

## TABLES

**TABLE 1.**  
**Typical Information Used in Credit-Based  
Insurance Scoring Models**

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Performance on Credit Obligations

Late payments/Delinquencies (-)  
Collections (generally non-medical) (-)  
Public records (judgments or bankruptcies) (-)

Credit-Seeking Behavior

Inquiries (generally non-insurance, non-medical) (-)  
New accounts (-)

Use of Credit

Ratio of outstanding balances to available credit (-)

Length of Credit History

Age of oldest account (+)  
Average age of all accounts (+)

Types of Credit Used

Department store trade lines (-)  
Oil Company trade lines (-)  
Travel and Entertainment trade lines (-)  
Share of trade lines that are major bank credit cards or mortgages (+)

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Note: (-) indicates that high values typically lead to a riskier score, and the converse for (+).

**TABLE 2.**  
**Claim Frequency, Claim Severity, and Average Total Amount Paid on Claims**

Score Decile	Average Number of Claims Per Year of Coverage (per hundred)	Average Cost per Claim	Average Total Paid on Claims Per Year of Coverage [(a) x (b)] (c)
	(a)	(b)	(c)
<b>Property Damage Liability Coverage</b>			
1	5.65	\$2,100	\$119
2	4.86	2,119	103
3	4.51	2,105	95
4	4.21	2,078	88
5	4.09	1,982	81
6	3.85	2,028	78
7	3.55	2,006	71
8	3.34	1,994	67
9	3.40	2,062	70
10	3.17	1,981	63
<i>Overall</i>	4.06	\$2,053	\$83
<b>Bodily Injury Liability Coverage</b>			
1	1.79	\$8,560	\$153
2	1.59	10,002	159
3	1.39	7,798	109
4	1.39	7,993	111
5	1.19	7,940	95
6	1.01	8,892	89
7	0.91	8,538	78
8	0.89	8,760	78
9	0.85	9,127	78
10	0.77	8,372	64
<i>Overall</i>	1.18	\$8,609	\$101

(continued...)

**TABLE 2.**  
**Claim Frequency, Claim Severity, and Average Total Amount Paid on Claims**  
**(Continued)**

Score Decile	Average Number of Claims Per Year of Coverage (per hundred)	Average Cost per Claim	Average Total Paid on Claims Per Year of Coverage [(a) x (b)] (c)
	(a)	(b)	(c)
<b>Collision Coverage</b>			
1	11.80	\$2,364	\$279
2	9.53	2,201	210
3	8.57	2,174	186
4	8.09	2,060	167
5	7.45	2,014	150
6	6.86	2,057	141
7	6.47	2,006	130
8	6.18	1,965	122
9	6.11	2,003	122
10	5.38	2,004	108
<i>Overall</i>	<i>7.64</i>	<i>\$2,112</i>	<i>\$161</i>
<b>Comprehensive Coverage</b>			
1	11.50	\$1,032	\$119
2	9.69	879	85
3	9.06	828	75
4	9.06	773	70
5	8.34	773	64
6	8.07	752	61
7	7.46	774	58
8	7.42	718	53
9	7.03	722	51
10	6.95	688	48
<i>Overall</i>	<i>8.44</i>	<i>\$807</i>	<i>\$68</i>

Note: All numbers on this table represent actual means (*i.e.*, not derived from any risk modelling procedure).

Source: Analysis of FTC Automobile Insurance Policy Database

**TABLE 3.**  
**Median Income and Age, and Gender Make-Up,**  
**by Race and Ethnicity**

	Median Tract Income (a)	Median Age (b)	Percent Male (c)
African Americans	\$34,876	46	48%
Hispanics	\$38,475	42	60%
Asians	\$50,953	42	72%
Non-Hispanic Whites	\$44,356	48	68%

Note: Age and gender are measured at the individual level. See section VI.A.2 of the report for a discussion of how the age of the individual was determined. Neighborhood income is the median for the Census tract where the individual lives. See Appendix C for details on the data sources and the construction of the database.

Source: Analysis of FTC Automobile Insurance Policy Database

**TABLE 4.**  
**Change in Predicted Amount Paid on Claims from Using Credit-Based Insurance Scores, by Race and Ethnicity**

	Share With a Decrease (a)	Share With an Increase (b)	Percent Change in Mean Predicted Risk (c)
African Americans	36%	64%	10.0%
Hispanics	47%	53%	4.2%
Asians	66%	34%	- 4.9%
Non-Hispanic Whites	62%	38%	- 1.6%
<i>Overall</i>	<i>59%</i>	<i>41%</i>	<i>0.0%</i>

Note: Predicted change in the amount paid on claims was estimated by comparing individuals' predicted total claims from risk models that include ChoicePoint Attract Standard Auto credit-based insurance scores with risk models that do not include scores. (By construction, the average of all changes for the sample is zero.) Both of these models were run separately for property damage liability, bodily injury liability, collision, and comprehensive coverage. In the final step we sum the predicted dollar risks for all four types of insurance coverage with and without the use of credit-based insurance scores. See section VI.A.3 of the report for additional details on this analysis. Modeling details and a description of the variables included in the models are provided in Appendix D.

Source: Analysis of FTC Automobile Insurance Policy Database

**TABLE 5.**  
**Estimated Relative Amount Paid on Claims,**  
**by Race, Ethnicity, and Neighborhood Income**

	Property Damage Liability Coverage (a)	Bodily Injury Liability Coverage (b)	Collision Coverage (c)	Comprehensive Coverage (d)
<u>Race and Ethnicity</u>				
African Americans	1.01	1.48 *	1.43 *	1.63 *
Hispanics	1.11	1.25 *	1.33 *	1.45 *
Asians	1.17 *	1.11	1.30 *	0.96
Non-Hispanic Whites	1.00	1.00	1.00	1.00
<u>Neighborhood Income</u>				
Low	0.97	1.01	1.05	1.16 *
Middle	0.95 *	1.02	0.99	1.06 *
High	1.00	1.00	1.00	1.00

Asterisks indicate statistically significantly different from base category at 5% level.

Notes:

1) For each variable – *i.e.* race and ethnicity, and neighborhood income – estimated amount paid on claims per year of coverage is measured relative to a base category. For race and ethnicity, the base category is non-Hispanic whites; and, for neighborhood income the base category is “high income” neighborhood.

2) Estimated relative amounts paid out on claims per year of coverage for each race, ethnicity and neighborhood income category in each column are derived from Tweedie GLMs (Generalized Linear Models); which here include a set of standard risk variables as controls, but not score. Since our GLM models are multiplicative, the relativities shown on this table are equivalent to the exponentiated regression coefficients of the indicator variables for these categories. Modeling details and a description of the variables included in the models are provided in Appendix D.

Source: Analysis of FTC Automobile Insurance Policy Database

**TABLE 6.**  
**Estimated Relative Amount Paid on Claims, by Score Decile, Race, Ethnicity,**  
**and Neighborhood Income**

	Property Damage Liability Coverage		Bodily Injury Liability Coverage	
	(a)	(b)	(c)	(d)
<u>Score Decile</u>				
1	1.70 *	1.73 *	2.20 *	2.10 *
2	1.52 *	1.53 *	2.14 *	2.07 *
3	1.43 *	1.44 *	1.75 *	1.72 *
4	1.35 *	1.35 *	1.66 *	1.65 *
5	1.24 *	1.24 *	1.37 *	1.36 *
6	1.23 *	1.23 *	1.26 *	1.26 *
7	1.13 *	1.12 *	1.15	1.14
8	1.07	1.07	1.13	1.13
9	1.12 *	1.12 *	1.21	1.21
10	1.00	1.00	1.00	1.00
<u>Race and Ethnicity</u>				
African Americans	-	0.93	-	1.29 *
Hispanics	-	1.06	-	1.15
Asians	-	1.20 *	-	1.15
Non-Hispanic Whites	-	1.00	-	1.00
<u>Neighborhood Income</u>				
Low	-	0.96	-	0.98
Middle	-	0.94 *	-	1.00
High	-	1.00	-	1.00

Asterisks indicate statistically significantly different from base category at 5% level.

Coefficients in dashed boxes are statistically significantly different across models (within a given coverage type) at the 5% level.

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**TABLE 6.**  
**Estimated Relative Amount Paid on Claims, by Score Decile, Race, Ethnicity,**  
**and Neighborhood Income (Continued)**

	Collision Coverage		Comprehensive Coverage	
	(e)	(f)	(g)	(h)
<u>Score Decile</u>				
1	2.03 *	1.93 *	1.95 *	1.74 *
2	1.65 *	1.59 *	1.43 *	1.33 *
3	1.52 *	1.48 *	1.33 *	1.26 *
4	1.39 *	1.36 *	1.28 *	1.23 *
5	1.27 *	1.25 *	1.19 *	1.16 *
6	1.26 *	1.25 *	1.15 *	1.12 *
7	1.16 *	1.15 *	1.12 *	1.10 *
8	1.09	1.08	1.05	1.04
9	1.12 *	1.12 *	1.01	0.99
10	1.00	1.00	1.00	1.00
<u>Race and Ethnicity</u>				
African Americans	-	1.26 *	-	1.46 *
Hispanics	-	1.24 *	-	1.36 *
Asians	-	1.33 *	-	0.97
Non-Hispanic Whites	-	1.00	-	1.00
<u>Neighborhood Income</u>				
Low	-	1.01	-	1.13 *
Middle	-	0.97	-	1.04
High	-	1.00	-	1.00

Asterisks indicate statistically significantly different from base category at 5% level.

Coefficients in dashed boxes are statistically significantly different across models (within a given coverage type) at the 5% level.

**Notes:**

1) For each variable – score, race and ethnicity, and neighborhood income – estimated amount paid on claims per year of coverage is measured relative to a base category. For scores, the base category is the 10<sup>th</sup> (highest) decile of scores; for race and ethnicity, the base category is non-Hispanic whites; and, for neighborhood income the base category is “high income” neighborhood.

2) Estimated relative amounts paid out on claims per year of coverage for each race, ethnicity and neighborhood income category in each column are derived from Tweedie GLMs (Generalized Linear Models); which here include a set of standard risk variables as controls, as well as score deciles. Since our GLM models are multiplicative, the relativities shown on this table are equivalent to the exponentiated regression coefficients of the indicator variables for these categories. Modeling details and a description of the variables included in the models are provided in Appendix D.

Source: Analysis of FTC Automobile Insurance Policy Database

**TABLE 7.**  
**Change in Predicted Amount Paid on Claims from Using Credit-Based Insurance Scores Without and With Controls for Race, Ethnicity, and Income, by Race and Ethnicity**

	Average Score Effect From Model Without Race, Ethnicity, and Income Controls (a)	Average Score Effect from Model With Race, Ethnicity, and Income Controls (b)
African Americans	10.0%	8.9%
Hispanics	4.2%	3.5%
Asians	- 4.9%	-4.8%
Non-Hispanic Whites	- 1.6%	-1.4%

Numbers for all race and ethnicity groups are statistically significantly different across the models in columns (a) and (b) at the 5% level.

Notes:

Column (a): Results in this column come from the same analysis that was used to create Table 4. Predicted change in the amount paid on claims was estimated by comparing individual predicted risk from risk models that include ChoicePoint Attract Standard Auto credit-based insurance scores with risk models that do not include scores. This procedure is described in section VI.A.3 of the report. Modeling details and a description of the variables included in the models are provided in Appendix D.

Column (b): Results in this column are calculated by combining the estimated risk effects of the score deciles from the models with controls for race, ethnicity, and income with the estimated risk effects of non-credit risk variables from the models without these controls. The estimated risk effects of race, ethnicity, and income were not used to predict risk. This hybrid risk estimate produced an overall average predicted claims payout that was lower than the actual sample average amount of claims payouts, so every individual's predicted risk was then inflated by the ratio of actual average claims over predicted average claims.

Source: Analysis of FTC Automobile Insurance Policy Database

**TABLE 8.**  
**Change in Predicted Amount Paid on Claims from Using Other Risk Variables,**  
**Without and With Controls for Race, Ethnicity, and Income, by Race and**  
**Ethnicity**

	Average Effect of Variable Without Race, Ethnicity, and Income Controls (a)	Average Effect of Variable With Race, Ethnicity, and Income Controls (b)
<b>Geographic Risk</b>		
African Americans	5.4%	4.7%
Hispanics	3.3%	2.2%
Asians	4.4%	3.6%
Non-Hispanic Whites	-1.3%	-1.0%
<b>Tenure</b>		
African Americans	0.4%	0.1%
Hispanics	2.4%	1.9%
Asians	2.1%	1.7%
Non-Hispanic Whites	-0.5%	-0.4%
<b>Prior Claims</b>		
African Americans	2.4%	2.2%
Hispanics	0.3%	0.2%
Asians	1.5%	1.4%
Non-Hispanic Whites	-0.3%	-0.3%

(continued...)

**TABLE 8.**  
**Change in Predicted Amount Paid on Claims from Using Other Risk Variables,**  
**Without and With Controls for Race, Ethnicity, and Income, by Race and**  
**Ethnicity (Continued)**

	Average Effect of Variable Without Race, Ethnicity, and Income Controls (a)	Average Effect of Variable With Race, Ethnicity, and Income Controls (b)
Model Year & Other Car Attributes		
African Americans	-1.0%	-1.2%
Hispanics	0.5%	0.5%
Asians	2.8%	2.6%
Non-Hispanic Whites	0.0%	0.0%

Notes:

Column (a): Results in this column come from an analysis similar to that used to create Table 4 for score. Predicted change in the amount paid on claims was estimated by comparing individual predicted risk from risk models that included the particular variable being analyzed here with risk models that did not include the variable. All models include the standard set of risk controls (including score). This procedure is described in section VI.A.3 of the report. Modeling details and a description of the variables included in the models are provided in Appendix D.

