

Exploring Racial Differences in Vehicle Loan Rates

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Explaining Racial Differences in Vehicle Loan Rates

Abstract

During the last few years there have been many claims of differential treatment of minorities in the vehicle lending market - primarily among vehicle finance companies. In this paper, we use data from the Survey of Consumer Finances to analyze racial differences in interest rates paid on vehicle loans throughout the vehicle lending market. We show that the majority of both Blacks and Whites originate their loans on new vehicles at institutions other than vehicle finance companies (primarily commercial banks and credit unions). Among new car loans, we find no differential treatment of Black and White borrowers conditional on the borrower's credit history for loans originated at banks and credit unions. Likewise, we find no differential treatment of Black and White borrowers among used car loans regardless of where the loan was originated. However, we find that Blacks pay higher interest rates on new car loans originated at vehicle finance companies, conditional on borrower credit characteristics. Specifically, we find that Blacks pay 100 basis points more for their vehicle loan at the mean and 71 basis points more at the median, conditional on credit controls, relative to Whites. These point estimates translate to Black borrowers at vehicle finance companies paying a premium in terms of higher financing of their new car purchases of between \$5 and \$7 per month. We conclude that that differential treatment in the terms of financing by race is much greater for loans originated at vehicle finance companies than for loans originated at banks or credit unions.

Exploring Racial Differences in Vehicle Loan Rates

Since early 2001, there have been many lawsuits brought against vehicle finance companies alleging differential treatment between minority borrowers and their White counterparts. Although the cases were ultimately settled out of court with no monetary damages, Nissan and General Motors recently faced class actions lawsuits alleging that they charged higher interest rate mark ups to Black and Hispanic borrowers.¹ Similar lawsuits are currently pending against the vehicle financing companies owned by Ford, Chrysler, Toyota, and Honda.² These lawsuits have garnered considerable attention in the popular press since mid-2003. For example, the lead story on the April 4th, 2004 edition of 60 Minutes focused on differential pricing by race in the vehicle loan market.³

What is the nature of differential treatment by race in the market for vehicle financing? In this paper, we use household level data from the Survey of Consumer Finances (SCF) to explicitly study this question. The use of SCF's household level data offers several important advantages for studying racial differences in vehicle lending rates. First, because the SCF data are from a random draw of households, the data provide a representative draw of borrowers who originated their loan at a variety of different lending establishments as opposed to loans originated at only one specific vehicle finance company. We can therefore assess how race affects the terms a borrower receives across different types of lenders. As we show in the paper, this is important given that only one-third of all vehicle loans are originated at vehicle finance companies. Second, the SCF elicits detailed information which makes it possible to characterize a household's credit-worthiness and to examine their previous success or failure at acquiring

¹ As part of its settlement, Nissan agreed to tell their consumers that interest rates are negotiable. Nissan also agreed to offer preapproved credit, with no markups, to 675,000 African-American and Hispanic car buyers over the next five years. See Coleman, et al. v. General Motors Acceptance Corporation (GMAC) and Carson et al. v. Nissan Motor Acceptance Corporation (NMAC)

² Jones, et al. vs. Ford Motor Credit Company (FMCC); Herra et al. v. Toyota Motor Credit Corporation (TMCC); Smith et al. v. Chrysler Financial Company (CFC); and Pakeman et al. v. American Honda Finance Company (AHFC)

³ There have also been numerous pieces in the print press. See, for example, articles in the *New York Times* (April 10, 2003; July 16, 2003), the *San Francisco Chronicle* (January 26, 2003), the *Washington Post* (January 29, 2004) and the *Chicago Tribune* (January 27, 2004)

vehicle financing or other forms of credit. The third major advantage of the data is that unlike the industry data on vehicle loans used in the lawsuits, household race is explicitly recorded in the SCF.⁴

Using the SCF data from the 1992, 1995, 1998, and 2001 waves, we find that unconditionally, compared to Whites, Blacks pay an interest rate on their vehicle loan that is 85 percentage points higher at the mean and 25 percentage points at the median. We document several differences between Whites and Blacks that might account for these differences. We show that: (a) Blacks and Whites differ greatly in the institutions at which their loans are originated, with Blacks being much more likely than Whites to obtain their financing at vehicle financing companies, rather than at banks and credit unions; (b) by available measures, Blacks appear to be less credit worthy than Whites; (c) Blacks are much more likely than Whites to purchase used cars. We find that simply controlling for vehicle characteristics, borrower credit controls, and establishment controls explains nearly two thirds of the unconditional racial gap in vehicle interest rates at the mean and the entire racial gap at the median.⁵

A series of decompositions show that Blacks only pay higher financing terms on loans originated at vehicle finance companies for new car purchases. At both the mean and the median, Blacks who originate loan on a new car at a vehicle financing company pay over 100 basis points more than a comparable White. However, for loans originating on new cars at either banks or credit unions, and for loans originated on a used car regardless of the origination source, there are no statistically significant racial differences in financing terms. We find that all of these patterns survive the addition of controls to measure borrower credit-worthiness, controls for the length of the relevant loan, and controls for the price of the vehicle. In total, the results suggest the presence of differential treatment for loans originated on new cars at vehicle financing companies

⁴ Unlike home mortgages, the race of the borrower is not coded as part of the vehicle loan contract. Analysis of the industry loan contract data involves the matching of loan contracts to driver's license picture and self assessing the borrower's race or, in some instances, matching to birth certificate records.

⁵ As we will discuss shortly, the industry studies also imply that there is a mean racial gap in vehicle interest rates exists with no difference at the median.

on the same order of magnitude of results found in some industry level analyses. Our results imply that Blacks who purchase new cars and have them financed at vehicle financing companies pay on the order of \$5 to \$7 a month more than a comparable White. However, we want to stress that the key result of this paper is that this behavior is not representative of the behavior found throughout the rest of the vehicle lending market.

Given the higher interest paid on loans originated at vehicle finance companies, and the measured absence of a rate difference in other funding sources, it is a puzzle why Blacks are more likely than Whites to originate new loans at these institutions. We address a series of possible explanations, especially the possibly greater incidence of rejection at banks and credit unions, and the possibility that Blacks might eschew using more traditional lending sources because of a relatively higher belief that they would be rejected were they to apply. We show that there is, in fact, no racial difference in the incidence of rejection for vehicle loans between Blacks and Whites. In other words, all of the differential treatment is occurring in the terms associated with financing at vehicle finance companies and not with respect to differential access to the vehicle lending market. And, while Blacks report being more “discouraged” than Whites with respect to applying for a loan, such beliefs do not explain the increased probability of originating a vehicle loan at a high rate vehicle finance company by Blacks.

Our analysis of racial differences in car financing contributes to the broader literature on the large and persistent racial differences in wealth in the U.S (Blau and Graham (1990)). Authors have long speculated that differential treatment in the various lending markets may account for much of this difference. Given the importance of housing wealth in the typical family’s portfolio, it is not surprising that the previous literature has focused almost exclusively on differential treatment in the mortgage lending market, and specifically on differences in mortgage acceptance probabilities. Munnell et al. (1996) and Charles and Hurst (2001), for example, both find strong evidence that the mortgage applications of Blacks are more likely to be rejected, even after controlling for measures of credit worthiness. Although racial differences in

the terms of the mortgage have received much less attention, Charles and Hurst (2001) find no evidence that Blacks pay higher mortgage rates than Whites.

