in OR.	“+”	“+”
	Bottom quintile	0.78 (7.41***)	7.16*** (226.24***)
	Second quintile	12.39*** (241.77***)	19.43*** (560.61***)
	Middle quintile	13.13*** (327.46***)	4.70*** (106.37***)
	Fourth quintile	11.76*** (258.92***)	18.18*** (480.51***)
	Top quintile	32.89*** (792.30***)	31.70*** (713.86***)
Hispanics/ whites	Difference in OR.	“+”	“+”
	Bottom quintile	0.00 (0.00)	1.42 (11.41***)
	Second quintile	10.51*** (50.24***)	2.62 (7.97**)
	Middle quintile	2.01 (9.96**)	0.35 (2.02)
	Fourth quintile	12.10*** (57.06***)	11.21*** (45.40***)
	Top quintile	14.04*** (72.99***)	13.55*** (74.86***)

Notes: Only Mantel–Haenszel test are reported. ***indicates significance at 1 percent level, **indicates significance at 5 percent level, and *indicates significance at 10 percent level. Figures in parentheses are for approximated weighted tests. To allow for test calculations, weights have been divided by 1,000 and rounded. Results do not change materially if weights are divided by 10 or 100. Using full weights exceeds computational limits of software program. “+” indicates that the combined odds for minorities in the relevant years were larger than for whites and “-” indicates that the odds for whites were greater than for minorities. Income limits for quintiles are taken from Census (2005).

race and by income between 2001 and 2004, after the latest round of large financial deregulation had taken place. In comparison, the cost gap grew steadily by ethnicity from 1989 to 2001 and to 2004 (“-”) (Table 9).

The difference with respect to payment terms does not seem to vary over time by race and ethnicity. Assuming that differences in payment terms are constant, changes in debt payments relative to debt can reflect differences in interest rates and fees. Thus, if the changes in interest rate differences mirror those in debt payments, it suggests that there were no changes in the differences in fees. If the changes in differences in interest rates, though, do not match those of payments, this would indicate changes in differences of fees paid by varying demographic groups. Since this calculation assumes that

Table 9: Tests of Differences Between Groups and Over Time of Debt Payments Relative to Debt

Ratios to be tested	Test	2004 to 1989			2004 to 2001		
		Ratio	unweighted	weighted	Ratio	unweighted	weighted
African-Americans/ whites	test for 1989/2001 test for 2004	“+” “+”	0.01 14.59***	65.15*** 46.46***	“+” “+”	6.48*** 14.59***	12.03*** 46.46***
Hispanics/whites	test for differences of differences	“+”	0.18	18.37***	“-”	2.81*	10.82***
	test for early period	“+”	0.03	10.15***	“+”	4.36**	20.72***
Bottom quintile/ top quintile	test for late period	“+”	3.97**	15.48***	“+”	3.97**	15.48***
	test for differences of differences	“-”	0.95	2.91*	“-”	0.98	4.53**
Bottom quintile/ top quintile	test for early period	“+”	0.00	125.53***	“+”	19.92***	84.30***
	test for late period	“+”	7.85***	29.40***	“+”	7.85***	29.40***
	test for differences of differences	“+”	0.28	12.93***	“+”	1.14	4.61**

(continued)

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Table 9: (Continued)

Ratios to be tested	Test	2004 to 1989			2004 to 2001		
		Ratio	unweighted	weighted	Ratio	unweighted	weighted
Second quintile/ top quintile	test for early period	“+”	0.44	36.25***	“-”	39.62***	131.06***
	test for late period	“+”	33.63***	119.80***	“+”	33.63***	119.80***
	test for differences of differences	“+”	0.79	0.05	“+”	0.21	0.34
Middle quintile/ top quintile	test for early period	“+”	0.61	12.80***	“+”	19.05***	64.44***
	test for late period	“+”	17.05***	57.06***	“+”	17.05***	57.06***
	test for differences of differences	“+”	0.92	0.12	“+”	0.97	4.85**
Fourth quintile/ top quintile	test for early period	“-”	0.81	0.01	“+”	10.93***	13.29***
	test for late period	“+”	8.04***	18.68***	“+”	8.04***	18.68***
	test for differences of differences	“-”	0.98	4.30**	“-”	0.15	0.76

Notes: All tests are adjusted Wald tests (F-tests). ***indicates significance at 1 percent level, **indicates significance at 5 percent level, and *indicates significance at 10 percent level. “+” indicates that debt payments relative to debt for minorities and lower-income families are larger than for their counterparts in single years. For combined tests, “-” indicates that the difference between minority and lower-income families and their counterparts was higher in 2004 than in earlier years, while “+” indicates a narrowing gap. Income limits for quintiles are taken from Census (2005).

there are no changes in the differences with respect to payment terms, it is not done by income.