Column (b): Results in this column are calculated by combining the estimated risk effects of the variable being analyzed from models with controls for race, ethnicity, and income with the estimated risk effects of all other risk variables from the models without these controls. The estimated risk effects of race, ethnicity, and income were not used to predict risk. This hybrid risk estimate produced an overall average predicted claims payout that was lower than the actual sample average amount of claims payouts, so every individual's predicted risk was then inflated by the ratio of actual average claims over predicted average claims.

Source: Analysis of FTC Automobile Insurance Policy Database

**TABLE 9.**  
**Baseline Credit-Based Insurance Scoring Model Developed by the FTC**

1) *Variable A: Presence of Certain Delinquencies or Adverse Public Records on the Credit File*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0	1.14	84.5%	56.0%	69.9%	83.0%
1 or more	1.00	15.5%	44.0%	30.1%	17.0%

2) Number of Accounts with Balance Greater than 75% of High Credit (Credit Limit)

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0	1.25	43.2%	20.3%	28.9%	43.0%
1 - 2	1.16	24.9%	21.8%	24.6%	24.4%
2 - 3	1.09	13.1%	17.3%	15.9%	14.3%
3 - 6	1.04	14.0%	27.6%	23.3%	13.2%
6 or More	1.00	4.8%	13.0%	7.4%	5.1%

3) Average Number of Months Bank Revolving Accounts Have Been Open

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	1.16	3.2%	5.6%	5.5%	2.7%
0 - 24	0.67	3.6%	9.2%	10.0%	6.3%
24 - 51	0.80	10.4%	18.6%	18.6%	16.1%
51 - 64	0.83	9.4%	10.3%	12.0%	11.5%
64 - 99	0.84	34.8%	27.8%	31.3%	36.8%
99 - 205	0.87	36.2%	26.3%	21.5%	25.4%
205 or More	1.00	2.4%	2.1%	1.2%	1.3%

(continued. . .)

**TABLE 9.**  
**Baseline Credit-Based Insurance Scoring Model Developed by the FTC (Continued)**

4) Variable B: Relates to the Number of Inquiries on the File

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade lines	1.30	34.1%	21.6%	15.9%	19.8%
0	1.31	16.6%	13.9%	14.4%	16.2%
1 - 2	1.29	22.0%	22.8%	20.0%	21.3%
2 - 4	1.20	17.8%	23.2%	25.9%	23.6%
4 - 7	1.13	7.3%	12.6%	16.0%	12.7%
7 or more	1.00	2.4%	5.9%	7.8%	6.4%

5) Number of Open Auto Finance Accounts

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	1.13	90.0%	84.1%	88.0%	85.3%
0 or more	1.00	10.0%	15.9%	12.0%	14.7%

6) Number of Accounts 30 Days Late or Worse in the Last 12 Months

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0	1.36	77.1%	47.4%	61.4%	75.8%
1 - 9	1.13	22.2%	50.3%	37.4%	23.6%
10 or more	1.00	0.7%	2.2%	1.2%	0.7%

7) Variable C: Presence of Delinquencies on a Particular Kind of Account

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.99	25.1%	23.8%	20.0%	25.1%
0	0.78	71.8%	67.0%	72.5%	71.4%
1 or more	1.00	3.1%	9.2%	7.5%	3.5%

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**TABLE 9.**  
**Baseline Credit-Based Insurance Scoring Model Developed by the FTC (Continued)**

8) Number of Department Store Accounts

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	1.00	25.1%	23.8%	20.0%	25.1%
1 or more	1.17	72.3%	71.2%	74.4%	71.7%
6 or more	1.00	2.5%	5.0%	5.6%	3.2%

9) Share of all Bank Revolving Accounts that are Open

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.75	5.4%	9.8%	8.9%	4.8%
0 - .135	0.89	2.8%	4.3%	3.5%	2.8%
> .135	1.00	91.7%	85.8%	87.7%	92.3%

10) Variable D: Presence of a Particular Kind of Delinquency on the Account

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0	1.16	83.9%	54.1%	68.9%	82.3%
1 or more	1.00	16.1%	45.9%	31.1%	17.7%

11) Age of Youngest Account (Months)

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0 - 6	0.82	31.7%	37.2%	38.3%	37.4%
6 - 9	0.87	15.1%	18.0%	18.0%	15.6%
9 - 20	0.89	26.3%	26.7%	25.0%	26.0%
20 or more	1.00	26.9%	18.1%	18.7%	21.0%

(continued. . .)

**TABLE 9.**  
**Baseline Credit-Based Insurance Scoring Model Developed by the FTC (Continued)**

12) *Variable E: Relates to the Number of Accounts in the Credit File*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.89	0.2%	0.4%	0.5%	0.0%
0 - 3	0.82	3.7%	5.6%	4.6%	3.7%
3 or more	1.00	96.2%	94.1%	94.9%	96.3%

13) *Variable F: A Ratio Relating to Delinquencies*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0 - .02	1.17	94.6%	80.7%	88.4%	93.8%
.02 - .14	1.20	2.7%	9.4%	6.0%	2.8%
> .14	1.00	2.8%	9.9%	5.6%	3.5%

14) Number of Bank Revolving Accounts Ever Bad Debt

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.62	3.0%	5.0%	5.2%	2.4%
0	0.90	90.1%	75.3%	81.8%	89.9%
1 or more	1.00	6.9%	19.8%	12.9%	7.7%

15) Number of Open Oil Accounts

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.92	91.6%	93.7%	88.7%	91.2%
0 or more	1.00	8.4%	6.3%	11.3%	8.8%

Notes:

1) Variables in italics have not been described publicly, and ChoicePoint considers the descriptions of those variables to be proprietary information.

2) This scoring model was developed to use credit history information to predict the relative risk posed by individuals, where risk is defined as expected total dollars that would be paid out on claims in a year. To calculate a score for a given individual with this model, the appropriate factors for each of the 15 variables are multiplied together. The resulting product is the inverse of the estimated relative riskiness of the individual, based on the individual's credit history. See Appendix E for a detailed discussion of the score-building process.

**TABLE 10.**  
**Credit-Based Insurance Scoring Model Developed by the FTC by Including Controls**  
**for Race, Ethnicity, and Neighborhood Income in the Score-Building Process**

1) Variable A: Presence of Certain Delinquencies or Adverse Public Records on the Credit File

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0	1.14	84.5%	56.0%	69.9%	83.0%
1 or more	1.00	15.5%	44.0%	30.1%	17.0%

2) Number of Accounts with Balance Greater than 75% of High Credit (Credit Limit)

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0	1.26	43.2%	20.3%	28.9%	43.0%
1 - 2	1.17	24.9%	21.8%	24.6%	24.4%
2 - 3	1.11	13.1%	17.3%	15.9%	14.3%
3 - 6	1.05	14.0%	27.6%	23.3%	13.2%
6 or More	1.00	4.8%	13.0%	7.4%	5.1%

3) Average Number of Months Bank Revolving Accounts Have Been Open

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	1.13	3.2%	5.6%	5.5%	2.7%
0 - 24	0.67	3.6%	9.2%	10.0%	6.3%
24 - 51	0.80	10.4%	18.6%	18.6%	16.1%
51 - 64	0.82	9.4%	10.3%	12.0%	11.5%
64 - 99	0.84	34.8%	27.8%	31.3%	36.8%
99 - 205	0.87	36.2%	26.3%	21.5%	25.4%
205 or More	1.00	2.4%	2.1%	1.2%	1.3%

4) Number of Open Auto Finance Accounts

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	1.12	90.0%	84.1%	88.0%	85.3%
0 or more	1.00	10.0%	15.9%	12.0%	14.7%

(continued. . .)

**TABLE 10.**  
**Credit-Based Insurance Scoring Model Developed by the FTC by Including Controls**  
**for Race, Ethnicity, and Neighborhood Income in the Score-Building Process**  
**(Continued)**

5) *Variable B: Relates to the Number of Inquiries on the File*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade lines	1.30	34.1%	21.6%	15.9%	19.8%
0	1.31	16.6%	13.9%	14.4%	16.2%
1 - 2	1.28	22.0%	22.8%	20.0%	21.3%
2 - 4	1.20	17.8%	23.2%	25.9%	23.6%
4 - 7	1.13	7.3%	12.6%	16.0%	12.7%
7 or more	1.00	2.4%	5.9%	7.8%	6.4%

6) Number of Accounts 30 Days Late or Worse in the Last 12 Months

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0	1.35	77.1%	47.4%	61.4%	75.8%
1 - 9	1.14	22.2%	50.3%	37.4%	23.6%
10 or more	1.00	0.7%	2.2%	1.2%	0.7%

7) *Variable C: Presence of Delinquencies on a Particular Kind of Account*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.97	25.1%	23.8%	20.0%	25.1%
0	0.78	71.8%	67.0%	72.5%	71.4%
1 or more	1.00	3.1%	9.2%	7.5%	3.5%

8) Share of all Bank Revolving Accounts that are Open

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.76	5.4%	9.8%	8.9%	4.8%
0 - .135	0.89	2.8%	4.3%	3.5%	2.8%
> .135	1.00	91.7%	85.8%	87.7%	92.3%

(continued. . .)

**TABLE 10.**  
**Credit-Based Insurance Scoring Model Developed by the FTC by Including Controls**  
**for Race, Ethnicity, and Neighborhood Income in the Score-Building Process**  
**(Continued)**

9) Number of Department Store Accounts

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	1.00	25.1%	23.8%	20.0%	25.1%
1 or more	1.15	72.3%	71.2%	74.4%	71.7%
6 or more	1.00	2.5%	5.0%	5.6%	3.2%

10) Age of Youngest Account (Months)

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0 - 6	0.81	31.7%	37.2%	38.3%	37.4%
6 - 9	0.87	15.1%	18.0%	18.0%	15.6%
9 - 20	0.89	26.3%	26.7%	25.0%	26.0%
20 or more	1.00	26.9%	18.1%	18.7%	21.0%

11) Variable G: Relates to the Number of Accounts in the Credit File

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0 - 2	0.89	5.0%	9.9%	6.6%	4.1%
2 or more	1.00	95.0%	90.1%	93.4%	95.9%

12) Variable D: Presence of a Particular Kind of Delinquency on the Account

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0	1.16	83.9%	54.1%	68.9%	82.3%
1 or more	1.00	16.1%	45.9%	31.1%	17.7%

(continued. . .)

**TABLE 10.**  
**Credit-Based Insurance Scoring Model Developed by the FTC by Including Controls**  
**for Race, Ethnicity, and Neighborhood Income in the Score-Building Process**  
**(Continued)**

13) Number of Open Personal Finance Accounts

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.90	82.0%	66.4%	73.6%	82.9%
0 - 2	0.97	14.9%	24.6%	21.5%	14.2%
2 or more	1.00	3.1%	9.0%	4.9%	2.9%

14) *Variable F: A Ratio Relating to Delinquencies*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0 - .02	1.17	94.6%	80.7%	88.4%	93.8%
.02 - .14	1.20	2.7%	9.4%	6.0%	2.8%
> .14	1.00	2.8%	9.9%	5.6%	3.5%

15) Number of Bank Revolving Accounts Ever Bad Debt

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.62	3.0%	5.0%	5.2%	2.4%
0	0.90	90.1%	75.3%	81.8%	89.9%
1 or more	1.00	6.9%	19.8%	12.9%	7.7%

Notes:

1) Variables in italics have not been described publicly, and ChoicePoint considers the descriptions of those variables to be proprietary information.

2) This scoring model was developed to use credit history information to predict the relative risk posed by individuals, where risk is defined as expected total dollars that would be paid out on claims in a year. To calculate a score for a given individual with this model, the appropriate factors for each of the 15 variables are multiplied together. The resulting product is the inverse of the estimated relative riskiness of the individual, based on the individual's credit history. This scoring model was developed by including controls for race, ethnicity, and neighborhood income during the process of selecting variables for the scoring model, and when estimating the final factors that are applied to the credit history variables. See Appendix E for a detailed discussion of the score-building process.

**TABLE 11.**  
**Credit-Based Insurance Scoring Model Developed by the FTC Using a Sample of Only**  
**Non-Hispanic White Insurance Customers**

1) *Variable A: Presence of Certain Delinquencies or Adverse Public Records on the Credit File*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0	1.23	84.5%	56.0%	69.9%	83.0%
1 or more	1.00	15.5%	44.0%	30.1%	17.0%

2) *Variable B: Relates to the Number of Inquiries on the File*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade lines	1.25	34.1%	21.6%	15.9%	19.8%
0 - 2	1.25	38.5%	36.7%	34.3%	37.5%
2 or more	1.14	21.5%	29.5%	32.0%	29.3%
5 or more	1.00	6.0%	12.3%	17.8%	13.4%

3) *Total Average Debt Burden*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
Invalid past due amount	0.89	0.6%	0.8%	0.9%	0.7%
0 - .19	1.20	41.7%	18.4%	26.2%	44.0%
.19 - .46	1.13	25.5%	22.5%	25.5%	24.7%
.46 - .81	1.06	24.4%	38.8%	33.8%	23.7%
> .81	1.00	7.7%	19.4%	13.6%	6.8%

4) *Age of Youngest Account (Months)*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0 - 6	0.84	31.7%	37.2%	38.3%	37.4%
6 - 14	0.90	30.3%	35.5%	34.4%	31.1%
14 or more	1.00	38.0%	27.3%	27.3%	31.4%

(continued. . .)