Any individual vehicle purchase constitutes a much smaller fraction of a household's wealth than does home equity, but the relative frequency of such purchases means that discriminatory treatment in either of the dimensions outlined above may contribute importantly to racial differences in wealth and overall economic well being. Yet, the existing literature in economics has only examined racial differences in prices paid for vehicles (Goldberg (1996) and Scott-Morton et al. (2002)). The analysis in this paper marks an important extension to this previous work by looking at differential treatment across races in vehicle financing terms.

II. Vehicle Lending Practices

There are many sources of financing for vehicle loans. Aside from commercial banks, savings institutions, and credit unions, customers can make use of financing units operated by the vehicle manufacturers. Examples of these include the Ford Motor Credit Company (FMCC), American Honda Finance Company (AHFC), General Motors Acceptance Corporation (GMAC), and others.⁶ Unlike bank or credit union lending, vehicle financing corporations do not broker the terms of their financing contracts directly with the borrower. Instead, car buyers work out the individual parameters of their loan contract with representatives of the car dealerships. This practice is often referred to as "dealer financing". The vehicle finance companies quote the individual dealers an interest rate at which a car buyer is approved for a loan based on individual borrower characteristics (down payment, credit history, etc.) and vehicle and loan characteristics (new car vs. used car, the term of the loan, etc.). This interest rate is referred to as the "buy rate". The dealerships have the ability to charge an additional "markup" above and beyond the buy rate required by the vehicle finance company. The additional markup, when it is charged, is allocated

⁶ As we show below, approximately 1/3 of all vehicle loans are financed at vehicle finance companies. The remaining are financed at traditional banks and credit unions.

between the dealer and the vehicle finance companies.⁷ In general, only the total interest rate is reported to the borrower; the buy rate, the markup, or the allocation of the markup is never disclosed.

Industry analysis finds that roughly one-third of all borrowers who initiate loans with vehicle finance companies are charged an additional markup. These markups average between 1 and 2 percentage points.⁸ The buy rates offered by the vehicle finance companies should, in principle, be a function exclusively of economically relevant factors, such as the terms of the loan (the number of payments and overall loan amount) and the borrower's credit history. Dealers are given much more flexibility in setting the markup that they charge to each customer. In fact, analysis of vehicle loan records as part of the recent lawsuits finds evidence of disparate treatment by race with respect to assignment of markups by dealers.⁹

The major impediment to testing for differential treatment by race among vehicle financing companies is that loan contracts do not code the borrower's race.¹⁰ As part of the lawsuits against the vehicle finance companies, a sample of borrowers who originated their loans with finance companies were matched to their driver's license using name, address, and date of birth information. After the driver's license was identified, researchers manually assigned the borrower's race by examining their driver's license photo. This data was used by both the prosecution and defense teams to assess the extent to which there exist racial differences in the loan terms offered by vehicle finance companies.

Mark Cohen, an economics professor at the Owen School of Management, Vanderbilt University, served as an expert witness for the prosecution in the GMAC, NMAC, AHFC and FCCM lawsuits. His assessment of the treatment of Blacks by vehicle finance companies was

⁷ The majority of the markup often goes to the individual dealer (as opposed to the vehicle finance company). See Cohen (2003) and Consumer Federation of America Report (2004).

⁸ See Cohen (2003, 2004a, 2004b).

⁹ See Cohen (2001, 2003, 2004a, 2004b)

¹⁰ This is also a problem for analyzing differential treatment by race in loan terms for loans originated at credit unions, commercial banks, and saving institutions using industry data.

strikingly similar across the financing arms of General Motors, Nissan, Ford, and Honda.¹¹ For example, among GMAC loans, he found that, unconditionally, Black borrowers were much more likely to be charged a markup than White borrowers (53% vs. 28%). The comparable numbers for FCCM and AHFC were 49% of Blacks and 31% of Whites and 43% of Blacks and 22% of Whites, respectively.

Using multivariate regressions, Cohen controlled for differences in credit score, loan amount, purchase price, and loan terms between Blacks and Whites. He found that among borrowers at vehicle financing companies the he studied as part of the various lawsuits, Blacks paid roughly twenty to forty basis points more for their vehicle loans than similarly situated White borrowers. These estimates were significant at the 0.0001 level. In terms of total impact, he finds that given the additional financing costs, Black borrowers pay between \$100 and \$350 more in total for their vehicle purchase than Whites at vehicle finance companies. These results were roughly consistent across the four different finance companies that he analyzed.¹²

In this paper, we expand on the Cohen results from his expert testimony on three ways. Most importantly, we look at loans originated at institutions other than vehicle finance companies. Secondly, our analysis of loans originated at vehicle finance companies is broader than the analysis of Cohen. Specifically, our data allows us to look at loans originated at a wide variety of vehicle companies for borrowers in all states over a full decade. Lastly, we examine other margins of differential treatment by race (i.e., rejection rates) and we try to explain why Blacks are more likely to initiate their loans at high cost vehicle finance companies. We should note, however, that as part of his status as an expert witness, Cohen had access to industry data

¹¹ See Cohen (2001, 2003, 2004a, 2004b.) for a full discussion. His analysis sample mostly focused on loans originated during the late 1990s and early 2000s. Moreover, his conditional analysis only looked at loans originated in states where he was able to link the borrower's race using driver's license or birth certificate. In his samples, this constituted roughly 15 states. Our analysis allows us to examine the behavior across all vehicle finance companies across all states covered with the SCF.

¹² It should be noted that the conditional regressions reported in the Cohen reports are only for one or two states. For example, in Cohen (2004b) he only reports the results for Tennessee. In Cohen (2003), he reports the regression results for both Tennessee and Florida. He notes in both cases that the qualitative results are found across all states he analyzed, although the Tennessee results were always among the highest. He notes that while Black borrowers in Tennessee pay a markup of approximately forty basis points higher than Whites, all his results across the other states he analyzed ranged from twenty to forty basis points.

which has much larger sample sizes and much less measurement error than the household data we use. As a result, we view our results as being complementary to the industry analysis by Cohen as part of the lawsuits filed against the prominent vehicle finance companies.

III. Data

For our primary analysis, we use data from the 1992, 1995, 1998, and 2001 waves of the Survey of Consumer Finances (SCF). The SCF is ideal for studying vehicle lending markets. Included within the SCF is information on all vehicles owned by the household including the current interest rate on the vehicle loan, the original amount of the vehicle loan, the original term of the vehicle loan, where the vehicle loan was originated, whether the vehicle was purchased new or used, the current blue book value of the vehicle, the remaining loan balance on the vehicle, and the type of vehicle purchased (car, van, SUV, etc.). Additionally, the SCF contains detailed household income and demographic variables.