The gap in interest rates tended to widen from 1989 to 2004 by race, but narrowed from 2001 to 2004—the opposite trend as for payment differences. Importantly, the difference of mortgage rates charged to African-Americans relative to those charged to whites was greater in 2004 than in 1989 (“–”), while the difference in interest rates on installment credit and credit cards by race were unchanged (Table 10). The results thus imply that as the gap in interest rates widened and the payment gap narrowed, the differences in fees also shrank. The opposite may have been true from 2001 to 2004, when the interest rate differential narrowed and payment differentials widened, so that banks may have compensated for a shrinking interest rate differential following the large scale deregulation of the late 1990s by increasing differences in fees.

The story differs by ethnicity. The difference in mortgage interest rates between Hispanics and whites shrank between 1989 and 2004, although it increased between 2001 and 2004 (Table 10). The payment differential narrowed by ethnicity between 2001 and 2004, indicating that higher interest rate differentials may have contributing to a shrinking difference in gaps of fees by ethnicity.⁶

Sources and Types of Loans

Payment differences can also be caused by differences in the composition of debt and in the sources of debt, from which families borrow. The differences in odds of borrowing from traditional banks by race shrank between 1989 and 2004 (“+”), but widened between 2001 and 2004 (“–”). Also, the gap in borrowing from traditional lenders by income shrank from 2001 and 2004, compensating for a widening between 1989 and 2001, so that the differential in 2004 was the same as in 1989. There was no change in the differential by ethnicity in 2004 relative to 2001 or 1989 (Table 11).

Another possible source of cost differences is a gap in the reliance on more costly forms of credit for minorities and lower-income families. The gap in the use of mortgages shrank by race between 1989 and 2004 (“+”), while the gap widened by ethnicity (“–”). There is no clear trend by income. The gap with respect to installment loans, though, widened by ethnicity and by

⁶ This analysis looks at changes in differences. There may still be substantially differences in fees in 2004, even if the gap between Hispanics and whites narrowed over time.

Table 10: Tests of Differences Between Groups and Over Time of Interest Rates

Ratios to be tested	Mortgage rates			Inst. credit rates			Credit card interest rates			
	2004 to 1989	2004 to 2001	2004 to 1989	2004 to 1989	2004 to 2001	2004 to 1989	2004 to 2001	2004 to 2001		
African-Americans	1.83	63.68***	5.81**	6.50**	29.82***	1.83	63.68***	5.81**	6.50**	29.82***
/whites	96.35***	96.35***	0.69	0.69	10.31***	96.35***	96.35***	0.69	0.69	10.31***
test for differences of differences	26.95***	20.89***	0.3	1.81	1.02	26.95***	20.89***	0.3	1.81	1.02
Hispanics/whites	62.81***	6.17**	2.61	6.88***	5.39***	62.81***	6.17**	2.61	6.88***	5.39***
test for differences of differences	36.35***	36.35***	0.59	0.59	20.16***	36.35***	36.35***	0.59	0.59	20.16***
test for differences of differences	11.10***	3.57**	0.02	6.46***	1.94	11.10***	3.57**	0.02	6.46***	1.94

Notes: All tests are adjusted Wald tests (F-tests). All results are for weighted data. ***indicates significance at 1 percent level, **indicates significance at 5 percent level, and *indicates significance at 10 percent level. “+” indicates that debt payments relative to debt for minorities and lower-income families are larger than for their counterparts in single years. For combined tests, “+” indicates that the difference between minority and lower-income families and their counterparts was smaller in 2004 than in earlier years. Income limits for quintiles are taken from Census (2005).

