REPORT ON THE RACIAL IMPACT OF AHFC'S FINANCE CHARGE MARKUP POLICY

IN THE MATTER OF

TERRY WILLIS, ET AL.

v.

AMERICAN HONDA FINANCE CORPORATION (AHFC)

June 30, 2004

Prepared by

Mark A. Cohen, Ph.D.

Table of Contents

List of Tables

List of Figures

I. Introduction and Summary of Findings

This report has been prepared in the matter of *Terry Willis, et al. v. American Honda Finance Corporation* ("AHFC"). I have been asked by plaintiffs' counsel to review the data on auto finance customers that has been provided by AHFC (and that has been race-coded by CLC Compliance Technologies, Inc.) in this litigation to determine whether or not there is evidence of a disparate impact on African-Americans who finance their cars through AHFC because they pay a higher subjective markup than similarly situated White customers. The subjective markup I have estimated in this case is based on the difference between the credit risk-based "buy rate" and the ultimate annual percentage rate ("APR") paid by the borrower.

A. Summary of Key Findings

In summary, I find that African-American borrowers consistently pay a higher subjective markup on average than similarly situated White customers. In particular:

- 43.3% of African-American borrowers are charged a markup, compared to 22.2% of White borrowers.
- African-American borrowers on average pay more than two times the amount in subjective markup compared to Whites: $557 versus $227, a difference of $330.
- Excluding customers who are booked for loans under "zero markup programs," African-American borrowers are charged on average $1,108 compared to only $698 for Whites, a difference of $410.

- AHFC's credit pricing policy has a differential markup cap based on credit tier. While most customers are limited to either a zero or 2% markup, the least creditworthy tier allows for a 3.5% markup for buyers of new cars. This is different from any credit pricing policy I have observed. The effect of this higher markup predictably aggravates the disparity and especially disadvantages those who can least afford it. There appears to be no business justification for this differential markup policy.
- These results are highly statistically significant. For example, the difference between the "expected" and "actual" chance of receiving a subjective markup for African-Americans exceeds the standard deviation by 91.5 times for all contracts and 50.1 excluding contracts booked under a zero markup program.
- The 383,652 AHFC borrowers who were identified as either being African-American or White were charged a total of $101.8 million in subjective markup. Of that total, $24.7 million, or 24.2% was paid by African-Americans, who make up only 11.6% of this customer base.
- My analysis in this case, as well as analysis I have conducted on other auto lenders including GMAC, NMAC and FMCC, provides strong evidence that the industry-wide practice of subjective credit pricing results in a disparate impact on minorities. It appears that the industry standard for credit pricing in the automobile lending industry disadvantages minorities.

These data provide strong empirical evidence of a disparate impact on African-American borrowers. The finding that African-American AHFC customers pay a significantly higher subjective markup than White customers is consistent with my understanding of the automobile financing market and my previous analysis of data and other evidence in previous cases involving subjective automobile loan financing markup. It is also consistent with a finding that there is a causal connection between AHFC's credit pricing policy and a disparate impact on African-American customers.

B. Additional Findings

In addition to the main results detailed above, this report contains numerous empirical findings relevant to this case. The finding of a disparate impact on African-American AHFC customers is persistent over the entire time period from June 1999 through March 2003, across geographic boundaries, and controlling for factors such as term of loan, type of vehicle, credit worthiness of borrower, etc. Some of the more important detailed findings are recapped below:

- Within the 15 states where drivers license or birth certificate data has been used to race-code AHFC borrowers, the largest average markup for African-American customers occurred in Maryland, where African-American customers were charged $856 (compared to $343 for White customers). Thus, African-Americans in Maryland paid 2.5 times as much in subjective markup than Whites.
- 1,288 AHFC customers in the race-coded sample were charged $3,000 or more in subjective markup. African-Americans make up 33.4% of these

who were charged $3,000 or more, although they represent only 11.6% of the borrower pool.

- While African-Americans make up 11.6% of AHFC race-coded customers, they make up 32.7% of those in the top 1% of markups (i.e. the 1% of AHFC borrowers who pay the most in markup). While the top 1% were charged $12.1 million in markup, African-Americans in that group were charged $3.98 million, or 32.7% of the total dollars in that category.
- The top 1% of customers were charged 11.9% of the total subjective markup. The top 5% were charged 41.4% of the total markup. The top 10% were charged 65.3% of the total markup. The top 25% were charged 100% of the total markup.
- African-Americans are over-represented in the top 500 markups relative to their frequency in the AHFC population. While African-Americans represent 11.6% of the sample, they account for 36.4% of the top 500 markups – more than three times their relative frequency.
- The African-American AHFC customer who paid the most in subjective markup financed $34,846 and was charged $6,063 in subjective markup.
- Mandatory dollar caps on markups would not only reduce the average subjective markup, they would significantly reduce the disparity between African-Americans and White AHFC customers. For example, while African-Americans currently pay $410 more than Whites, a markup cap of $1000 would reduce that disparity to $224. A $750 cap would reduce the disparity to $165 and a $500 cap would reduce it further to $102.

II. Summary of AHFC Data and Statistical Analysis

According to the expert report filed in this case by Paul Manning, AHFC provided plaintiffs with data on 1,421,932 active transactions from June 1999 through April 2003. After eliminating cases that were labeled as recourse loans (i.e., including only loans where the dealer retains no risk of loan default), cases with irregular payment schedules (e.g. balloon payments) and missing buy rates, and those that were not race-coded as being African-American or White by CLC Compliance Technologies, Inc. (CLC), a total of 383,652 AHFC customers were identified and included in my analysis.[1] Of these AHFC customers, 132,844 (34.6%) were booked under pricing programs where subjective markup was authorized. The remaining contracts were booked under programs that did not authorize dealers to mark up the loans (also referred to as "zero markup programs").

A. Summary Data and Key Results

Table 1 examines the national race-coded data for the 132,844 AHFC customers who were booked under contracts where subjective markup was allowed and who have been race-coded as being either African-American or White. Overall, African-Americans represent 16.8% of all AHFC borrowers who have been race-coded, excluding customers who are booked under zero markup programs. African-American purchasers who finance their vehicles through AHFC and who book contracts subject to markup are more likely to receive a subjective markup than Whites. Nationwide, I find that 86.3% of African-

[1] Despite the fact that we could not race-code all of the data received, a data set of 383,652 is a substantial sample that allows us to draw inferences about the nature of any disparity in subjective markups.

Americans who were booked under programs that allow markup receive a subjective markup compared to 68.0% for Whites. Furthermore, African-Americans who are booked under programs that allow a markup are charged on average $1,108 compared to only $698 for Whites, a difference of $410. Thus, on average, African-Americans who are booked under programs that allow markup pay 1.59 times as much in subjective markup than Whites pay and are more likely to be marked up. All of these differences are statistically significant at $p < .01$.[2]

Table 1 also includes for comparison similar data analyzed in my August 29, 2003 report in a related case brought under the Equal Credit Opportunity Act ("ECOA") against General Motors Acceptance Corp. ("GMAC"). I compare these data to my earlier study of GMAC because this captive lender had very similar pricing policies to those in effect at AHFC. Both captive lenders provide dealers with credit-based buy rates which the dealers are then allowed to subjectively "mark up." Both companies also selectively offer special APR loans - often at below market rates - that are not generally subject to markup. The findings are strikingly similar. In GMAC, I analyzed 648,876 race-coded customers between January 1999 and April 2003 – 13.1% of whom were African-American. I found that African-Americans, like African-American AHFC borrowers,

[2] A "$p < .01$" means that "the probability of getting data as extreme as or more extreme than the actual data, given that the null hypothesis is true," is less than one in a hundred. (See David H. Kaye and David A. Freedman, "Reference Guide on Statistics," in Reference Manual on Scientific Evidence, Federal Judicial Center, 1994 at p. 378.) In this case, the "null hypothesis" is that there is no difference between the markup charged to African-Americans and Whites. Thus, a $p < .01$ means that the probability of obtaining an average African-American markup of $1,109 and a White markup of $698 in this sample when the true markups in the full population of African-Americans and Whites is actually equal, is less than one in one hundred.

paid significantly higher subjective markup – about 1.6 times what Whites paid. The average markup in GMAC was $985 for African-Americans and $599 for Whites.

Table 1
African-American versus White AHFC Borrowers, 1999-2003
(with comparison to GMAC: 1999-2003)
Excluding Contracts Booked Under Zero Markup Programs

	AHFC	**GMAC**
Time Period	**June 1999 - March 2003**	**January 1999 - April 2003**
Total Sample Size Analyzed	**132,844**	648,876
African-Americans in Sample	**22,252**	85,235
Whites in Sample	**110,592**	563,641
Percent of Customers Who Are African-American	**16.8%**	13.1%
Average Amount Financed - African Americans	**$19,926**	$17,562
Average Amount Financed - Whites	**$19,221**	$17,062
% with Markup - African-Americans	**86.3%**	80.2%
% with Markup - Whites	**68.0%**	69.1%
Additional Percentage of African-Americans with Markup	**18.3%**	11.1%
Relative Odds Ratio % - African-Americans	**296%**	182%
Relative Odds Ratio % - Whites	**34%**	55%
Average Markup - African-Americans	**$1,108**	$985
Average Markup - Whites	**$698**	$599
Additional Markup Paid By African-Americans	**$410**	$386
Ratio of African-Americans to White Markup	**1.59**	1.64
# Standard Deviations-Incidents of Markup - (Actual to Expected)	**50.1**	62.6

These data provide strong statistical evidence of a disparate impact on African-Americans. For example, one generally accepted statistical method of comparing two probabilities is to calculate the "relative odds." The relative odds compares the

probability of two events occurring. Thus, if both African-Americans and Whites had the same probability of receiving a markup, for example, 40% each, the relative odds would be 1.0, which is calculated by dividing 40% for African-Americans by 40% for Whites (.40/.40 = 1.0). Thus, an odds ratio of 1.0 would indicate that there is an equal chance of African-Americans as Whites receiving the markup or not receiving the markup. In fact, the relative odds ratio for African-Americans experiencing a markup was 2.96 for AHFC customers - indicating that an African-American borrower is 296% as likely to experience a subjective markup as a White borrower.[3]

Both of the key findings in Table 1 (that African-Americans are more likely to receive a subjective markup and that their average markup is considerably higher than that of White AHFC customers) are highly statistically significant at $p < .001$. A "p-value" is the "probability of getting data as extreme as or more extreme than the actual data, given that the null hypothesis is true." In this case, the "null hypothesis" is that there is no difference between the subjective markup paid by African-American and White AHFC customers. Thus, for example, if $p < .05$, the likelihood of getting particular results in error is less than five in one hundred or 5%; that is, with a "p-value" of $p < .05$,

[3] Based on 86.3% of African-Americans and 68.0% of Whites who receive a markup, African-Americans have higher odds of receiving a markup – 6.29 (calculated as .863/.137) as opposed to Whites who have significantly lower odds, 2.12 (.680/.320). These figures can also be expressed as the **relative odds** of receiving a markup. Thus, African-Americans are 2.96 times as likely as Whites to receive a markup (6.29/2.12) - indicating that they have a 296% higher rate of being charged a markup. Similarly, Whites have a relative odds ratio of 0.34, (2.12/6.29) indicating that they are only 34% as likely to receive a markup as African-Americans.

one can confidently reject the "null hypothesis." Generally, a finding with a p-value below 0.01 is considered "highly significant."[4]

Another method of characterizing the level of statistical significance (in addition to the p-value) is to examine the standard deviation of the sample in order to determine whether or not the observed level is significantly different from the expected level. If the difference between the "actual" and "expected" value exceeds 2 or 3 times the standard deviation, one can reject the hypothesis that the "actual" value is equal to the "expected" value.[5] In the nationwide AHFC data shown in Table 1, the actual values are 50.1 times the standard deviation - a level that is highly statistically significant.[6] One can therefore reject the hypothesis that the subjective markup for African-Americans is identical to that for Whites. In other words, one can conclude that the AHFC pricing policy of authorizing subjective markups has a highly statistically significant disparate impact on African-

[4] "In practice, statistical analysts often use certain preset significance levels – typically .05 or .01. The .05 level is the most common in social science, and an analyst who speaks of "significant" results without specifying the threshold probably is using this figure. An unexplained reference to "highly significant" results probably means that p is less than .01." (Kaye and Freedman *supra* note 3 at 122).

[5] *See Hazelwood School District v. United States,* 433 U.S. 299, 309 n. 14 (1977).

[6] In the race-coded sample, African-American borrowers represent approximately 16.8% of the total number of borrowers who were booked under programs allowing markup. Since there are 94,387 borrowers (out of 132,844) that receive this markup, the expected number of African-Americans who would be marked up is 15,810 (16.8% x 94,387). In fact, there were a total of 19,198 African-Americans who received a markup. Put differently, the difference between the expected and actual number of African-Americans who received this markup is 3,388. To compare this to the standard deviation of the sample of African-Americans, we can calculate the standard deviation as the square root of the number of Black borrowers (22,252) times the percentage of the full population that is marked up (71.1%) times one-minus this amount (i.e., the probability of being marked up times the probability of not being marked up). Mathematically, the standard deviation is equal to: Square Root [22,252*0.711*(1-0.711)] = 67.7. Since the Black markup exceeds the expected markup by 3,388, this exceeds the standard deviation by 50.1 times (3,388/67.7= 50.1).

American borrowers who are charged with this markup more often than expected. While the legal standard of statistical significance is 2-3 times the standard deviation, the difference between the actual and expected probability of being marked up for an African-American AHFC customer is 50.1 times the standard deviation.

Table 1A reports on a similar comparison of the subjective markup charged all 383,652 race coded AHFC customers – including those who were ultimately booked under zero markup programs. African-Americans represent 11.6% of all AHFC race-coded customers. They are about twice as likely to be marked up (43.3% compared to 22.2%) as White customers. The average subjective markup was $557 for African-Americans compared to $227 for Whites – nearly 2.5 times as much in subjective markup. Thus, African-Americans on average pay about $330 more in subjective markup than Whites.

In addition to AHFC and GMAC, Table 1A also includes for comparison similar data analyzed in my May 21, 2001 report in a related case against Nissan Motor Acceptance Corp. ("NMAC"), and in my January 9, 2004 report in another related case brought against Ford Motor Credit Company ("FMCC"). Once again, these captive lenders have subjective markup policies similar to the one used by AHFC. The findings are strikingly similar. In FMCC, I analyzed 855,989 customers from January 1994 through April 2003 and found that African-Americans were both more likely to be marked up (48.5% versus 30.9%) and paid higher markups on average ($684 versus $337). In NMAC, I analyzed 310,718 race-coded customers between March 1993 and September 2000 - 19.0% of whom were African-American. I also found that African-Americans pay significantly higher subjective markup – as here, about two times what

Whites pay. The average markup in that case was $970 for African-Americans and $462 for Whites, a difference of $508.[7] In GMAC, I analyzed 1.5 million race-coded customers between January 1999 and April 2003 – 8.5% of whom were African-American. Once again, I found that African-Americans pay significantly higher subjective markup – more than 2.5 times as much. Similarly, African-Americans borrowing with both NMAC and GMAC were more likely to receive a markup compared to Whites.

[7] The average markups were higher in the NMAC case primarily because its data cover an earlier time frame, 1993-2000, when "special rate" loans with zero markups were not as prevalent.

Table 1A
African-American versus White AHFC Borrowers, 1999-2003
(with comparison to Ford: 1994-2003, GMAC: 1999-2003
and NMAC: 1993-2000)
Including Contracts Booked Under Zero Markup Programs

	AHFC	Ford	NMAC	GMAC
Time Period	**June 1999 - March 2003**	**January 1994 - April 2003**	**March 1993 - September 2000**	**January 1999 - April 2003**
Total Sample Size Analyzed	**383,652**	855,989	310,718	1,511,913
African-Americans in Sample	**44,321**	99,347	59,044	127,983
Whites in Sample	**339,331**	756,642	251,674	1,383,930
Percent of Customers Who Are African-American	**11.6%**	11.6%	19.0%	8.5%
Average Amount Financed - African Americans	**19,333**	19,383	$16,749	$20,443
Average Amount Financed - Whites	**17,656**	20,563	$15,922	$21,530
% with Markup - African-Americans	**43.3%**	48.5%	71.8%	53.4%
% with Markup - Whites	**22.2%**	30.9%	46.7%	28.2%
Additional Percentage of African-Americans with Markup	**21.2%**	17.6%	25.1%	25.2%
Relative Odds Ratio % - African-Americans	**268%**	210%	289%	292%
Relative Odds Ratio % - Whites	**37%**	47.6%	34%	34%
Average Markup - African-Americans	**$557**	$684	$970	$656
Average Markup - Whites	**$227**	$337	$462	$244
Additional Markup Paid By African-Americans	**$330**	$347	$508	$412
Ratio of African-Americans to White Markup	**2.45**	2.03	2.10	2.69
# Standard Deviations-Incidents of Markup - (Actual to Expected)	**91.5**	104.1	99.0	178.8

B. Subjective Markups Over Time

Figure 1 compares the subjective markup over time. Over the 1999 to 2003 time period, the markup has fluctuated from year-to-year, but has been relatively stable. The average subjective markup for African-Americans (excluding those who were booked under zero markup policies) was $963 in 1999; $1,028 in 2000; and $1,163 in 2001. The average then dropped back to $1,124 in both 2002 and 2003. The average subjective markup for Whites was $648 in 1999; $626 in 2000; $736 in 2001; $717 in 2002; and $652 in 2003. However, throughout this entire time period, African-Americans have consistently paid a higher markup than Whites at statistically significant levels. Similar results are shown in Figure 1A, which includes contracts booked under zero markup programs.

Figure 1
Average Subjective Markups:
Black versus White, AHFC 1999-2003
Excluding Contracts Booked Under Zero Markup Programs

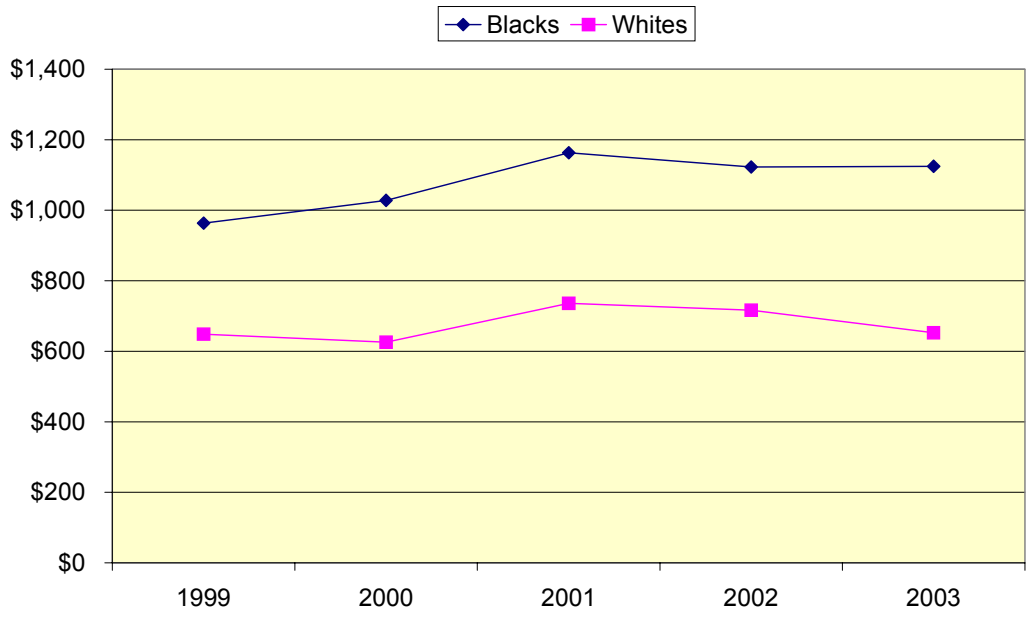


Figure 1A
Average Subjective Markups:
Black versus White, AHFC 1999-2003
Including Contracts Booked Under Zero Markup Programs

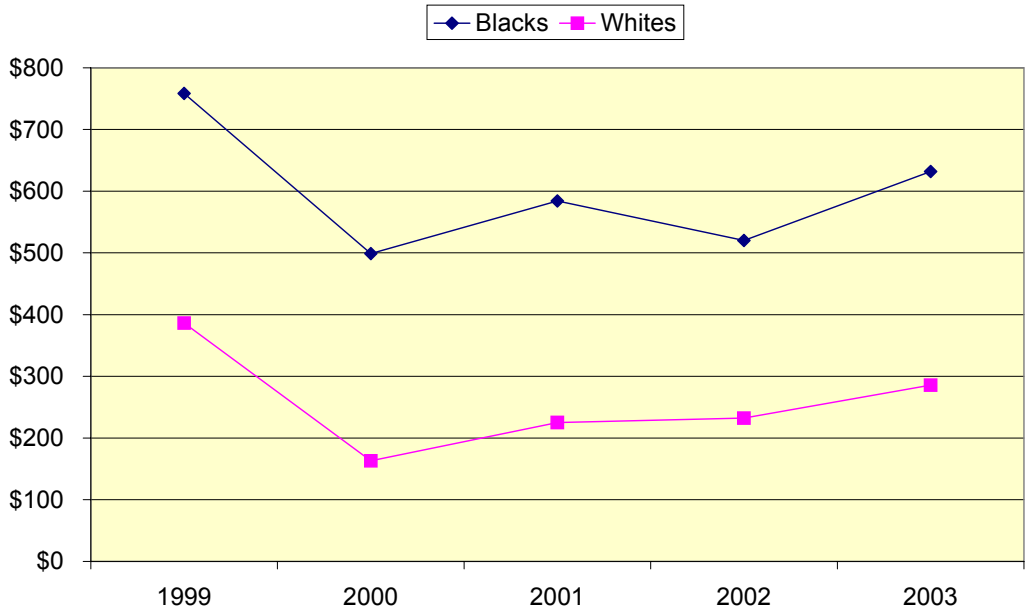


Figure 2 examines the difference between the average markup that African-Americans and Whites pay over time. Throughout the entire period from 1999-2003, this differential markup has persisted, and has varied from approximately $315 to $472 on average. The largest difference of $472 occurred most recently, in 2003. Similar results are shown in Figure 2A which includes contracts booked where markup was not allowed.