Unlike other household datasets, the SCF also has detailed questions designed to proxy for a household's credit history. In particular, we use the household's responses to the following questions: 1) Have you (or your spouse) been turned down for a loan in the last five years? 2) Have you (or your spouse) been turned down for a vehicle loan in the last five years? 3) Now thinking of all the various loan or mortgage payments you (or your spouse) made during last year, were all the payments made the way they were scheduled, or were payments on any of the loans sometimes made later or missed? 4) Were you ever behind in your payments by two months or more? and 5) Have you (or your spouse) ever filed for bankruptcy? In addition, households are asked to assess their own credit worthiness. Specifically, households are asked "Was there any time in the past five years that you or your (spouse/partner) thought of applying for a loan at a particular place, but changed your mind because you thought you might be turned down?" Collectively, we use the answers to these questions to proxy for a borrower's credit history.

These questions are, however, not our only measures of a borrower's credit worthiness. The SCF has very detailed wealth data. At the time of the survey, households separately report whether they own a checking account, a savings account, a home, stocks, bonds, mutual funds, or a business. Additionally, households report the amount of all asset and debt holdings in different categories, and provide a cumulative measure of household net worth.

For our analysis sample, we take all households in the 1992, 1995, 1998, and 2001 waves of the SCF who purchased a vehicle for personal use (as opposed to business use) anytime during the three years preceding the survey data. For example, for those households in the 2001 survey, we include in our sample anyone who purchased a car during the 1998, 1999, 2000 or 2001 surveys. There will be few car purchases in 2001 given that the SCF conducts household interviews early in the survey year. We also restricted our sample to include only those households which took out a loan to finance the vehicle purchase. Some households reported purchasing multiple vehicles during that time period. We only include the most recent vehicle purchase in our sample. This results in each household in our sample having only one vehicle purchase. Additionally, we restrict our sample to only those households where the head is between the ages of 20 and 55 and those heads who report their race as being White or Black.

We make three additional sample modifications. The first is that we restrict our sample to households with no missing data for any of the controls we will use in our regression analysis reported in Tables 7 and 8. This only excludes a handful of additional observations. We also trim the top and bottom one percent of the vehicle interest rate distribution. A few households reported paying a 0% interest rate over the entire five year life of their vehicle loan over. On the other side, some households reported paying a 50% interest rate on their vehicle loan. The truncation restricts interest rates on the vehicle loans to be between 3% and 22%.¹³ Lastly, we only include households who report making monthly payments.¹⁴ All sample statistics were

¹³ Including the extreme interest rate observations has no qualitative effects on the results presented.

¹⁴ There were six households who reported making payments on their loan weekly or bi-weekly.

weighted by the SCF core sampling weights. In total, our analysis sample had 2,458 households, 12.0% of which were Black.¹⁵

IV. Descriptive Results

During the 1990s, the average interest rate on any vehicle loan for households in our sample was 9.7%. However, as seen in Table 1, there were differences in the unconditional average and median interest rates paid by White (column I) and Black (column II) car buyers. For all vehicle loans (Panel A), Blacks paid an interest rate on their vehicle loan of 10.5% on average and 9.7% at the median. The comparable interest rates for White borrowers were 9.6% and 9.0%, respectively, with the differences across races being statistically significant for both the mean and median (column IV of Table 1).¹⁶ It should also be noted that Blacks secure loans that have slightly shorter terms (49.6 months vs. 51.0 months). However, the average amount borrowed is similar between Blacks and Whites (\$12,710 vs. \$12,461) despite the fact that the vehicles that Blacks purchase are worth less than the vehicle Whites purchases (\$10,649 vs. \$11,656), where value is measured as the current blue-book value of the vehicle.¹⁷ This implies that the average Black car buyer has less equity in their car at any give time (i.e., higher loan-to-value ratios) compared with the average White car buyer. Despite the fact that the amount of the vehicle loan is the same between Blacks and whites, the shorter term of the loan and the higher interest rate combines to make Blacks pay a slightly higher monthly loan payment than Whites (\$314 vs. \$297).

Part of the reason the average Black car buyer pays a higher interest rate than the average White is that Blacks are more likely to purchase used rather than new cars (53.5% of Blacks vs. 47.1% of Whites). The average interest rate on used vehicles in our sample was 170 basis points higher than the average interest rate on new vehicles (10.6% vs. 8.9%). Panels B and C of Table

¹⁵ All statistics we present below, including regression results, are weighted using SCF household weights.

¹⁶ The p-values for the mean race differences are from the coefficient on the dummy variable black in a bivariate regression using the interest rate as the dependent variable while p-values for the median differences are from the same coefficient in a median regression.

¹⁷ All dollar amounts in this paper are reported in 2005 dollars.

I show descriptive statistics about the vehicle loan for White and Black borrowers segmented by whether the car purchased was new or used. For new cars, the large difference in interest rates paid on average by Black and White borrowers still persists. However, the difference is much larger at the mean (9.8% vs. 8.8%) than at the median (9.25% vs. 8.75%). For used cars, the differences in interest rates are about half as large as they are for new vehicles: 53 basis points at the mean and only 20 basis points at the median.

The higher average rates paid by black vehicle purchasers, on average, can be decomposed into the difference by race in the propensity to originate vehicle loans at different sources, and racial differences in the average rate paid by borrowers using a particular source. The SCF data codes the source of each loan, so we can separately analyze loans originated at traditional lenders (commercial banks, savings institutions, and credit unions) and loans originated at vehicle finance companies. Over ninety seven percent of the vehicle loans in our sample either were originated at credit unions, commercial banks, savings institutions, vehicle finance companies, vehicle dealers, or “other finance companies”. After talking with the SCF staff, they concluded that much of the “other finance companies” were likely vehicle finance companies that were coded incorrectly. We therefore combine vehicle finance companies, other finance companies and dealer financing into one category which we label broadly as “finance companies”.¹⁸ However, it is possible that some of the other finance companies were loans originated with high interest lenders like the Money Store. As a robustness check, we separately analyzed loans originated at vehicle finance companies from loans originated at other finance companies. The racial patterns in interest rates paid on vehicle loans were strikingly similar between the two types of finance companies. The remaining 3% of vehicle loans in our sample were originated with other sources including family members, insurance companies, and

¹⁸ Dealer financing represented less than 1.5% of the sample. According to the SCF staff, this is likely the result of respondents misreporting who actually originator their loan given that “dealers” only broker loans and do not originate loans.

employers. We excluded these loans from our analysis sample (including the results presented in Table 1).¹⁹

Table 2 shows the incidence of originating a vehicle loan at a bank or credit union by race. The remaining vehicle loans, by definition, were originated with finance companies. For the sample of all vehicle loans, Whites were 18.5 percentage points more likely than Blacks to originate their loan at a bank, a credit union, or a savings institution. The racial gap was smaller for new car loans than for used car loans (7.8 vs. 28.7 percentage points, respectively).

Racial differences in the propensity to use different types of lending institutions are important because interest rates on loans originated at finance companies are much higher than vehicle loans originated at banks and credit unions. As Panel A of Table 3 shows, the average vehicle loan in our sample which originated in a bank or credit union charged a 9.41 percent interest rate. The average interest rate on a loan originating at finance companies was 10.32 percent. Panel A of Table 3 shows two other important facts. First, in banks and credit unions, there is only a 16 basis point difference in interest rates charged for Black borrowers for vehicle loans compared to White borrowers. However, in finance companies, Blacks pay an interest rate on their vehicle loan which is 129 (93) basis points higher at the mean (median). These results broadly suggest that the findings of discrimination documented by Cohen (2003a, 2003b, and 2004) within vehicle finance companies may not extend to banks and credit unions.