Table 11: Tests of Differences Between Groups and Over Time of Sources of Loans

	Traditional banks			Consumer banks			Credit unions					
	2004 to 1989	2004 to 2001	2004 to 1989	2004 to 1989	2004 to 2001	2004 to 1989	2004 to 1989	2004 to 2001				
African-Americans/	“-”	77.72***	“-”	95.05***	“+”	48.64***	“+”	125.20***	“+”	0.75	“-”	17.43***
whites	“-”	83.44***	“-”	83.44***	“+”	55.74***	“+”	55.74***	“-”	0.96	“-”	0.96
Diff. of diff.	“+”	2.09	“+”	0.17	“+”	2.38	“+”	7.95***	“-”	1.66	“+”	4.89**
Hispanics/	“-”	37.50***	“-”	74.07***	“+”	6.55***	“+”	62.54***	“-”	55.06***	“-”	73.65***
whites	“-”	65.79***	“-”	65.79***	“+”	80.63***	“+”	80.63***	“-”	23.75***	“-”	23.75***
Diff. of diff.	“+”	0.45	“+”	0.74	“-”	6.90***	“-”	0.05	“+”	1.08	“+”	10.16***
Bottom	“-”	558.32***	“-”	1379.03***	“+”	93.94***	“+”	700.88***	“-”	66.89***	“-”	1.69
quintile/	“-”	994.48***	“-”	994.48***	“+”	430.24***	“+”	430.24***	“-”	0.91	“-”	0.91
top	“+”	3.59*	“+”	10.46***	“-”	28.59***	“+”	17.03***	“+”	19.39***	“+”	0.07
quintile												
Second	“-”	224.28***	“-”	1016.35***	“+”	95.25***	“+”	631.18***	“-”	2.35	“+”	14.52***
quintile/	“-”	747.53***	“-”	747.53***	“+”	406.13***	“+”	406.13***	“+”	15.65***	“+”	15.65***
top	“-”	14.91***	“+”	7.80***	“-”	14.37***	“+”	12.29***	“+”	13.32***	“+”	0.02
quintile												

(continued)

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Table 11: (Continued)

	Traditional banks			Consumer banks			Credit unions			
	2004 to 1989	2004 to 2001	2004 to 1989	2004 to 1989	2004 to 2001	2004 to 1989	2004 to 2001	2004 to 1989	2004 to 2001	
Middle	“-”	407.75***	“+”	114.41***	“+”	359.89***	“+”	0.39	“+”	36.87***
quintile/	“-”	317.48***	“+”	313.68***	“+”	313.68***	“+”	7.39***	“+”	7.39***
top	“-”	0.51	“+”	0.14	“+”	2.31	“+”	1.36	“+”	9.65***
quintile										
Diff. of diff.										
1989/2001	“-”	48.35***	“-”	44.51***	“+”	147.15***	“+”	1.74	“+”	24.18***
2004	“-”	81.12***	“-”	120.10***	“+”	120.10***	“+”	2.34	“+”	2.34
Diff. of diff.	“-”	0.19	“+”	7.75***	“-”	1.35	“+”	0.00	“+”	8.28***
quintile										

Notes: All tests are adjusted Wald tests (F-tests). All results are for weighted data. ***indicates significance at 1 percent level, **indicates significance at 5 percent level, and *indicates significance at 10 percent level. “+” indicates that the loan share originating from a particular source relative to total debt for minorities and lower-income families are larger than for their counterparts in single years. For combined tests, “+” indicates that the difference between minority and lower-income families and their counterparts was smaller in 2004 than in earlier years and “-” shows that the difference has widened over time. Income limits for quintiles are taken from Census (2005).

Table 12: Tests of Differences Between Groups and Over Time of Types of Loans

	Test for	Mortgages			Installment loans			Credit card debt					
		2004 to 1989	2004 to 2001	2004 to 1989	2004 to 2001	2004 to 1989	2004 to 2001	2004 to 1989	2004 to 2001				
African-Americans/whites	1989/2001	“-”	146.76***	“-”	129.22***	“+”	106.37***	“+”	51.58***	“+”	16.92***	“+”	82.89***
	2004	“-”	116.16***	“-”	116.16***	“+”	96.98***	“+”	96.98***	“+”	10.72***	“+”	10.72***
	Diff. of diff.	“-”	6.18**	“-”	0.05	“-”	9.62***	“+”	4.04**	“-”	3.25*	“-”	21.19***
Hispanics/whites	1989/2001	“-”	27.31***	“-”	83.19***	“+”	19.61***	“+”	20.69***	“+”	0.97	“+”	49.73***
	2004	“-”	87.71***	“-”	87.71***	“+”	19.71***	“+”	19.71***	“+”	30.64***	“+”	30.64***
	Diff. of diff.	“+”	0.67	“-”	0.15	“-”	3.03*	“-”	0.24	“+”	4.42**	“-”	2.32
Bottom quintile/top quintile	1989/2001	“-”	1158.60***	“-”	1612.74***	“+”	653.21***	“+”	355.50***	“+”	110.97***	“+”	598.31***
	2004	“-”	1284.52***	“-”	1284.52***	“+”	535.15***	“+”	535.15***	“+”	409.17***	“+”	409.17***
	Diff. of diff.	“-”	1.46	“-”	4.57**	“-”	42.91***	“-”	16.16***	“+”	26.94***	“-”	11.78***
Second quintile/top quintile	1989/2001	“-”	308.75***	“-”	1343.43***	“+”	283.17***	“+”	691.37***	“+”	86.42***	“+”	472.18***
	2004	“-”	974.23***	“-”	974.23***	“+”	530.84***	“+”	530.84***	“+”	331.36***	“+”	331.36***
	Diff. of diff.	“+”	20.08***	“-”	10.01***	“-”	0.30	“-”	5.25**	“+”	11.66***	“-”	4.76**