**TABLE 11.**  
**Credit-Based Insurance Scoring Model Developed by the FTC Using a Sample of Only**  
**Non-Hispanic White Insurance Customers (Continued)**

5) Number of Accounts 30 Days Late in the Last 24 Months

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0	1.15	83.9%	65.3%	73.9%	83.7%
1 or more	1.00	16.1%	34.7%	26.1%	16.3%

6) Share of all Bank Revolving Accounts that are Open

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.82	5.4%	9.8%	8.9%	4.8%
0 or more	1.00	94.6%	90.2%	91.1%	95.2%

7) Number of Open Auto Finance Accounts

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	1.10	90.0%	84.1%	88.0%	85.3%
0 or more	1.00	10.0%	15.9%	12.0%	14.7%

8) Average Number of Months Account have been Open

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0 - 32	0.68	3.8%	6.4%	9.8%	9.1%
32 - 75	0.90	30.5%	42.5%	45.2%	40.5%
75 - 118	0.95	41.7%	34.8%	32.7%	37.2%
118 or more	1.00	24.0%	16.4%	12.3%	13.2%

9) Number of Open Accounts

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0 - 12	1.10	81.3%	76.0%	76.8%	75.4%
12 or more	1.00	18.7%	24.0%	23.2%	24.6%

(continued. . .)

**TABLE 11.**  
**Credit-Based Insurance Scoring Model Developed by the FTC Using a Sample of Only**  
**Non-Hispanic White Insurance Customers (Continued)**

10) *Variable H: Presence of a Particular Kind of Delinquency on the Account*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0	1.28	98.8%	95.4%	97.7%	98.7%
1 or more	1.00	1.2%	4.6%	2.3%	1.3%

11) *Ratio of Open Personal Financial Accounts to Total Open Accounts*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.90	82.0%	66.4%	73.6%	82.9%
0 or more	1.00	18.0%	33.6%	26.4%	17.1%

12) *Variable D: Presence of a Particular Kind of Delinquency on the Account*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0	1.16	83.9%	54.1%	68.9%	82.3%
1 or more	1.00	16.1%	45.9%	31.1%	17.7%

13) *Variable C: Presence of Delinquencies on a Particular Kind of Account*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.90	25.1%	23.8%	20.0%	25.1%
0	0.81	71.8%	67.0%	72.5%	71.4%
1 or more	1.00	3.1%	9.2%	7.5%	3.5%

(continued. . .)

**TABLE 11.**  
**Credit-Based Insurance Scoring Model Developed by the FTC Using a Sample of Only**  
**Non-Hispanic White Insurance Customers (Continued)**

14) *Variable I: Relates to the Number of Accounts in the Credit File*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
Disputed	1.41	0.2%	0.5%	0.5%	0.0%
0 - 2	0.85	2.2%	5.0%	3.3%	2.4%
2 or more	1.00	97.6%	94.6%	96.2%	97.5%

15) Number of Bank Installment Accounts Ever Bad Debt

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	1.37	44.0%	46.8%	48.0%	49.9%
0	1.37	54.7%	49.5%	49.6%	48.7%
1 or more	1.00	1.3%	3.7%	2.4%	1.3%

Notes:

1) Variables in italics have not been described publicly, and ChoicePoint considers the descriptions of those variables to be proprietary information.

2) This scoring model was developed to use credit history information to predict the relative risk posed by individuals, where risk is defined as expected total dollars that would be paid out on claims in a year. To calculate a score for a given individual with this model, the appropriate factors for each of the 15 variables are multiplied together. The resulting product is the inverse of the estimated relative riskiness of the individual, based on the individual's credit history. This scoring model was developed using a development sample of only non-Hispanic white insurance customers. See Appendix E for a detailed discussion of the score-building process.

**TABLE 12.**  
**Credit-Based Insurance Scoring Model Developed by the FTC by Discounting Variables**  
**with Large Differences Across Racial and Ethnic Groups**

1) *Variable J: Indebtedness on Accounts of a Particular Type*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	1.22	5.6%	10.0%	8.9%	4.9%
\$0 - \$1,000	1.34	36.0%	28.6%	34.4%	38.1%
\$1000 - \$3,000	1.25	20.1%	18.0%	17.9%	20.8%
\$3,000 - \$14,000	1.14	27.4%	31.9%	29.5%	25.5%
\$14,000 or more	1.00	10.9%	11.5%	9.2%	10.7%

2) *Variable E: Relates to the Number of Accounts in the Credit File*

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.72	0.2%	0.4%	0.5%	0.0%
0 - 3	0.80	3.7%	5.6%	4.6%	3.7%
3 or more	1.00	96.2%	94.1%	94.9%	96.3%

3) Share of all Accounts that are Open

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
0 - .14	0.83	2.1%	2.6%	2.3%	1.6%
.14 - .27	0.89	8.3%	9.1%	8.1%	8.7%
.27 or more	1.00	89.6%	88.4%	89.6%	89.7%

4) Number of Open Auto Finance Accounts

Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	1.26	90.0%	84.1%	88.0%	85.3%
0 or more	1.00	10.0%	15.9%	12.0%	14.7%

(continued. . .)

**TABLE 12.**  
**Credit-Based Insurance Scoring Model Developed by the FTC by Discounting Variables**  
**with Large Differences Across Racial and Ethnic Groups (Continued)**

5) Number of Open Bank Installment Accounts		Share in each category, by race or ethnicity			
Category	Factor	Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	1.13	68.5%	68.5%	67.9%	69.4%
0 or more	1.00	31.5%	31.5%	32.1%	30.6%

6) Number of Open Oil Accounts		Share in each category, by race or ethnicity			
Category	Factor	Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.85	91.6%	93.7%	88.7%	91.2%
0 or more	1.00	8.4%	6.3%	11.3%	8.8%

7) Ratio of Open Oil Accounts to Total Open Accounts		Share in each category, by race or ethnicity			
Category	Factor	Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	1.00	91.6%	93.7%	88.7%	91.2%
0 - .0741	0.86	4.6%	4.3%	6.2%	5.3%
.0741 or more	1.00	3.8%	2.1%	5.2%	3.5%

8) Number of Accounts Opened in the Last 3 Months		Share in each category, by race or ethnicity			
Category	Factor	Non-Hispanic Whites	African Americans	Hispanics	Asians
0	1.15	79.3%	75.6%	74.7%	74.5%
1 or more	1.00	20.7%	24.4%	25.3%	25.5%

(continued. . .)

**TABLE 12.**  
**Credit-Based Insurance Scoring Model Developed by the FTC by Discounting Variables**  
**with Large Differences Across Racial and Ethnic Groups (Continued)**

9) Number of Credit Union Accounts		Share in each category, by race or ethnicity			
Category	Factor	Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	1.06	36.1%	37.2%	34.0%	31.7%
1 - 5	1.06	51.5%	49.0%	52.3%	56.0%
5 or more	1.00	12.4%	13.7%	13.6%	12.3%

10) Age of Last Activity		Share in each category, by race or ethnicity			
Category	Factor	Non-Hispanic Whites	African Americans	Hispanics	Asians
0 - 2	0.88	98.3%	97.8%	98.5%	98.5%
2 or more	1.00	1.7%	2.2%	1.5%	1.5%

11) Variable K: Number of Accounts of a Particular Type		Share in each category, by race or ethnicity			
Category	Factor	Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.77	5.4%	9.8%	8.9%	4.8%
0 - 6	0.96	77.8%	75.2%	74.6%	68.3%
6 or more	1.00	16.8%	15.0%	16.6%	26.9%

12) Ratio of Open Department Store Accounts to Total Open Accounts		Share in each category, by race or ethnicity			
Category	Factor	Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.99	32.0%	31.7%	28.1%	33.2%
0 - .36	0.93	58.9%	59.0%	61.6%	60.0%
.36 or more	1.00	9.1%	9.3%	10.3%	6.8%

(continued. . .)

**TABLE 12.**  
**Credit-Based Insurance Scoring Model Developed by the FTC by Discounting Variables with Large Differences Across Racial and Ethnic Groups (Continued)**

13) Ratio of Open Bank Installment Accounts to Total Open Accounts					
Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	1.00	68.5%	68.5%	67.9%	69.4%
0 - .2917	1.10	27.5%	28.3%	28.6%	27.2%
.2917 or more	1.00	4.0%	3.2%	3.5%	3.4%

14) <i>Variable L: Based on Total Available Credit</i>					
Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
\$0 - \$3,000	0.91	4.7%	6.8%	6.7%	4.6%
\$3,000 or more	1.00	95.3%	93.2%	93.3%	95.4%

15) Ratio of Open Credit Union Accounts to Total Open Accounts					
Category	Factor	Share in each category, by race or ethnicity			
		Non-Hispanic Whites	African Americans	Hispanics	Asians
No trade line of this type	0.97	49.8%	48.9%	46.3%	45.1%
0 - .0789	0.95	7.4%	8.9%	8.6%	8.6%
.0789 or more	1.00	42.8%	42.2%	45.1%	46.3%

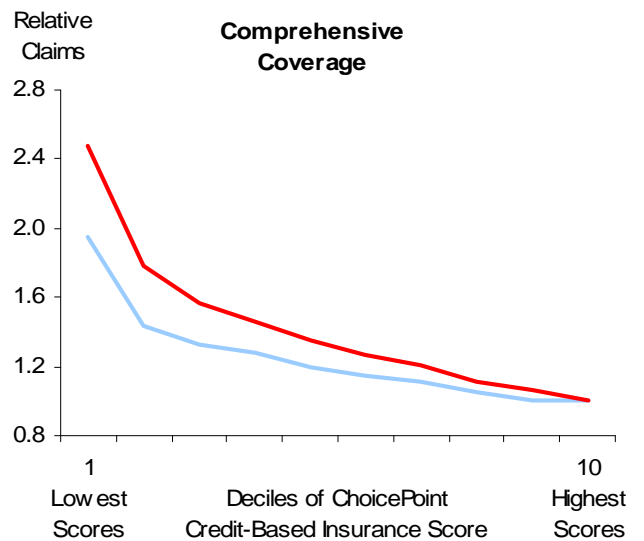
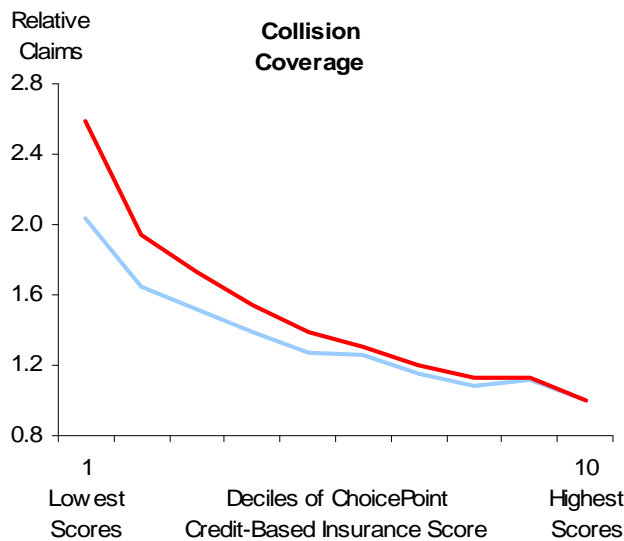
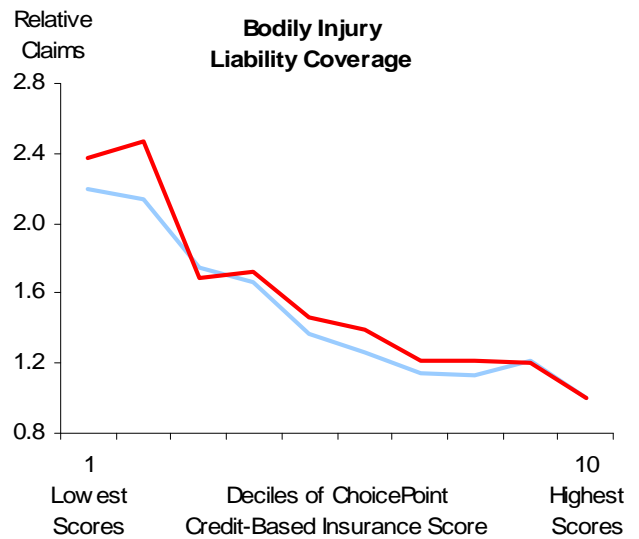
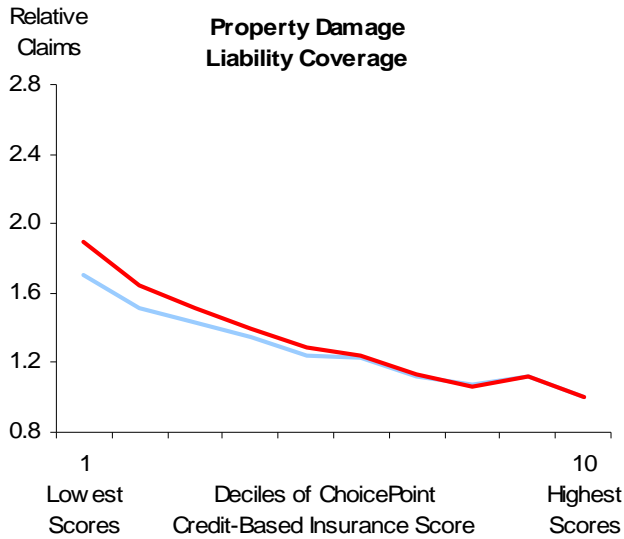
Notes:

1) Variables in italics have not been described publicly, and ChoicePoint considers the descriptions of those variables to be proprietary information.

2) This scoring model was developed to use credit history information to predict the relative risk posed by individuals, where risk is defined as expected total dollars that would be paid out on claims in a year. To calculate a score for a given individual with this model, the appropriate factors for each of the 15 variables are multiplied together. The resulting product is the inverse of the estimated relative riskiness of the individual, based on the individual's credit history. This scoring model was developed by discounting the predictive power of variables that had large differences across racial and ethnic groups, so that those variables would be less likely to be chosen by the score-building procedure. See Appendix E for a detailed discussion of the score-building process.