Figure 2
Difference Between Black and White
Average Subjective Markups, AHFC 1999-2003
Excluding Contracts Booked Under Zero Markup Programs

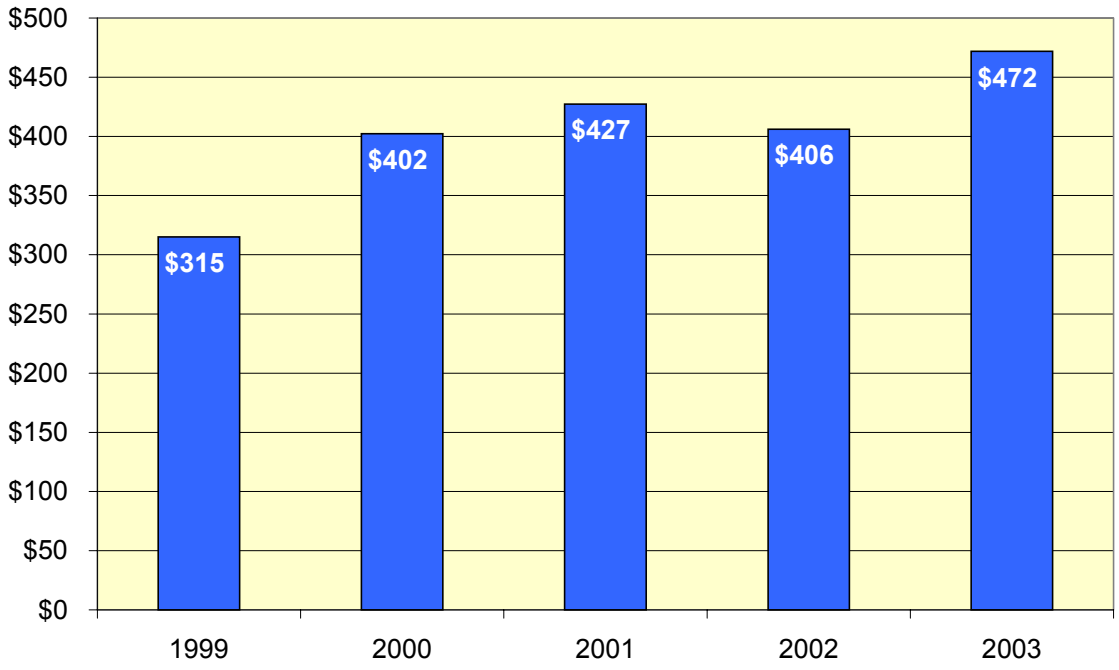
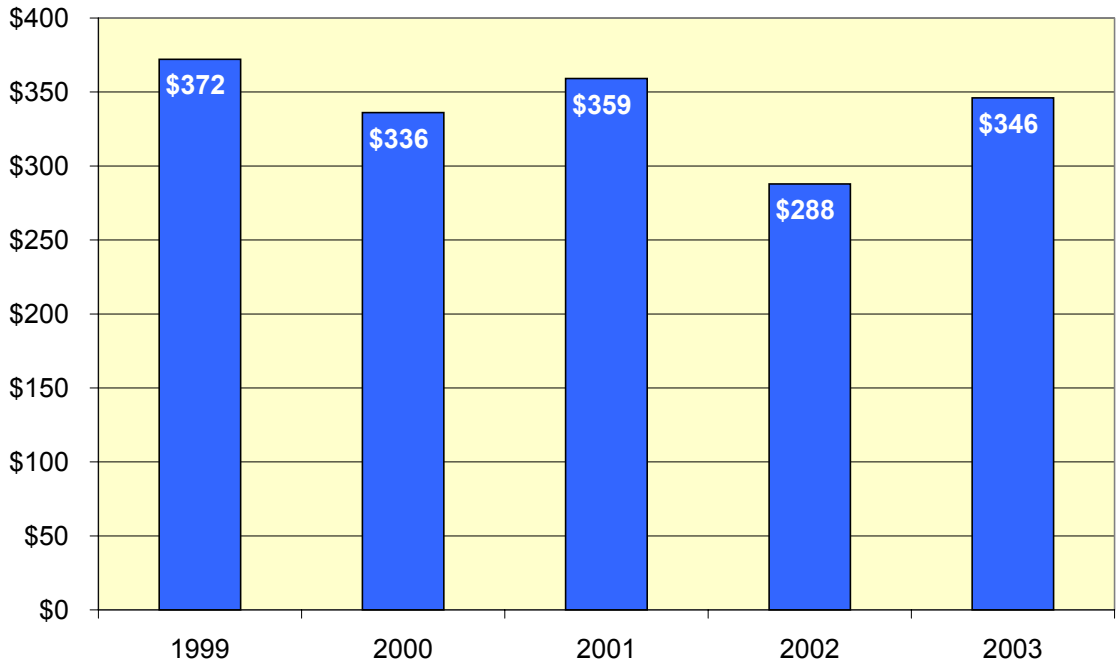


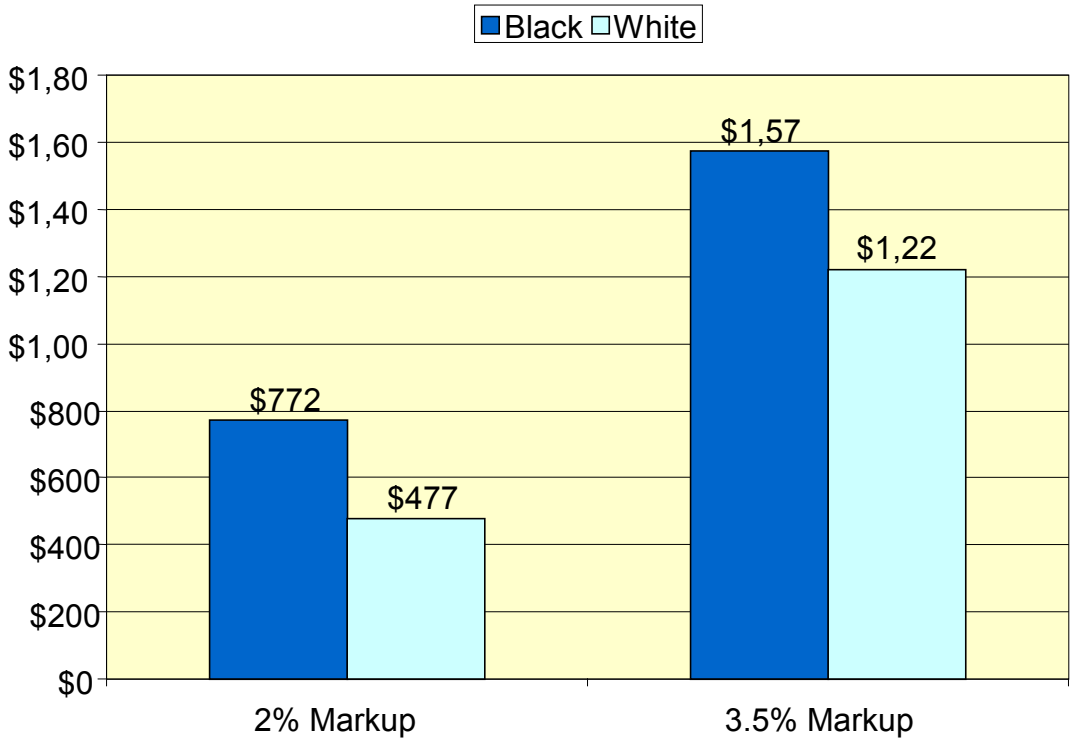
Figure 2A
Difference Between Black and White
Average Subjective Markups, AHFC 1999-2003
Including Contracts Booked Under Zero Markup Programs



My understanding is that AHFC subjective markup policy generally places limits on the amount of the markup that dealers are authorized to add to the stated buy rate. Assuming the APR does not exceed state usury laws or other state restrictions on markups, AHFC allows dealers to mark up some contracts 2%, while others may be marked up as much as 3.5%. The 3.5% markup "cap" is generally reserved for consumers in the worst credit tier ("standard"), while the 2% cap applies to better credit tiers ("preferred" and "super preferred"). As shown in Figure 3, the average markup for African-Americans subject to the 2% cap was $772 compared to $477 for Whites subject to a 2% cap. The average markup for African-American customers subject to a 3.5% cap was $1,575 compared to $1,223 for Whites.

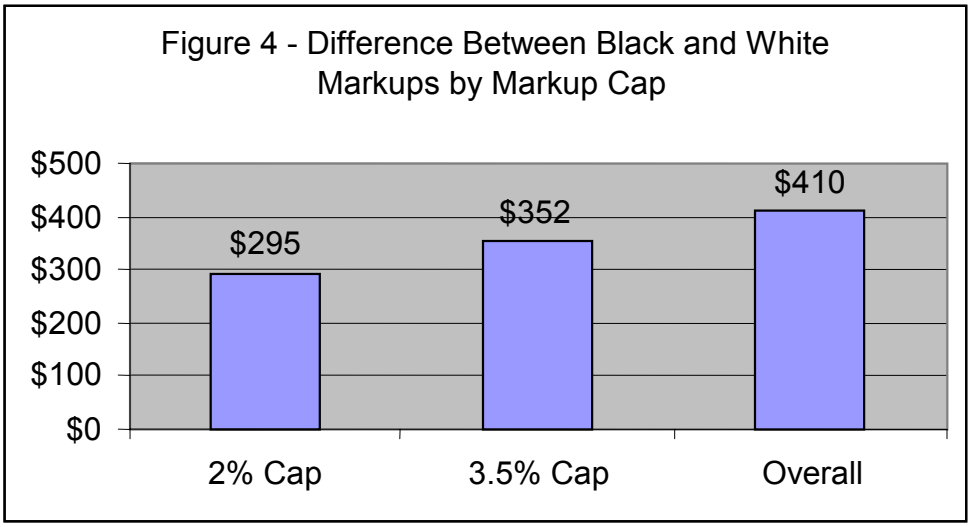
Figure 3

Average Markup: Black versus White by Markup Cap



The lower markup cap has the effect of reducing the disparity between White and African-American markups who are booked for contracts in those respective pricing tiers. As shown in Figure 4, the difference between African-American and White markups is higher in pricing tiers subject to a maximum 3.5% interest rate cap than under the 2% cap ($352 versus $295). Thus, the disparity between African-Americans and Whites is 16.4% lower under the 2% markup cap than under the 3.5% cap. This reduction in the differential was statistically significant at $p < .01$. Note that Table 1 reports a disparity of $410 – significantly higher than either the $295 or $352 disparity shown in Figure 4. The reason that the overall disparity is greater than the disparity shown within each markup cap range is that Figure 4 masks the important fact that African-Americans are more

likely to be booked under contracts that have a 3.5% cap than Whites. As shown in Figure 3, African-Americans who are booked under contracts where the subjective markup cap is 3.5% pay on average $1,575 compared to the $772 paid by African-Americans who are booked under contracts where the markup is limited to 2%. Thus, African-Americans are disadvantaged for two reasons: (1) they are more likely to be subject to the 3.5% markup cap than Whites, and (2) within either markup cap range, they are charged a higher markup on average.



Note that AHFC policy permits some exceptions ("over-rides") to the 2% and 3.5% markup caps. Thus, we find in the data that 309 African-American customers (1.48% of the 20,936 African-Americans whose contracts were subject to these markup caps), and 1,089 White customers (1.02% of the 106,441 White customers subject to these markup caps) were charged subjective markups greater than the caps. This higher rate of "over-rides" to African-American customers is statistically significant at $p < .01$.

C. Subjective Markup in 15 State Sample

Table 2 compares the subjective markup (excluding customers booked under zero markup programs) by state.[8] CLC matched drivers license and birth certificate data with AHFC records in 15 states.[9] African-American customers in Louisiana, Maryland and Texas had the highest markups – each averaging over $1,200. The disparity between the subjective markup charged African-American versus White AHFC customers was largest in Louisiana, Maryland, and Wisconsin – with African-Americans in those states being charged more than $500 over the average markup of Whites. In Wisconsin, African-Americans were charged more than twice the amount of markup as Whites ($1,045 versus $477). In all but three states, these differences were statistically significant at $p < .01$. The difference in Nebraska was only $120 ($420 versus $300) and is not statistically significant; however, the number of African-American customers was also very small (13). Similarly, the Iowa data only had 14 African-Americans, and they were charged on average $52 more than White customers.[10]

---

[8] This analysis is not necessary to establish the fact that in the sample of cases provided by AHFC, African-Americans pay higher markups than Whites. That has already been established in the previous analysis. Instead, analyzing individual states provides some information about the nature of the markups and anticipates potential criticism by defendant's experts. For example, as I show in the state of Arkansas, statutory restrictions appear to affect markups such that there is a substantially smaller difference between the subjective markup charged African-Americans and Whites. This finding further supports the view that AHFC's subjective markup policy causes this disparate impact on Black borrowers and that adjusting the markup policy can lead to a reduced differential. By reducing subjectivity in credit pricing, AHFC could significantly reduce or even eliminate this disparity.

[9] Birth certificate information was obtained from California. Drivers license data were obtained for the remaining 14 states. This is explained fully in the report by Raymond Henderson, CLC Compliance Technologies, Inc.

[10] Note that it is less likely to find statistical significance in a small sample than in a large sample. *See* Kaye and Freedman (*supra* note 3) for a discussion on sample size. In these

Table 2
Differences in African-American versus White Markups
(15 States with Race-Coded Data)
Excluding Contracts Booked Under Zero Markup Programs

State	% Race Coded	Black (Number)	White (Number)	Black Markup	White Markup	Difference	Ratio B to W
AL	69.1%	477	2,120	$792	$553	**$239**	1.43
AR	70.0%	62	789	$479	$395	**$84**	1.21
CA	21.6%	1,689	23,249	$892	$626	**$266**	1.42
FL	58.8%	2,130	9,625	$1,063	$669	**$395**	1.59
IA	73.9%	14	600	$460	$409	**$52**	1.13
LA	83.9%	1,407	3,942	$1,285	$731	**$554**	1.76
MD	56.4%	5,742	12,753	$1,245	$724	**$521**	1.72
MS	75.0%	165	511	$789	$583	**$206**	1.35
NC	68.2%	1,826	7,927	$958	$652	**$306**	1.47
NE	69.1%	13	370	$420	$300	**$120**	1.40
OK	69.7%	140	1,631	$1,056	$624	**$432**	1.69
SC	77.3%	1,275	3,816	$969	$641	**$328**	1.51
TN	77.9%	1,157	5,812	$1,102	$712	**$390**	1.55
TX	64.0%	3,253	22,000	$1,272	$860	**$412**	1.48
WI	74.6%	138	1,618	$1,045	$477	**$568**	2.19
Combined	45.4%	19,488	96,763	$922	$597	**$325**	1.54

Note: All differences between African-American and White markups are significant at p < .01 (except Arkansas, Iowa, and Nebraska**).** All figures rounded to nearest dollar. Thus, some figures may not add up exactly and may be off by up to $1.00.

Note that in Arkansas, it is my understanding that constitutional limitations affect AHFC's markup policy, restricting the ability of dealers to mark up interest rates as high as they might otherwise under current AHFC policy. Consistent with these legal restrictions, the markups for both African-Americans and Whites were relatively small. As shown in Table 2, African-Americans in Arkansas on average were charged $479 in markup, compared to $395 charged to Whites. This difference of $84 is not statistically

---

two states, the sample of African-American customers is particularly small. I have included these states here for completeness, since they have race-coded drivers license data and over 75% of AHFC customers from those dealers have been race-coded.

significant. This finding supports the view that AHFC's subjective markup policy facilitates this disparate impact on African-American borrowers and that adjusting the markup policy can lead to a reduced differential. By reducing dealer subjectivity on the amount that interest rates can be marked up, AHFC could significantly reduce or even eliminate this disparity.[11]

Similar results are shown in Table 2A which includes all contracts, including those booked in programs where zero markup is mandated. Although the average dollar values are lower in Table 2A than in Table 2 – since Table 2A includes more "zero markup" contracts, the percentage rate disparity between African-Americans and Whites is greater. For example, the average subjective markup in Wisconsin is $427 for African-Americans and only $83 for Whites. Thus, African-Americans on average are charged 5.16 times as much as Whites in Wisconsin.

[11] Ohio is another state that has had statutory restrictions that effectively limit the amount of markup that can be charged to AHFC customers. However, information provided me by plaintiffs' counsel indicates that Ohio lifted some of its restrictions effective February 19, 2002. While the sample sizes are relatively small, and no statistically significant differences exist, it is interesting to compare markups in Ohio "before" and "after" the lifting of those restrictions. Prior to that date, the average markup for African-Americans was $218 compared to $229 for Whites. Whites actually paid $11 more on average in subjective markup than African-Americans. After the restrictions were removed, both averages increased – to $640 for African-Americans and $539 for Whites. However, the increase in markups was greater for African-Americans than for Whites, consistent with the results in other states that do not have markup restrictions. In particular, the difference between African-American and White markups went from ($11) to $101.

Ohio	% Race Coded	Black (Number)	White (Number)	Black Markup	Difference	Ratio B to W
Combined	7.15%	54	555	$398	$64	1.19
<02/19/02	6.96%	31	367	$218	($11)	0.95
>=02/19/02	7.52%	23	188	$640	$101	1.19

Table 2A
Differences in African-American versus White Markups
(15 States with Race-Code Data)
Including Contracts Booked Under Zero Markup Programs

State	% Race Coded	Black (Number)	White (Number)	Black Markup	White Markup	Difference	Ratio B to W
AL	69.1%	1,801	12,059	$210	$97	**$112**	2.15
AR	70.0%	357	5,433	$83	$58	**$26**	1.45
CA	21.6%	2,931	47,835	$514	$304	**$210**	1.69
FL	58.8%	4,872	41,260	$465	$156	**$309**	2.98
IA	73.9%	84	4,550	$77	$54	**$23**	1.42
LA	83.9%	3,080	14,071	$587	$205	**$382**	2.87
MD	56.4%	8,352	26,967	$856	$343	**$514**	2.50
MS	75.0%	691	3,583	$188	$83	**$105**	2.27
NC	68.2%	3,934	26,156	$445	$198	**$247**	2.25
NE	69.1%	59	2,275	$93	$49	**$44**	1.90
OK	69.7%	357	7,404	$414	$138	**$277**	3.01
SC	77.3%	2,531	12,485	$488	$196	**$292**	2.49
TN	77.9%	2,416	19,801	$528	$209	**$319**	2.53
TX	64.0%	6,353	61,154	$651	$309	**$342**	2.10
WI	74.6%	338	9,327	$427	$83	**$344**	5.16
Combined	45.4%	38,156	294,360	$402	$165	**$236**	2.43

Although race-coded data was available from drivers licenses for fourteen states and from birth certificates from California, race could be identified for purchasers from dealers in all 50 states. These cases are likely to be from individuals who live nearby a dealer in another state (*e.g.,* someone who lives in Northern Tennessee but who purchases a car in Kentucky) or who moved to another state from one of the 15 states where we have race-coded drivers licenses or birth certificates. While individually, it would not be appropriate to draw inferences about many of these states – as they often involve a small

number of customers – collectively, they account for 51,136 AHFC customers – 6,165 of whom are African-American.[12]

Table 3 uses this nationwide dataset and compares the subjective markup by region of the country. In all four regions of the country, there is a statistically significant difference in markup paid by African-American AHFC borrowers compared to White borrowers. This difference is largest in the South ($408), followed by the Midwest ($353), Northeast ($333), and West ($255). Overall, these race-coded AHFC customers represent about 28.5% of all AHFC customers. Similar results are shown in Table 3A, where contracts that were booked under zero markup programs are included.

Table 3
Differences in Black versus White Markups Across Regions
Excluding Contracts Booked Under Zero Markup Programs

State	% Race Coded	Black (Number)	White (Number)	Black Markup	White Markup	Difference	Ratio B to W
Midwest	14.3%	444	5,215	$852	$499	**$353**	1.71
Northeast	4.8%	933	4,745	$958	$625	**$333**	1.53
South	55.6%	18,990	74,918	$1,142	$734	**$408**	1.56
West	19.8%	1,885	25,714	$901	$646	**$255**	1.39
Combined	28.5%	22,252	110,592	$963	$626	**$337**	1.54

[12] Note that Table 1A reports on a total of 383,652 AHFC customers, while Table 2A reports on 332,516 customers from the 15 race-coded states. The difference, 51,136, represents customers who have been race-coded, but who did not purchase their vehicles from one of these 15 states. These 51,136 customers include those who were booked under contracts that did not allow markup. Excluding contracts that do not allow markup, an additional 16,593 purchased from dealers outside those 15 states – 2,764 of whom are African-American.

Table 3A
Differences in Black versus White Markups Across Regions
Including Contracts Booked Under Zero Markup Programs

State	% Race Coded	Black (Number)	White (Number)	Black Markup	White Markup	Difference	Ratio B to W
Midwest	14.3%	1,348	27,521	$281	$95	**$186**	2.97
Northeast	4.8%	1,708	11,699	$524	$254	**$270**	2.06
South	55.6%	37,851	243,723	$573	$226	**$348**	2.54
West	19.8%	3,414	56,388	$497	$295	**$203**	1.69
Combined	28.5%	44,321	339,331	$469	$217	**$252**	2.16

III. Analysis of Subjective Markup Distribution

The previous section largely compared average markups, showing that African-Americans on average are charged significantly more than the amount of subjective markup charged to Whites. However, as discussed below, it is not just average markups that are relevant to an analysis of disparate impact. Instead, it is instructive to look at the entire distribution of markups. As shown earlier in Table 1A, only 22.2% of White customers received any subjective markup at all, compared to 43.3% of African-American customers. Excluding contracts booked under zero markup policies (Table 1), 68.0% of Whites and 86.3% of African-American AHFC customers received a markup. Moreover, the average markup was $1,108 for African-Americans and $698 for Whites. However, as shown in Table 4, a significant percentage of customers receive markups of $1,000 - $2,000 - $3,000 or more, known in the industry as “home run” markups.

Table 4 reports on the range of subjective markup for each year (excluding contracts booked under zero markup programs). In 1999, 18.7% of these AHFC borrowers received a zero markup. This percentage increased to 31.5% in 2000; decreased to 28.3% in 2001; 27.8% in 2002; and then increased to 36.5% in 2003. Depending on the year, between 26%-33% of borrowers were charged $1000 or more in

markup, while 3.8-8.4% were changed $2,000 or more in markup. Table 4A shows comparable figures including customers who were booked under zero markup policies. Approximately 7.8% to 16.2% of customers were charged $1,000 or more, while 1.8% to 3.5% of customers were charged $2,000 or more in subjective markup.

Table 4
Subjective Markup Range by Year
Excluding Contracts Booked Under Zero Markup Programs

Markup Range	1999	2000	2001	2002	2003
	%	%	%	%	%
$0	18.7	31.5	28.3	27.8	36.5
>$0 and <=$250	4.7	2.8	2.6	2.5	1.3
>$250 and <=$500	18.0	12.2	10.4	11.2	9.5
>$500 and <=$750	17.9	13.4	12.5	13.3	11.5
>$750 and <=$1000	14.6	12.8	12.9	13.9	11.8
>$1000 and <=$1250	9.1	8.2	9.0	9.5	8.3
>$1250 and <=$1500	5.5	5.4	6.3	5.8	5.5
>$1500 and <=$2000	7.5	7.5	9.6	8.2	7.8
>$2000 and <=$3000	3.7	5.2	6.7	6.3	6.1
>$3000	0.1	1.0	1.7	1.5	1.7

Table 4A
Subjective Markup Range by Year
Including Contracts Booked Under Zero Markup Programs

Markup Range	1999	2000	2001	2002	2003
	%	%	%	%	%
$0	49.1	80.5	76.5	75.4	71.3
>$0 and <=$250	3.0	0.8	0.9	0.9	0.6
>$250 and <=$500	11.3	3.5	3.4	3.8	4.3
>$500 and <=$750	11.2	3.8	4.1	4.5	5.2
>$750 and <=$1000	9.1	3.6	4.2	4.7	5.3
>$1000 and <=$1250	5.7	2.3	3.0	3.2	3.7
>$1250 and <=$1500	3.4	1.6	2.1	2.0	2.5
>$1500 and <=$2000	4.7	2.1	3.1	2.8	3.5
>$2000 and <=$3000	2.3	1.5	2.2	2.1	2.7
>$3000	0.1	0.3	0.6	0.5	0.8

Table 5 compares subjective markups charged to African-American versus White AHFC customers – excluding those contacts that were booked under zero markup programs. For example, the first row indicates that there were 35,403 White borrowers and 3,054 African-American borrowers who paid zero markup. The next column indicates that African-Americans represent 7.9% of borrowers who paid a zero markup. Note that overall, African-Americans represent 16.8% of the sample. The fifth column compares the percentage of African-Americans in that row to their percentage in AHFC's customer base. Thus, African-Americans are under-represented by 8.8 percentage points compared to their representation overall in AHFC's customer base. Put differently, less than half the number of African-Americans receive zero markup contracts than would be expected from their population in the AHFC customer base. The last row indicates that African-Americans make up 33.3% of those borrowers who were charged more than $3,000 in markup, compared to their 16.8% in the population of AHFC borrowers who were not booked in zero markup programs. Thus, African-Americans are over-represented in this category of markup relative to their frequency in the AHFC database by 16.6%. The last column of Table 5 reports on the additional average monthly payments that African-American AHFC customers pay in markup. For example, there were 632 African-American customers whose markup was greater than $3,000 and whose monthly payments as a result were $51 on average higher than they would have been had there been no markup. Similar findings are shown in Table 5A – including contracts booked under zero markup programs.

Table 5
Distribution of AHFC Black versus White Borrowers by Markup Range
Excluding Contracts Booked Under Zero Markup Programs

Dealer Markup Range	Whites	Blacks	Black % of Range	Over or Under Representation of Black Customers (Percentage Points)	Average Monthly Cost to Black Customers
$0	35,403	3,054	7.9%	**-8.8%**	$0
>$0 and <=$250	3,093	327	9.6%	**-7.2%**	$4
>$250 and <=$500	13,342	1,717	11.4%	**-5.3%**	$7
>$500 and <=$750	14,845	2,607	14.9%	**-1.8%**	$11
>$750 and <=$1000	13,858	3,752	21.3%	**4.6%**	$15
>$1000 and <=$125	8,976	2,996	25.0%	**8.3%**	$18
>$1250 and <=$150	5,997	1,781	22.9%	**6.1%**	$22
>$1500 and <=$200	8,253	2,887	25.9%	**9.2%**	$28
>$2000 and <=$300	5,560	2,499	31.0%	**14.3%**	$38
>$3000	1,265	632	33.3%	**16.6%**	$51
Total	110,613	22,252	16.8%		$18

Table 5A
Distribution of AHFC Black versus White Borrowers by Markup Range
Including Contracts Booked Under Zero Markup Programs

Dealer Markup Range	Whites	Blacks	Black % of Range	Over or Under Representation of Black Customers (Percentage Points)	Average Monthly Cost to Black Customers
$0	264,130	25,122	8.7%	**-2.9%**	$0
>$0 and <=$250	3,099	327	9.5%	**-2.0%**	$4
>$250 and <=$500	13,344	1,717	11.4%	**-0.2%**	$7
>$500 and <=$750	14,846	2,607	14.9%	**3.4%**	$11
>$750 and <=$1000	13,858	3,752	21.3%	**9.8%**	$15
>$1000 and <=$125	8,976	2,996	25.0%	**13.5%**	$18
>$1250 and <=$150	5,999	1,781	22.9%	**11.3%**	$22
>$1500 and <=$200	8,253	2,887	25.9%	**14.4%**	$28
>$2000 and <=$300	5,561	2,499	31.0%	**19.5%**	$38
>$3000	1,265	633	33.4%	**21.8%**	$51
Total	339,331	44,321	11.6%		$9

Table 6 reports on the percentage of the total dollar markups charged to the 1% of customers who were charged the highest markups, as well as the top 5%, 10%, and 25%. A total of $101.8 million was charged to 383,652 customers in the race-coded data set. Of this amount, 11.9% ($12.1 million) was charged to the top 1% of race-coded customers. 41.4% of the total amount ($42.1 million) was charged to the top 5% of customers. Over half of the markup - 65.3% ($66.5 million) was charged to the top 10% of customers. Overall, since only 24.6% of AHFC race-coded customers were marked up, 100% of the markup was charged to the top 25% of customers. This distribution is also shown in Figure 5.