The descriptive analysis can be extended to examine vehicle loans for new (panel B) and used (panel C) vehicles separately. In both cases, there is never a significant racial difference in interest rates paid on vehicle loans originated within banks or credit unions - the source of more than one half of all Black loan originations.²⁰ Table 2 shows that Blacks are relatively more likely to originate their loans at finance companies. Notice that there is no statistical difference in

¹⁹ However, we found no racial differences in the incidence of acquiring a loan at from these non-conditional lenders nor did we find any racial differences in terms offered by these lenders.

²⁰ It is worth noting the fifty-six basis point interest rate differential by race for new vehicles financed through banks or credit unions that is close to being marginally statistically significant (p-value 0.11) as well as economically significant.

interest rates paid by Blacks for loans on used vehicles originated at these companies. In short, the only statistical difference in interest rates paid between Blacks and Whites are for new cars loans originated at finance companies. In such instances Blacks pay, on average, roughly 150 basis points higher than Whites at both the mean and median.

Why do rational black consumers use higher rate institutions at all to finance new car purchases? One potential explanation may be that they make this choice because they are shut out of lower rate institutions. In the context of mortgage financing, previous research that this type of “shutting out” is the predominant form that racially differential treatment takes (see Munnell et al, 1996 and Charles and Hurst, 2002). The SCF data allows us to examine this possibility directly. In each wave of the SCF survey, households are asked whether they have ever been turned down for any loan in the last five years. If they respond yes, they are asked what type of loan that was. If the household has experienced more than one loan turndown during this period, they are asked about the most recent loan type. We explore whether there are differential rejection rates in the vehicle loan market on three different groups: a sample of households who currently have a vehicle loan on a car they purchased in the previous three years, a sample of households who have a vehicle loan but purchased the car more than three years ago, and a sample of households who do not have a vehicle loan. The first sample is the same sample we used in Tables 1-3. With respect to our main sample (those households with a car loan initiated during the prior three years), the base rejection rate for White households was 8.9%. The rejection rate is not statistically different by race, and, if anything, was slightly *higher* by 0.5% than the black rejection rate. The results were consistent across the other two samples. This finding might be differ from the true race difference in vehicle loan rejection rates since the data only report the most recent type of loan turndown. Although we cannot explore this issue any further with the data available in the SCF, we note that the mortgage rejection rates found in the SCF are 3.9% for Whites and 7.2% for Blacks which is similar to the figures found in the PSID by Charles and Hurst (2002). Thus, unlike the housing market, there is no evidence that blacks are pushed to use

higher interest rate services because of higher rejection probabilities at traditional lenders.²¹ For reasons that are somewhat of a puzzle, some blacks originate their new car loans at financing companies and pay higher interest charges. Differences in these rates paid for these types of loans fully describe the average rate differences, by race, in the data.

The discussion thus far has been silent about differences in credit worthiness between Blacks and Whites. Optimal lender behavior predicts that lenders should charge higher interest rates to borrowers who have a higher probability of default. If Blacks who receive vehicle loans, on average, have lower credit scores than Whites who receive vehicle loans, we would expect Blacks to pay higher interest rates than Whites. Information about borrowers past lending behavior is summarized by a “credit score”. We now ask whether differences in borrower credit worthiness affects where Blacks and Whites originate their loans or whether it affects the interest rate they pay conditional on originating a loan at a given type of establishment.

Average differences in credit worthiness between average Black and White vehicle borrowers are pronounced. As described in section II, the data in the SCF allows us to focus on three measures of a borrower's credit worthiness. First, as discussed in Section 3, SCF data tracks detailed questions on the borrower's self reported past financial distress. Households are asked whether they were ever turned down for loans in the prior 5 years, whether they were late paying bills and whether they declared bankruptcy.²² Second, the SCF contains detailed information on the borrower's ownership of different types of assets. To the extent that ownership of checking and savings accounts, ownership of a home, or ownership of credit card debt predicts a borrower's credit worthiness, these controls will be informative. Lastly, we have the household's self reported credit worthiness. This question is quite powerful. Specifically, borrowers are asked whether "they thought about applying for credit at a particular place, but subsequently

²¹ Even if there are no differential rejection rates between Blacks and Whites in the vehicle loan market, there still may be differential treatment in the acquisition of a loan if Black borrowers *anticipate* being rejected and, as a result, never apply for a loan in the first place. We address this potential concern below.

²² See Section 3 for complete wording of the financial distress questions.

changed their mind because they thought they might be turned down". This question can shed light on whether Blacks avoided banks or credit unions because they *thought* they might be rejected.

Table 4 shows that Black borrowers on average are indeed less creditworthy than White borrowers. For example, nearly 42% of Blacks were turned down for a loan in the prior 5 years compared to only 27% of Whites. This, by itself, does not indicate that Blacks are less credit worthy than Whites given the potential for differential treatment in other lending markets – particularly the housing market. However, 26% of Blacks have been late paying their bills during the last year which is significantly higher than the comparable number for Whites (17%). Likewise, Blacks were more likely to be delinquent on their loans for more than two months (10% vs. 6%). Lastly, Blacks were more likely to declare bankruptcy than Whites (12% vs. 7%). With respect to any of these financial distress measures, 59% of Blacks and 39% of Whites were likely to experience one measure. Moreover, Blacks were less likely to own a checking account, a savings account, or a home.

These measures are admittedly crude proxies of a borrower's projected credit score at the time the household initiated their vehicle loan. However, the borrower's anticipation of being rejected for a loan will capture many aspects of the borrower's credit history that are not ascertained via the survey. Nearly 40% of Black reported that they did not apply for a loan because they feared rejection (as opposed to only 14% of Whites). Taken together, there is evidence that the average Black who has a vehicle loan is less credit worthy than the average White, implying that some of the interest rate differential is likely due to racial differences in credit worthiness.

Do these differences in credit worthiness explain the racial differences in the type of establishments used to originate vehicle loans? Table 5 shows that there are credit quality differences between Black and White borrowers *within* each type of vehicle financing establishment. Borrowers who experience more financial distress are less likely to originate their

vehicle loan within banks and credit unions. Additionally, borrowers with more financial distress were more likely to purchase used vehicles as opposed to new vehicles. With respect to race, Black households who originated their new car loan at a credit union, commercial bank, or savings institutions were more likely to experience some form of financial distress than White households (47% vs. 31%). Likewise, within finance companies, Blacks who purchased a new vehicle experienced more financial distress than Whites (57% vs. 39%). Similar differences occur within the loan market for used cars. The only place where we do not observe racial differences in borrower financial distress is for used car loans originated at finance companies. Moreover, the difference in financial distress by origination establishment for Blacks is not statistically significant (Panel A) although the gap is roughly as large that found for Whites. Thus, differences in creditworthiness likely do not play a large role in explaining the observed racial differences in loan origination establishment.