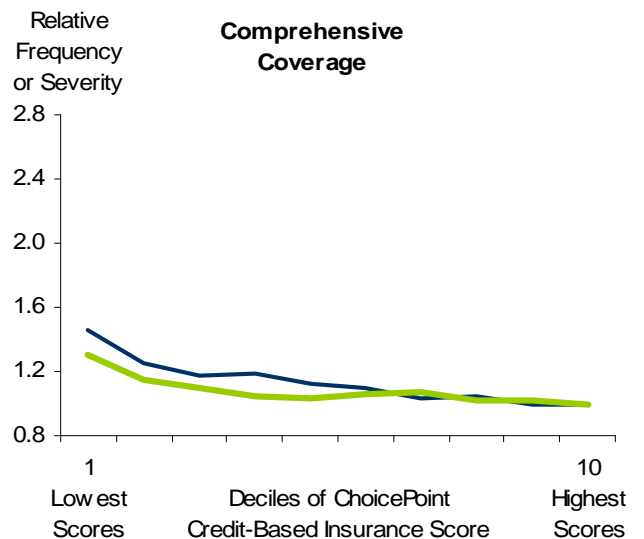
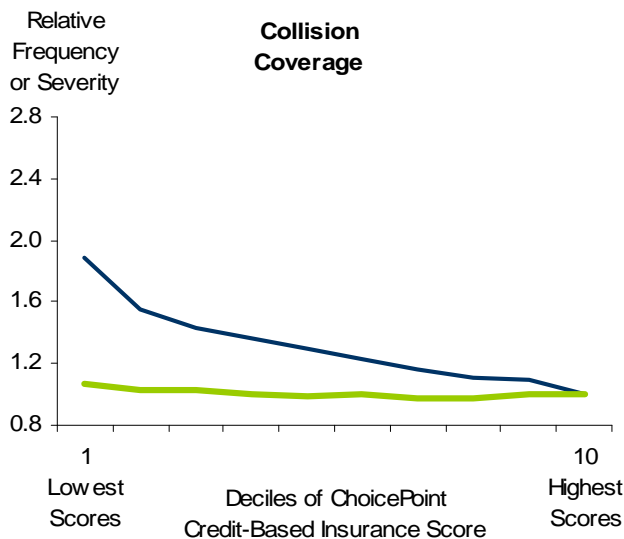
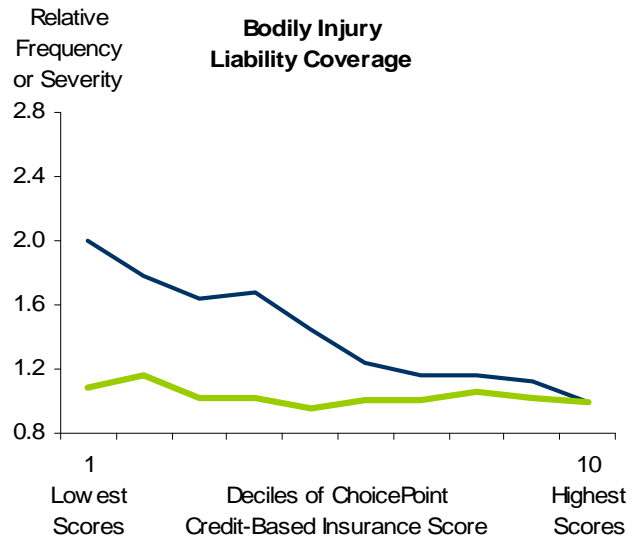
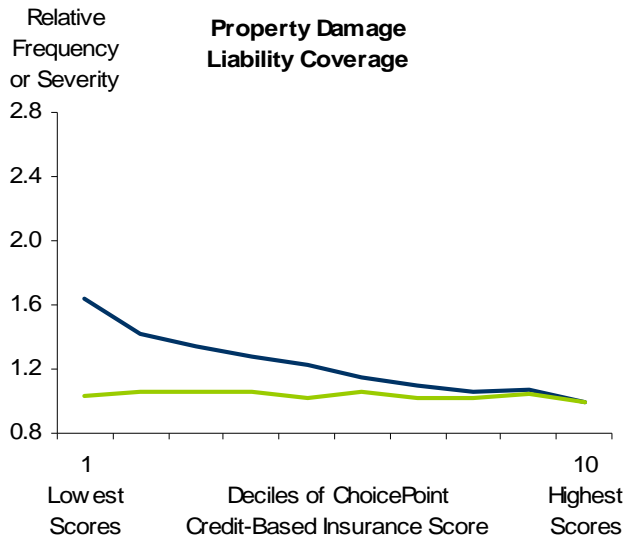
## FIGURES

**FIGURE 1.**  
**Estimated Average Amount Paid Out on Claims,**  
**Relative to Highest Score Decile**



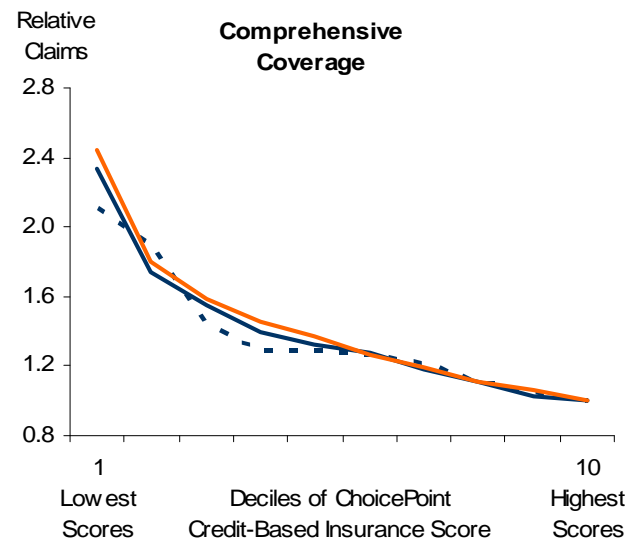
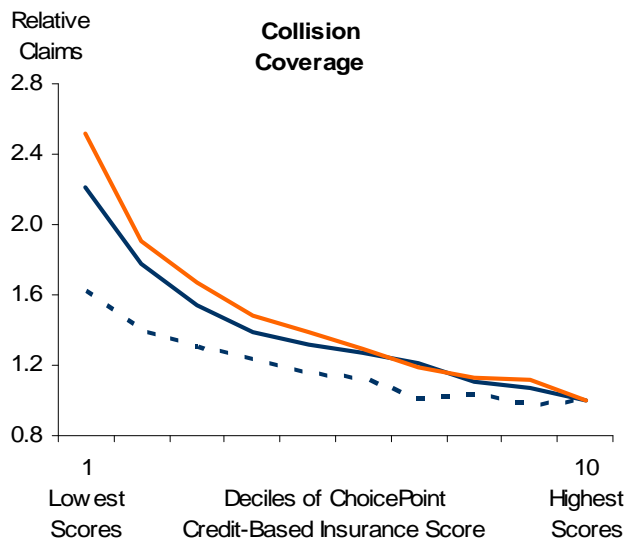
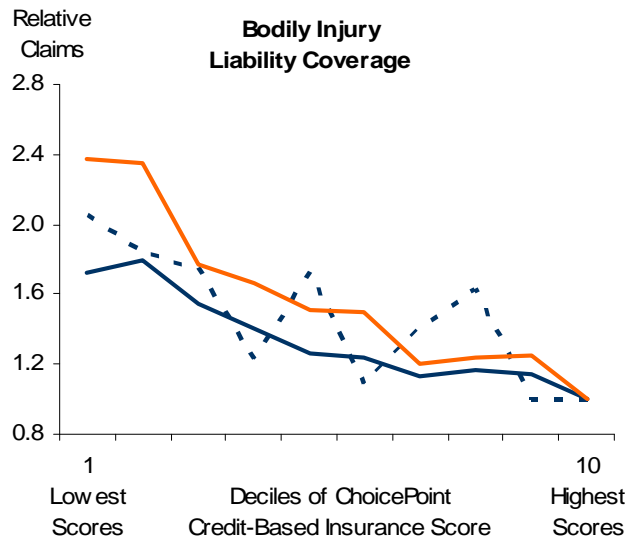
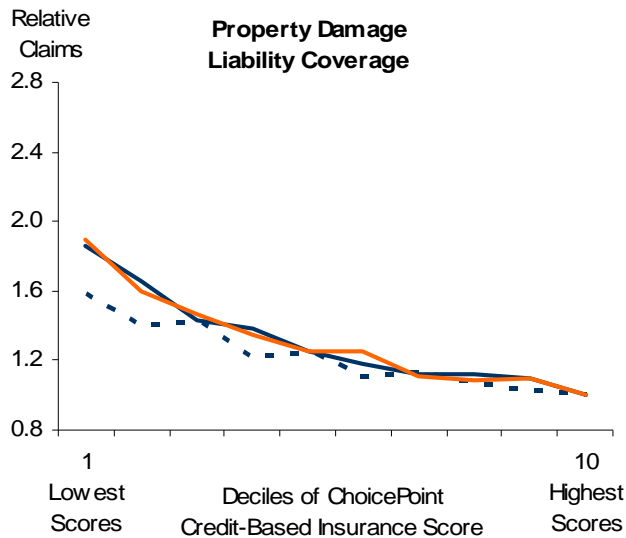
— Without Controlling for Other Risk Variables  
— After Controlling for Other Risk Variables

**FIGURE 2.**  
**Frequency and Average Size (Severity) of Claims,**  
**Relative to Highest Score Decile**



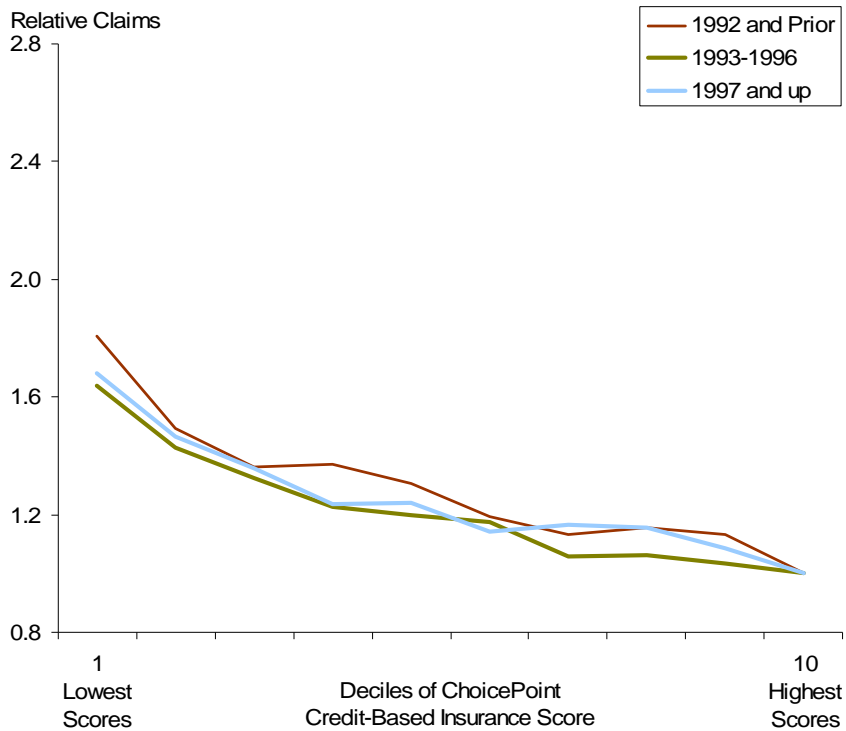
— Frequency of Claims  
 — Average Size of Claims (Severity)

**FIGURE 3.**  
**"CLUE" Claims Data:**  
**Average Amount Paid Out on Claims,**  
**Relative to Highest Score Decile**



— Company Submitted Data (July 2000 - June 2001)  
— Clue July 2000 - June 2001  
- - - Clue July 2001 - December 2001

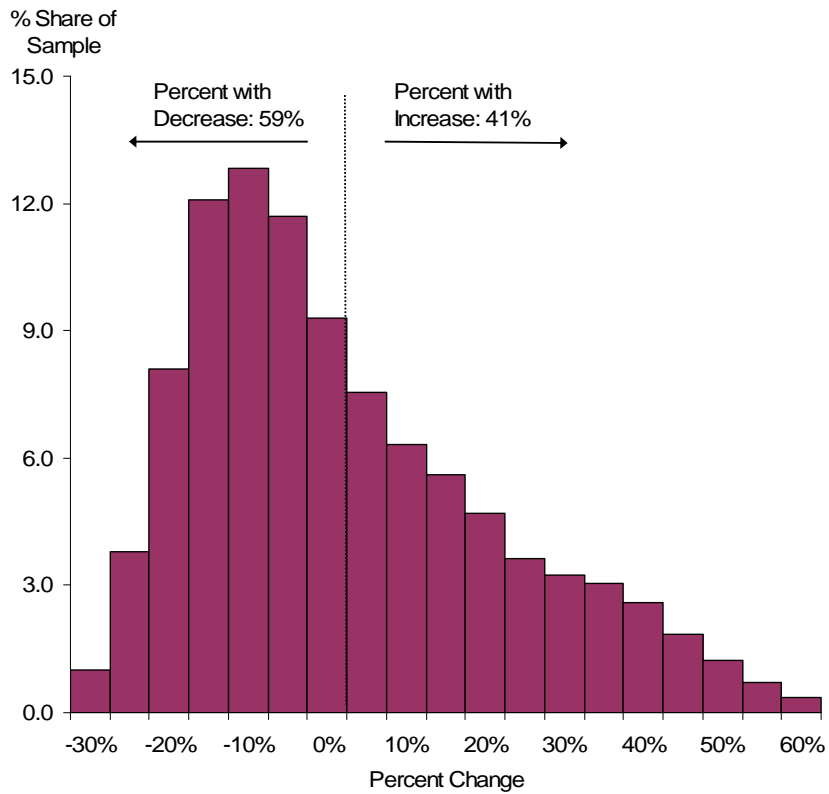
**FIGURE 4.**  
**By Model Year of Car:**  
**Estimated Average Amount Paid Out on Claims,**  
**Relative to Highest Score Decile**  
**(Property Damage Liability Coverage)**



See notes on Figures at the end of this section.