(continued)

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Table 12: (Continued)

	Test for	Mortgages			Installment loans			Credit card debt					
		2004 to 1989	2004 to 2001	2004 to 1989	2004 to 2001	2004 to 1989	2004 to 2001	2004 to 1989	2004 to 2001				
Middle	1989/2001	“-”	206.70***	“-”	577.57***	“+”	248.49***	“+”	452.95***	“+”	76.09***	“+”	267.79***
quintile/ top	2004	“-”	383.75***	“-”	383.75***	“+”	388.37***	“+”	388.37***	“+”	180.99***	“+”	180.99***
Diff. of diff. quintile	Diff. of diff.	“-”	1.14	“-”	17.27***	“+”	11.42***	“-”	5.07**	“-”	0.24	“-”	5.74**
Fourth	1989/2001	“-”	31.61***	“-”	137.00***	“+”	128.89***	“+”	167.19***	“+”	18.75***	“+”	72.23***
quintile/ top	2004	“-”	86.16***	“-”	86.16***	“+”	188.11***	“+”	188.11***	“+”	56.30***	“+”	56.30***
Diff. of diff. quintile	Diff. of diff.	“+”	0.35	“-”	4.79**	“-”	4.63**	“-”	0.09	“+”	0.56	“-”	0.46

Notes: All tests are adjusted Wald tests (F-tests). All results are for weighted data. ***indicates significance at 1 percent level, **indicates significance at 5 percent level, and *indicates significance at 10 percent level. “+” indicates that the loan share originating from a particular source relative to total debt for minorities and lower-income families are larger than for their counterparts in single years. For combined tests, “+” indicates that the difference between minority and lower-income families and their counterparts was higher in 2004 than in earlier years. Income limits for quintiles are taken from Census (2005).

income, except for families in the fourth quintile (Table 11). Importantly, lower-income families and Hispanics experienced a growing, not falling, gap in the use of more costly forms of credit.

Among those families, who had any debt, though, the differences in the relative supply of loans from traditional lenders did not change by race, ethnicity, and income between 1989 and 2004 (Table 12). In comparison, the gap in loans from consumer banks shrunk by ethnicity and income between 1989 and 2004, but not by race. As a result, African-Americans and lower-income families still borrowed more than their counterparts from more costly sources after deregulation in the 1990s.

CONCLUSION

Over the past few decades, financial markets became increasingly deregulated and household debt grew, at times rapidly. One expectation was that greater deregulation would increase credit access, especially for minorities and lower-income borrowers and that differences in the cost of debt by race, ethnicity and income would shrink.

This was not the case from 1989 to 2004, especially after 2000. In most instances, there is an indication that gaps in loan denials, discouraged applications and costs of credit stayed the same or widened by 2004.

Growing differences in the credit market seemed to be particularly problematic by income and race, but less so by ethnicity. Differences in credit access and the cost of credit increased by income and race after 2000, while gaps in credit access shrank by ethnicity, even though payment differences increased.

The causes for the widening gaps in the cost of credit differ by race, income, and ethnicity. Part of the explanation for the widening gap in the cost of credit by race and income was a growing difference in the sources of credit by race, so that African-Americans and minorities increasingly borrowed from more costly sources. By ethnicity, the growing gap in debt payments after 2000 seems to reflect growing differences in interest rates.

Financial market deregulation should have narrowed differences in credit access and the cost of credit, for given levels of creditworthiness. This should have been particularly the case after 2000, when liquidity seemed abundant, changes in regulatory policies were fully in place, and differences in creditworthiness likely did not change materially. While some minority groups found increasing credit access after 2000, the primary result here shows that credit became increasingly more expensive relative to whites due to a less advantageous composition of debt or higher interest rate

differentials. Importantly, growing differences in debt composition and interest rates contradict the expectation of credit market equalization after deregulation.

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