Another reason possible reason that Blacks may be less likely that use banks and credit unions for vehicle loans may be due to a lack of familiarity with these establishments. As Table 4 shows, Blacks are significantly less likely to have either a checking or a savings account or to own a home. All of these differences are possibly indicative of less contact with the traditional banking sector. As such, this lack of experience may underlie the differences in vehicle loan establishment choice. However, in tabulations not shown here, we find that 50 percent of Blacks with either a checking or a savings account originate their loans at a financing company while 56 percent of Blacks without either type of account use financing companies. The comparable numbers for Whites are 32 percent and 40 percent respectively. Even more interesting, 49 percent of Blacks that own a home use vehicle financing companies with the share is just 51 percent among non-homeowners. For Whites, 32 percent of homeowners as well as non-homeowners use vehicle financing companies. Therefore, it does not appear that differential experience with banks and credit unions will explain the higher likelihood of Blacks to dealer financing to purchase vehicles.

V. Regression Results

Before we begin decomposing the racial differences in vehicle financing rates, we wish to ask how much of the difference in the propensity to initiate a vehicle loan at different establishments is due to differences in our credit worthiness measures. That is, do differences in credit worthiness drive the differences in the propensity to originate a vehicle loan at different establishments? To explore this, we estimate regressions of the likelihood that a household secured a loan from a finance company on a dummy if the household head was Black with and without additional controls. Specifically, with the addition of our full set of controls, we estimate:

$$FinComp_{it} = \alpha + \beta Black_i + Year_t \Gamma_1 + Credit_{it} \Gamma_2 + Loan_{it} \Gamma_3 + X_{it} \Gamma_4 + \eta_{it} \quad (1)$$

where $FinComp_{it}$ is a dummy variable equal to 1 if household i originated their loan at a finance company in year t (as opposed to a bank or a credit union), $Black_i$ is a dummy variable equal to 1 if household i is *Black*, $Year_t$ is a vector of year dummies indicating the year in which the household initiated their loan, $Credit_{it}$ is a vector of variables proxying for the household's credit worthiness, $Loan_{it}$ is a vector of vehicle and loan characteristics, and X_{it} is a vector of household income and demographic variables. Our credit proxies include all the variables discussed in Table 4 except for whether the household is a discouraged borrower. The loan and vehicle controls include dummy variables for the term of the loan (3 year loan, 4 year loan, etc.), the log of the initial loan amount, and the log of the current blue book value of the vehicle. For the full sample of vehicle loans, we also include a dummy for whether the car was new or used. Lastly, the vector of demographic and income controls include age dummies, a sex dummy, a quadratic in household labor income, education dummies, and household wealth controls.

Column I of Table 6 shows the results of estimating (1) with only race and year controls. These results essentially replicate the mean differences documented in Table 3. The difference

between the unconditional results in Table 3 and the results in column I of Table 6 is due to conditioning on year of origination. As documented above, Black households are much more likely to receive a vehicle loan from finance companies as opposed to credit unions, savings institutions, or commercial banks 1 (18 percentage points). The racial gap is much more pronounced for the loans on used vehicles as opposed to new vehicles (27 percentage points vs. 9 percentage points).

In column II of Table 6 we add controls for the borrower's credit worthiness. Surprisingly, the credit controls explain very little of the propensity for individuals to originate their vehicle loans at finance companies as opposed to at credit unions and commercial banks. This effect could be the result of our credit controls being imperfect proxies for the borrower's actual credit score. However, it should be noted that adding in additional controls for vehicle and loan characteristics (column III), or vehicle, loan, demographic, income and wealth controls (column IV) also have little additional effect on the decision to originate a loan at vehicle finance companies. To the extent that unobserved credit score was correlated with these variables we would expect the coefficient on the Black dummy to fall if differences in credit worthiness were driving the difference in where loans were originated.

It is possible that the use of different establishments to originate loans across races was due to differences in financial knowledge or sophistication. However, given that controlling for checking account and saving account ownership, education, income, and wealth, leaves the estimated racial gap virtually unchanged, the portion of financial knowledge that affects where to originate a vehicle loan must be uncorrelated with these controls. In column V of Table 5, we include our discouraged borrower control. This control measures whether the household thought about applying for a loan in the prior 5 years but chose not to apply for fear of rejection. As seen in Table 3, Blacks were more likely to be discouraged borrowers than Whites. However, this control does not explain the choice of Blacks to originate their loans with high interest rate finance companies as opposed to lower rate banks and credit unions.

Overall, the unconditional racial gap in originating a loan at a financing company is modest for new car purchases (nine percentage points) and large for used car purchases (twenty seven percentage points). It should be noted that the interest rate gap between banks/credit unions and finance companies for used car purchases is large (Table 3). Taken together, the results in Table 6 shows that differences in the racial propensity to originate a vehicle loan with a finance company is only slightly related to the borrower's credit worthiness and is not explainable with a large selection of demographic, income and wealth controls. Why Blacks choose to finance their cars at finance companies (and thus pay higher vehicle rates, on average) remains somewhat of a puzzle.

We now turn to the question of direct interest: how much of the racial gap in vehicle financing rates (outlined in Table 2) can be explained by observables such as vehicle and loan characteristics and borrower credit worthiness? To answer this, we run:

$$rate_{it} = \alpha + \delta Black_i + Year_t \Phi_1 + Loan_{it} \Phi_2 + Credit_{it} \Phi_3 + X_{it} \Phi_4 + FinComp_{it} \Phi_5 + \eta_{it} \quad (2)$$

where $rate_{it}$ is the interest rate that household i paid when they initiated their vehicle loan in year t , and $Black_i$, $Year_{it}$, $Loan_{it}$, $Credit_{it}$, X_{it} , and $FinComp_{it}$ are defined as above.

The results of this regression are shown in Tables 7 and 8. We estimate this equation both via OLS and a median regression. To start, our sample includes households who financed both new and used cars (panel A). In panels B and C, we separately analyze new and used cars purchases. In Table 8, we separately analyze households who originated their loan at different types of establishments. In row I of Table 7, Panel A, we show the coefficient on the Black dummy when only year controls are included. At the mean, Blacks pay 85 basis points higher for their vehicle loans than Whites. At the median, Blacks pay only 25 basis points higher. In row 1 of Table 7, Panel B, we find that Blacks pay 92 and 50 basis points higher interest rates than Whites at the mean and median, respectively, for new vehicle loans. For used cars, the comparable racial gaps in interest rates at the mean and median are 55 and 20 basis points,

although, neither of these racial gaps are significantly different than zero. These racial differences vehicle loan rates are consistent with the results in Table 2. The reason that they are not exactly the same as Table 2 is due to the inclusion of the year dummies. We will treat the year adjusted interest rate differentials displayed in Row I of Table 7, Panels A-C as being the gap in interest rates that we wish to explain.

In Rows II – V of the Panels of Table 7, we add additional controls to the regression. After the addition of each control variable, we describe how much of the initial racial gap in interest rates is explained by the cumulative controls. For example, in Row II we include loan controls described above. For the full sample of loans (Panel A), the loan controls by themselves reduce the race dummy in the OLS regression from 85 basis points to 71 basis points. Put another way, the loan controls explain 16.5% of the initial average racial gap in vehicle interest rates. In Row III of Table 7, we include the credit controls to the year and vehicle controls. The year, vehicle, credit controls explain 45% of the mean racial gap and 76% of the median racial gap in vehicle lending rates. In other words, simply controlling for characteristics of the loan (term, loan amount, value of the car) and proxies for the borrower's credit worthiness suggests that the average racial gap in vehicle lending rates is 47 basis points while the median racial gap in vehicle lending rates is essentially zero (6 basis points).