Source: Analysis of FTC Automobile Insurance Policy Database

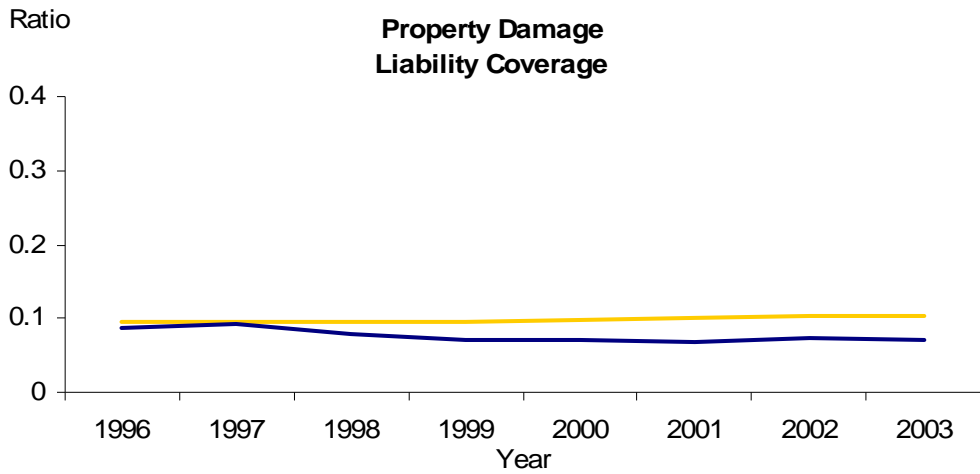
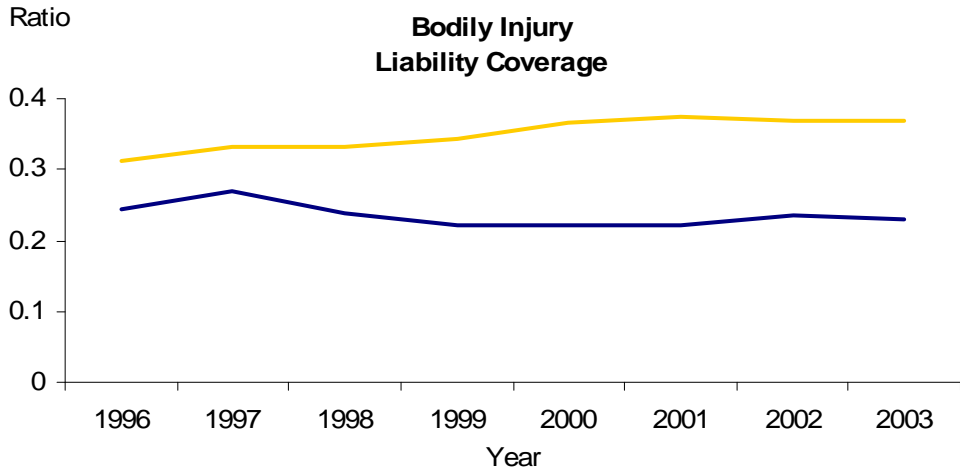
**FIGURE 5.**  
**Change in Predicted Amount Paid on Claims**  
**from Using Scores**



See notes on Figures at the end of this section.

Source: Analysis of FTC Automobile Insurance Policy Database

**FIGURE 6.**  
**The Ratio of Uninsured Motorist Claims to**  
**Liability Coverage Claims**  
**(1996-2003)**



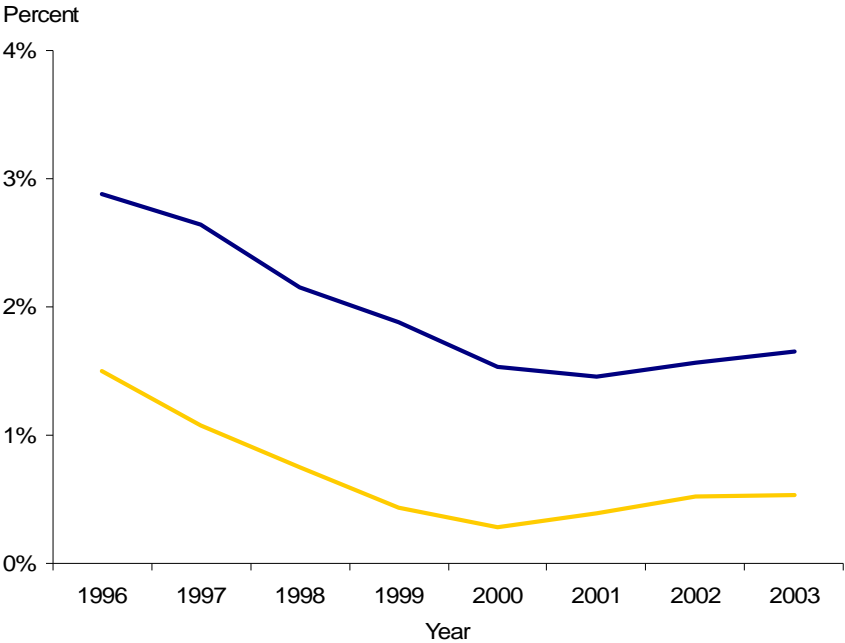
— States Allowing the Use of Credit-Based Insurance Scores  
 — States Not Allowing the Use of Credit-Based Insurance Scores

See notes on Figures at the end of this section.

Source: Analysis of data from several National Association of Insurance Commissioners Database Reports.

**FIGURE 7.**

**Share of Cars Insured through States' "Residual Market" Insurance Programs  
(1996-2003)**

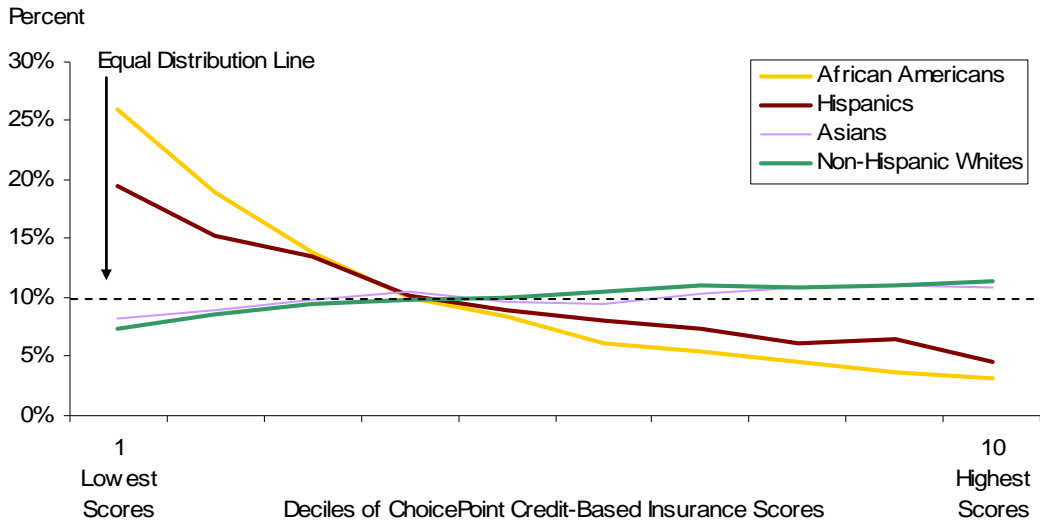


— States Allowing the Use of Credit-Based Insurance Scores  
— States Not Allowing the Use of Credit-Based Insurance Scores

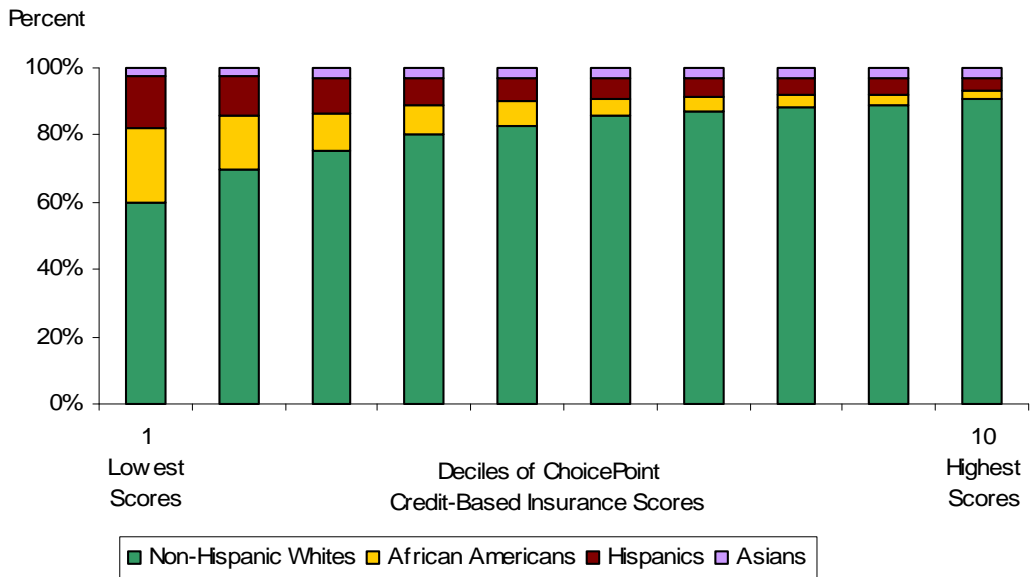
See notes on Figures at the end of this section.

Source: Analysis of data from several National Association of Insurance Commissioners Database Reports.

**FIGURE 8.**  
**Distribution of Scores,**  
**by Race and Ethnicity**



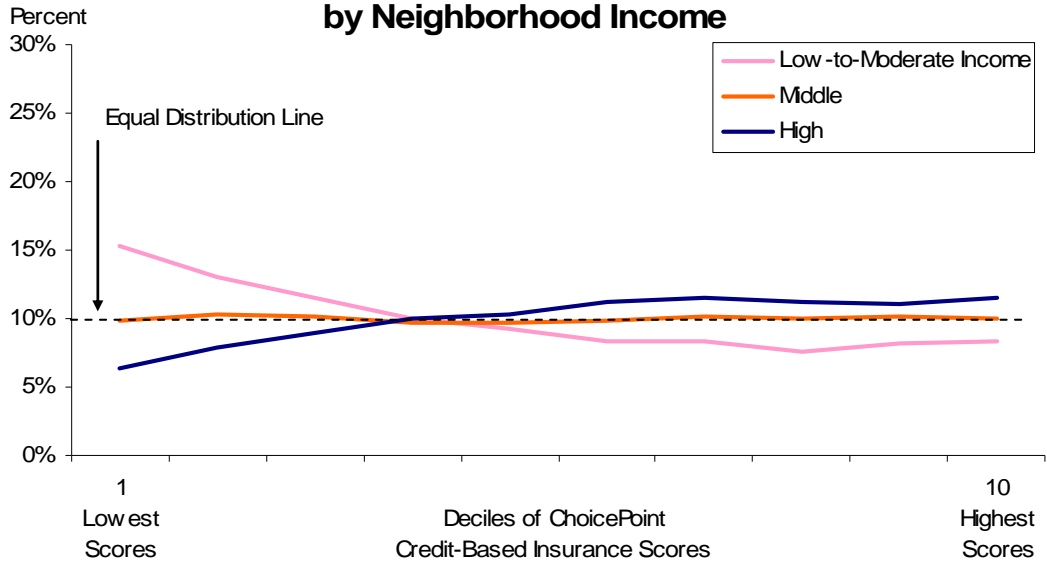
**FIGURE 9.**  
**Distribution of Race and Ethnicity, by Score Decile**



See notes on Figures at the end of this section.

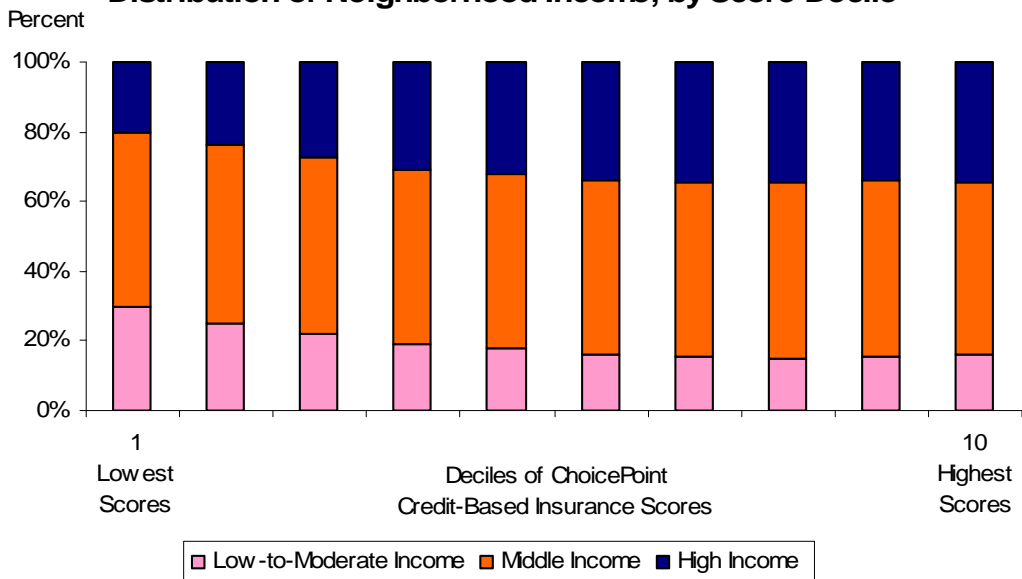
Source: Analysis of FTC Automobile Insurance Policy Database