Also shown in Table 6 is the total dollar amount and percentage of African-Americans in each category. While African-Americans make up 11.6% of AHFC race-coded customers, they make up 32.7% of those in the top 1% of markup dollars. While the top 1% were charged $12.1 million in markup, African-Americans in that group were charged $4.0 million, or 32.7% of the total dollars in that category. Similar results are shown for the top 5%, 10% and 25%, where African-Americans are over-represented in each category. As shown in the last row, while African-Americans represent 11.6% of all customers, they were charged 20.2% of the subjective markup dollars. In each category from the top 1% to the top 25%, the difference between the expected frequency (11.6%) and the actual frequency of African-American AHFC borrowers is highly statistically significant.[13]

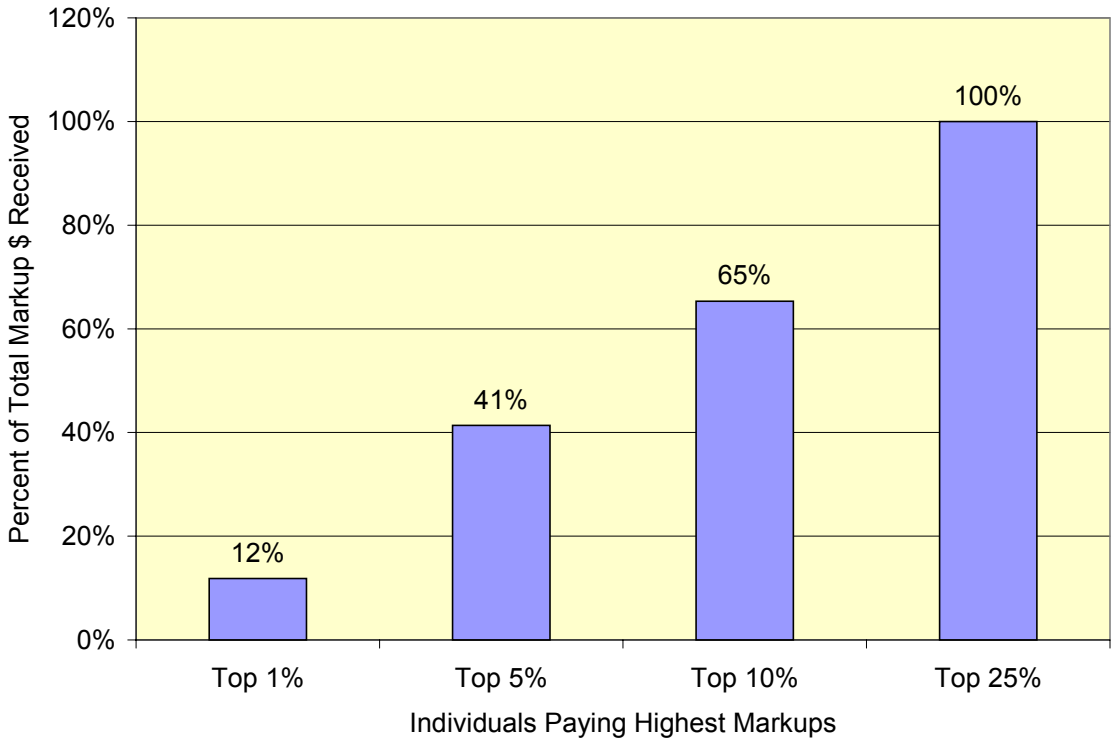
[13] For example, using a chi-square test, the probability of randomly observing 20.2% African-Americans in the top 25% of customers when we expect to find 11.6% is less than one in a million.

Table 6
Dollar Markup Paid by Highest Markup Customers

	All Race-Coded Customers		Black Customers		
Contracts With Highest Markups	**Total Dollars Markup**	**Percent of Total**	**Total Dollars Markup**	**Percent of Category**	**Percent of Total Dollars**
Top 1%	12,085,181	11.9%	3,976,868	32.7%	32.9%
Top 5%	42,140,526	41.4%	12,457,676	28.8%	29.6%
Top 10%	66,529,561	65.3%	18,336,443	26.5%	27.6%
Top 25%	101,837,469	100.0%	24,668,757	20.2%	24.2%
All Customers	101,837,469	100.0%	24,668,757	11.6%	24.2%

	All Race-Coded Customers		White Customers		
Contracts With Highest Markups	**Total Dollars Markup**	**Percent of Total**	**Total Dollars Markup**	**Percent of Category**	**Percent of Total Dollars**
Top 1%	12,085,181	11.9%	8,108,313	67.3%	67.1%
Top 5%	42,140,526	41.4%	29,682,850	71.2%	70.4%
Top 10%	66,529,561	65.3%	48,193,119	73.5%	72.4%
Top 25%	101,837,469	100.0%	77,168,712	79.8%	75.8%
All Customers	101,837,469	100.0%	77,168,712	88.4%	75.8%

Figure 5
Percent of Total Subjective Markup Paid by Highest Markup Customers



As shown in Figure 6, African-American AHFC customers in the top 1% markup category were charged $4.0 million in markup compared to $1.4 million they would expect to pay based on their relative frequency in the AHFC database. Those in the top 5% were charged $12.5 million compared to the $4.9 million they would have been expected to pay based on their frequency. Just the opposite is true for White AHFC customers, as shown in Figure 7. For example, while White customers would be expected to be charged $90.1 million based on their relative frequency among AHFC customers, in reality they were charged $77.2 million.

Figure 6
Actual versus Expected Subjective Markup Paid by
Black AHFC Customers (Millions of $)

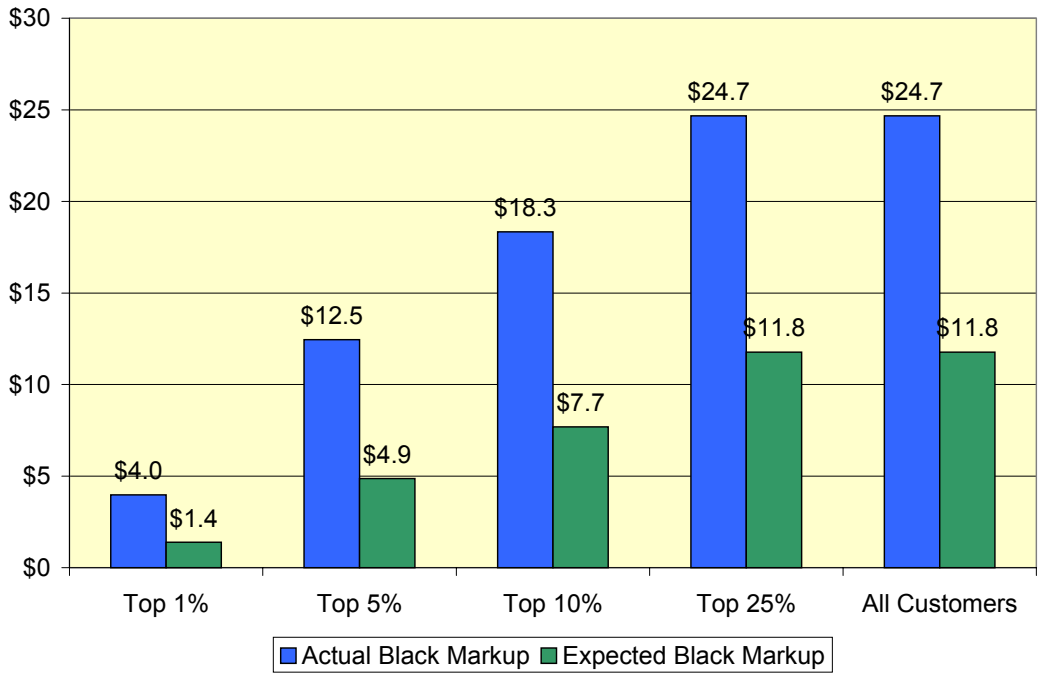
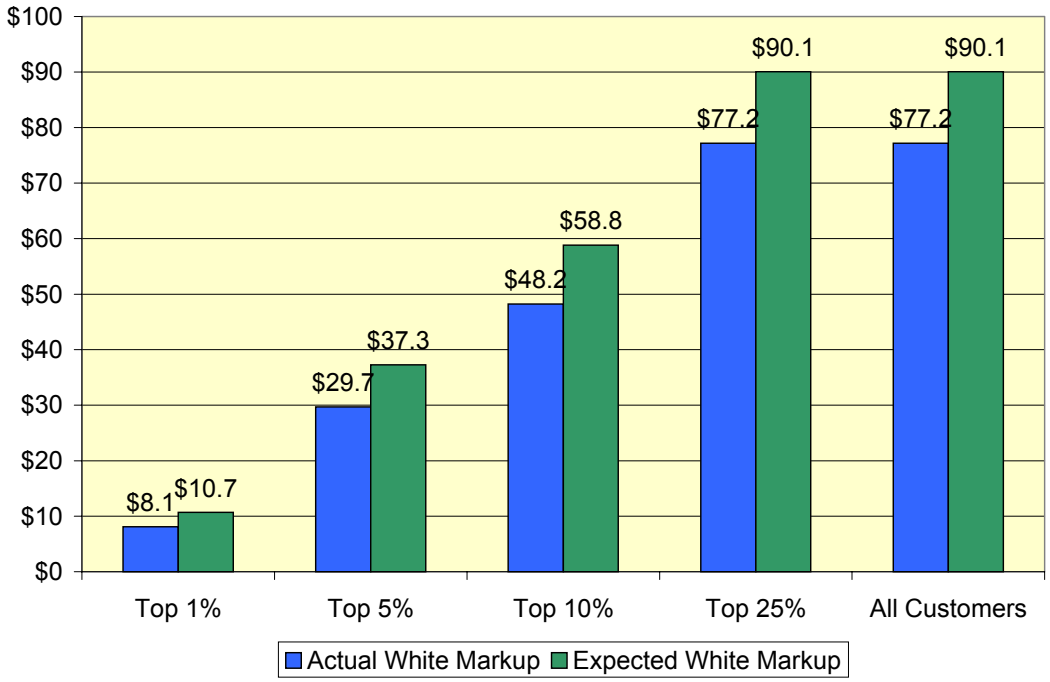


Figure 7
Actual versus Expected Subjective Markup Paid by
White AHFC Customers (Millions of $)



In addition to analyzing the top percentiles, I also examined the largest 500 subjective markups in the 15 race coded states. This is shown in Appendix D. I find that African-Americans are over-represented in the top 500 markups relative to their frequency in the AHFC population. This is true both for the dollar markup and the percentage rate markup. Appendix E lists the top 100 dollar markups by state, while Appendix F contains a list of the top 100 percentage rate markups by state.

In particular, based on the fact that 16.8% of AHFC customers who were not booked for zero markup programs are African-American, we would expect there to be 57 (11.47% x 500) African-Americans in the "top 500" dollar markups. Instead, we find that 182 out of the top 500 markups were imposed upon African-American customers – more than three times their relative frequency. This difference is highly statistically significant at $p < .01$.[14] The African-American customer who paid the most in subjective markup financed $34,846 and was charged $6,063 in subjective markup. The list of "top 500" dollar markups also included 13 African-Americans who were charged $5,000 or more in subjective markup.

[14] Statistically, the chi-square test for goodness of fit determines how well an observed distribution conforms to an expected distribution. For instance if we know that African-Americans comprise roughly 11.47 percent of AHFC customers in the 15 race coded states, in a random sample of 500 contracts we would expect to find approximately 57 (500 x 11.47%) African-Americans. However, if we actually observe 182 African-Americans in our random sample, the chi-square test for goodness of fit, will tell us the probability of finding this discrepancy by simple chance. In fact, the chi-square coefficient in this case is 306.2524 and the p-value is less than .001. Thus, the probability that we would observe 182 African-Americans in the top 500 markups, given that we would expect to find only 57 is essentially 0. Hence, we can conclude that African-Americans are significantly over-represented in the top 500 markups in the 15 race coded states.

IV. Regression Analysis of Subjective Markup

Based on my experience with similar cases and my reading of Defendant's response to interrogatories to date, I have collected several variables that AHFC's experts might use to attempt to explain the variation in subjective markup that is observed in the data.[15] To examine these issues, I estimated state-by-state multiple regression equations for the 15 states for which we had race-coded data. In those regressions, the dependent variable (subjective markup) is modeled as being a function of these other control variables as well as race (BLACK=1 if Black, 0 if White).[16]

Appendix C contains the results for four of these multiple regression equations for the state of Tennessee. In Tennessee, the average markup for African-Americans and Whites combined (the dependent variable) is $244. Note from Table 2A, however, that the average markup for African-Americans was $528, compared to $209 for Whites. Thus, the average difference in markup is $319.

Appendix C reports on a stepwise regression, where the first step included only BLACK, and two other variables that will affect markup dollars for a given percentage markup - the amount of the loan ("fin_amt") and the length of the term ("loan_term"). In

[15] For example, in response to Interrogatory Request No. 38, the Defendant would not identify the factors that they might later contend "should be analyzed or considered by the court to determine if the disparity is unlawful or is lawfully justified." (AHFC Supplemental Response, September 15, 2003). Previous expert witnesses hired by defendants in similar lawsuits have argued that various factors such as creditworthiness should be controlled for in determining whether or not a subjective markup policy has a disparate impact on African-Americans. While I do not believe that to be the case, I have conducted the following regression analyses to test the effect of including such factors.

[16] These tests are being done to address any possible criticisms of the defendant's experts. However, I do not agree that conducting state-by-state regression analyses including these variables is the best approach to investigate whether or not African-Americans are charged a higher subjective markup.

that first step, the coefficient on BLACK is +237.64, which indicates that after controlling for the other two variables in the model, African-Americans are charged an additional $237.64 on average in markup. Note that this coefficient is highly significant, with a significance level of p<.001. The 95% confidence level for that estimate is from $215.97 to $259.31.[17]

The second step adds several time-related and dealership variables. I have included variables for each dealership in Tennessee that sold more than 10 cars in the dataset. Thus, in Appendix C, there are 27 dummy variables (DEAL_001 through DEAL_027) corresponding to all but the smallest selling dealerships.[18] I have also included a dummy variable for each quarter to account for seasonal effects (QUAR_1 to QUAR_3, with the fourth quarter being left in the constant term). Another time-dimensioned variable was coded for sales that occur from the 25th of each month until the last day of the month (ENDMONTH) under the theory that in a market where salespeople are paid on commission, there may be some changes in sales methods at the end of the

[17] The "confidence interval" around an estimate is a measure of the degree of random error in the estimation model. Thus, a 95% confidence interval indicates that if you drew 100 random samples from these data, the true value of the estimate would fall within this range 95% of the time.

[18] Although I have included statistical controls for each dealer, this is not necessarily an appropriate methodology to test for disparate impact. For example, if one dealer has a very high concentration of African-American customers (*e.g.,* the Memphis area) while other dealers in Tennessee have few African-American customers, much of the disparate impact of AHFC's policy will be attributed to that dealer in the regression analysis. This will have the effect of underestimating the estimated impact of race in the regression analysis. The purpose of including dealer dummy variables in these regressions is primarily to observe that even if we control for dealers, the disparate impact on African-Americans remains. Thus, AHFC's subjective markup policy does not just affect African-Americans at a few dealerships, it is widespread across Tennessee and the U.S.

month. I have also included a dummy variable to account for any systematic changes in subjective markups following 9/11 (POST_911).

The result from this second step is that the coefficient on BLACK is now lower, $220.00 (95% confidence interval from $197.32 to $242.69). However, it is still highly significant at $p < .001$. There was considerable variation among dealers, with some charging on average a few hundred dollars more than the norm and some charging a few hundred dollars less. However, even including these variables did not affect the significance of race as an explanatory variable. Overall, this regression equation explained approximately 15.4% of the variation in subjective markup.[19]

Finally, the third step adds credit quality variables (TIER_1 through TIER_4 corresponding to credit quality tiers A through D) as well as the new/used car variable, since that distinction is often made in the AHFC rate sheets. Note that these variables are directly related to the structure of AHFC's subjective markup policy, whereby a 2% markup cap is generally reserved for certain credit tiers and used cars, while a 3.5% markup cap is reserved for new cars in certain credit tiers. The BLACK coefficient is now smaller, but is still statistically significant, with a mean of $134.62 and a confidence

[19] The "adjusted-R^2" of 0.154 indicates that the model was able to explain 15.4% of the variation in markups. This is often called the "goodness of fit." The remaining variation is said to be random or unexplained. There is no yardstick to measure whether or not 0.154 is "good enough," since that depends on the purpose of the model. I have published numerous peer-reviewed academic articles with regression equations yielding an adjusted-R^2 of this magnitude or less. The purpose of the multiple regression analysis is to capture the nonrandom component of markup so that we can be certain that the race variable is not otherwise serving as a proxy for another variable that we have omitted. Once we have controlled for the main independent factors that determine the markup, it does not matter that there is still considerable randomness. We are not interested in estimating the markup that any one individual would receive. Instead, our purpose is to determine whether or not African-Americans have a higher markup, on average, than Whites – after controlling for the other nonrandom factors that make up the subjective markup.

interval of $112.15 to $157.08. Since the AHFC subjective markup policy has different caps based on credit rating and whether or not the financed vehicle is new or used, controlling for these factors masks a considerable portion of any disparate impact of AHFC's markup policy on African-Americans.

In addition to the regression model shown, I also restricted the sample to those with positive markups and excluding those with zero markups. Similar findings were found.

I also examined the interest *rate* markup instead of the dollar amount of the markup. Conceptually, I do not believe a comparison of interest rates would be preferable, since the concern here is whether or not there is a disparate *impact*. The consumer ultimately feels the impact of the interest rate markup in dollars. Thus, although it is reasonable to estimate interest rate markups first, one should then convert those interest rate markups to actual dollar markups before concluding one way or the other about their impact. Nevertheless, I analyzed the AHFC data from the perspective of interest rates to determine whether or not using interest rates instead of interest costs would change the basic finding of a disparate impact.

Assuming that the interest rate markup is correctly measured and worthwhile comparing, I conducted identical multiple regression analyses using the interest rate markups instead of the dollar amount of markups. The results are virtually identical. For example, in Tennessee, after controlling for the same variables above, I find that the race variable is still highly significant and positive, and the overall regression equation has an Adjusted R-squared of 0.171. In Tennessee, being African-American increased the

markup by between 2/10 and 4/10 of a percentage point after controlling for all of these variables.

In all states except Arkansas, Iowa and Nebraska, the BLACK coefficient was positive and statistically significant in all four models (i.e. dollars and interest rates, with and without zero markups).

V. Preferential Interest Rates with Zero Markup

In addition to being charged a higher markup on average, African-American customers of AHFC are less likely than White customers to be offered preferential interest rates below their credit-based "buy rate." When comparing the subjective markup charged to African-American versus White AHFC customers in the previous sections, I constrained the subjective markup to be greater than or equal to zero. However, in cases where the interest rate was below the buy rate, customers receive preferential interest rates and essentially receive a "negative" markup. That is, they receive an interest rate that is below the original market-based buy rate.

Table 7 reports on the number and percent of AHFC contracts that were booked under zero markup programs. While the majority of contracts in 1999 (63%) were booked under markup programs, this figure has declined to 28% in 2000, and increased to 33% in 2001, 34% in 2002, and 45% in 2003.

As shown in Figure 8, African-Americans are substantially less likely to receive contracts under programs where zero markup was allowed. Overall, 49.8% of African-Americans received contracts under programs that do not permit markup, compared to

67.4% of White customers. These "zero markup" programs are the ones that result in negative markup.

Table 7
Contracts Booked Under Zero Markup Programs
All Race-Coded AHFC Contracts

Category	1999	2000	2001	2002	2003
Markup Contracts					
Number	8,018	19,235	38,411	51,795	15,385
Percent	63%	28%	33%	34%	45%
Zero Markup Contracts					
Number	4,784	48,321	78,653	100,426	18,624
Percent	37%	72%	67%	66%	55%
Total Contracts					
Number	12,802	67,556	117,064	152,221	34,009
Percent	100%	100%	100%	100%	100%

Figure 8
Percent of Contracts Booked Under Zero Markup Programs By Race

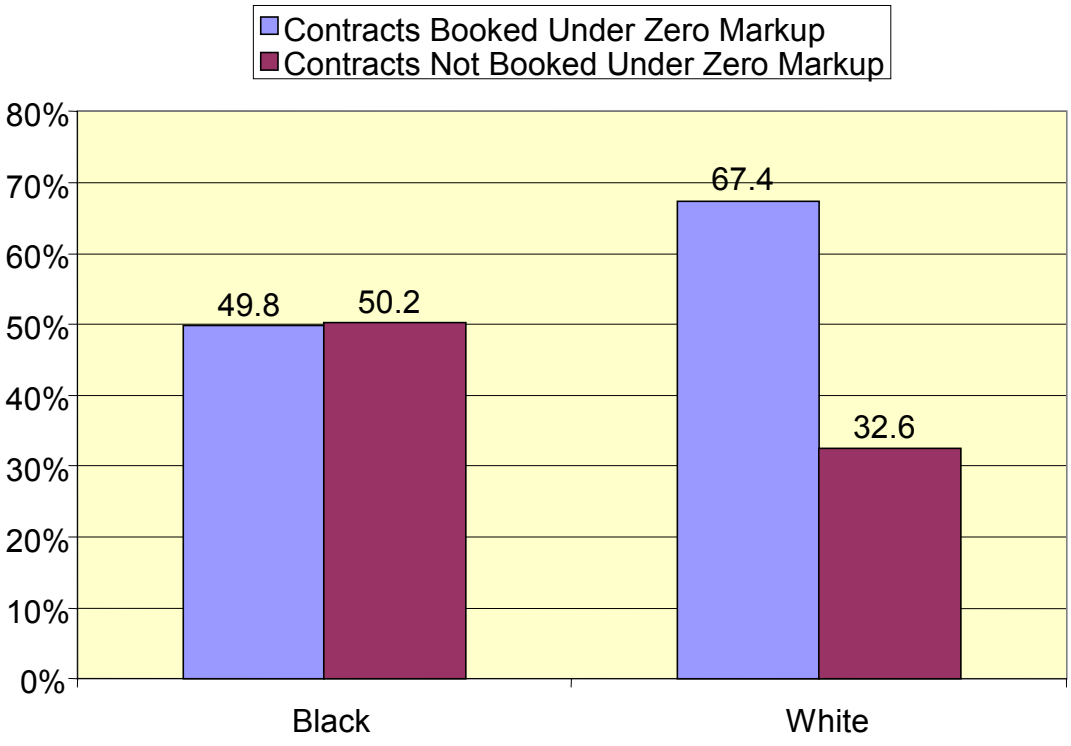


Table 8 shows a similar pattern, with African-Americans significantly less likely to receive contracts under zero markup programs than Whites. While African-Americans make up 11.6% of the AHFC race-coded customer base, they represent 16.8% of those who receive contracts that allow markup, but only 8.8% of those who receive contracts that do not permit markup. The difference between these percentages and the 11.6% African-Americans in the AHFC population are all highly statistically significant at $p < .01$.

Table 8
Racial Breakdown of AHFC Customer Base
Markup versus Zero Markup Contracts

Category	Percent Black	Percent White
Markup Contracts	16.8%	83.2%
Zero Markup Contracts	8.8%	91.2%
Combined	11.6%	88.4%

Zero markup programs have been made available to AHFC customers in all credit quality levels. As shown in Figure 9, 74.0% of all contracts in credit quality grade A were booked under programs that require zero markup. This percentage decreases for credit quality grade B (60.2%), C (51.6%), and D (42.7%). As shown in Figures 10 and 10A, the percentage of African-Americans increases as the quality of credit decreases. Including contracts booked under zero markup programs (Figure 10A), only 5.9% of credit quality tier A customers are African-American, while 29.6% of credit quality tier D are African-American.

Combining the information contained in Figures 9 and 10A, we find that while the largest percentage of contracts booked under zero markup programs are in credit quality grade A (74.0% as shown in Figure 9), this credit quality grade has the lowest percentage of African-Americans (5.9% from Figure 10A). Credit quality grade D has the largest percentage of African-Americans (29.6% from Figure 10A) and the smallest percentage of contracts booked under zero markup programs (42.7% from Figure 9).