Although the results find in Row II of Table 7 are not limited to vehicle financing companies but include all lenders, the findings are very comparable to what is found by Cohen in his analysis of the various dealer financing companies. There is a significant mean difference in the price of the loan while there is no difference at the median. In addition, in a representative analysis using data from the state of Tennessee in the AHFC report (Cohen 2004b), the inclusion of actual credit information reduces the coefficient on the race variable by roughly 40 percent. Although the credit proxies available in the SCF are not the exact credit score information used by Cohen, it is fairly interesting to note that including the available proxies has a similar impact in our analysis.

The results for new and used cars, shown in Panels B and C of Table 7, differ from each other. For new cars, loan characteristics and credit controls only explain 28% of the mean racial gap in interest rates paid (leaving an unexplained racial gap of 67 basis points) and 60% of the median racial gap in interest rates paid (leaving an unexplained racial gap of 21 basis points). For used cars, the credit and loan controls explain 50% of the mean racial gap and the entire median racial gap in interest rates.

In row IV of Table 7, we include a dummy for whether or not the loan was originated within a finance company. As noted above, Blacks are more likely to originate their loans with finance companies particularly for used cars. Including establishment controls explains an additional fourteen percentage points of the mean racial interest rate difference for all car purchases (Panel A). However, as seen in Panel B, including establishment controls explains little of the remaining additional racial difference in interest rates paid on vehicle loans for new cars. All of the effect results from explaining differences in the interest rates paid on loans for used cars (Panel C).

In row V, we include demographic controls. When estimating models of discrimination, since there is the potential to “over control” for observable characteristics (Yinger 1998). Variables related to legitimate business reasons for the interest rates charged to customers should be included in the model, which in the current case include vehicle type, loan terms, and customer credit risk. However, customer characteristics such as education which may be correlated to both race and the interest rate charged are not valid controls since there is no explicit business purpose for basing interest rates on these characteristics once all business related characteristics have been included in the model. As such, we are very cautious in our interpretation of the results when we add demographic controls. However, conditional on the vehicle and credit controls,

demographics explain little of the mean difference for either new or used cars but do have some predictive power in explaining the median difference for new car purchases.²³

Taken together, we find that there is no statistical difference in interest rates paid for Blacks in the used car with a point estimate on the racial gap being close to zero after controlling for loan characteristics and borrower credit worthiness, regardless of origination establishment. Controlling for establishment, however, has little effect on the racial gap for new car loans (row IV of Table 7, Panel B). This is not surprising given that the propensity to originate new vehicle loans at finance companies was only slightly higher for Blacks than for Whites.

In Table 8, we break down car loans purchased at Banks and Credit unions separately from loans purchased at finance companies. This distinction is important. On average, there is no difference between Blacks and Whites in interest rates paid at either the mean or median for loans originated at banks and credit unions once controlling for loan characteristics and borrower credit worthiness (7 basis points at the mean and -5 basis points at the mean, respectively). These results are shown in row I of Table 8. This distinction holds whether we examine new or used vehicles (results not shown). However, Blacks pay a much higher rate for new cars originated at finance companies (row III of Table 8). Specifically, even after controlling for credit and loan controls, Blacks pay 100 basis points higher at the mean and 71 basis points higher at the median than do comparable Whites. As we show below, this magnitude is similar to the magnitudes found in the analysis by Cohen in his expert testimony for the plaintiffs in the GMAC and FMCC lawsuits. Statistically, we can say that the racial gap in interest rates paid on new cars originated at vehicle finance companies (row III of Table 8) is larger than the racial gap in interest rate paid on any car originated at a bank or credit union (row I of Table 8; p-value of difference < 0.01). In other words, there is statistically less differential treatment in the terms of vehicle loans

²³ It should be noted that in the specifications in Row V of Table 7 (panels A-C), we find no difference in interest rates paid by either gender or age. The only differential treatment we identify, conditional on credit proxies, is for Black households who purchase new cars and finance them through vehicle finance companies.

originated at banks and credit unions than for loans originated on new cars at vehicle finance companies.

In summary, our conclusions are that Blacks and Whites, conditional on loan and credit controls, pay similar interest rate as whites for all loans originated at banks and credit unions, regardless of whether the vehicle was new or used. Within finance companies, there is no evidence that Blacks pay higher interest rates for loans associated with used vehicles. The only difference in interest rates paid that we find is for loans on new vehicles originated at finance companies.

Before concluding, we wish to address the magnitude of the difference in interest rates paid. Given the average initial loan balance and term for the full sample of new car purchases shown in Panel B of Table 1 (\$15,027 and 54 months), Whites are calculated to have a monthly payment of \$338 (assuming an 8.8% interest rate). Holding everything else constant, if Blacks paid 100 basis points higher on a loan for their new car, their monthly payment would be \$345. The \$7 per month increase in mortgage payments compounded over the life of the loan implies that Blacks are paying \$311 more in financing for their new vehicle loans originated at a vehicle finance company than comparable Whites. This number is only slightly higher than the results found by Cohen for borrowers who initiated their loan with GMAC between 1999 and 2003 in Tennessee (Cohen 2003). In his analysis, Cohen found Black borrowers paying roughly \$260 more in financing costs over the life of the loan than comparable Whites. The fact that our number is higher likely reflects the fact that we have imperfect measures of borrower's credit worthiness and the fact that we are looking at the entire U.S, over a different sample period. But, even with these differences, our results and the results of Cohen are of similar magnitude.²⁴

²⁴ There is one additional reason why our results could be slightly larger than the results of Cohen. In our analysis, we pooled together households who originated their loan at vehicle finance companies like GMAC, NMAC, FMCC, and AHFC, with households who originated their loan with finance companies who specialize in servicing high risk borrowers (like The Money Store). Talking to the staff of the SCF, they said it was impossible to separate out who actually got their loans at vehicle finance companies given that many individuals who do originate their loans at vehicle finance companies are classified as getting their loan at "general" finance companies.

Instead of evaluating the difference at the mean, we could do the same exercise at the median. Holding everything else constant, if Blacks paid 70 basis points higher on a loan for a new car originated at a vehicle finance company, their monthly payment would be \$343. The \$5 increase in mortgage payments compounded over the life of the loan implies that Blacks are paying \$219 more in financing for their new vehicle loan originated at a vehicle finance company than comparable Whites.

VII. Conclusion

The recent lawsuits regarding racial disparities in the loans issued by vehicle financing companies have brought further scrutiny to the question of how existing markets allocate credit to Black and White borrowers. However, the literature has focused almost exclusively on racial differences in access to credit for housing purchases while ignoring racial differences in access to credit for vehicle purchases. This paper fills the gap in the literature by looking broadly at racial differences in vehicle lending throughout the entire vehicle lending market. This is important because the lawsuits which have documented some racial difference in vehicle lending terms has only examined outcomes for loans originated within vehicle finance companies. As we show in this paper, such lenders comprise only one third of the vehicle lending market.