**FIGURE 10.**  
**Distribution of Scores,**  
**by Neighborhood Income**



**FIGURE 11.**

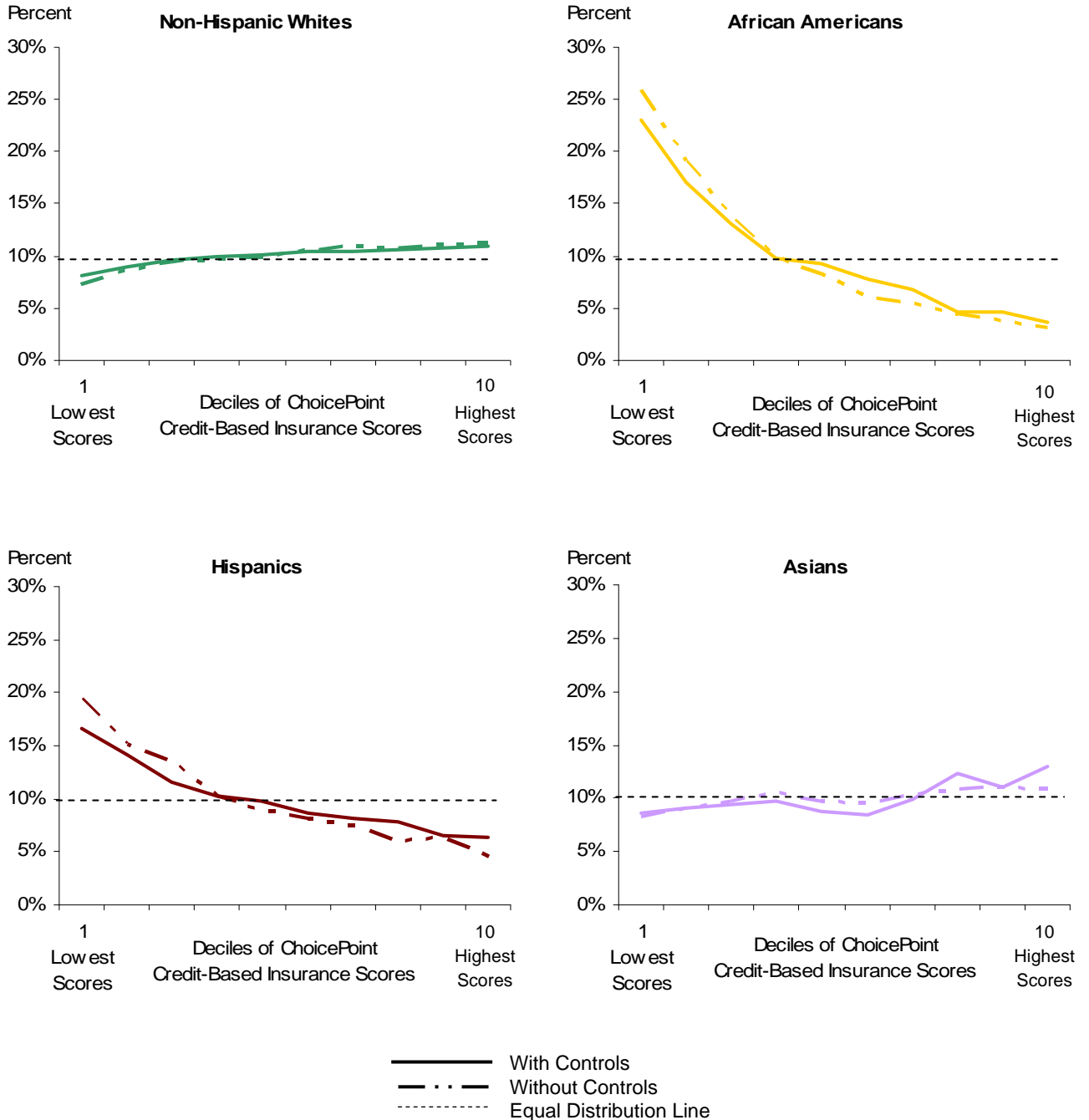
**Distribution of Neighborhood Income, by Score Decile**



See notes on Figures at the end of this section.

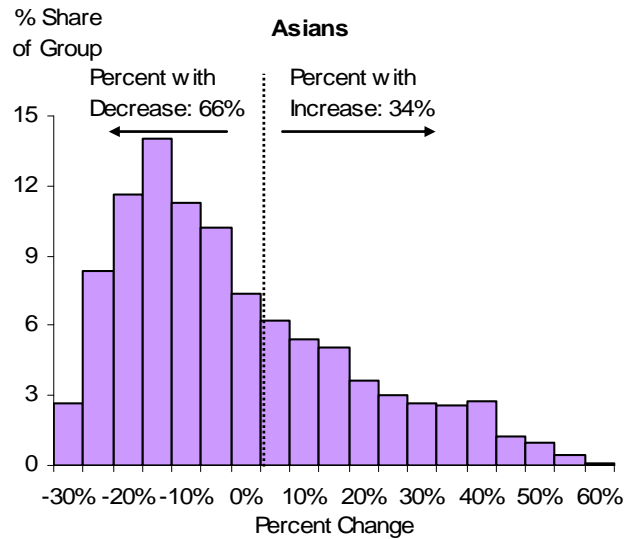
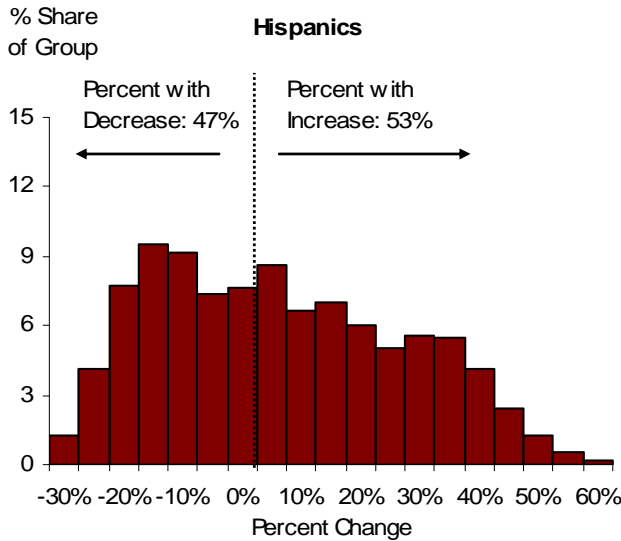
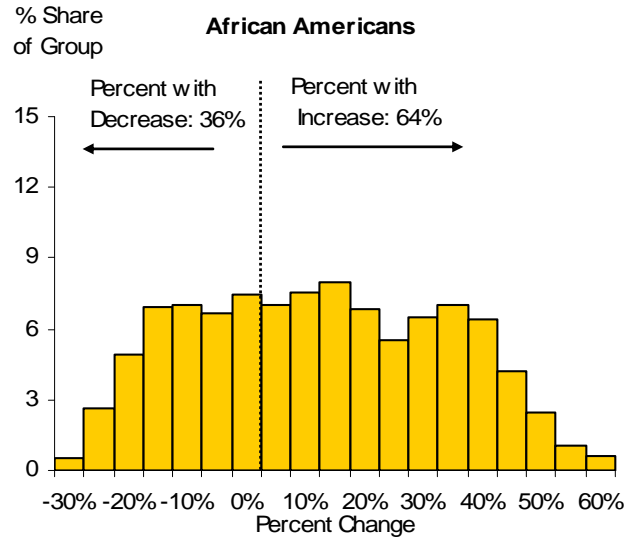
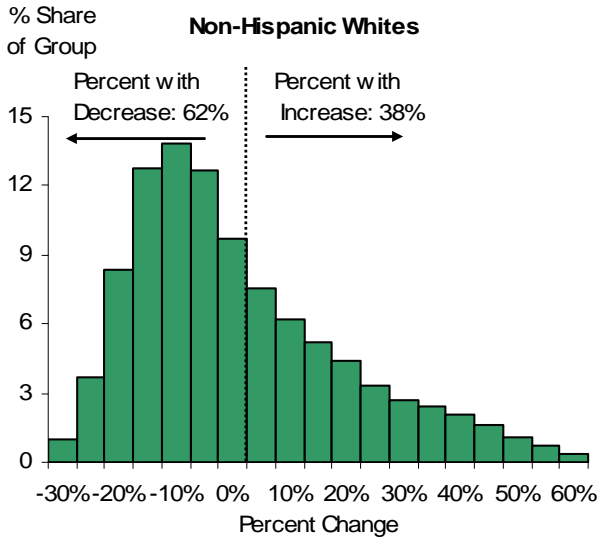
Source: Analysis of FTC Automobile Insurance Policy Database

**FIGURE 12.**  
**Distribution of Scores by Race and Ethnicity,**  
**After Controlling for Age, Gender, and Neighborhood Income**

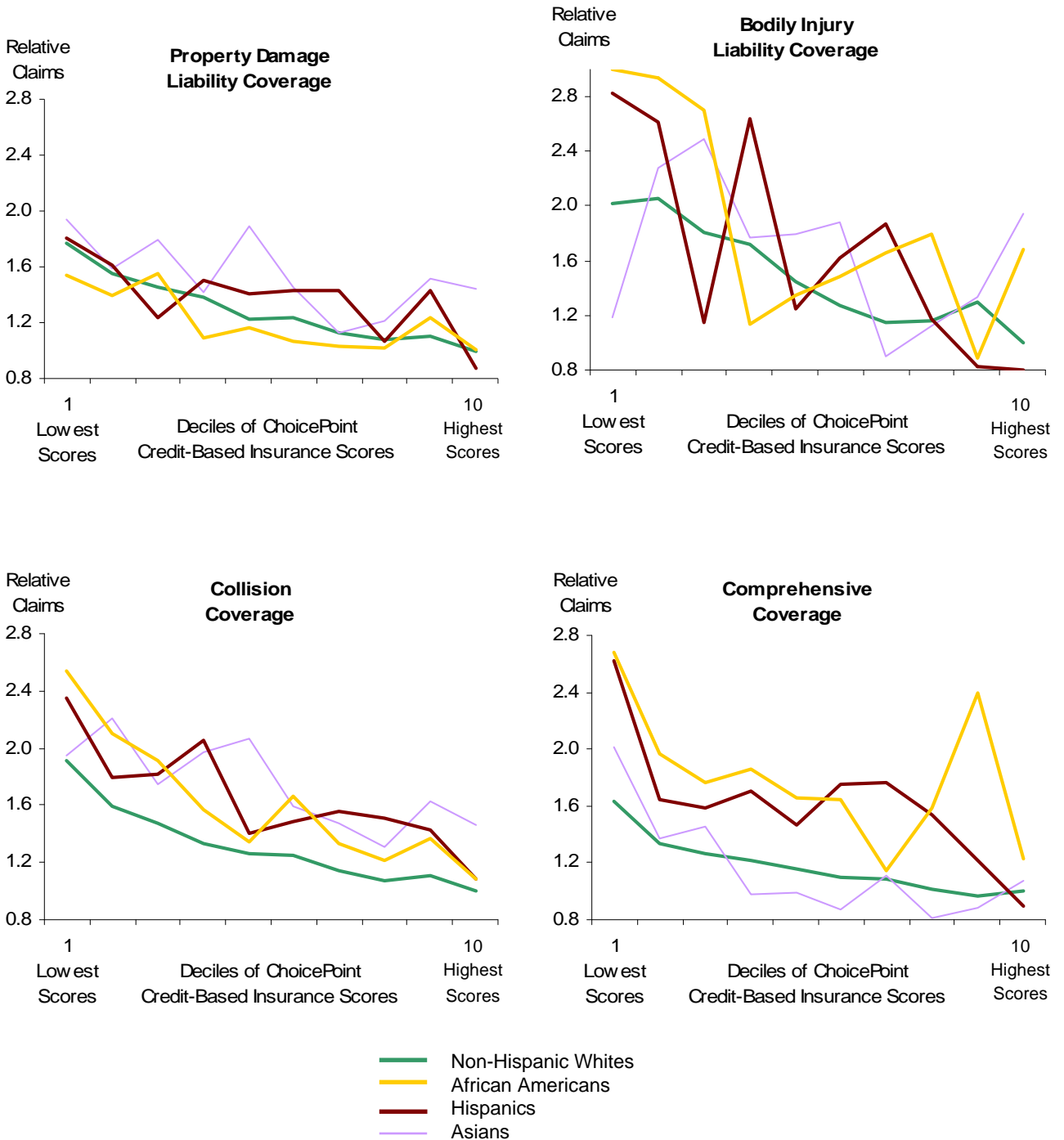


See notes on Figures at the end of this section.  
 Source: Analysis of FTC Automobile Insurance Policy Database