Figure 9
Percent of Zero Markup Contracts By Credit Quality Grade

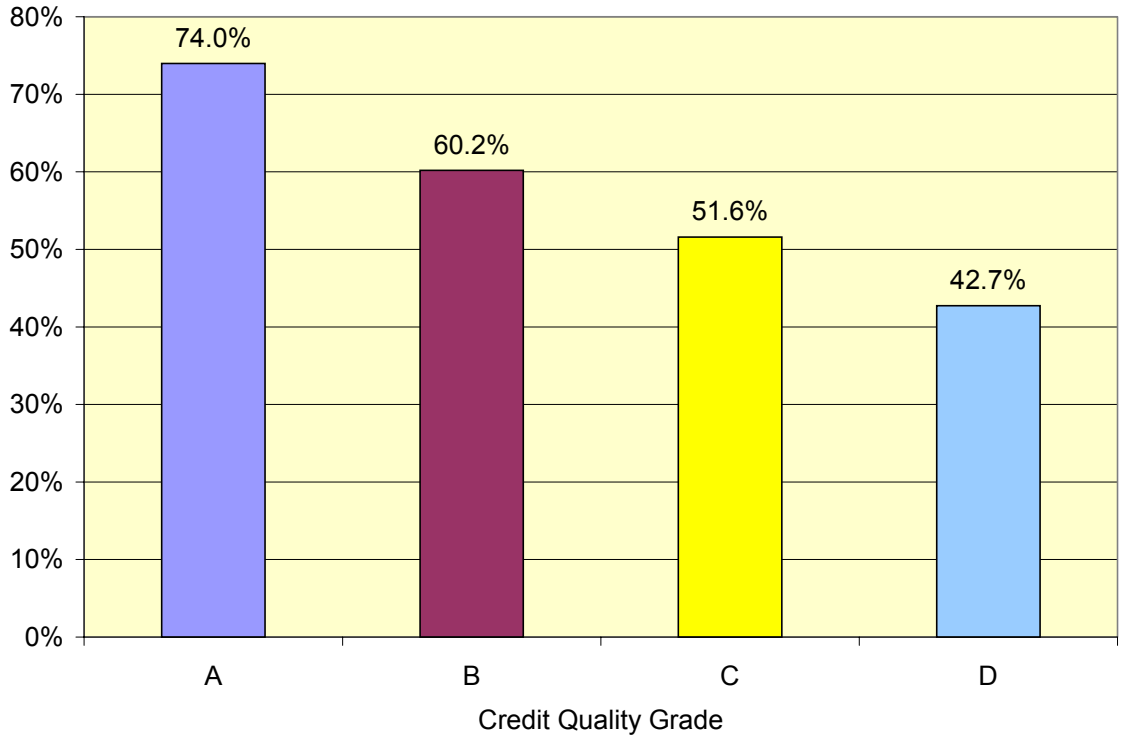


Figure 10
Percent African-American by Credit Quality Grade
Excluding Contracts Booked Under Zero Markup Programs

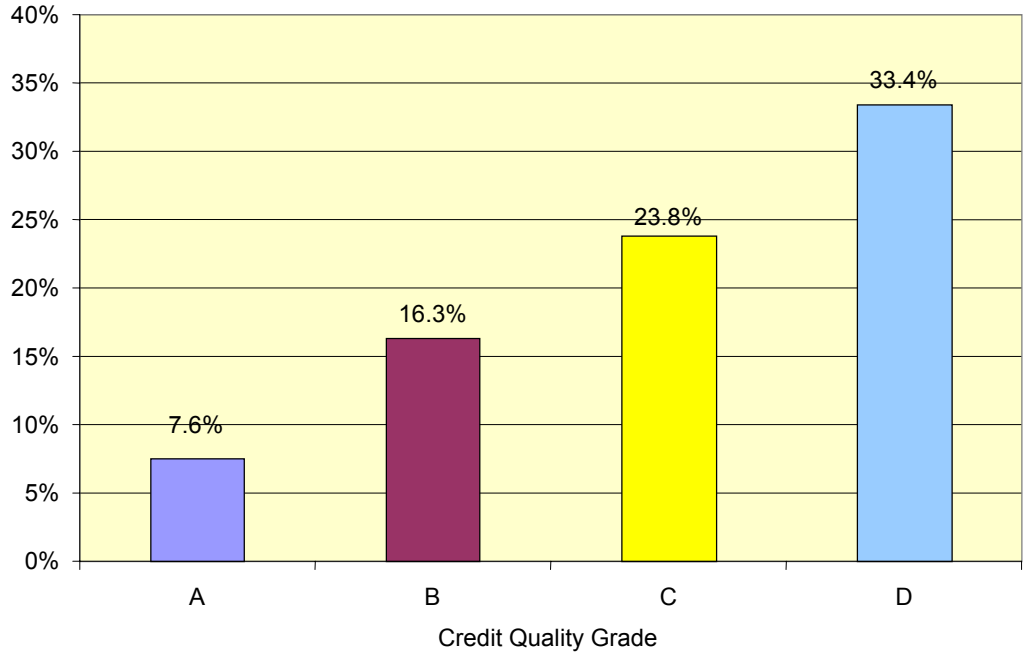
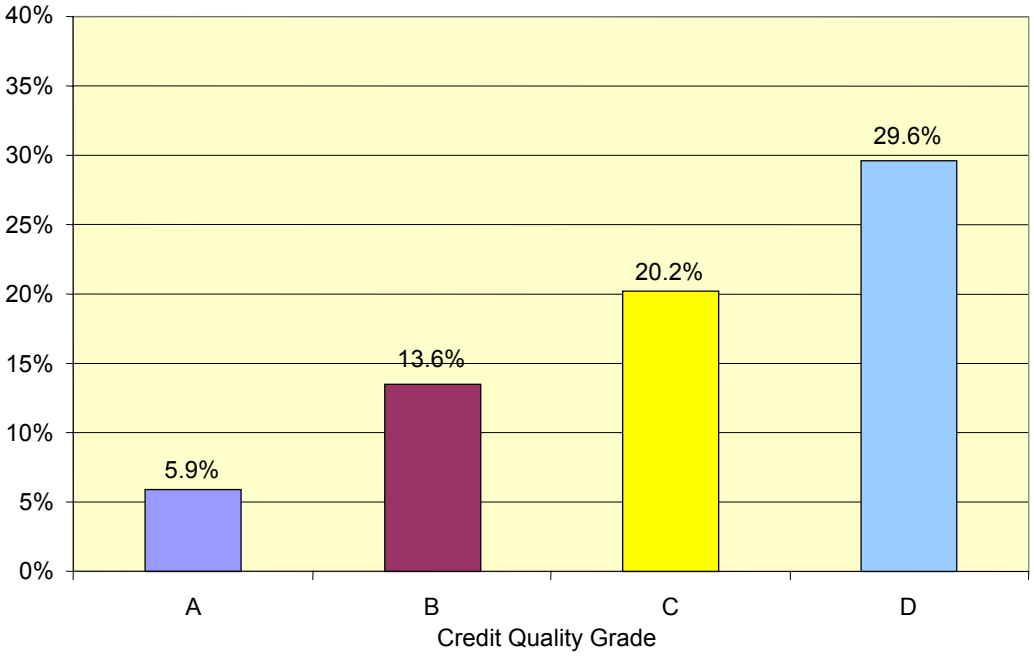


Figure 10A
Percent African-American by Credit Quality Grade
Including Contracts Booked Under Zero Markup Programs



Figures 11 and 12 compare zero markup programs by length of contract term. I have labeled contracts that are financed for 60 months or less as "short-term," while those that are more than 60 months are labeled "long-term." As shown in Figure 11, 69.4% of short-term contracts are booked under zero markup programs, compared to only 0.2% of long-term contracts. Figure 12 indicates that African-Americans make up a smaller percentage of those who finance short-term (11.2%) than those who finance long-term (17.7%).

Figure 11
Percent of Short versus Long Term Contracts
Booked Under Zero Markup Programs

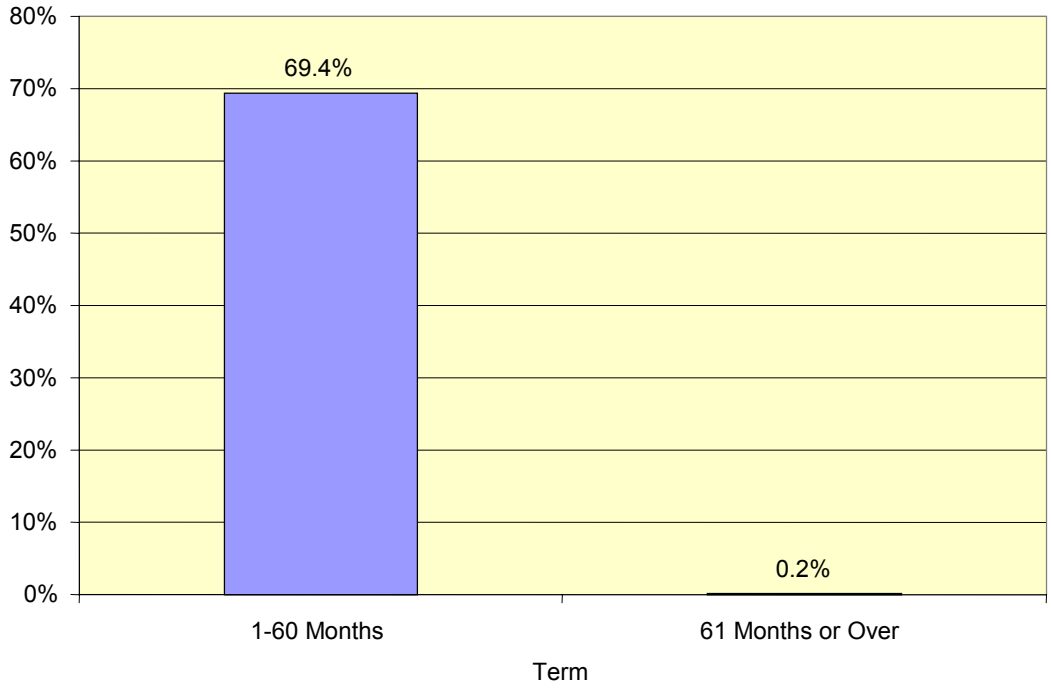


Figure 12
Percent of Black AHFC Customers by Term

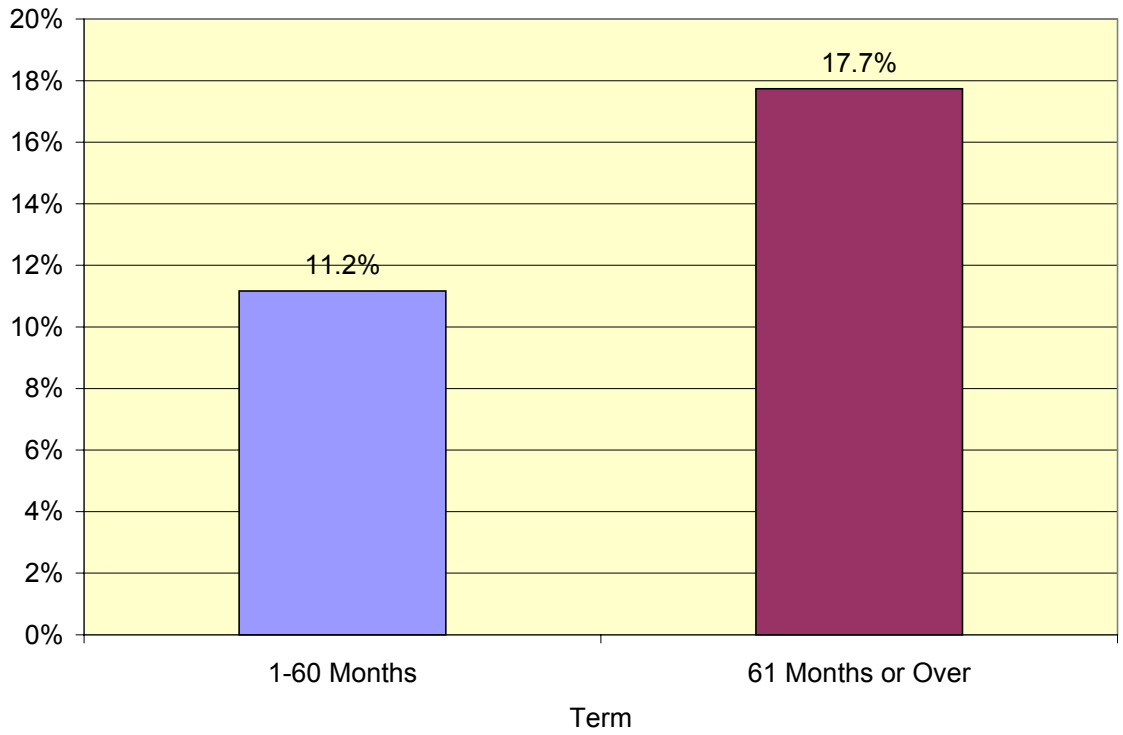


Table 9 compares the percentage of African-American versus White AHFC customers who receive contracts that are booked under zero markup programs versus markup contracts. This is shown for each credit quality grade. For example, in the best credit grade (A) in 1999, African-Americans represented 10.74% of all contracts booked in markup programs compared to 6.12% of all contracts booked in zero markup programs. The last column displays the difference between these two figures –4.61%, which indicates that African-Americans are under-represented in the "zero markup program" category relative to their frequency in the credit quality A category. As shown in Table 9, in every year in every credit quality category, African-Americans are under-represented in the zero markup program category.

Table 10 displays similar data by length of contract term. In virtually all categories of contract term, African-Americans are materially under-represented in the zero markup programs. The only instance where African-Americans are over-represented is in the 1-12 month term length in 2002. However, this result is not significant, as there are only a very small number of African-Americans in this category (18 standard contracts and 11 contracts under zero markup programs).

In Section II of this report, where I empirically found that the subjective markup policy of AHFC creates a disparate impact against African-American customers, I ignored the possibility of a "negative" markup. Thus, I established the disparate impact solely on the basis of the subjective markup itself. Yet, AHFC policy allows dealers to offer these special interest rates - which significantly reduce the commissions they receive. Thus, dealers have an incentive not to offer these special interest rates unless required to do so in order to make a sale. Based on the data and tables shown in this section, I conclude that in addition to the fact that African-Americans pay a larger subjective markup over the stated buy-rate, AHFC's credit pricing policy also has a disparate impact on African-Americans who are under-represented in zero markup programs. Thus, not only are African-American customers being charged higher than average subjective markup, they are also disadvantaged by receiving fewer "negative markups."

Table 9

Frequency of Contract Type by Credit Quality Grade and Race

Credit	1999 Standard Contracts		1999 Zero Markup Contracts		% Black
Quality	% Black	% White	% Black	% White	Difference
A	10.74%	89.26%	6.12%	93.88%	**-4.61%**
B	21.74%	78.26%	14.88%	85.12%	**-6.86%**
C	30.95%	69.05%	13.82%	86.18%	**-17.13%**
D	35.42%	64.58%	22.81%	77.19%	**-12.61%**
Credit	**2000 Standard Contracts**		**2000 Zero Markup Contracts**		**% Black**
Quality	**% Black**	**% White**	**% Black**	**% White**	**Difference**
A	8.88%	91.12%	5.48%	94.52%	**-3.40%**
B	19.94%	80.06%	11.81%	88.19%	**-8.13%**
C	27.33%	72.67%	15.09%	84.91%	**-12.24%**
D	37.11%	62.89%	21.43%	78.57%	**-15.68%**
Credit	**2001 Standard Contracts**		**2001 Zero Markup Contracts**		**% Black**
Quality	**% Black**	**% White**	**% Black**	**% White**	**Difference**
A	7.74%	92.26%	5.09%	94.91%	**-2.65%**
B	15.94%	84.06%	11.71%	88.29%	**-4.23%**
C	22.76%	77.24%	17.76%	82.24%	**-5.00%**
D	33.64%	66.36%	26.32%	73.68%	**-7.32%**
Credit	**2002 Standard Contracts**		**2002 Zero Markup Contracts**		**% Black**
Quality	**% Black**	**% White**	**% Black**	**% White**	**Difference**
A	6.99%	93.01%	5.40%	94.60%	**-1.59%**
B	14.83%	85.17%	12.07%	87.93%	**-2.75%**
C	22.96%	77.04%	17.44%	82.56%	**-5.51%**
D	32.07%	67.93%	24.63%	75.37%	**-7.44%**
Credit	**2003 Standard Contracts**		**2003 Zero Markup Contracts**		**% Black**
Quality	**% Black**	**% White**	**% Black**	**% White**	**Difference**
A	6.12%	93.88%	4.44%	95.56%	**-1.68%**
B	14.21%	85.79%	9.66%	90.34%	**-4.55%**
C	22.01%	77.99%	14.96%	85.04%	**-7.06%**
D	32.33%	67.67%	24.07%	75.93%	**-8.26%**

Table 10

Frequency of Contract Type by Term and Race

Credit	1999 Standard Contracts		1999 Zero Markup Contracts		% Black
Term	% Black	% White	% Black	% White	Difference
25 - 36 Months	8.25%	91.75%	3.41%	96.59%	**-4.85%**
37 - 48 Months	12.22%	87.78%	3.70%	96.30%	**-8.51%**
49 - 60 Months	20.78%	79.22%	10.79%	89.21%	**-9.99%**
Credit	**2000 Standard Contracts**		**2000 Zero Markup Contracts**		**% Black**
Term	**% Black**	**% White**	**% Black**	**% White**	**Difference**
13 - 24 Months	0.00%	100.00%	0.00%	0.00%	**-2.53%**
25 - 36 Months	2.53%	97.47%	0.00%	100.00%	**-3.97%**
37 - 48 Months	6.75%	93.25%	2.78%	97.22%	**-7.89%**
49 - 60 Months	12.19%	87.81%	4.30%	95.70%	**-9.59%**
Over 60 Months	19.31%	80.69%	9.72%	90.28%	**0.00%**
Credit	**2001 Standard Contracts**		**2001 Zero Markup Contracts**		**% Black**
Term	**% Black**	**% White**	**% Black**	**% White**	**Difference**
1 - 12 Months	22.33%	77.67%	0.00%	0.00%	**-22.33%**
13 - 24 Months	0.00%	100.00%	0.00%	100.00%	**0.00%**
25 - 36 Months	6.10%	93.90%	3.01%	96.99%	**-3.10%**
37 - 48 Months	6.24%	93.76%	2.41%	97.59%	**-3.83%**
49 - 60 Months	11.77%	88.23%	3.93%	96.07%	**-7.84%**
Over 60 Months	18.09%	81.91%	10.30%	89.70%	**-7.79%**
Credit	**2002 Standard Contracts**		**2002 Zero Markup Contracts**		**% Black**
Term	**% Black**	**% White**	**% Black**	**% White**	**Difference**
1 - 12 Months	18.32%	81.68%	30.00%	70.00%	**11.68%**
13 - 24 Months	5.56%	94.44%	0.00%	100.00%	**-5.56%**
25 - 36 Months	3.84%	96.16%	3.52%	96.48%	**-0.31%**
37 - 48 Months	4.16%	95.84%	3.24%	96.76%	**-0.92%**
49 - 60 Months	10.08%	89.92%	4.67%	95.33%	**-5.41%**
Over 60 Months	16.78%	83.22%	10.61%	89.39%	**-6.17%**
Credit	**2003 Standard Contracts**		**2003 Zero Markup Contracts**		**% Black**
Term	**% Black**	**% White**	**% Black**	**% White**	**Difference**
1 - 12 Months	16.54%	83.46%	9.52%	90.48%	**-7.02%**
13 - 24 Months	0.00%	100.00%	0.00%	0.00%	**0.00%**
25 - 36 Months	4.82%	95.18%	1.16%	98.84%	**-3.66%**
37 - 48 Months	4.26%	95.74%	2.72%	97.28%	**-1.53%**
49 - 60 Months	8.55%	91.45%	5.83%	94.17%	**-2.73%**
Over 60 Months	14.67%	85.33%	9.79%	90.21%	**-4.88%**

VI. Additional Statistical Analysis

This section contains additional statistical analyses that provide further information regarding the impact of the subjective markup found in the AHFC data.

A. Markups by Credit Quality Grade and Race

Table 11 compares the average markup by credit quality grade for African-Americans and Whites by year for those AHFC customers who were booked in zero markup programs. Thus, African-Americans in the highest credit grade A were marked up an average of $720 in 1999, compared to Whites in that credit grade who were marked up an average of $486. As shown in Table 11, in every year in every credit grade, African-Americans were marked up more than Whites. Table 11A shows an identical comparison for all contracts including those that were booked under zero markup programs. Thus, African-Americans in the highest credit grade A were marked up an average of $479 in 1999, compared to Whites in that credit grade who were marked up an average of $252. Once again, as shown in Table 11A, in every year in every credit grade, African-Americans were marked up more than Whites.

Table 12 reports on the percentage of African-Americans and Whites in each credit quality grade by year. For example, overall, African-Americans make up 5.88% of AHFC customers in grade A, with this amount ranging from a high of 8.57% in 1999 to a low of 5.16% in 2003.

Table 11
Average Markup by Race and Year by Credit Quality Grade
Excluding Contracts Booked Under Zero Markup Programs

	Credit Quality Grade = A			Credit Quality Grade = B		
Year	Black	White	**Diff**	Black	White	**Diff**
1999	$720	$486	**$234**	$925	$756	**$168**
2000	$725	$404	**$321**	$924	$731	**$193**
2001	$712	$424	**$287**	$989	$785	**$205**
2002	$669	$440	**$230**	$1,003	$784	**$219**
2003	$624	$364	**$260**	$1,040	$732	**$308**
Overall	$691	$423	**$267**	$981	$769	**$212**

	Credit Quality Grade = C			Credit Quality Grade = D		
Year	Black	White	**Diff**	Black	White	**Diff**
1999	$1,022	$873	**$149**	$1,201	$952	**$249**
2000	$1,108	$933	**$175**	$1,265	$1,053	**$212**
2001	$1,214	$1,008	**$206**	$1,456	$1,263	**$193**
2002	$1,196	$1,024	**$173**	$1,386	$1,237	**$149**
2003	$1,195	$1,065	**$130**	$1,399	$1,278	**$121**
Overall	$1,175	$1,003	**$172**	$1,381	$1,213	**$168**

Table 11A
Average Markup by Race and Year by Credit Quality Grade
Including Contracts Booked Under Zero Markup Programs

	Credit Quality Grade = A			Credit Quality Grade = B		
Year	Black		**Diff**	Black	White	**Diff**
1999	$479	$252	**$227**	$714	$515	**$199**
2000	$213	$80	**$133**	$451	$248	**$203**
2001	$210	$90	**$120**	$476	$309	**$167**
2002	$215	$116	**$99**	$417	$282	**$135**
2003	$316	$154	**$162**	$567	$319	**$248**
Overall	$233	$108	**$124**	$469	$297	**$173**

	Credit Quality Grade = C			D		
Year	Black	White	**Diff**		White	**Diff**
1999	$901	$635	**$266**	$1,061	$765	**$296**
2000	$679	$399	**$280**	$889	$550	**$338**
2001	$705	$508	**$197**	$1,000	$766	**$234**
2002	$612	$437	**$176**	$821	$620	**$200**
2003	$681	$482	**$199**	$844	$642	**$202**
Overall	$670	$464	**$206**	$893	$658	**$235**

Table 12
Number of Contracts by Race and Year by Credit Quality Grade

	Credit Quality Grade A			Credit Quality Grade B		
Year	Black	White	% Black	Black	White	% Black
1999	625	6,664	8.57%	505	2,062	19.67%
2000	2,754	41,843	6.18%	1,634	9,444	14.75%
2001	3,939	65,620	5.66%	2,882	18,587	13.42%
2002	5,010	81,009	5.82%	3,629	24,103	13.09%
2003	904	16,627	5.16%	770	5,808	11.71%
Overall	13,232	211,763	5.88%	9,420	60,004	13.57%

	Credit Quality Grade C			Credit Quality Grade D		
Year	Black	White	% Black	Black	White	% Black
1999	432	1,168	27.00%	448	898	33.28%
2000	1,392	5,301	20.80%	1,560	3,558	30.48%
2001	2,890	11,306	20.36%	3,310	7,388	30.94%
2002	3,843	15,479	19.89%	4,949	12,383	28.55%
2003	853	3,809	18.30%	1,369	3,442	28.46%
Overall	9,410	37,063	20.25%	11,636	27,669	29.60%

B. Markups by Median, 10th and 90th Percentiles

Table 13 computes the median markups, excluding contracts that were booked under zero markup programs. The median is the middle of a distribution. Thus, in the entire race-coded data set, there are 132,844 contracts booked under "markup" programs. The median markup was $637.80. This means that 50% of the markups were greater than $637.80, while 50% were less than this amount. However, the median markup for African-Americans was $979.80 compared to $557.34 for Whites. If we exclude those AFHC customers who received zero markup (even though they were booked under programs that allow markup), the median was $906.60 – but it was $1,081.80 for African-Americans and $859.80 for Whites.