We find that differential treatment of Blacks in the vehicle loan market is not pervasive throughout the entire market for vehicle loans. For all loans on new vehicles originated in banks and credit unions and for all loans on used cars originated at any establishment, Blacks and Whites pay similar interest rates conditional on loan and credit characteristics. However, in a large household based survey, we find that Blacks pay higher interest rates on loans on new cars originated at finance companies. This latter fact is consistent with the industry data which were analyzed as part of the lawsuit. This difference translates into an increase in monthly payments of \$5-\$7 per month. But, as we show that in total, Blacks only originate 20% of their vehicle loans as loans on new cars with finance companies. This implies that in the remaining 80% of the

market, we find point estimates that indicate that there is no economic difference in interest rates paid between Black and White vehicle borrowers. Lastly, we find no differences in rejection rates between Blacks and Whites conditional on applying for a vehicle loan. This represents a dramatic difference for the differential treatment documented in home financing. For residential mortgages, all the differential treatment takes place on the access to credit and not on the terms of loan. For vehicle financing, when differential treatment takes place, it is on the terms of the loan and not on the access to credit.

One outstanding question in future work...<<why do blacks originate their loans at vehicle finance companies they currently have a higher probability of doing so --- standard controls only explain a little of the choice of where to finance --- end with this paragraph as a possible extension for future work...>>

Lastly – should we add in more cites on differential treatment of blacks and whites in access to credit or in labor market outcomes --- our cites are thin (maybe too thin – thoughts??)

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Table 1: Description of Vehicle Loan Characteristics by Race

Vehicle Type	I	II	III	IV
	White	Black	Difference	p-value of Difference
Panel A: All Vehicle Loans				
Interest Rate: Mean (%)	9.62	10.47	0.85	<0.01
Interest Rate: Median (%)	9.00	9.70	0.70	<0.01
Monthly Payment: Mean	297.19	314.39	17.21	0.01
Length of Loan (Months): Mean	51.04	49.64	-1.39	0.10
Original Loan Amount: Mean	12,461	12,710	249	0.53
Current Value of Car: Mean	11,656	10,649	-1,007	<0.01
% New Car Purchases	0.529	0.465	0.064	
Sample Size	2,191	267		
Panel B: New Vehicle Loans				
Interest Rate: Mean (%)	8.80	9.80	0.99	<0.01
Interest Rate: Median (%)	8.75	9.25	0.50	0.29
Monthly Payment: Mean	336.14	338.57	2.44	0.80
Length of Loan (Months): Mean	54.36	53.34	-1.02	0.33
Original Loan Amount: Mean	15,027	15,049	21.31	0.97
Current Value of Car: Mean	13,739	12,572	-1,167	0.01
Sample Size	1,237	126		
Panel C: Used Vehicle Loans				
Interest Rate: Mean (%)	10.53	11.06	0.53	0.16
Interest Rate: Median (%)	9.80	10.00	0.20	0.61
Monthly Payment: Mean	253.47	293.33	39.86	<0.01
Length of Loan (Months): Mean	47.24	46.41	-0.82	0.49
Original Loan Amount: Mean	9,580	10,674	1,094	0.03
Current Value of Car: Mean	9,319	8,975	-345	0.48
Sample Size	928	146		

Notes: Data from the 1992, 1995, 1998, and 2001 Survey of Consumer Finances (SCF). Sample restricted to those households who acquired a vehicle within the 3 years prior to the survey data and who had a loan. Additionally, only those households who took out a loan for more than 1½ years and less than 7 years were included in the sample. Analysis was restricted to those households with the head aged between 20 and 55. Only the most recently acquired car for each household is included in the sample. Lastly, we only included individuals who reported making monthly payments on their vehicle loan and who reported getting their loan from either a credit union, a bank, from the deal, or from a vehicle or other financing company. Interest rate is the self reported interest rate on the vehicle loan. Top/bottom 1% of the vehicle interest rate distribution was truncated. Observations weighted using SCF family weights.

Table 2: Percent of Vehicle Loan Origination at Banks, Savings Institutions, and Credit Unions, by Race

Establishment	I	II	III	IV	V
	All	White	Black	Difference	p-value of Difference
All Loans	65.9	68.1	49.6	-18.5	<0.01
New Vehicle Loans	63.2	64.0	56.2	-7.8	<0.01
Used Vehicle Loans	69.0	72.8	44.1	-28.7	<0.01

Notes: See footnote to Table 1 for full sample description including sample sizes. Households not originating their vehicle loan with a commercial bank, a savings institution, or a credit union, by definition originated their vehicle loan with a finance company. See text for details.

Table 3: Mean and Median Interest Rates Paid on Vehicle Loans by Origination Establishment and by Race, Separately for New and Used Cars

	I	II	III	IV	V
Establishment	All	White	Black	Difference	p-value of Difference
Panel A: All Vehicle Loans					
1. <u>Banks/Credit Union</u>					
Mean	9.41	9.40	9.55	0.16	0.55
Median	9.00	9.00	9.00	---	---
Sample Size	1,618	1,486	132		
2. <u>Finance Company</u>					
Mean	10.32	10.09	11.38	1.29	<0.01
Median	9.98	9.67	10.60	0.93	0.14
Sample Size	840	705	135		
Panel B: Loans on New Vehicles					
1. <u>Banks /Credit Union</u>					
Mean	8.99	8.94	9.49	0.56	0.11
Median	8.80	8.75	9.00	0.25	0.60
Sample Size	860	789	71		
2. <u>Finance Company</u>					
Mean	8.77	8.56	10.18	1.62	<0.01
Median	8.90	8.50	10.01	1.52	0.09
Sample Size	503	448	55		
Panel C: Loans on Used Vehicles					
1. <u>Banks /Credit Union</u>					
Mean	9.83	9.85	9.61	-0.23	0.56
Median	9.22	9.25	9.00	-0.25	0.62
Sample Size	758	697	61		
2. <u>Finance Company</u>					
Mean	12.32	12.36	12.20	-0.17	0.78
Median	11.90	12.00	10.89	-1.02	0.15
Sample Size	337	257	80		

Notes: See footnote to Table 1 for full sample restrictions.

Table 4: Financial Distress for Households with a Vehicle Loan, by Race
All Values Reported as a Percent

Financial Measure	I	II	III
	White	Black	p-value of Difference
Turned down for loan in past 5 years	27.2	41.9	<0.01
Turned down for a car loan in past 5 years	8.9	8.4	0.77
Ever late paying bills	17.1	25.9	<0.01
Ever late more than 2 months when paying a bill	6.3	9.8	0.08
Ever Bankrupt	7.0	12.1	0.03
Any of the above distress measures	39.3	58.6	<0.01
Own a Checking Account	62.0	57.6	0.20
Own a Savings Account	91.7	82.0	<0.01
Own a Home	61.6	45.5	<0.01
Hold Revolving Credit Card Debt	68.6	70.7	0.51
Discouraged Borrower	13.8	46.0	<0.01

Notes: See Table 1 for full sample restrictions. Discouraged borrower refers to households who thought about applying for a loan during the last five years but chose not to for fear of being rejected. See text for complete wording of SCF questions measuring financial distress.