**FIGURE 13.**  
**By Race and Ethnicity:**  
**Change in Predicted Amount Paid on Claims from Using Scores**

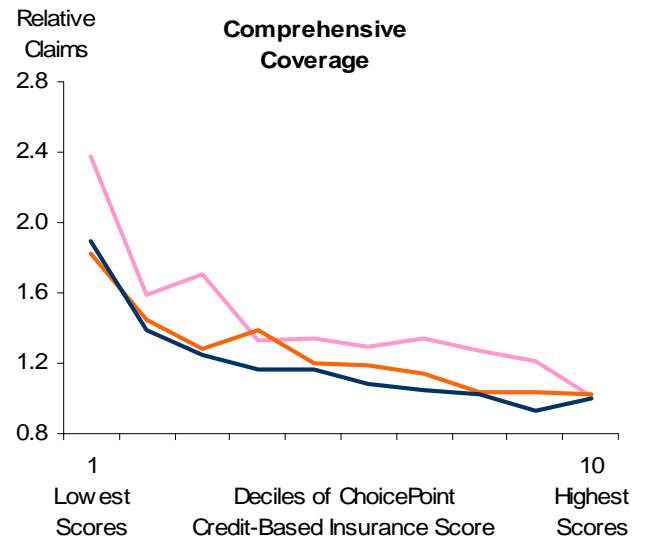
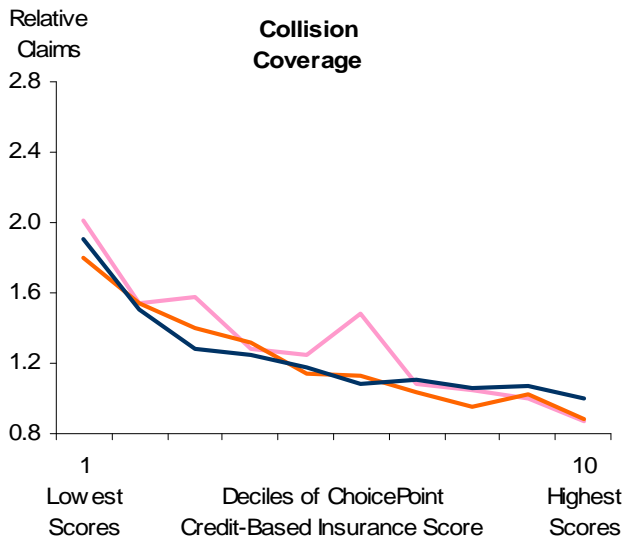
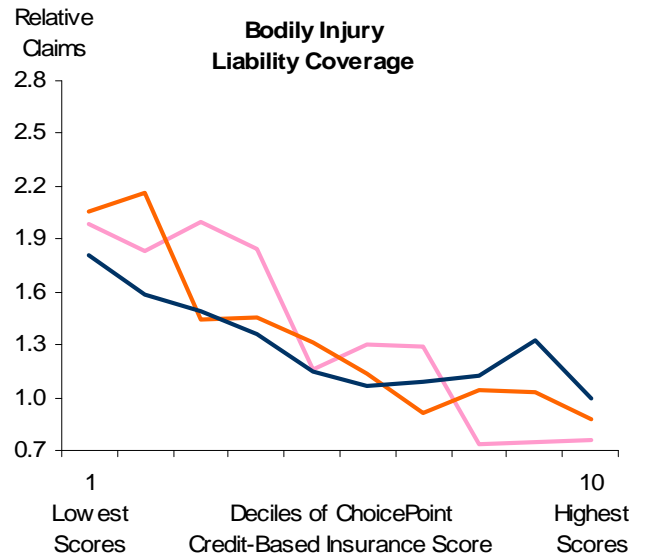
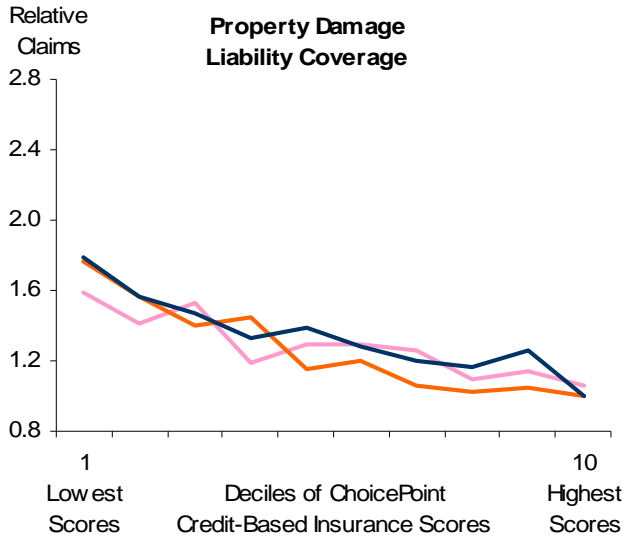


**FIGURE 14.**  
**By Race and Ethnicity:**  
**Estimated Average Amount Paid Out on Claims,**  
**Relative to Non-Hispanic Whites in Highest Score Decile**



See notes on Figures at the end of this section.  
 Source: Analysis of FTC Automobile Insurance Policy Database

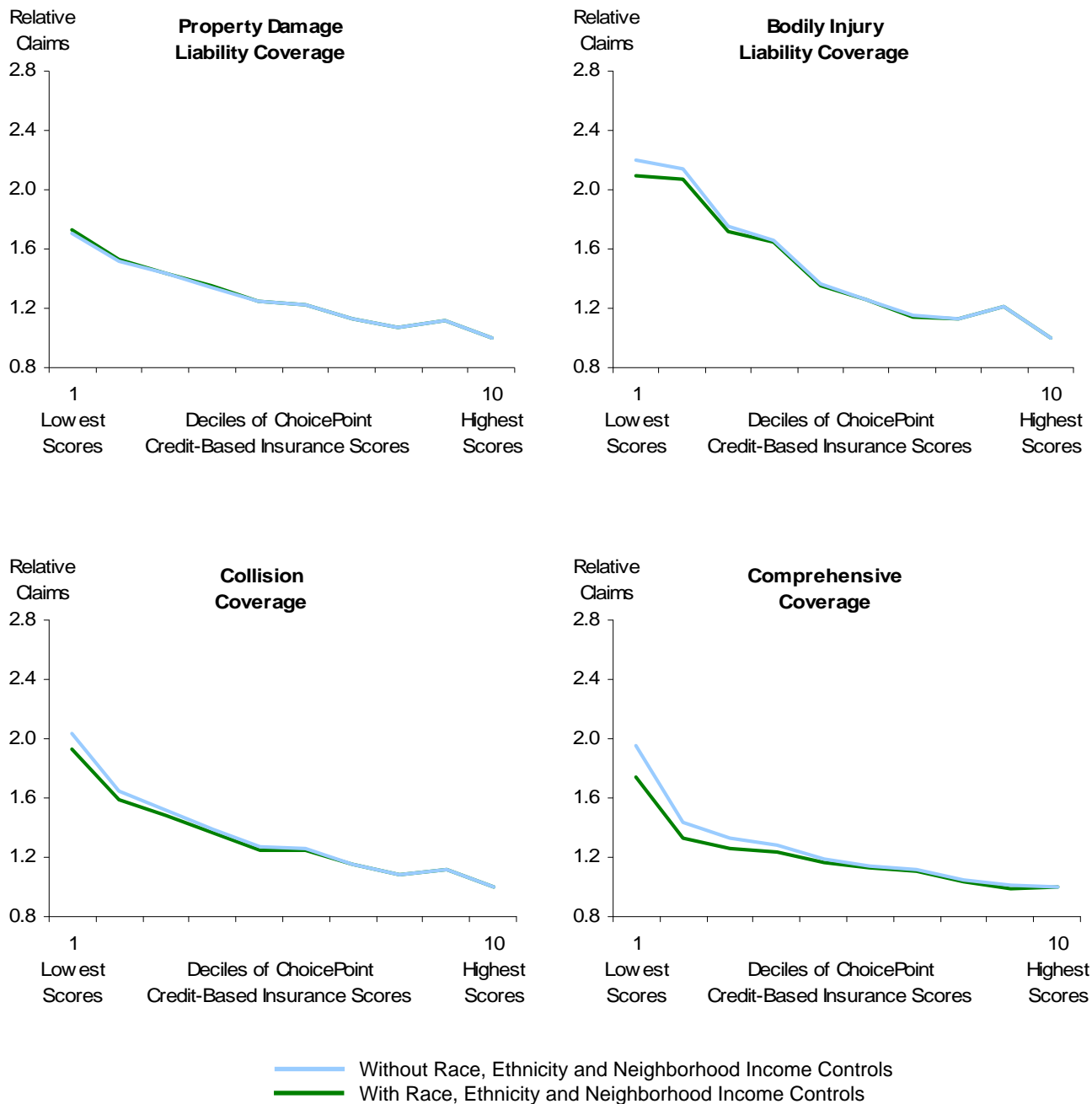
**FIGURE 15.**  
**By Neighborhood Income:**  
**Estimated Average Amount Paid Out on Claims,**  
**Relative to People in Highest Score Decile in High Income Areas**



— Low-to-Moderate Income  
— Middle Income  
— High Income

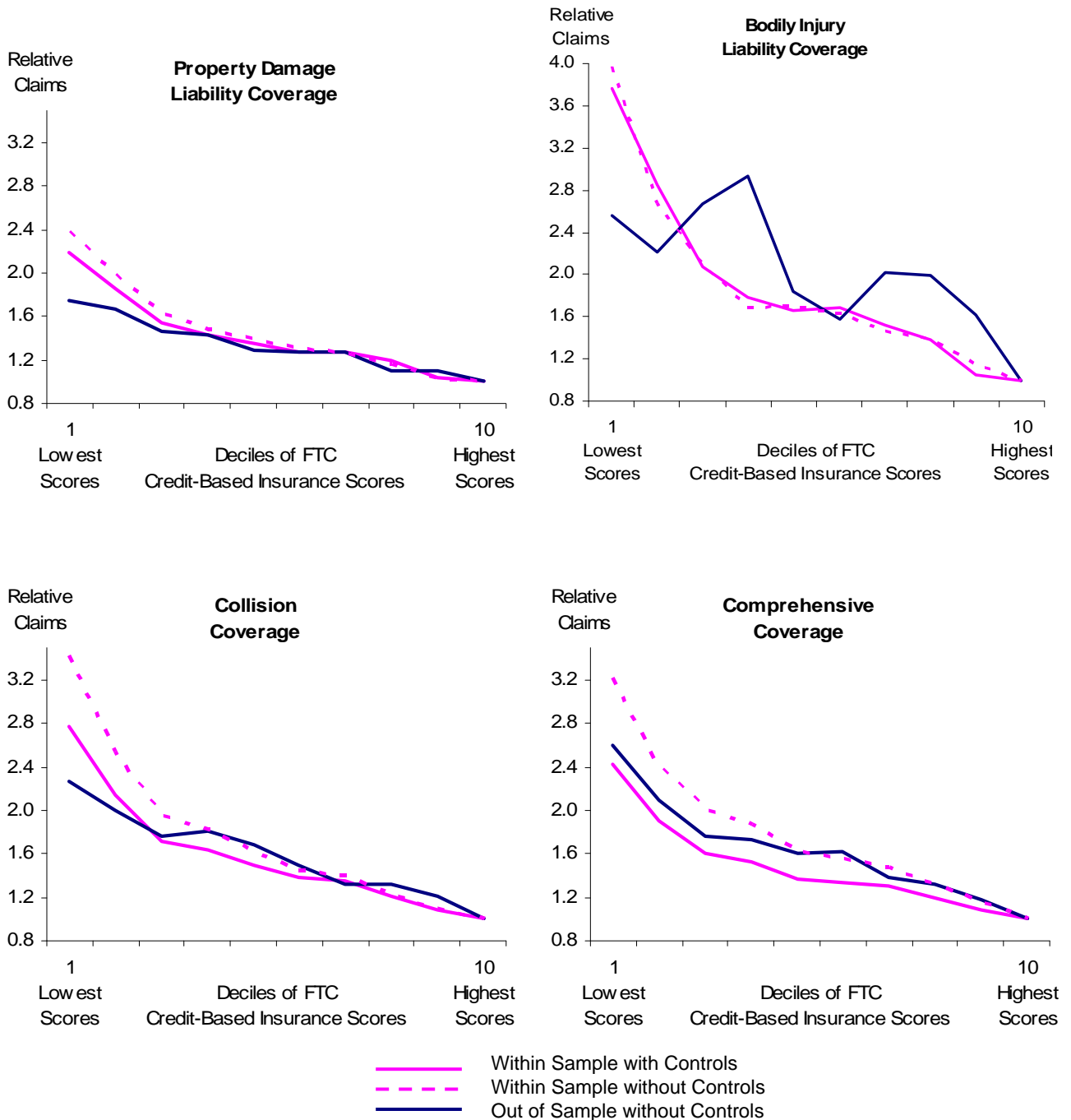
**FIGURE 16.**

**Estimated Average Amount Paid Out on Claims,  
Relative to Highest Score Decile, with and without Controls for Race, Ethnicity,  
and Neighborhood Income**



See notes on Figures at the end of this section.  
Source: Analysis of FTC Automobile Insurance Policy Database

**FIGURE 17.**  
**FTC Baseline Model -**  
**Estimated Average Amount Paid Out on Claims,**  
**Relative to Highest Score Decile**

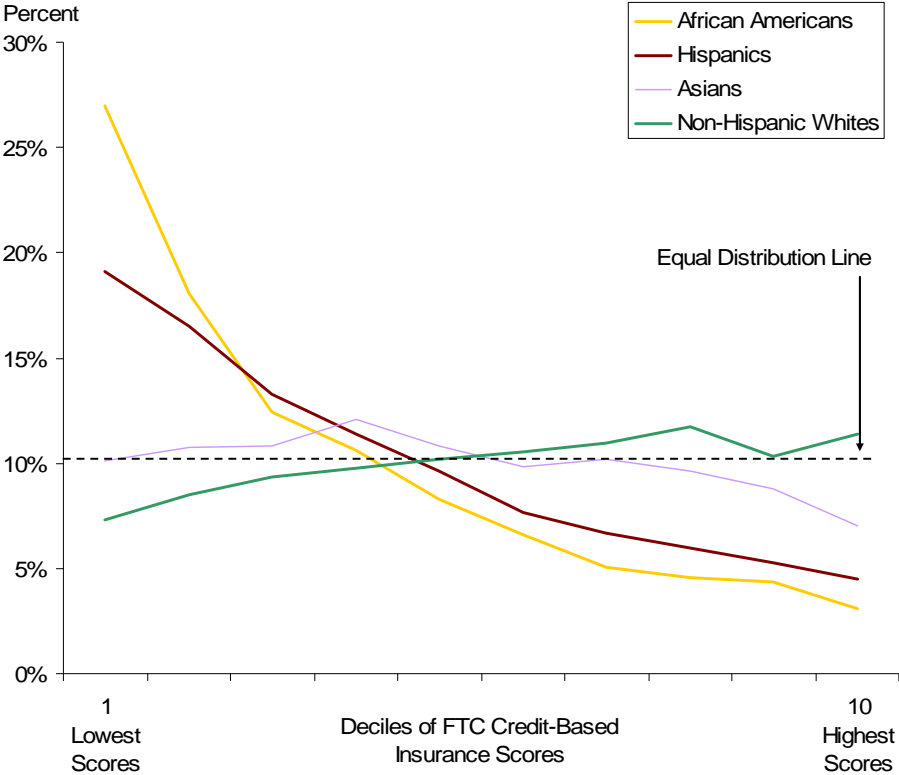


Note that the vertical scale on these graphs is different than for previous graphs of relative claims and score deciles.