Table 13A shows similar median figures for all AHFC race-coded contracts – including those booked under zero markup programs. Thus, for all 383,652 race-coded customers, the median markup was zero. If we exclude all of the zero markups, the median is $906.60 (the same as Table 13, where all zero markups are excluded).

Table 13
Median Markups - Excluding Contracts Booked Under Zero Markup Programs

Sample of Contracts	Number of Contracts	Zero Markups	Median Markup
Blacks and Whites Combined	132,844	Included	$637.80
Blacks and Whites Combined	94,387	Excluded	$906.60
Blacks	22,252	Included	$979.80
Whites	110,592	Included	$557.34
Blacks	19,198	Excluded	$1,081.80
Whites	75,189	Excluded	$859.80

Table 13A
Median Markups - Including Contracts Booked Under Zero Markup Programs

Sample of Contracts	Number of Contracts	Zero Markups	Median Markup
Blacks and Whites Combined	383,652	Included	$0.00
Blacks and Whites Combined	94,400	Excluded	$906.60
Blacks	44,321	Included	$0.00
Whites	339,331	Included	$0.00
Blacks	19,199	Excluded	$1,081.80
Whites	75,201	Excluded	$859.80

Table 14 reports median markups by credit quality grade, for African-American and White customers combined, excluding contracts booked under zero markup programs. Medians are shown both including and excluding zero markup contracts. Median markups are greatest in credit quality grade D ($1,201.80 excluding zero

markups and $1,092.00 including zero markups). Median markups are lowest in the best credit quality grade A ($669.60 excluding zero markups and $301.80 including zero markups). Similar results are shown in Table 14A, which includes contracts booked under zero markup programs.

Table 14
Median Markups By Credit Quality Grade
Excluding Contracts Booked Under Zero Markup Programs

Sample of Contracts	Number of Contracts	Zero Markups	Median Markup
Credit Quality Grade = A	58,536	Included	$301.80
Credit Quality Grade = A	33,256	Excluded	$669.60
Credit Quality Grade = B	27,635	Included	$715.68
Credit Quality Grade = B	20,781	Excluded	$924.00
Credit Quality Grade = C	22,505	Included	$927.00
Credit Quality Grade = C	18,763	Excluded	$1,066.20
Credit Quality Grade = D	22,513	Included	$1,092.00
Credit Quality Grade = D	20,149	Excluded	$1,201.80

Table 14A
Median Markups By Credit Quality Grade
Including Contracts Booked Under Zero Markup Programs

Sample of Contracts	Number of Contracts	Zero Markups	Median Markup
Credit Quality Grade = A	224,995	Included	$0.00
Credit Quality Grade = A	33,261	Excluded	$669.60
Credit Quality Grade = B	69,424	Included	$0.00
Credit Quality Grade = B	20,784	Excluded	$924.00
Credit Quality Grade = C	46,473	Included	$0.00
Credit Quality Grade = C	18,766	Excluded	$1,066.20
Credit Quality Grade = D	39,305	Included	$334.08
Credit Quality Grade = D	20,151	Excluded	$1,201.80

Table 15 breaks these data down further by African-American versus White AHFC customers, excluding contracts booked under zero markup programs. In all cases, the African-American medians are higher than White medians in the same credit quality grade. Results are shown both including and excluding contracts ultimately booked with zero markup. Thus, for example, including zero markups, while the median markup for African-Americans in credit quality grade A is $614, it is $278 for Whites in credit quality grade A. In credit quality grade D, the median markup for African-Americans is $1,184 compared to $1,043 for Whites. Similar findings are shown in the bottom half of Table 15, where all zero markup contracts are excluded.

Table 15
Median Markups by Credit Quality Grade and Race
Excluding Contracts Booked Under Zero Markup Programs

Zero Markups	Black Number	White Number	Black Median	White Median
Zero Markups Included				
Credit Quality Grade = A	4,455	54,081	$614	$278
Credit Quality Grade = B	4,505	23,130	$907	$677
Credit Quality Grade = C	5,366	17,139	$1,028	$892
Credit Quality Grade = D	7,519	14,994	$1,184	$1,043
Zero Markups Excluded				
Credit Quality Grade = A	3,804	16,977	$1,011	$904
Credit Quality Grade = B	4,750	14,013	$1,126	$1,043
Credit Quality Grade = C	7,007	13,142	$1,253	$1,171
Credit Quality Grade = D	384	1,054	$1,044	$875

Similar results are shown in Table 15A, which includes contracts booked under zero markup programs. In all cases, the median markup for African-Americans is either greater than or equal to the median White markup. The only case where they are identical

is in the best credit quality grades A and B, where more than 50% of both African-American and White customers receive zero markups.

Table 15A
Median Markups by Credit Quality Grade and Race
Including Contracts Booked Under Zero Markup Programs

Zero Markups	Black Number	White Number	Black Median	White Median
Zero Markups Included				
Credit Quality Grade = A	13,232	211,763	$0	$0
Credit Quality Grade = B	9,420	60,004	$0	$0
Credit Quality Grade = C	9,410	37,063	$239	$0
Credit Quality Grade = D	11,636	27,669	$780	$0
Zero Markups Excluded				
Credit Quality Grade = A	3,804	16,980	$1,011	$904
Credit Quality Grade = B	4,750	14,016	$1,126	$1,043
Credit Quality Grade = C	7,008	13,143	$1,253	$1,171
Credit Quality Grade = D	384	1,054	$1,044	$875

Table 16 reports on the 10th and 90th percentile of markups, excluding contracts booked under zero markup programs. For example, when zero markups are included, the 90th percentile (over all credit quality grades) is $1,819, which means that 90 percent of AHFC customers pay less than this amount in subjective markup. Excluding zero markups, this figure is $2,033. These figures are also broken down by credit quality grade, with the highest markups being charged to the lowest credit quality tier, D. Similar results are shown in Table 16A, which includes contracts booked under zero markup programs.

Table 16
10th and 90th Percentile Markups for Markup Dollars
Excluding Contracts Booked Under Zero Markup Programs

	10th Percentile		90th Percentile	
Credit Quality Grade	**Zeros Included**	**Zeros Excluded**	**Zeros Included**	**Zeros Excluded**
All	$0	$361	$1,819	$2,033
A	$0	$283	$1,164	$1,430
B	$0	$390	$1,772	$1,925
C	$0	$475	$2,128	$2,237
D	$0	$559	$2,437	$2,512

Table 16A
10th and 90th Percentile Markups for Markup Dollars
Including Contracts Booked Under Zero Markup Programs

	10th Percentile		90th Percentile	
Credit Quality Grade	**Zeros Included**	**Zeros Excluded**	**Zeros Included**	**Zeros Excluded**
All	$0	$361	$1,042	$2,033
A	$0	$283	$491	$1,430
B	$0	$390	$1,184	$1,926
C	$0	$474	$1,666	$2,237
D	$0	$560	$2,069	$2,512

Table 17 reports on racial composition of the 10th and 90th percentile of markups, excluding contracts booked under zero markup programs. For example, as shown in the first row, when zero markups are included, African-Americans make up 16.8% of the sample of customers excluding zero markup programs. However, they represent only 7.9% of the 10th percentile of markups compared to 30.5% of customers in the 90th percentile. Put differently, African-Americans are under-represented relative to their frequency overall in the "low-markup" category and over-represented in the "high-markup" category. This pattern holds for all credit-quality grades and whether zero markup contracts are included or excluded. Similar findings are shown in Table 17A where contracts booked under zero markup programs are included.

Table 17
Racial Breakdown of the 10th and 90th Percentiles for Markup Dollars
Excluding Contracts Booked Under Zero Markup Programs

Credit Quality Grade	Zero Markups	Black % of Sample	Black % of 10th Percentile	% Over/Under Represented	Black % of 90th Percentile	% Over/Under Represented
All	Included	16.8%	7.9%	**-8.8%**	30.5%	**13.7%**
All	Excluded	20.3%	9.8%	**-10.6%**	31.7%	**11.4%**
A	Included	7.6%	4.8%	**-2.9%**	15.4%	**7.7%**
A	Excluded	9.8%	6.4%	**-3.3%**	17.3%	**7.5%**
B	Included	16.3%	10.2%	**-6.1%**	22.0%	**5.7%**
B	Excluded	18.3%	12.1%	**-6.2%**	22.2%	**3.9%**
C	Included	23.8%	16.5%	**-7.4%**	30.1%	**6.3%**
C	Excluded	25.3%	19.8%	**-5.5%**	30.4%	**5.1%**
D	Included	33.4%	21.7%	**-11.7%**	38.5%	**5.1%**
D	Excluded	34.8%	23.9%	**-10.9%**	38.6%	**3.8%**

Table 17A
Racial Breakdown of the 10th and 90th Percentiles for Markup Dollars
Including Contracts Booked Under Zero Markup Programs

Credit Quality Grade	Zero Markups	Black % of Sample	Black % of 10th Percentile	% Over/Under Represented	Black % of 90th Percentile	% Over/Under Represented
All	Included	11.6%	8.7%	**-2.9%**	26.5%	**14.9%**
All	Excluded	20.3%	9.9%	**-10.5%**	31.7%	**11.4%**
A	Included	5.9%	5.2%	**-0.7%**	11.3%	**5.4%**
A	Excluded	9.8%	6.4%	**-3.3%**	17.3%	**7.5%**
B	Included	13.6%	11.5%	**-2.0%**	20.9%	**7.3%**
B	Excluded	18.3%	12.1%	**-6.2%**	22.2%	**3.9%**
C	Included	20.2%	16.8%	**-3.4%**	29.0%	**8.7%**
C	Excluded	25.3%	19.8%	**-5.5%**	30.4%	**5.1%**
D	Included	29.6%	24.2%	**-5.4%**	38.9%	**9.3%**
D	Excluded	34.8%	24.0%	**-10.8%**	38.6%	**3.9%**

C. Frequency of Percentage Point Markup

Table 18 reports on the frequency distribution and percentage of contracts by the percentage points of subjective markup for African-American AHFC customers (excluding contracts booked under zero markup programs). For example, while 28.9% of all contracts have zero markup, only 13.7% of African-Americans contracts have zero markups. The 3,054 African-American customers who received zero markup represent 7.9% of African-American customers (excluding those who were booked in zero markup programs). Yet, African-Americans represent 16.8% of all AHFC race-coded customers who were booked in markup programs. Thus, African-Americans are under-represented in the zero-markup category by 8.8 percentage points. Put differently, we only observe 47% as many African-Americans in the zero markup category compared to their expected frequency based on their population among race-coded AHFC customers. As shown in Table 18, African-Americans are under-represented in the categories with low percentage rate markups and over-represented in categories with high percentage rate markups. Table 18A shows similar results including contracts booked under zero markup programs.

Table 18
Frequency Distribution of Point Markup Range
Excluding Contracts Booked Under Zero Markup Programs

Point Markup Range	% of Total Contracts	Blacks Number	Blacks Percent	Blacks Percent Over/Under Average	Black Ratio of Observed to Expected % in Each Category
0%	28.9%	3,054	7.9%	**-8.8%**	**0.47**
>0 and <=1%	14.4%	2,327	12.2%	**-4.6%**	**0.73**
>1 and <=2%	27.3%	6,220	17.2%	**0.4%**	**1.02**
>2 and <=3%	18.4%	6,450	26.4%	**9.6%**	**1.58**
>3 and <=4%	10.8%	4,099	28.7%	**11.9%**	**1.71**
>4	0.3%	102	30.2%	**13.4%**	**1.80**
Total	100.0%	22,252	16.8%		

Table 18A
Frequency Distribution of Point Markup Range
Including Contracts Booked Under Zero Markup Programs

Point Markup Range	% of Total Contracts	Blacks Number	Blacks Percent	Blacks Percent Over/Under Average	Black Ratio of Observed to Expected % in Each Category
0%	75.4%	25,122	8.7%	**-2.9%**	**0.75**
>0 and <=1%	5.0%	2,327	12.2%	**0.6%**	**1.06**
>1 and <=2%	9.4%	6,220	17.2%	**5.6%**	**1.49**
>2 and <=3%	6.4%	6,450	26.4%	**14.8%**	**2.28**
>3 and <=4%	3.7%	4,099	28.7%	**17.1%**	**2.48**
>4	0.1%	103	30.4%	**18.8%**	**2.63**
Total	100.0%	44,321	11.6%		

D. Frequency Distribution of Zero Markup Program Contracts

Table 19 reports on the percentage of contracts booked under programs that do not allow markup, by race and credit quality grade. Thus, in 1999, 71.36% of zero markup program contracts were in credit grade A. However, 48.95% of African-Americans who received zero markup program contracts were in credit grade A that year. Table 20 shows a similar analysis by term of contract.

Table 19
Contracts Booked under Zero Markup Programs
By Credit Quality Grade and Race (Percent)

Black and White AHFC Customers	1999	2000	2001	2002	2003
Credit Quality Grade = A	71.36%	73.46%	69.35%	62.69%	53.95%
Credit Quality Grade = B	16.16%	14.64%	16.23%	17.47%	19.45%
Credit Quality Grade = C	7.71%	7.39%	8.67%	10.71%	13.18%
Credit Quality Grade = D	4.77%	4.48%	5.02%	8.16%	12.11%
Total	100.00%	99.98%	99.27%	99.03%	98.69%
Black AHFC Customers	1999	2000	2001	2002	2003
Credit Quality Grade = A	48.95%	51.41%	42.22%	35.65%	25.56%
Credit Quality Grade = B	26.93%	22.09%	22.73%	22.23%	20.06%
Credit Quality Grade = C	11.94%	14.24%	18.41%	19.68%	21.03%
Credit Quality Grade = D	12.18%	12.26%	15.80%	21.18%	31.12%
Total	100.00%	100.00%	99.15%	98.73%	97.77%
White AHFC Customers	1999	2000	2001	2002	2003
Credit Quality Grade = A	73.56%	75.33%	71.83%	65.53%	56.88%
Credit Quality Grade = B	15.10%	14.01%	15.64%	16.98%	19.39%
Credit Quality Grade = C	7.30%	6.81%	7.78%	9.77%	12.36%
Credit Quality Grade = D	4.04%	3.82%	4.03%	6.80%	10.15%
Total	100.00%	99.97%	99.28%	99.07%	98.79%

* Excludes Credit Scores of 999 and Missing

Table 20
Contracts Booked Under Zero Markup Programs
By Term and Race (Percent)

Black and White AHFC Customers	1999	2000	2001	2002	2003
1 - 12	0.00%	0.00%	0.00%	0.01%	0.00%
13 - 24	0.00%	0.01%	0.17%	1.39%	0.46%
25 - 36	11.66%	14.87%	13.53%	9.28%	2.76%
37 - 48	14.11%	15.78%	13.50%	5.55%	4.52%
49 - 60	74.23%	69.34%	72.78%	83.76%	92.24%
Over 60 Months	0.00%	0.00%	0.03%	0.02%	0.03%
Total	100.00%	100.00%	100.00%	100.00%	100.00%
Black AHFC Customers	1999	2000	2001	2002	2003
1 - 12	0.00%	0.00%	0.00%	0.00%	0.00%
13 - 24	0.00%	0.00%	0.06%	0.51%	0.06%
25 - 36	4.45%	5.28%	3.89%	3.17%	0.80%
37 - 48	5.85%	8.67%	6.34%	2.73%	2.81%
49 - 60	89.70%	86.05%	89.62%	93.57%	96.33%
Over 60 Months	0.00%	0.00%	0.09%	0.02%	0.00%
Total	100.00%	100.00%	100.00%	100.00%	100.00%
White AHFC Customers	1999	2000	2001	2002	2003
1 - 12	0.00%	0.00%	0.00%	0.01%	0.00%
13 - 24	0.00%	0.01%	0.18%	1.48%	0.50%
25 - 36	12.37%	15.68%	14.40%	9.92%	2.96%
37 - 48	14.92%	16.38%	14.15%	5.84%	4.69%
49 - 60	72.71%	67.92%	71.24%	82.73%	91.81%
Over 60 Months	0.00%	0.00%	0.02%	0.02%	0.03%
Total	100.00%	100.00%	100.00%	100.00%	100.00%

E. College Graduate Special Program by Race of Borrower

Table 21 reports on the markup for African-American versus White AHFC borrowers under their college graduate program. African-Americans were more likely to be marked up compared to White college graduate program borrowers (78.2% versus 68.10%). The average markup for African-American borrowers was $759 (representing an interest rate markup of 1.35%) compared to $546 for White borrowers (an average of 1% interest rate markup). This difference is statistically significant at $p < .01$.

Table 21
Descriptive Statistics for
College Graduate Program by Race

	Blacks	Whites
Number of Observations	133	696
% of Total Customers	0.30%	0.21%
% With Markup	78.20%	68.10%
Relative Odds of a Markup	167%	60%
Average Dollar Markup	$759	$546
Average Rate Markup	1.35%	1.00%

F. Markup by Vehicle Make and Race of Borrower

Table 22 reports on average subjective finance charge markups by vehicle make for both African-American and White AHFC customers. Regardless of the vehicle make, African-Americans have a higher probability of being marked up, as evidenced by the fact that the "relative odds" of being marked up are always higher than 100%. Thus, for example, African-Americans who finance Honda Accord vehicles are 356% as likely to

be marked up as Whites. Whites who finance Honda Accords are only 28% as likely to be marked up as African-Americans. The average subjective markup is $355 higher for African-Americans who finance Honda Accords than Whites. Excluding zero markup programs, African-Americans who do receive a markup pay $266 more than Whites who pay a markup. All of these differences are statistically significant at $p < .01$. The largest markup difference is for purchasers of Acura 3.2TL vehicles, where African-Americans pay on average $642 more in subjective markup than Whites, while the smallest markup difference is for Acura 3.0CL, where African-Americans on average pay $179 more.

.

Table 22

Markup By Vehicle Model* and Race

Vehicle Model	Number of Contracts		Blacks		Whites		Zero Markup Programs Included			Zero Markup Programs Excluded		
	Blacks	Whites	% With Markup	Relative Odds	% With Markup	Relative Odds	Black Markup	White Markup	Diff.	Black Markup	White Markup	Diff.
9B22	631	3,234	42.16%	**249%**	22.67%	**40%**	$572	$301	**$271**	$1,357	$1,328	**$30**
9B32	297	1,918	54.55%	**313%**	27.69%	**32%**	$776	$327	**$449**	$1,422	$1,182	**$240**
ACURA 2.2CL	113	389	59.29%	**248%**	37.02%	**40%**	$528	$268	**$260**	$891	$724	**$167**
ACURA 2.3CL	151	593	58.94%	**270%**	34.74%	**37%**	$539	$262	**$277**	$914	$754	**$160**
ACURA 2.5TL	498	663	51.20%	**203%**	34.09%	**49%**	$497	$270	**$227**	$970	$793	**$178**
ACURA 3.0CL	335	1,294	42.39%	**172%**	29.91%	**58%**	$410	$231	**$179**	$967	$771	**$196**
ACURA 3.2CL	318	1,413	72.96%	**300%**	47.35%	**33%**	$1,206	$563	**$642**	$1,652	$1,190	**$462**
ACURA 3.2TL	1,801	6,670	48.97%	**183%**	34.45%	**55%**	$654	$339	**$315**	$1,335	$983	**$352**
ACURA 3.5RL	1,239	2,060	35.84%	**193%**	22.48%	**52%**	$488	$234	**$255**	$1,362	$1,039	**$323**
ACURA INTEGRA	319	2,856	61.44%	**198%**	44.54%	**50%**	$612	$380	**$233**	$997	$853	**$144**
ACURA MDX	286	1,986	67.13%	**181%**	53.07%	**55%**	$1,241	$611	**$630**	$1,848	$1,150	**$698**
ACURA RSX	144	2,368	75.00%	**161%**	65.08%	**62%**	$969	$710	**$259**	$1,292	$1,091	**$201**
HONDA ACCORD	22,196	144,835	38.86%	**356%**	15.16%	**28%**	$516	$161	**$355**	$1,328	$1,063	**$266**
HONDA CIVIC	11,486	112,099	43.98%	**286%**	21.54%	**35%**	$498	$208	**$290**	$1,132	$965	**$167**
HONDA CR-V	2,711	31,684	51.35%	**284%**	27.09%	**35%**	$688	$269	**$419**	$1,340	$994	**$346**
HONDA ELEMENT	82	1,234	74.39%	**229%**	55.92%	**44%**	$1,169	$654	**$515**	$1,572	$1,169	**$402**
HONDA ODYSSEY	1,090	16,210	57.80%	**192%**	41.59%	**52%**	$861	$427	**$435**	$1,490	$1,026	**$464**
HONDA PILOT	286	3,678	61.89%	**249%**	39.48%	**40%**	$1,160	$487	**$673**	$1,874	$1,234	**$640**
HONDA PRELUDE	164	1,976	66.46%	**203%**	49.44%	**49%**	$853	$592	**$261**	$1,283	$1,197	**$86**
HONDA S2000	52	1,218	73.08%	**235%**	53.61%	**43%**	$1,425	$787	**$638**	$1,950	$1,468	**$482**

* Model Must Have at Least 30 Records for Inclusion

G. Markup by Turn Around Time and Approval Method

Table 23 compares the average markup by the length of time between when an application is received at AHFC and when it is ultimately approved. Markups are calculated both including and excluding contracts that are booked using zero markup programs. In every category, African-Americans pay a higher markup than Whites. For example, the average African-American markup is $634 when the turn around time is between one and 30 minutes, to $309 for Whites.

Table 23
Comparison of Average Markups by Race and Estimated Turn Around Time
Contracts that Were Not Auto Approve or Insta Approve
Including and Excluding Contracts Booked Under Zero Markup Programs

Estimated Turn Around Time	Including Contracts Booked Under Zero Markup Programs				Excluding Contracts Booked Under Zero Markup Programs			
	Overall Markup	Black Markup	White Markup	**Diff.**	Overall Markup	Black Markup	White Markup	**Diff.**
0 Minutes	$297	$510	$277	**$233**	$566	$805	$538	**$268**
1-30 Minutes	$358	$634	$309	**$325**	$881	$1,156	$811	**$345**
31-60 Minutes	$372	$643	$326	**$317**	$891	$1,165	$827	**$339**
61-90 Minutes	$367	$660	$320	**$340**	$870	$1,149	$805	**$344**
91-120 Minutes	$385	$637	$340	**$297**	$904	$1,150	$843	**$308**
121-150 Minutes	$409	$787	$351	**$436**	$987	$1,293	$913	**$381**
151-180 Minutes	$424	$963	$334	**$628**	$964	$1,453	$830	**$623**
Over 180 Minutes	$419	$694	$383	**$310**	$907	$1,171	$861	**$310**
Next Day	$442	$708	$391	**$317**	$994	$1,285	$922	**$363**

Figure 13 compares the average markup for all AHFC customers (excluding those booked under zero markup programs) by type of approval. Those who are approved using

InstaApprove receive the lowest markup, with AutoApprove customers also being marked up less than average. However, in each category, African-Americans receive a higher subjective markup than Whites. For example, the average markup for African-Americans using AutoApprove was $709, compared to $451 for Whites. Figure 13A shows similar figures including customers who were booked under zero markup programs. Once again, African-Americans are charged a higher whether markup regardless of approval method.