**Table 5: Percent of Borrowers who Experienced Financial Distress,
by Race and Loan Origination Establishment**

Financial Institution	I	II	III	IV
	All	White	Black	p-value of Difference
Panel A. All Vehicle Loans				
Banks /Credit Unions	37.4	35.8	53.2	<0.01
Finance Company	49.9	46.8	64.0	<0.01
p-value of difference	<0.01	<0.01	0.09	
Panel B. Loans on New Vehicles				
Banks /Credit Unions	32.8	31.3	46.6	0.02
Finance Company	39.4	38.7	57.1	<0.01
p-value of difference	0.03	0.08	0.27	
Panel C. Loans on Used Vehicles				
Banks /Credit Unions	42.0	40.2	60.6	<0.01
Finance Company	63.3	61.6	68.6	0.27
p-value of difference	<0.01	<0.01	0.35	

Notes: See footnote to Table 1 for full sample restrictions. A household is considered experiencing financial distress if they were turned down for any loan in the prior 5 years, if they were ever late paying bills during the previous year, or if they were ever bankrupt.

Table 6: OLS Regression of Acquiring a Loan at a Finance Company on a Race, with and without Income, Demographic, and Credit Controls

<i>Sample</i>	Coefficient on Black Dummy				
	I	II	III	IV	V
All Vehicle Loans	0.18 (0.03)	0.16 (0.03)	0.15 (0.04)	0.15 (0.04)	0.13 (0.04)
New Vehicle Loans	0.09 (0.05)	0.08 (0.05)	0.07 (0.05)	0.09 (0.05)	0.08 (0.05)
Used Vehicle Loans	0.27 (0.05)	0.24 (0.05)	0.22 (0.05)	0.20 (0.05)	0.19 (0.05)
Controls					
Year Dummies	Y	Y	Y	Y	Y
Credit Controls	N	Y	Y	Y	Y
Vehicle/Loan Controls	N	N	Y	Y	Y
Demographic Controls	N	N	N	Y	Y
Income/Wealth Controls	N	N	N	Y	Y
Discouraged Borrower	N	N	N	N	Y

Notes: See Table 1 for full sample restrictions including sample sizes. Table reports the results of an OLS regression of whether the household originated the loan with either a finance company (as opposed to at a credit union, a savings institution, or a commercial bank) on a Black dummy with and without additional controls. The results in column I include no other controls aside from the year in which the car was purchased. The results in column II include credit controls of the borrower. These controls are all the variables shown in Table 4 aside from whether or not the household was a discouraged borrower. Column III includes vehicle and loan controls including dummies for the term of the vehicle loan, the loan of the initial loan balance, and the log of the current blue book value of the car. In column IV, dummies for the borrower's age, gender and education are included as well as a quadratic in borrower's income. For wealth controls, we include the log of the financial wealth held by the household and the log of the total wealth held by the household. In column V, we include the discouraged borrower control as defined in the note to Table 4.

Table 7: OLS and Median Regressions of Racial Differences in Vehicle Loan Rates Controlling for Vehicle and Borrower Characteristics

Panel A: All Vehicle Loans				
Regression Controls	OLS Regression		Median Regression	
	Coefficient on Black Dummy	Adjusted R-Squared	Coefficient on Black Dummy	Pseudo-R-Squared
I. Race and Year Controls	0.85 (0.20)	0.05	0.25 (0.10)	0.05
II. Regression I plus Vehicle Controls	0.71 (0.19)	0.15	0.39 (0.17)	0.09
III. Regression II plus Credit Controls	0.47 (0.19)	0.19	0.06 (0.19)	0.11
IV. Regression III plus Establishment Controls	0.33 (0.19)	0.21	-0.10 (0.14)	0.12
V. Regression IV plus Income/Demographic Controls	0.28 (0.19)	0.22	-0.10 (0.14)	0.12

Notes: See notes to Table 1 for full sample description. Table reports the results of a regression of interest rate paid on vehicle loan on a race dummy with and without additional controls. Row I shows the results of only including race and year dummies indicating when the car was purchased. Vehicle controls include dummies for the term of the vehicle loan, log of the initial loan amount, and the log of the current blue book value of the car. For Panel A, a dummy variable indicating whether the car was purchased new or used was also included. Credit controls include all variables listed in Table 4 except for the discouraged borrower variable. Establishment control is a dummy variable taking the value of one if the household originated their loan with a finance company. The income and demographic controls are discussed in the footnote to Table 6. Standard errors robust to heteroskedasticity are in parentheses.

Table 7 (Continued)

Panel B: New Vehicle Loans				
	OLS Regression		Median Regression	
Regression Controls	Coefficient on Black Dummy	Adjusted R-Squared	Coefficient on Black Dummy	Pseudo- R-Squared
I. Race and Year Controls	0.92 (0.25)	0.12	0.50 (0.21)	0.10
II. Regression I plus Vehicle Controls	0.94 (0.24)	0.15	0.53 (0.21)	0.11
III. Regression II plus Credit Controls	0.67 (0.24)	0.20	0.21 (0.27)	0.13
IV. Regression III plus Establishment Controls	0.67 (0.24)	0.20	0.31 (0.26)	0.13
V. Regression IV plus Income/Demographic Controls	0.63 (0.24)	0.22	0.16 (0.13)	0.14

Table 7 (Continued)

Panel C: Used Vehicle Loans				
	OLS Regression		Median Regression	
Regression Controls	Coefficient on Black Dummy	Adjusted R-Squared	Coefficient on Black Dummy	Pseudo- R-Squared
I. Race and Year Controls	0.55 (0.30)	0.03	0.20 (0.24)	0.04
II. Regression I plus Vehicle Controls	0.44 (0.29)	0.07	0.04 (0.19)	0.06
III. Regression II plus Credit Controls	0.27 (0.29)	0.13	-0.09 (0.23)	0.09
IV. Regression III plus Establishment Controls	-0.25 (0.28)	0.21	-0.57 (0.25)	0.13
V. Regression IV plus Income/Demographic Controls	-0.30 (0.29)	0.24	-0.50 (0.19)	0.14

Table 8: OLS and Median Regressions of Racial Differences in Vehicle Loan Rates With and Without Control Variables Estimated Separately on Different Samples

Sample	A. OLS Regression		B. Median Regression	
	Coefficient on Black Dummy Only Year Controls	Coefficient on Black Dummy Year, Credit and Vehicle Controls	Coefficient on Black Dummy Only Year Controls	Coefficient on Black Dummy Year, Credit and Vehicle Controls
I. Purchases at Banks and Credit Unions	0.17 (0.20)	0.07 (0.20)	-0.02 (0.16)	-0.05 (0.18)
II. Purchases at Finance Companies	1.09 (0.39)	0.22 (0.36)	0.91 (0.38)	-0.09 (0.33)
III. Purchase New Car at Finance Company	1.33 (0.48)	1.00 (0.47)	1.00 (0.24)	0.71 (0.61)

Notes: See Table 1 for a full description of sample. See Table 7 for regression specification.