Figure 13
Average Markup by Approval Type
Excluding Contracts Booked Under Zero Markup Programs

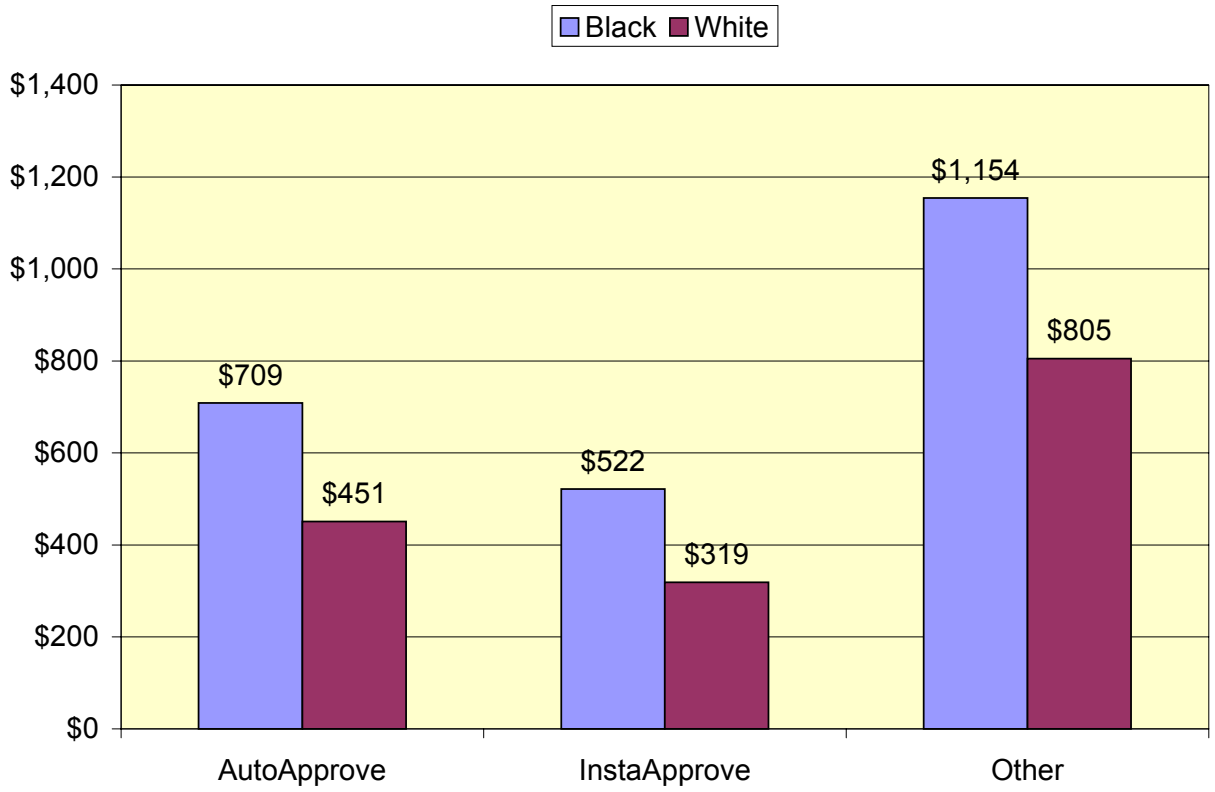
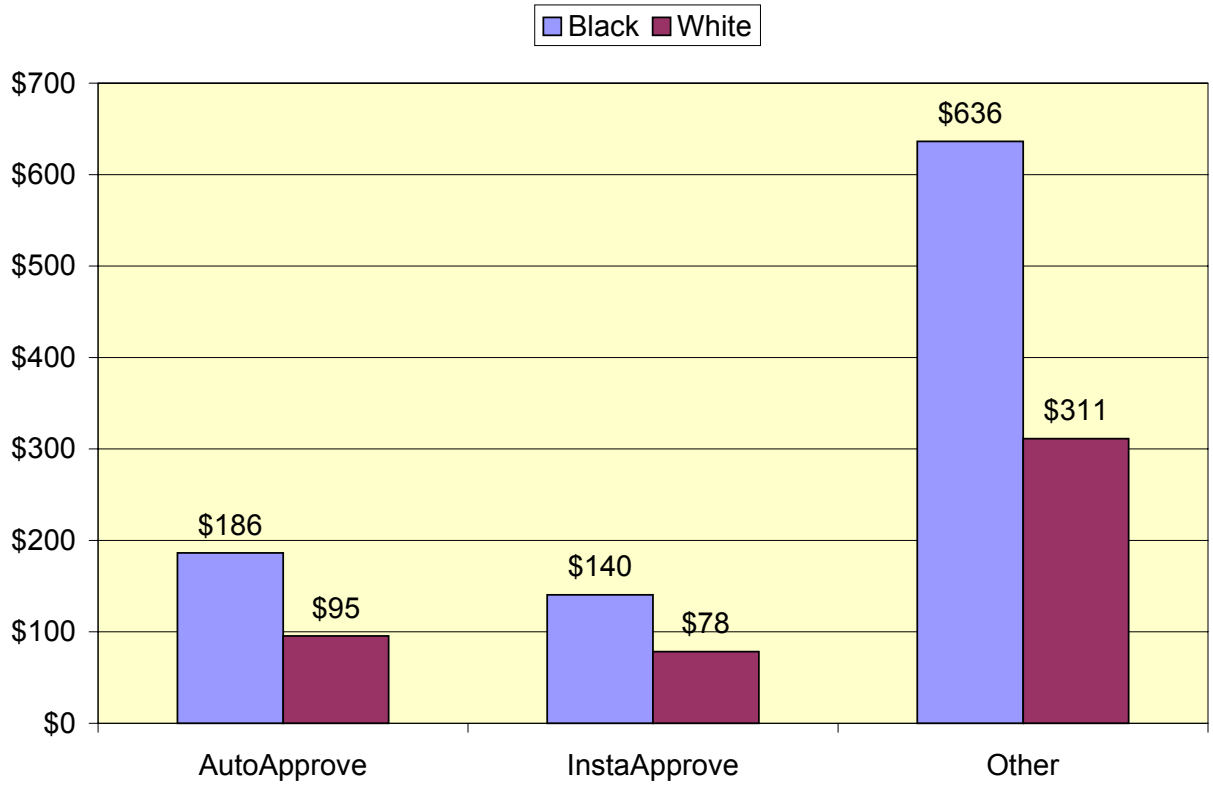


Figure 13A
Average Markup by Approval Type
Including Contracts Booked Under Zero Markup Programs



H. Delinquencies

Table 24 reports on the percentage of contracts that are delinquent at intervals of 10-29 days, 30-59 days, 60-89 days, and 90 days or more. This table is based on the full set of AHFC data (not only the race-coded sample). As the subjective markup increases, the percentage of contracts that are "on time" decreases – from a high of 93.37% for zero markup loans to a low of 63.52% for loans with over $3,000 in subjective markup. Similarly, the percentage of very delinquent loans increases as the subjective markup increases. Table 25 shows a similar analysis by credit quality grade. The general pattern is still evident within each credit grade level. For example, even in the highest credit quality grade A, the "on time" payment decreases from

96.68% for those who receive a zero markup to 79.39% for those who are marked up $3,000 or more.

Table 24
Delinquencies by Markup Range

Markup Range	Frequency	On Time	10-29 Days	30-59 Days	60-89 Days	90 + Days
$0	995,081	93.37%	5.35%	1.09%	0.15%	0.03%
>$0 and <=$250	13,348	91.49%	6.70%	1.56%	0.21%	0.04%
>$250 and <=$500	58,510	89.25%	8.25%	2.12%	0.32%	0.07%
>$500 and <=$750	64,042	84.70%	11.35%	3.32%	0.53%	0.11%
>$750 and <=$1000	59,683	78.51%	15.41%	5.02%	0.87%	0.19%
>$1000 and <=$1250	39,187	75.23%	17.60%	5.94%	1.02%	0.22%
>$1250 and <=$1500	24,991	76.38%	16.94%	5.55%	0.94%	0.19%
>$1500 and <=$2000	33,617	73.53%	18.72%	6.35%	1.14%	0.26%
>$2000 and <=$3000	23,229	65.79%	23.69%	8.64%	1.54%	0.35%
>$3000	5,533	63.52%	25.36%	8.98%	1.72%	0.42%

Table 25 - Delinquencies by Credit Quality Grade and Markup Range

Markup Range		On Time	10-29 Days	30-59 Days	60-89 Days	90 + Days
Credit Quality Grade = A						
$0	682125	96.68%	2.89%	0.38%	0.04%	0.01%
>$0 and <=$250	8994	95.68%	3.68%	0.57%	0.06%	0.01%
>$250 and <=$500	35177	94.94%	4.23%	0.72%	0.08%	0.02%
>$500 and <=$750	30475	93.41%	5.34%	1.07%	0.15%	0.03%
>$750 and <=$1000	21359	91.36%	6.80%	1.56%	0.23%	0.05%
>$1000 and <=$1250	11742	90.02%	7.72%	1.92%	0.29%	0.06%
>$1250 and <=$1500	6688	89.45%	8.10%	2.03%	0.34%	0.08%
>$1500 and <=$2000	6237	88.16%	8.95%	2.43%	0.38%	0.09%
>$2000 and <=$3000	2428	85.11%	10.93%	3.30%	0.54%	0.13%
>$3000	392	79.39%	15.16%	4.58%	0.72%	0.14%
Credit Quality Grade = B						
$0	156550	89.68%	8.27%	1.74%	0.25%	0.06%
>$0 and <=$250	2200	88.15%	9.43%	2.09%	0.29%	0.04%
>$250 and <=$500	10823	85.70%	10.96%	2.83%	0.43%	0.08%
>$500 and <=$750	13914	83.62%	12.32%	3.44%	0.51%	0.10%
>$750 and <=$1000	13700	80.75%	14.17%	4.22%	0.70%	0.16%
>$1000 and <=$1250	9382	78.80%	15.29%	5.01%	0.76%	0.15%
>$1250 and <=$1500	6454	80.48%	14.33%	4.37%	0.69%	0.12%
>$1500 and <=$2000	7997	79.70%	14.73%	4.54%	0.83%	0.19%
>$2000 and <=$3000	4758	76.20%	16.86%	5.65%	1.04%	0.26%
>$3000	1061	73.09%	18.57%	6.56%	1.39%	0.38%
Credit Quality Grade = C						
$0	85251	82.34%	13.65%	3.42%	0.49%	0.10%
>$0 and <=$250	1163	80.03%	15.01%	4.26%	0.58%	0.12%
>$250 and <=$500	6628	78.02%	16.24%	4.84%	0.74%	0.16%
>$500 and <=$750	9809	75.19%	18.09%	5.61%	0.92%	0.19%
>$750 and <=$1000	11238	71.04%	20.72%	6.88%	1.14%	0.22%
>$1000 and <=$1250	8216	70.43%	21.18%	6.91%	1.22%	0.26%
>$1250 and <=$1500	5677	73.13%	19.35%	6.22%	1.07%	0.22%
>$1500 and <=$2000	8744	71.74%	20.04%	6.71%	1.25%	0.26%
>$2000 and <=$3000	6511	67.61%	22.65%	8.00%	1.41%	0.33%
>$3000	1590	66.00%	23.70%	8.39%	1.59%	0.32%
Credit Quality Grade = D						
$0	58312	73.03%	19.84%	6.02%	0.92%	0.19%
>$0 and <=$250	711	70.57%	20.96%	7.11%	1.11%	0.25%
>$250 and <=$500	4394	69.11%	22.01%	7.38%	1.26%	0.24%
>$500 and <=$750	7923	63.37%	25.51%	9.22%	1.58%	0.33%
>$750 and <=$1000	11451	57.37%	29.14%	11.01%	2.05%	0.43%
>$1000 and <=$1250	8582	54.05%	31.43%	11.92%	2.16%	0.44%
>$1250 and <=$1500	5329	57.79%	29.26%	10.78%	1.81%	0.36%
>$1500 and <=$2000	9664	59.09%	28.24%	10.42%	1.83%	0.42%
>$2000 and <=$3000	9000	51.97%	32.78%	12.58%	2.20%	0.47%
>$3000	2375	53.72%	32.14%	11.49%	2.12%	0.53%

I. Eligible versus Booked Tiers

Table 26 reports on both the "eligible" and final "booked" tier. For example, while 105,938 of the race-coded customers were eligible for "Super Preferred" rates, only 79.92% of them were booked in that tier. Instead, 10.03% were booked in the "Preferred" tier and 10.05% were booked in "Standard" tier.

Table 26
Comparison of Eligible Tier to Booked Tier

Eligible Tier	Frequency	Booked Tier		
		Super Preferred	Preferred	Standard
Super Preferred	105,938	79.92%	10.03%	10.05%
Preferred	132,074	9.37%	71.86%	18.77%
Standard	232,572	6.14%	21.53%	72.33%

AHFC had two tiers (Standard and Preferred) prior to December 31, 2001, after which time they moved to three tiers. As shown in Table 27, moving customers from "eligible" tiers to final "booked" tiers has a negative effect on African-Americans. For example, while 84.61% of White customers who were eligible for "Super Preferred" rates received them in the post-2001 era, only 70.21% of African-American customers did. Of those who were eligible for the "Preferred" tier, 29.57% of African-Americans were placed in the higher cost "Standard" tier (compared to only 18.31% of Whites who were moved to that tier). This disparity works both in movements to a higher priced tier as well as movements to a lower priced tier. Thus, of those who were eligible for Standard tier, 19.86% of Whites were bumped up to a Preferred tier and 11.08% were bumped to a Super Preferred tier. For African-Americans, however, only 11.71% were bumped to the Preferred tier and 5.10% to the Super Preferred tier. Similar results are shown in Table 27A, which includes customers booked under zero markup programs.

Table 27
Comparison of Eligible Tier to Booked Tier by Race
Excluding Contracts Booked Under Zero Markup Programs

Time Period	Eligible Tier	Booked Tier	Black		White	
			Frequency	% of Column	Frequency	% of Column
Through 12/31/01	Preferred	Preferred	1,646	65.66%	20,922	81.21%
Through 12/31/01	Preferred	Standard	861	34.34%	4,841	18.79%
Total			2,507	22.14%	25,763	49.04%
Through 12/31/01	Standard	Preferred	1,108	12.57%	6,281	23.46%
Through 12/31/01	Standard	Standard	7,708	87.43%	20,495	76.54%
Total			8,816	77.86%	26,776	50.96%
Through 12/31/01	All	Preferred	2,754	24.32%	27,203	51.78%
Through 12/31/01	All	Standard	8,569	75.68%	25,336	48.22%
Total			11,323		52,539	
Beginning 01/01/02	Super Pref.	Super Pref.	1,122	70.21%	20,554	84.61%
Beginning 01/01/02	Super Pref.	Preferred	249	15.58%	2,708	11.15%
Beginning 01/01/02	Super Pref.	Standard	227	14.21%	1,031	4.24%
Total			1,598	15.30%	24,293	42.97%
Beginning 01/01/02	Preferred	Super Pref.	331	29.40%	3,082	38.18%
Beginning 01/01/02	Preferred	Preferred	462	41.03%	3,513	43.52%
Beginning 01/01/02	Preferred	Standard	333	29.57%	1,478	18.31%
Total			1,126	10.78%	8,073	14.28%
Beginning 01/01/02	Standard	Super Pref.	394	5.10%	2,677	11.08%
Beginning 01/01/02	Standard	Preferred	904	11.71%	4,801	19.86%
Beginning 01/01/02	Standard	Standard	6,420	83.18%	16,691	69.06%
Total			7,718	73.91%	24,169	42.75%
Beginning 01/01/02	All	Super Pref.	1,847	17.69%	26,313	46.54%
Beginning 01/01/02	All	Preferred	1,615	15.47%	11,022	19.50%
Beginning 01/01/02	All	Standard	6,980	66.85%	19,200	33.96%
Total			10,442		56,535	

Table 27A
Comparison of Eligible Tier to Booked Tier by Race
Including Contracts Booked Under Zero Markup Programs

Time Period	Eligible Tier	Booked Tier	Black		White	
			Frequency	% of Column	Frequency	% of Column
Through 12/31/01	Preferred	Preferred	1,646	21.44%	20,930	18.38%
Through 12/31/01	Preferred	Standard	862	11.23%	4,852	4.26%
Through 12/31/01	Preferred	Special APR	5,168	67.33%	88,073	77.36%
Total			7,676	35.17%	113,855	66.02%
Through 12/31/01	Standard	Preferred	1,108	7.83%	6,286	10.73%
Through 12/31/01	Standard	Standard	7,728	54.62%	20,536	35.05%
Through 12/31/01	Standard	Special APR	5,313	37.55%	31,772	54.22%
Total			14,149	64.83%	58,594	33.98%
Total			21,825		172,449	
Beginning 1/1/02	Super Pref.	Super Pref.	1,122	24.49%	20,563	24.93%
Beginning 1/1/02	Super Pref.	Preferred	251	5.48%	2,766	3.35%
Beginning 1/1/02	Super Pref.	Standard	293	6.39%	2,692	3.26%
Beginning 1/1/02	Super Pref.	Special APR	2,916	63.64%	56,467	68.45%
Total			4,582	21.09%	82,488	50.20%
Beginning 1/1/02	Preferred	Super Pref.	332	11.34%	3,083	12.11%
Beginning 1/1/02	Preferred	Preferred	464	15.85%	3,526	13.85%
Beginning 1/1/02	Preferred	Standard	364	12.43%	1,840	7.23%
Beginning 1/1/02	Preferred	Special APR	1,768	60.38%	17,005	66.81%
Total			2,928	13.48%	25,454	15.49%
Beginning 1/1/02	Standard	Super Pref.	394	2.77%	2,678	4.75%
Beginning 1/1/02	Standard	Preferred	909	6.39%	4,813	8.54%
Beginning 1/1/02	Standard	Standard	6,528	45.92%	17,208	30.52%
Beginning 1/1/02	Standard	Special APR	6,385	44.91%	31,686	56.20%
Total			14,216	65.43%	56,385	34.31%
Beginning 1/1/02	All	Super Pref.	1,848	8.51%	26,324	16.02%
Beginning 1/1/02	All	Preferred	1,624	7.47%	11,105	6.76%
Beginning 1/1/02	All	Standard	7,185	33.07%	21,740	13.23%
Beginning 1/1/02	All	Special APR	11,069	50.95%	105,158	63.99%
Total			21,726	100.00%	164,327	100.00%
Total			21,726		164,327	

J. Markup by Occupation of Buyer

Tables 28 and 28A report on seven occupational categories of AHFC customers – representing about 20% of all race-coded customers. As shown in Table 28, excluding contracts booked under zero markup programs, 159 African-American attorneys were charged on average $743 in subjective markup compared to the $476 average subjective markup charged White attorneys. Similar differences are shown for members of the clergy, doctors, firefighters and police, military personnel, nurses, and teachers. In all cases, African-Americans were charged higher subjective markup – and these differences were statistically significant at $p < .01$. Similar results are shown in Table 28A, which includes zero markup contracts.

Table 28
Average Markups by Occupation and Race
Excluding Contracts Booked Under Zero Markup Programs

Occupation	Black #	White #	Black Markup	White Markup	Difference
Attorneys	160	2,017	$743	$476	**$271**
Clergy	62	545	1,137	571	**565**
Doctors	254	1,893	938	516	**421**
Fire/Police	249	1,119	1,064	641	**423**
Military	345	815	1,034	734	**300**
Nurses	1,268	4,395	1,167	738	**429**
Teachers	1,847	8,588	1,042	558	**484**

Table 28A
Average Markups by Occupation and Race
Including Contracts Booked Under Zero Markup Programs

Occupation	Black #	White #	Black Markup	White Markup	Difference
Attorneys	294	5,731	$406	$167	**$239**
Clergy	186	2,320	379	134	**245**
Doctors	487	5,247	489	186	**303**
Fire/Police	526	3,782	504	190	**314**
Military	750	2,321	476	258	**218**
Nurses	2,683	15,463	552	210	**342**
Teachers	4,170	33,493	461	143	**318**

K. Special Sales Program in Effect 12/20/2002 to 1/02/2003

Between December 20, 2002 and January 2, 2003, AHFC offered a special rate program that included all Honda and Acura models. Table 29 compares the distribution of contracts by African-American and White borrowers during that time period. While 59.3% of White customers received contracts under that special promotion, only 42.2% of African-Americans did. Moreover, while 25.6% of African-Americans during that time period were booked under contracts that allowed subjective markup, only 9.2% of White customers were booked under programs allowing markup.

Table 29
Vehicle Sales During the Period That
All Model Programs 8U and 8T Were Active
12/20/2002 to 01/02/2003

	Black		White	
	Frequency	Percent	Frequency	Percent
All Model Programs 8U/8T	408	42.2%	5,966	59.3%
Other Programs	559	57.8%	4,087	40.7%
Total	967		10,053	

	Black		White	
	Frequency	Percent	Frequency	Percent
Programs With Markup	248	25.6%	929	9.2%
Programs Without Markup	719	74.4%	9,124	90.8%
Total	967		10,053	

L. Hispanic AHFC Borrowers

Table 30 and 30A report on the subjective markup paid by Hispanic borrowers in the 15 states where race-coded data are available. As shown in Table 30, excluding contracts booked under zero markup programs, 66.7% of White borrowers were charged a subjective markup,

compared to 72.9% of Hispanic borrowers (and 86.7% of African-American borrowers). The relative odds of being marked up is 134% for a Hispanic customer relative to a White customer. The average markup is $857.63 for Hispanic borrowers compared to $666.55 for White customers. These differences are statistically significant at $p < .01$. Similar results are shown in Table 30A.

Table 30
African-American and Hispanic versus White AHFC Borrowers, 1999-2003
Excluding Contracts Booked Under Zero Markup Programs
States with Race-Coded Data

Total Sample Size Analyzed	142,908
African-Americans in Sample	19,307
Hispanics in Sample	41,081
Whites in Sample	82,520
Percent of Customers Who Are African-American	13.5%
Percent of Customers Who Are Hispanic	28.7%
Average Amount Financed - African Americans	$19,944.54
Average Amount Financed - Hispanics	$19,021.44
Average Amount Financed - Whites	$19,201.79
% with Markup - African-Americans	86.7%
% with Markup - Hispanics	72.9%
% with Markup - Whites	66.7%
Additional Percentage of African-Americans with Markup	20.0%
Additional Percentage of Hispanics with Markup	6.2%
Relative Odds Ratio %: African-Americans - Whites	327%
Relative Odds Ratio %: Hispanics - Whites	134%
Relative Odds Ratio %: Whites - African-Americans	31%
Relative Odds Ratio %: Whites - Hispanics	74%
Average Markup - African-Americans	$1,127.69
Average Markup - Hispanics	$857.63
Average Markup - Whites	$666.55
Additional Markup Paid By African-Americans	$461.15
Additional Markup Paid By Hispanics	$191.08
Ratio of African-American to White Markup	1.69
Ratio of Hispanic to White Markup	1.29
# Standard Deviations-African-American Incidents of Markup - (Actual to Expected)	48
# Standard Deviations-Hispanic Incidents of Markup - (Actual to Expected)	8

Table 30A
African-American and Hispanic versus White AHFC Borrowers, 1999-2003
Including Contracts Booked Under Zero Markup Programs
States with Race-Coded Data

Total Sample Size Analyzed	387,201
African-Americans in Sample	37,811
Hispanics in Sample	85,764
Whites in Sample	263,626
Percent of Customers Who Are African-American	9.8%
Percent of Customers Who Are Hispanic	22.1%
Average Amount Financed - African Americans	$19,386.26
Average Amount Financed - Hispanics	$18,109.22
Average Amount Financed - Whites	$17,597.04
% with Markup - African-Americans	44.3%
% with Markup - Hispanics	34.9%
% with Markup - Whites	20.9%
Additional Percentage of African-Americans with Markup	23.4%
Additional Percentage of Hispanics with Markup	14.1%
Relative Odds Ratio %: African-Americans - Whites	301%
Relative Odds Ratio %: Hispanics - Whites	203%
Relative Odds Ratio %: Whites - African-Americans	33%
Relative Odds Ratio %: Whites - Hispanics	49%
Average Markup - African-Americans	$575.94
Average Markup - Hispanics	$410.83
Average Markup - Whites	$208.67
Additional Markup Paid By African-Americans	$367.27
Additional Markup Paid By Hispanics	$202.16
Ratio of African-American to White Markup	2.76
Ratio of Hispanic to White Markup	1.97
# Standard Deviations-African-American Incidents of Markup - (Actual to Expected)	80
# Standard Deviations-Hispanic Incidents of Markup - (Actual to Expected)	58

M. Difference between New Car Price and MSRP by Race

Figure 14 compares the average difference between the new car price paid by AHFC African-American and White customers, excluding those who were booked under contracts based on zero markup programs. The average price paid by African-Americans was $574 compared to $544 for White customers. Similarly, Figure 14A reports on this difference for all contracts, including those booked using zero markup programs. While the average African-American paid $135 over MSRP, the average White customer paid $113 less than MSRP.

Figure 14
Average Difference Between New Car Price and MSRP
Excluding Contracts Booked Under Zero Markup Programs

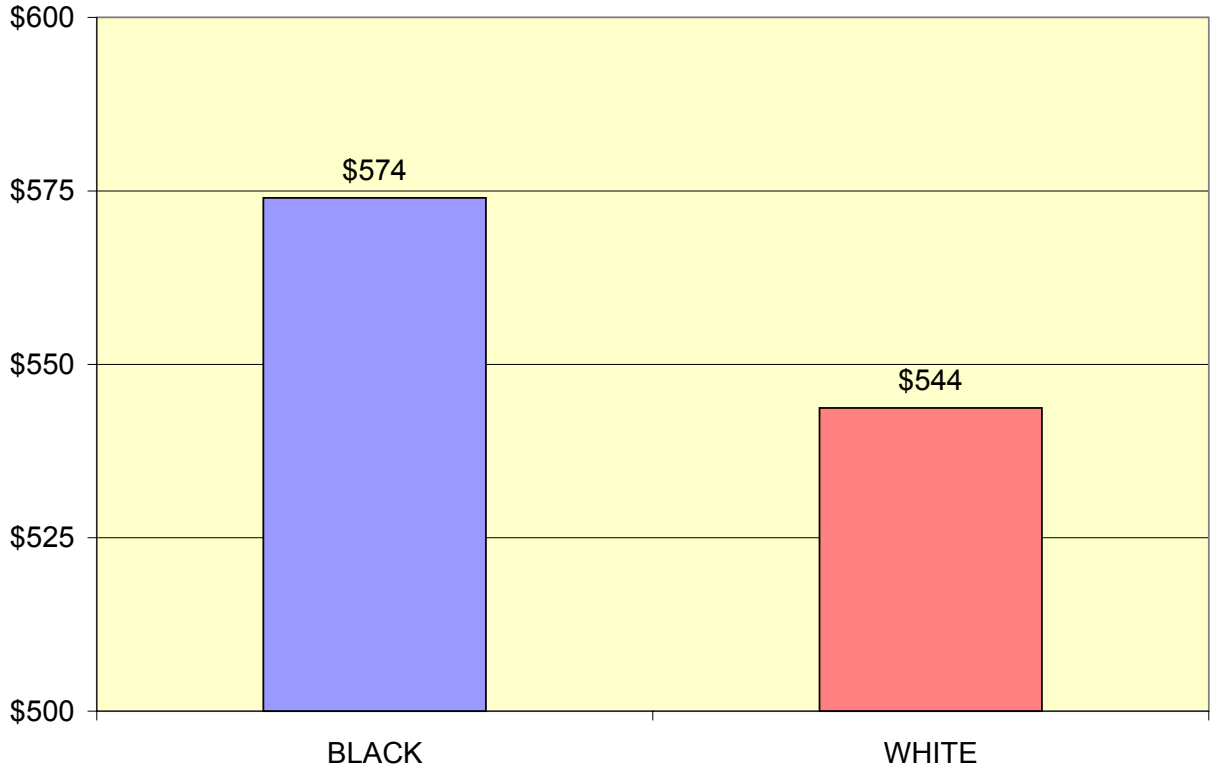


Figure 14A
Average Difference Between New Car Price and MSRP
Including Contracts Booked Under Zero Markup Programs

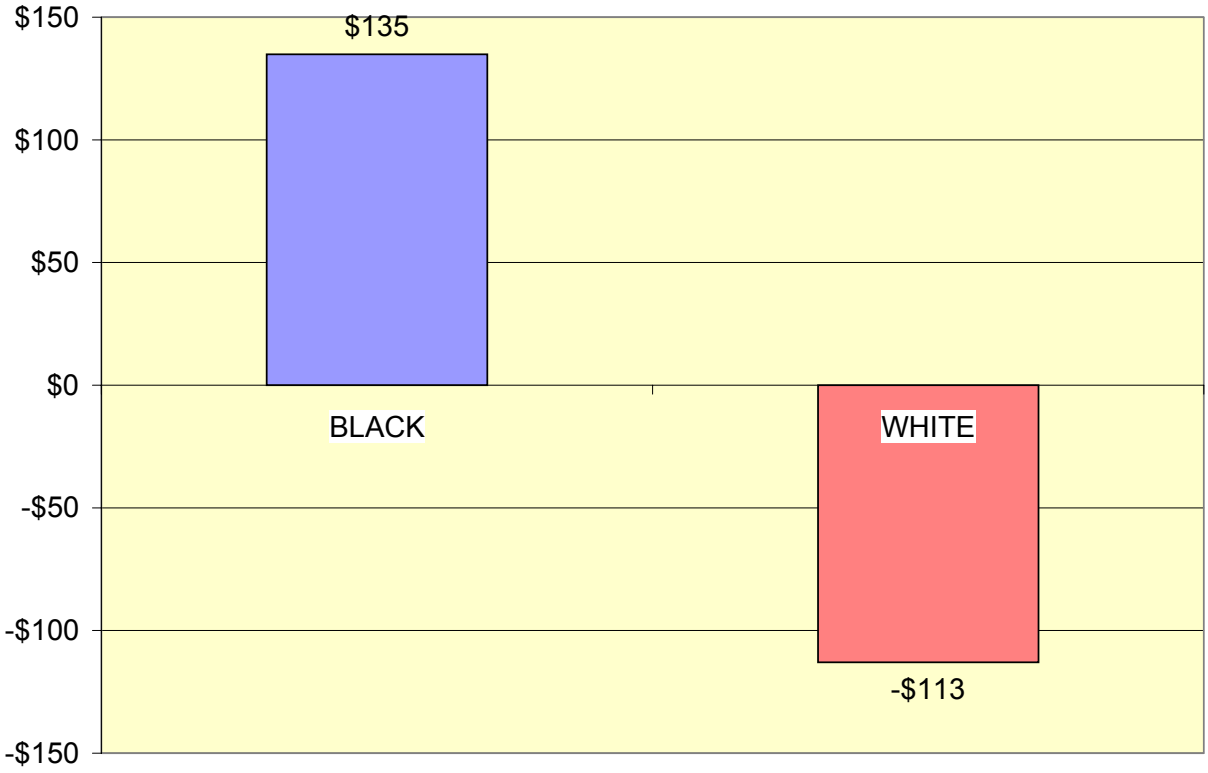


Figure 15 compares the average difference between the new car price and the wholesale price paid by AHFC African-American and White customers, excluding those who were booked under contracts based on zero markup programs. To eliminate the effect of large trade-ins to the extent possible, I have restricted this comparison to those where the amount financed is at least 75% or more of the sales price. The average price paid by African-Americans was $2,746 over wholesale, compared to $2,670 for White customers. Thus, on average, African-Americans pay slightly more than Whites do over the wholesale price. This difference of $76, however, is statistically significant at $p < .01$. Figure 15A reports on this difference for all contracts, including those booked using zero markup programs. While the average African-American paid

$2,318 over wholesale, the average White customer paid $1,994 over wholesale. This difference of $324 is statistically significant at $p < .01$. Finally, Figure 14B reports on this difference only for contracts that are booked under zero markup programs. Once again, African-Americans pay a higher amount over wholesale, $1,890 versus $1,691, and this difference is statistically significant at $p < .01$.

Figure 15
Average Amount Paid Over Wholesale Price of New Car by Race
Excluding contracts Booked Under Zero Markup Programs

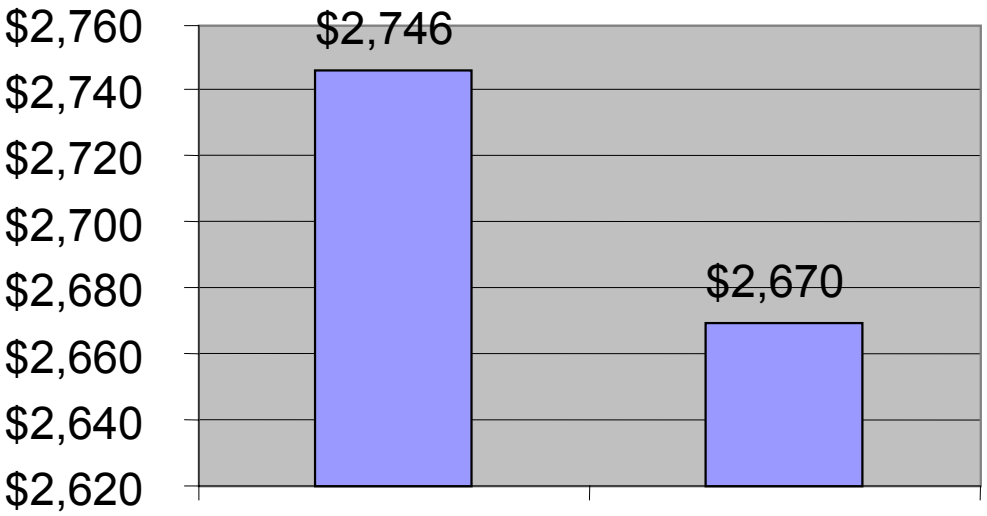


Figure 15A
Average Amount Paid Over Wholesale Price of New Car by Race
Including Contracts Booked Under Zero Markup Programs

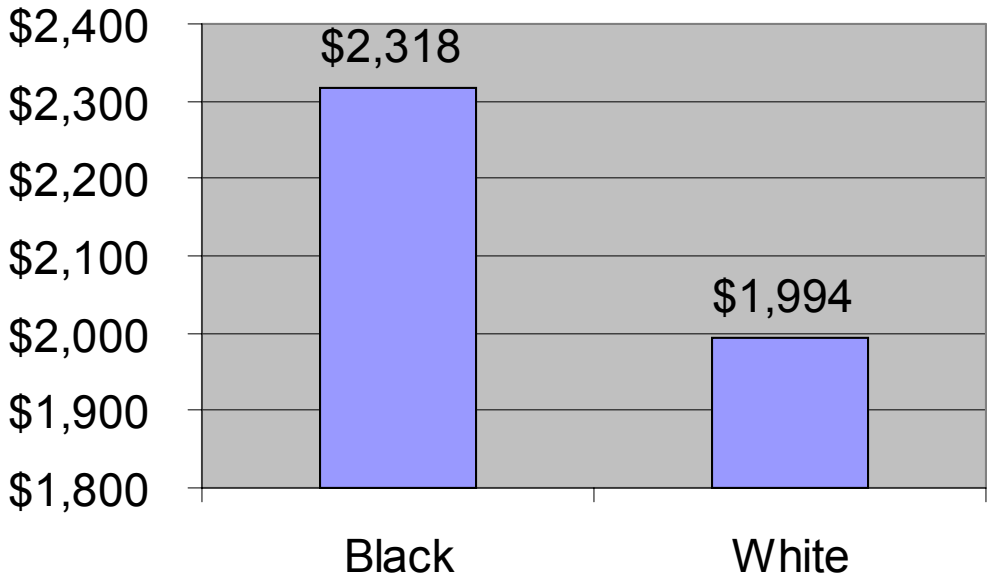
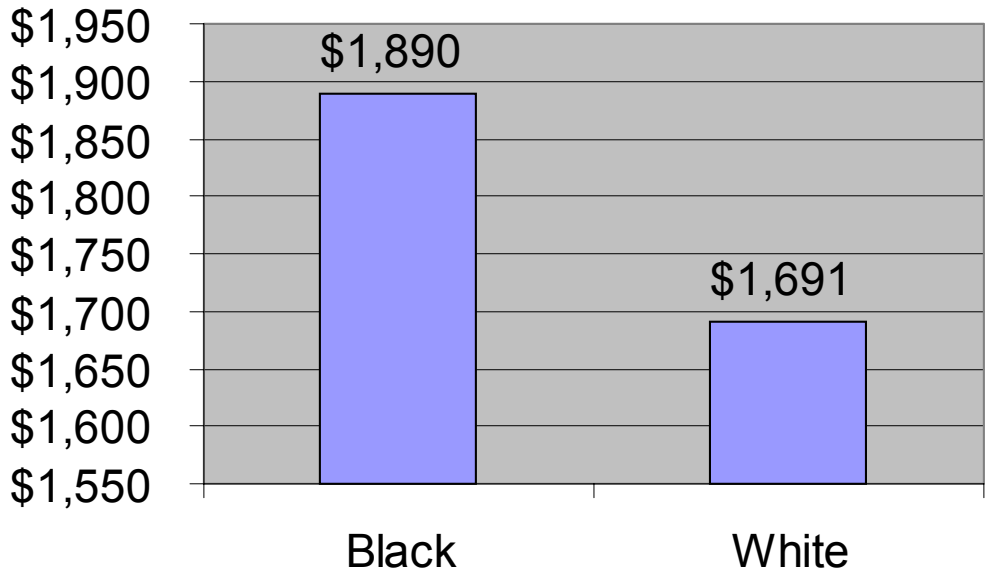


Figure 15B
Average Amount Paid Over Wholesale Price of New Car by Race
Only Contracts Booked Under Zero Markup Programs



N. Total Dollar Markup by State

Table 31 reports on the total dollar markup by state for all AHFC customers (including those who have not been race-coded). Of the 1.3 million cases, 466,614 were booked under contracts that authorized subjective markup. The total dollar amount of markup was $327.6 million. The average markup for customers was $702. The state with the largest dollar markup is California, with $67.5 million. The largest average markup was in the state of Maryland, $915.

Table 31
Total Dollar Markups by State
Excluding Contracts Booked under "Zero Markup" Programs

State	Number of Contracts	Total Markup Dollars	Average Dollar Markup
ALASKA	108	$85,709	$794
ALABAMA	3,761	$2,306,615	$613
ARKANSAS	1,215	$484,364	$399
ARIZONA	7,295	$5,874,593	$805
CALIFORNIA	115,194	$67,545,420	$586
COLORADO	3,473	$2,674,839	$770
CONNECTICUT	10,878	$7,387,461	$679
DELAWARE	2,298	$1,798,018	$782
FLORIDA	19,977	$15,882,471	$795
GEORGIA	14,090	$10,928,426	$776
HAWAII	595	$432,938	$728
IOWA	831	$365,075	$439
IDAHO	331	$248,760	$752
ILLINOIS	12,656	$9,991,568	$789
INDIANA	3,026	$2,212,320	$731
KANSAS	1,084	$696,326	$642
KENTUCKY	1,369	$1,002,151	$732
LOUISIANA	6,376	$5,511,406	$864
MASSACHUSETTS	14,420	$8,043,828	$558
MARYLAND	32,785	$30,010,451	$915
MAINE	329	$199,009	$605
MICHIGAN	3,809	$959,229	$252
MINNESOTA	2,203	$1,138,483	$517
MISSOURI	4,000	$2,373,869	$593
MISSISSIPPI	901	$575,515	$639

MONTANA	248	$85,956	$347
NORTH CAROLINA	14,310	$10,305,493	$720
NORTH DAKOTA	93	$20,684	$222
NEBRASKA	554	$171,608	$310
NEW HAMPSHIRE	1,377	$707,769	$514
NEW JERSEY	39,079	$29,206,816	$747
NEW MEXICO	1,106	$798,354	$722
NEVADA	2,684	$2,673,719	$996
NEW YORK	29,271	$18,594,076	$635
OHIO	8,523	$2,747,100	$322
OKLAHOMA	2,542	$1,696,561	$667
OREGON	3,242	$2,353,696	$726
PENNSYLVANIA	21,428	$11,966,478	$558
RHODE ISLAND	1,917	$1,702,380	$888
SOUTH CAROLINA	6,587	$4,743,582	$720
SOUTH DAKOTA	352	$71,595	$203
TENNESSEE	8,947	$7,034,074	$786
TEXAS	39,480	$36,574,729	$926
UTAH	1,192	$663,657	$557
VIRGINIA	13,663	$11,863,121	$868
VERMONT	422	$165,309	$392
WASHINGTON	3,695	$3,222,913	$872
WISCONSIN	2,353	$1,288,474	$548
WEST VIRGINIA	483	$191,109	$396
WYOMING	62	$10,208	$165
Total	**466,614**	**$327,588,305**	**$702**

O. Effect of Proposed Markup Caps on Disparate Impact of Subjective Markup Policy

Table 32 examines the effect of three different proposed dollar limits on markups - $1,000, $750, and $500. While AHFC currently has its own markup caps of 2% and 3.5% - depending upon the credit tier, as shown above, those caps may result in several thousand dollars in markups and they are also subject to over-rides. They also have the effect of a disparate impact on African-American customers. The proposed caps would significantly reduce that disparity. As shown in Table 32, excluding zero markup programs, African-Americans currently pay on average $410 more than Whites. While the average markup for Whites is $698, it is

$1,108 for African-Americans - 59% higher. Under a $1,000 markup cap, that disparity would be reduced to $224, with African-Americans being charged an average of $741 versus $517 for Whites. A markup cap of $750 reduces the disparity to $165, while a $500 cap reduces it further to $102.

Table 32
Effect of Proposed Cap on Average Markup Dollars

	Proposed Markup Cap	Black Markup	White Markup	$'s Difference	% Difference
Including Contracts Booked Under Zero Markup Programs	Actual $'s	$557	$227	$330	145%
Excluding Contracts Booked Under Zero Markup Programs	Actual $'s	1,108	698	$410	59%
Excluding Contracts Booked Under Zero Markup Programs	$1,000 Cap	741	517	$224	43%
Excluding Contracts Booked Under Zero Markup Programs	$750 Cap	598	433	$165	38%
Excluding Contracts Booked Under Zero Markup Programs	$500 Cap	419	317	$102	32%

P. Additional Data Analysis

Figures 16, 17, 17A, 18, 18A, 19, and 19A contain additional analysis of AHFC data.

Figure 16
Percent of New versus Used Car
Contracts Booked Under Zero Markup Programs

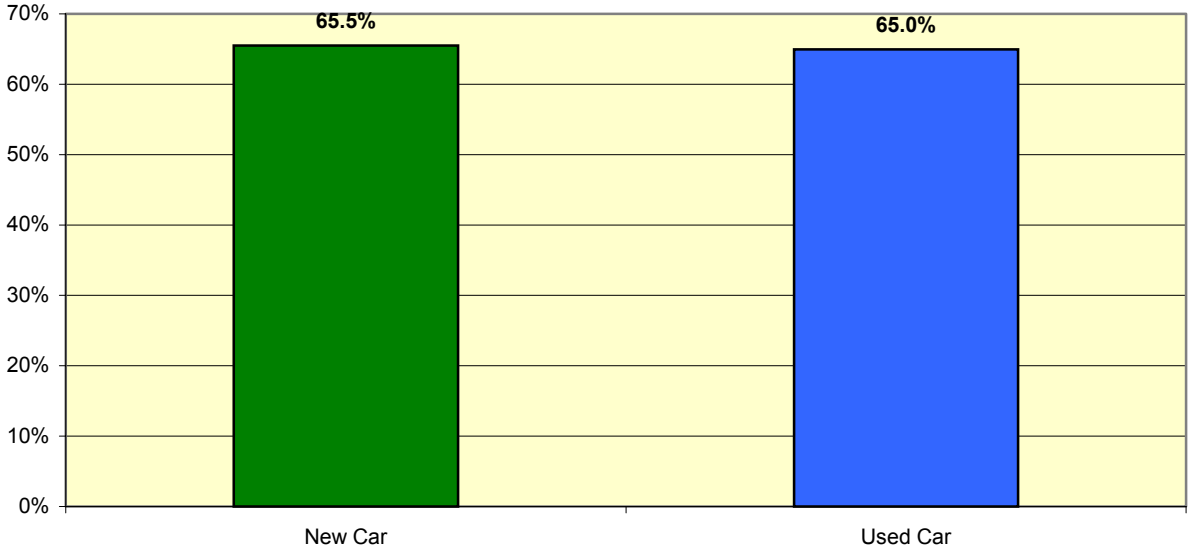


Figure 17 - Average Markup by Application Method
Excluding Contracts Booked Under Zero Markup Programs

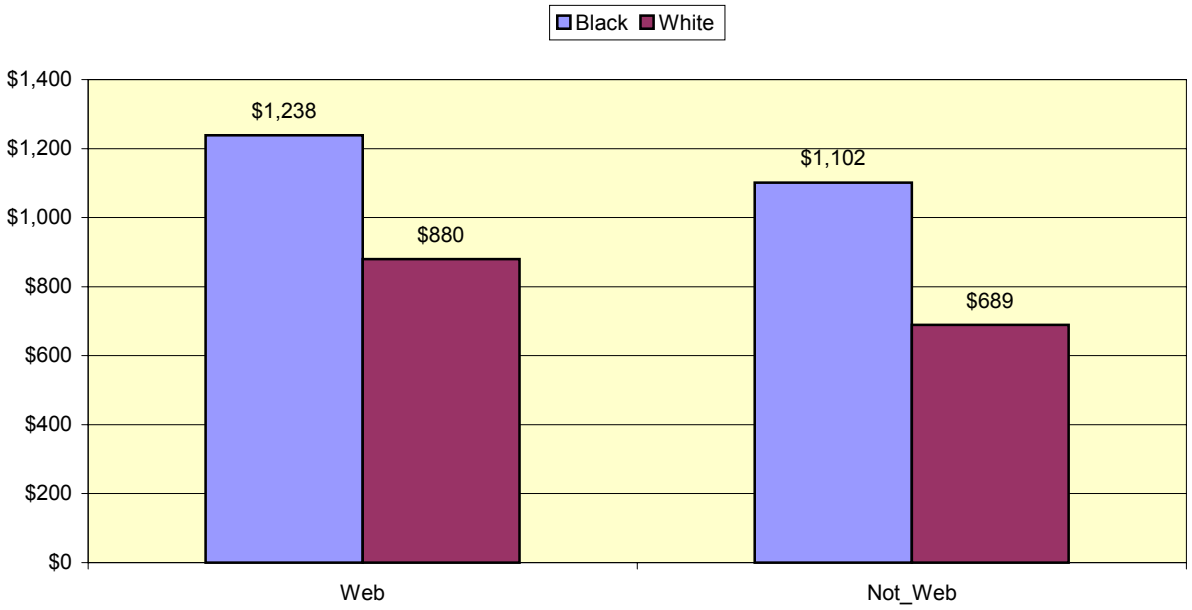


Figure 17A - Average Markup by Application Method
Including Contracts Booked Under Zero Markup Programs

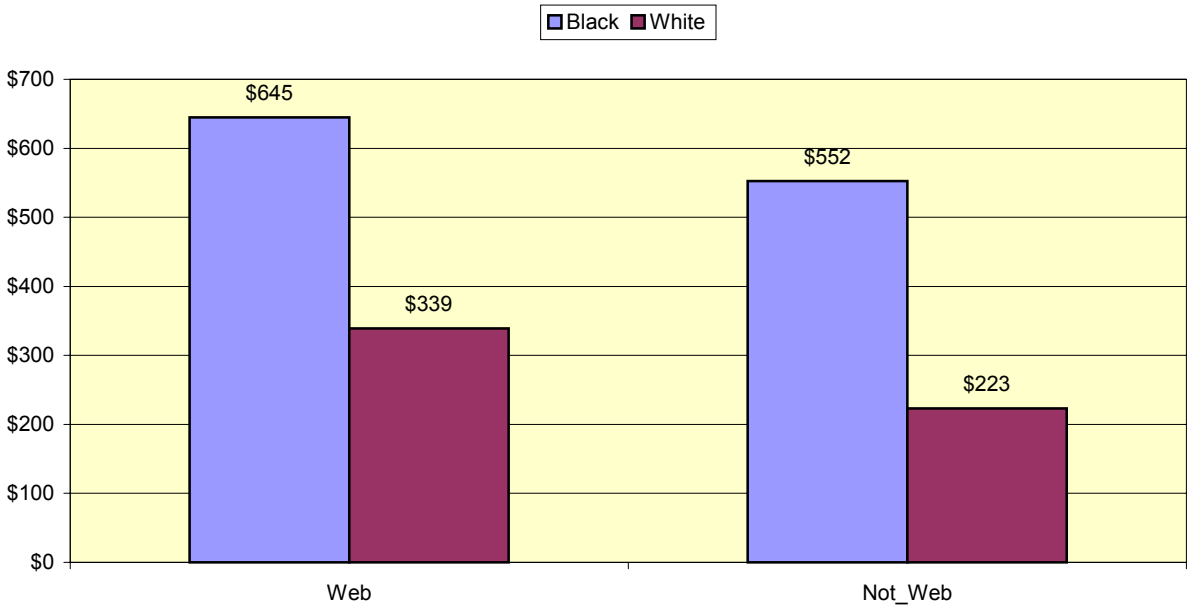


Figure 18 - Average Markup by Eligible Tier
Excluding Contracts Booked Under Zero Markup Programs

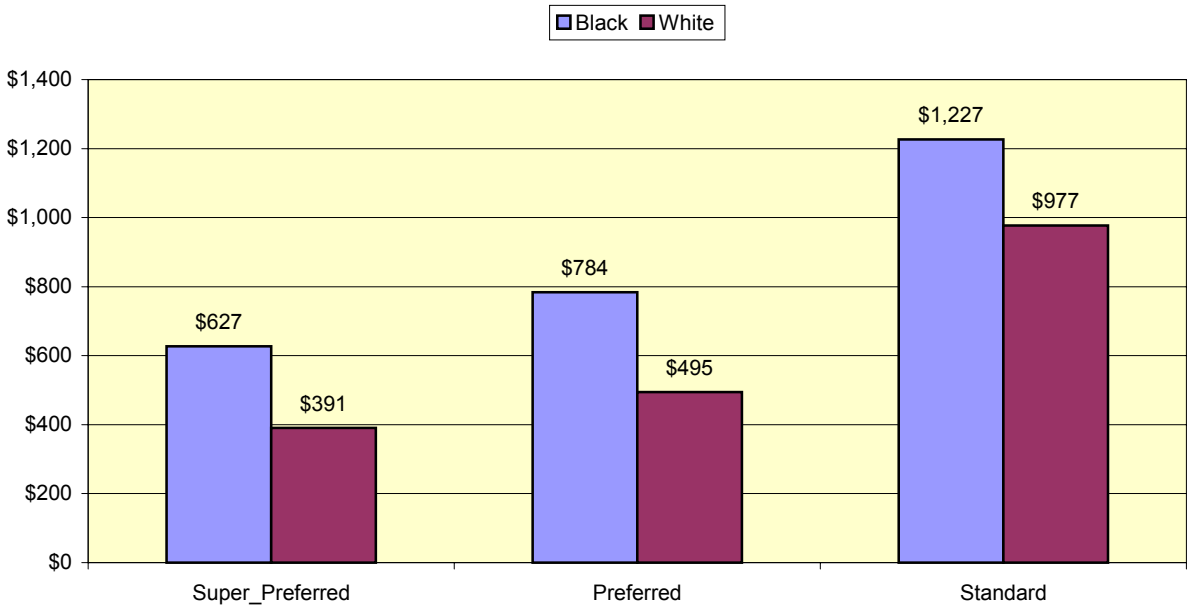


Figure 18A - Average Markup by Eligible Tier
Including Contracts Booked Under Zero Markup Programs

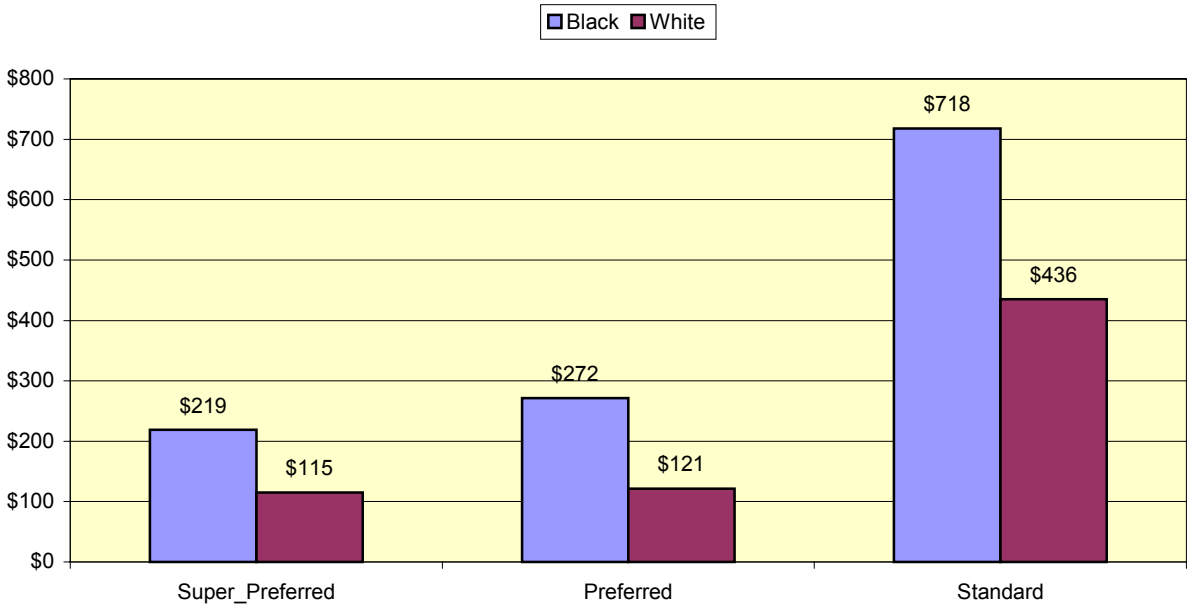


Figure 19 - Average Markup by Booked Tier
Excluding Contracts Booked Under Zero Markup Programs

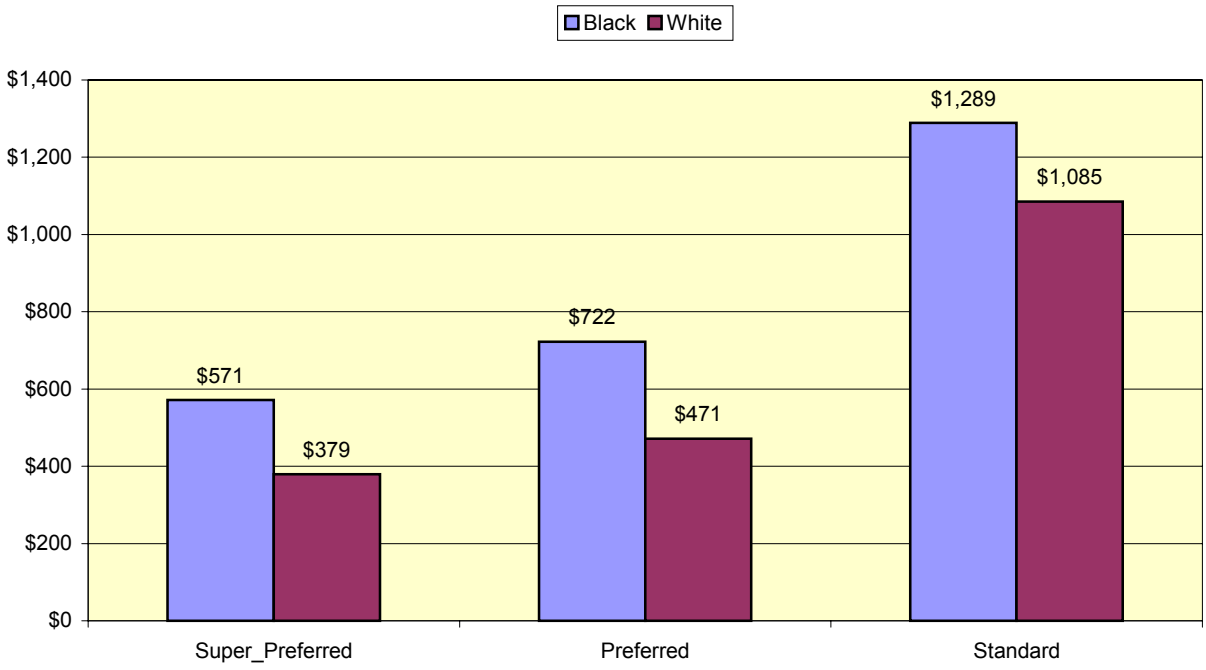
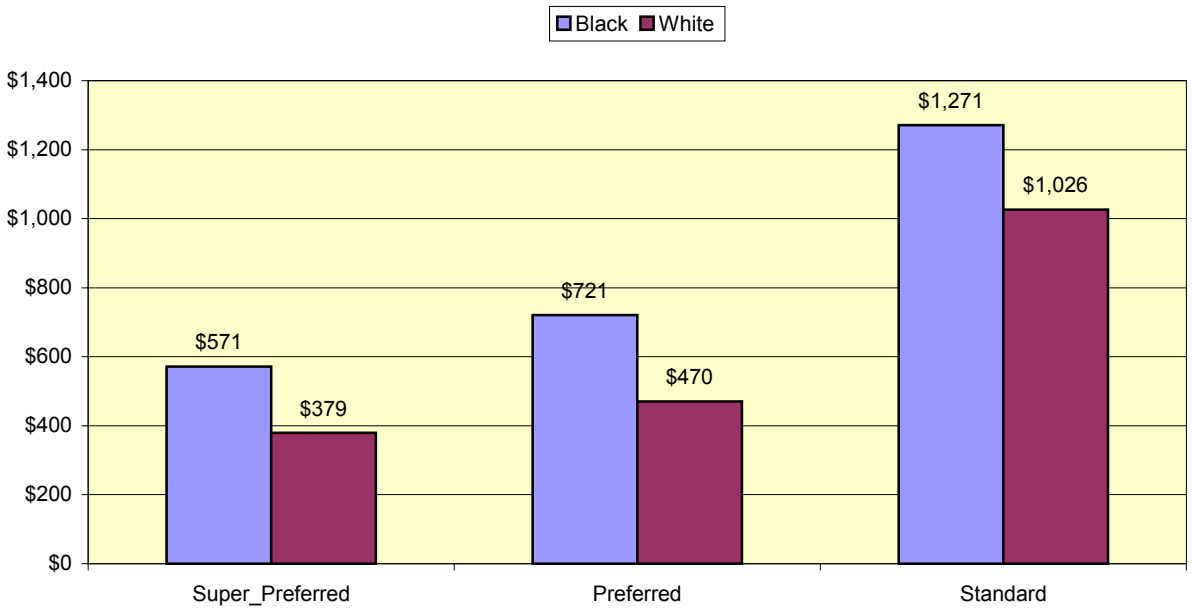


Figure 19A - Average Markup by Booked Tier
Including Contracts Booked Under Zero Markup Programs



VII. Conclusion

I have conducted an extensive empirical analysis of 383,652 AHFC customer records that have been race-coded by CLC. These data provide strong empirical evidence of a disparate impact on African-American borrowers. This effect is persistent over the entire time period from 1999 through 2003, across geographic boundaries, controlling for factors such as term of loan, type of vehicle, credit worthiness of borrower, etc. Excluding contracts booked under zero markup programs, African-American AHFC borrowers on average paid about $1,108 in markups - about $410 more than White borrowers on average. They were also more likely to be marked up (86.3% versus 68.0%). Including contracts booked under zero markup programs, African-Americans were both more likely to be marked up (43.3% versus 22.2%) and to pay a higher markup on average ($557 versus $227). While African-Americans make up 11.6% of the race-coded data, they pay 24.2% of the total dollar amount of subjective markup. While the average markups are a few hundred dollars, a small but significant percentage of AHFC customers pay $2,000, $3,000 or even more in subjective markup. African-Americans are highly over-represented among those who pay the top markup dollars.

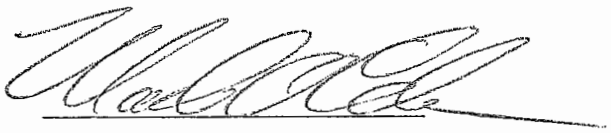
The findings that African-Americans AHFC customers pay a significantly higher subjective markup than White customers is consistent with my understanding of the automobile financing market and my previous analyses of data and other evidence in previous cases involving subjective automobile loan financing markup. It is also consistent with a finding that there is a causal connection between AHFC's credit pricing policy and a disparate impact on African-American customers.

VIII. Qualifications

I received my Ph.D. in Economics from Carnegie-Mellon University in 1985. I currently hold the Justin Potter Chair in American Competitive Business and serve as Senior Associate Dean at the Owen Graduate School of Management, Vanderbilt University. I also hold the position of Honorary Visiting Professor of Criminal Justice Economics at the University of York (UK). From 1998-2003, I served as Chairman of the American Statistical Association's Committee on Law and Justice Statistics. My research and expertise includes the areas of law and economics, crime and justice, environmental management, and statistical analysis of legal and policy issues. Prior to joining the faculty at Vanderbilt, I worked as an economist at the Federal Trade Commission analyzing consumer protection issues including matters of unfair and deceptive trade practices, consumer fraud and fair lending practices. I also worked at the U.S. Sentencing Commission analyzing judicial sentences for street crime and White collar and corporate crime.

Since 1986, I have been retained as an expert by both plaintiff and defense counsel on numerous matters including damages in personal injury and wrongful death cases; antitrust violations; contract and business disputes; age, race and sex discrimination lawsuits; consumer fraud; and other matters requiring expert testimony on economics or statistical issues. I have been qualified as an expert to testify on economics and statistics issues in the U.S. District Court for the Middle District of Tennessee as well as numerous Tennessee State Circuit courts.

My curriculum vita, which includes all of my publications, and a list of prior cases in which I have given deposition or trial testimony over the previous four years is attached as Appendix B.



Mark A. Cohen, Ph.D.

APPENDIX A: Sources Consulted

Report on Racial Impact of AHFC's Finance Charge Markup Policy
Mark A. Cohen
July 6, 2004

(1) Various rate sheets and special rate programs for AHFC.

(2) Various depositions from *Terry Willis, et al. v. AHFC*.

(3) Deal files for Tonya R. Howell, Terry O. Willis, Charles L. Scott, and Marcelino F. Cherry.

(4) Class Action Complaint.

(5) "Supplemental Responses of Defendant American Honda Finance Corporation to Plaintiffs' Third Set of Interrogatories and Fourth Request for Production of Documents," September 15, 2003.

(6) "Answer of American Honda Finance Corporation to Plaintiffs' First Amended Class Action Complaint," September 22, 2003.

(7) "Responses of Defendant American Honda Finance Corporation to Plaintiffs' 'Fourth' Set of Interrogatories (Interrogatories Propounded in Letter of July 14, 2003)" August 18, 2003.

(8) "Report Regarding Race/Ethnicity Coding of American Honda Finance Corporation Data," Raymond Henderson, CLC Compliance Technologies.

(9) "Expert Report of Paul Manning, June 18, 2004.

(10) "Final Report on Racial Impact of NMAC's Finance Charge Markup Policy," Mark A. Cohen, May 17, 2001. (Robert F. and Betty T. Cason et al., v. Nissan Motors Acceptance Corporation).

(11) "Supplemental Report on Racial Impact of NMAC's Finance Charge Markup Policy," Mark A. Cohen August 28, 2001. (Robert F. and Betty T. Cason et al., v. Nissan Motors Acceptance Corporation).

(12) "Impact of NMAC's Credit Pricing Policy on Hispanic Borrowers," Mark A. Cohen, October 17, 2002. (Robert F. and Betty T. Cason et al., v. Nissan Motors Acceptance Corporation).

(13) "Expert Report of Ian Ayres, Ph.D." May 25, 2001. (Robert F. and Betty T. Cason et al., v. Nissan Motors Acceptance Corporation).

(14) "Report on Racial Impact of GMAC's Finance Charge Markup Policy," Mark A. Cohen, July 19, 2000. (Addie T. Coleman, et al. v. General Motors Acceptance Corporation, et al.)

(15) "Report on Racial Impact of GMAC's Finance Charge Markup Policy," Mark A. Cohen, August 29, 2003 (Addie T. Coleman, et al. v. General Motors Acceptance Corporation)

(16) "Declaration of Mark A. Cohen, Ph.D.," August 19, 2003 (Joyce Jones et al. v. Ford Motor Credit Company).

APPENDIX B: Depositions and Trials
Report on Racial Impact of AHFC's Finance Charge Markup Policy
Mark A. Cohen
July 6, 2004

Deposition Only

Joelynn Neighbors v. David D. Coleman and Modco, Inc., Rutherford County Circuit Court, No. 40629; deposition Oct. 29, 2000.

James W. Gillespie, et al. v. DaimlerChrysler Corp; Circuit Court of Shelby County No. 76600-9; deposition September 7, 2000.

Richard Harley Smith v.Province Healthcare Company, U.S. District Court, Middle District of Tennessee, No. 3-99-1038; deposition January 18, 2001.

Linda Austin v. Willard M. West, M.D.; Wilson County Circuit Court; deposition March 18, 2001.

Estate of Trista Haxton v. U.S.; U.S. District Court, Middle District of Tennessee; deposition July 27, 2001.

Charles McCoy et al. v. Willamette Industries, Inc. (U.S. District Court for the Southern District of Georgia, Savannah Division, Civil Action No. CV401-075). Deposition October 22, 2001.

Sabrina Abernathy, et al. v. Monsanto Company et al. (Circuit Court of Etowah County, Alabama, Civil Action No. CV-2001-832), Deposition April 2, 2002.

Estate of Russell E. Covey v. Baptist Hospital et al. (Fifth Circuit Court for Davidson County, TN, No. 99C-2907); deposition July 10, 2002.

Tamia Williams, a minor, b/n/f and Parents Tammy Williams and Ricky Williams v. BFI Waste Systems of North America, Inc. f/d/b/a Browning-Ferris Industries of Nashville, Inc. and James K. Emerton (Sixth Circuit Court for Davidson County, Tennessee, No. 98C-3350), Deposition August 19, 2002.

Mattie Bagby v. Dillard's Inc. (U.S. District Court, Middle District of Tennessee, No. 3-00-0705), Deposition September 20, 2002.

Whitaker et al. v. Mueller Refrigeration Co., Inc. (U.S. District Court, Middle District of Tennessee, No. 3-01-1440), Deposition December 11, 2002.

Shiann Jones et al., v. Alabama Academy of Fast Pitch Softball et al. (Birmingham, AL contact attorney Trey Traylor for court details), Deposition July 3, 2003.

Yehuda Sharon, a/k/a Eugene Warner vs. Nissan Motors Acceptance Corporation, et al. (Case No. CV-S-1420-RLH-LRL, United States District Court for the District of Nevada). August 1, 2003.

Addie T. Coleman et al. v. General Motors Acceptance Corp. (No. 3-98-0211, U.S. District Court for the Middle District of Tennessee), November 3, 2003.

Curtis Heard, Jr. v. Gainey Transportation Services, Inc. (CV 03-BE-961-E, U.S. District Court for the Northern District of Alabama), December 18, 2003.

Northfield Insurance Co. v. Isles of June Consulting, Ltd, et al. (Case 3-99-1186, U.S. District Court for the Middle District of Tennessee), February 4, 2004.

Milton M. Lilly, Jr., as the Administrator of the Estate of Anna E. Lilly, Deceased, et al. v. Gary Swanson, M.D. et al. (Circuit Court of Rutherford County, Tennessee, No. 47864), May 26, 2004.

Sandra Baggett v. Dollar General Store et al. (U.S. District Court for the Middle District of Tennessee), June 21, 2004.

Trial Only

Constance Cherry et al. v. State of Tennessee; Tennessee Claims Commission No. 98001883, Jackson, TN. May 23, 2000.

Donna Carnahan v. Housecall Medical Resources, Sumner County Circuit Court Case #19754-C; May 2, 2001.

Estate of Raven Blair Hollis, Lawrence County Circuit Court (contact Gino Bulso, Esq. for case name), October 10, 2001.

Driber v. Prime Medical Services; (U.S. District Court, Davidson County Tennessee, Judge Trauger); trial July 15, 2002.

Tina Schultz Blackman v. United States; (U.S. District Court, Davidson County Tennessee, Judge Trauger); trial July 25, 2002.

David L. Clymer v. G. William Davis (Davidson County Circuit Court, Fifth Circuit, Judge Kurtz); trial November 21, 2002.

Deposition and Trial

Eliezer Robinson v. HCA Health Services of Tennessee, Inc. et al.; deposition October 24, 2000; video deposition in place of trial testimony, June 19, 2003.

Terry L. Parker and wife, Naomi L. Parker v. Jimmy Alan Taylor; Rutherford County Circuit Court Case No. 41172; deposition, November 10, 2000; trial December 5, 2000.

Jong-Do Ki vs. State of State of Tennessee, Tennessee Claims Commission; deposition February 22, 2000; trial August 16, 2000 (Jackson, TN.)

Bonnie Padgett v. Frank Walton, Montgomery County Circuit Court No. C11-110; deposition March 24, 2000; trial July 11, 2000 (Clarksville, TN).

Cason et al. v. Nissan Motor Acceptance Corporation; U.S. District Court, Middle District of Tennessee; deposition July 19 and July 23, 2001; testimony at injunction hearing September 4, 2001.

Roger Nash et al., vs. Mercer Trucking et al. (Wrongful Death of Justin Nash); (Circuit Court for the Tenth Judicial Circuit, Jefferson County, Alabama; Civil Action CV-00-0391 ER); deposition October 12, 2001; trial October 31, 2001.

APPENDIX C: Regression Analysis - Tennessee

Report on Racial Impact of AHFC's Finance Charge Markup Policy
Mark A. Cohen
July 6, 2004

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.365	.133	.133	507.33565	
2	.394	.155	.154	501.33282	
3	.459	.211	.210	484.49587	1.935

Coefficients

Model		Unstandardized Coefficients B	t-statistic	Sig.	95% Confidence Interval for B	
					Lower Bound	Upper Bound
1	(Constant)	-807.163	-35.960	.000	-851.159	-763.166
	BLACK	237.640	21.497	.000	215.973	259.307
	fin_amt	.018	26.338	.000	.017	.020
	loan_term	12.169	28.447	.000	11.330	13.007
2	(Constant)	-752.740	-29.271	.000	-803.145	-702.335
	BLACK	220.005	19.011	.000	197.322	242.687
	fin_amt	.018	25.085	.000	.016	.019
	loan_term	11.829	27.511	.000	10.986	12.672
	QUAR_1	-13.918	-1.408	.159	-33.295	5.460
	QUAR_2	-27.227	-2.587	.010	-47.858	-6.596
	QUAR_3	-26.260	-2.563	.010	-46.338	-6.181
	ENDMONTH	-5.494	-.696	.487	-20.974	9.987
	POST_911	50.735	6.816	.000	36.146	65.324
	DEAL_001	-61.973	-2.705	.007	-106.881	-17.064
	DEAL_002	-40.217	-2.415	.016	-72.863	-7.570
	DEAL_003	127.363	1.211	.226	-78.749	333.474
	DEAL_004	15.137	.821	.412	-21.019	51.292
	DEAL_005	-136.365	-5.713	.000	-183.152	-89.578
	DEAL_006	-134.260	-7.101	.000	-171.320	-97.199
	DEAL_007	19.962	.732	.464	-33.483	73.408
	DEAL_008	-31.314	-1.646	.100	-68.614	5.986
	DEAL_009	-18.122	-1.103	.270	-50.329	14.084
	DEAL_010	21.913	1.565	.117	-5.524	49.350
	DEAL_012	40.669	2.339	.019	6.589	74.750
	DEAL_013	8.264	.328	.743	-41.142	57.671
	DEAL_014	-279.030	-5.980	.000	-370.482	-187.578
	DEAL_015	14.280	.656	.512	-28.414	56.975
	DEAL_016	-128.664	-6.517	.000	-167.361	-89.967
	DEAL_017	24.499	.212	.832	-202.151	251.149
	DEAL_018	-155.384	-5.642	.000	-209.366	-101.401
	DEAL_019	-173.491	-5.756	.000	-232.566	-114.416
	DEAL_020	-195.324	-9.396	.000	-236.070	-154.579
	DEAL_021	-90.052	-1.415	.157	-214.804	34.701
	DEAL_022	-45.493	-1.979	.048	-90.545	-.441
	DEAL_023	487.028	6.453	.000	339.086	634.969
	DEAL_024	-120.560	-6.244	.000	-158.404	-82.716
	DEAL_025	-155.688	-5.188	.000	-214.512	-96.864
	DEAL_026	52.524	3.277	.001	21.107	83.941

	DEAL_027	-33.829	-1.722	.085	-72.335	4.678
3	(Constant)	-592.596	-14.387	.000	-673.330	-511.861
	BLACK	134.616	11.745	.000	112.151	157.081
	fin_amt	.014	19.819	.000	.013	.016
	loan_term	10.017	23.431	.000	9.179	10.855
	QUAR_1	-17.228	-1.803	.071	-35.959	1.503
	QUAR_2	-29.191	-2.869	.004	-49.132	-9.249
	QUAR_3	-29.228	-2.952	.003	-48.636	-9.820
	ENDMONTH	-9.121	-1.195	.232	-24.086	5.845
	POST_911	38.288	5.246	.000	23.982	52.595
	DEAL_001	13.762	.607	.544	-30.644	58.168
	DEAL_002	-11.482	-.711	.477	-43.120	20.155
	DEAL_003	128.155	1.261	.207	-71.057	327.367
	DEAL_004	43.982	2.460	.014	8.945	79.020
	DEAL_005	-100.289	-4.343	.000	-145.547	-55.030
	DEAL_006	-139.373	-7.590	.000	-175.363	-103.383
	DEAL_007	34.360	1.304	.192	-17.302	86.022
	DEAL_008	-21.138	-1.149	.250	-57.190	14.914
	DEAL_009	-10.043	-.632	.527	-41.191	21.105
	DEAL_010	27.381	2.023	.043	.857	53.905
	DEAL_012	51.147	3.043	.002	18.198	84.095
	DEAL_013	91.461	3.696	.000	42.959	139.963
	DEAL_014	-181.882	-4.010	.000	-270.775	-92.989
	DEAL_015	27.177	1.290	.197	-14.109	68.463
	DEAL_016	-115.700	-6.063	.000	-153.107	-78.294
	DEAL_017	82.829	.741	.459	-136.242	301.900
	DEAL_018	-141.062	-5.294	.000	-193.295	-88.830
	DEAL_019	-141.116	-4.840	.000	-198.263	-83.969
	DEAL_020	-193.029	-9.603	.000	-232.428	-153.631
	DEAL_021	-54.346	-.883	.377	-174.952	66.259
	DEAL_022	-25.443	-1.145	.252	-68.998	18.113
	DEAL_023	513.085	7.026	.000	369.948	656.222
	DEAL_024	-99.358	-5.316	.000	-135.993	-62.723
	DEAL_025	-146.079	-5.030	.000	-203.000	-89.158
	DEAL_026	56.132	3.619	.000	25.734	86.529
	DEAL_027	-13.364	-.703	.482	-50.601	23.873
	TIER_1	-157.945	-4.842	.000	-221.877	-94.013
	TIER_2	-31.936	-.962	.336	-97.014	33.143
	TIER_3	108.565	3.229	.001	42.673	174.456
	TIER_4	279.077	8.174	.000	212.154	346.001
	New Car	98.297	11.860	.000	82.051	114.543