See notes on Figures at the end of this section.

Source: Analysis of FTC Automobile Insurance Policy Database

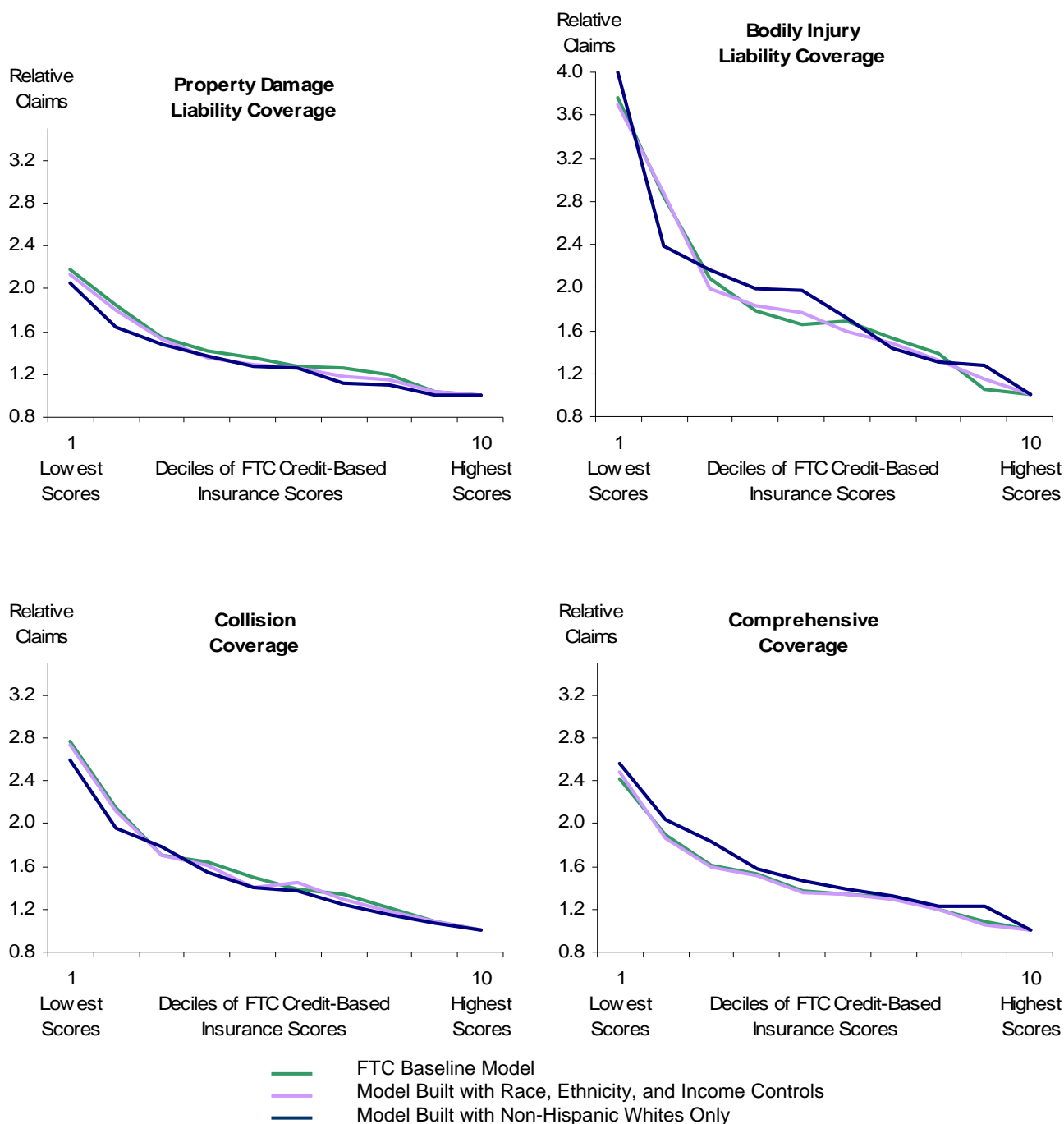
**FIGURE 18.**  
**Distribution of FTC Baseline Model Credit-Based Insurance Scores,**  
**by Race and Ethnicity**



See notes on Figures at the end of this section.

Source: Analysis of FTC Automobile Insurance Policy Database

**FIGURE 19.**  
**FTC Score Models**  
**Built Controlling for Race, Ethnicity, and Neighborhood Income:**  
**Estimated Average Amount Paid Out on Claims,**  
**Relative to Highest Score Decile**

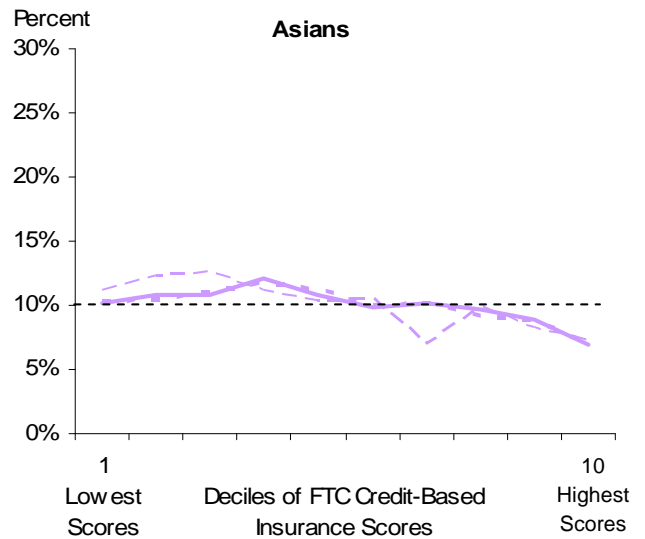
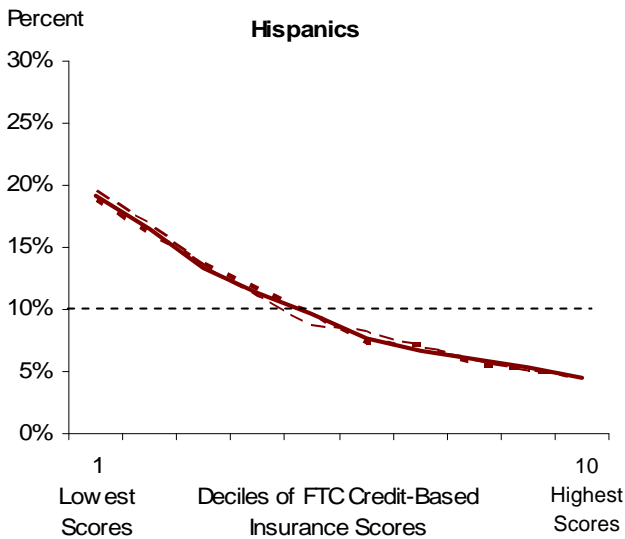
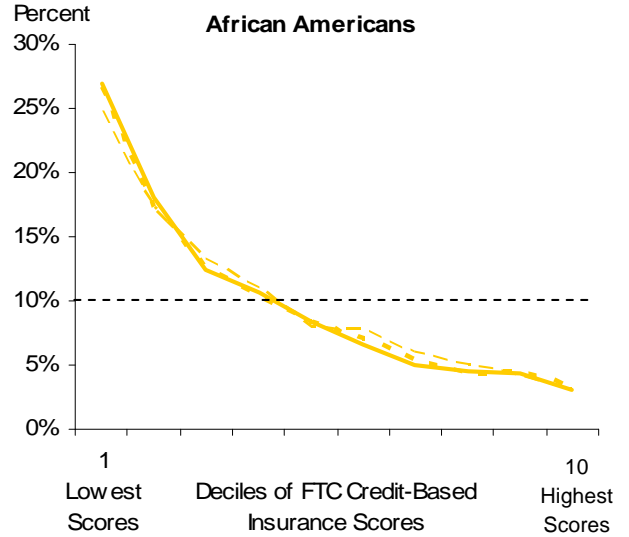
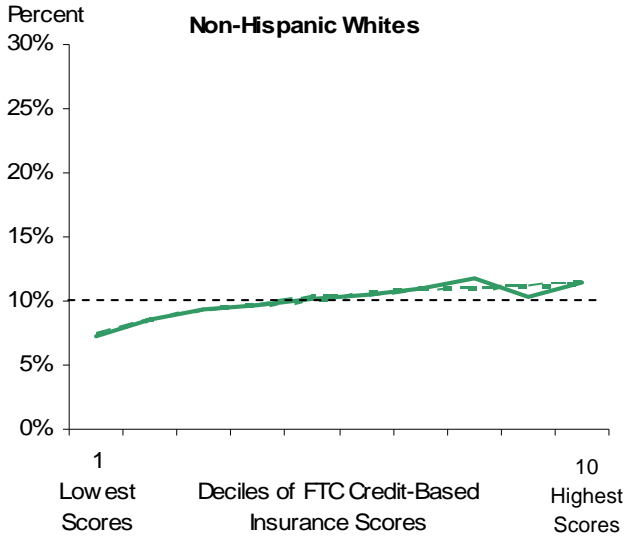


Note that the vertical scale on these graphs is different than for some previous graphs of relative claims and score deciles.

See notes on Figures at the end of this section.

Source: Analysis of FTC Automobile Insurance Policy Database

**FIGURE 20.**  
**Distribution of FTC Credit-Based Insurance Scores,**  
**by Race and Ethnicity (A)**



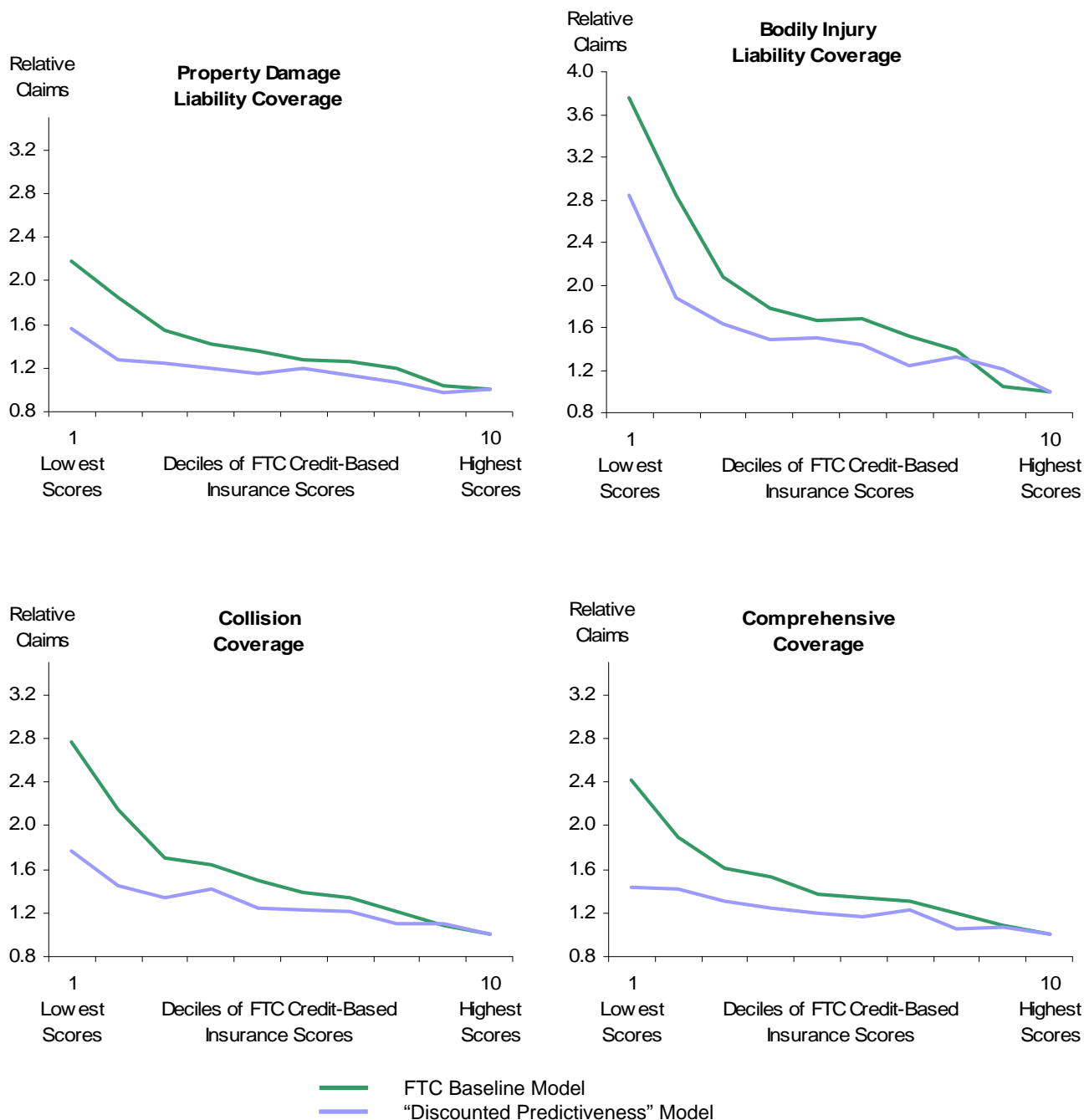
———— FTC Baseline Model  
 ..... Model Built with Race, Ethnicity, and Income Controls  
 - - - - - Model Built with Non-Hispanic Whites Only  
 - - - - - Equal Distribution Line

See notes on Figures at the end of this section.  
 Source: Analysis of FTC Automobile Insurance Policy Database

**FIGURE 21.**

**An Additional FTC Credit-Based Insurance Scoring Model:  
The "Discounted Predictiveness" Model**

**Estimated Average Amount Paid Out on Claims,  
Relative to Highest Score Decile**

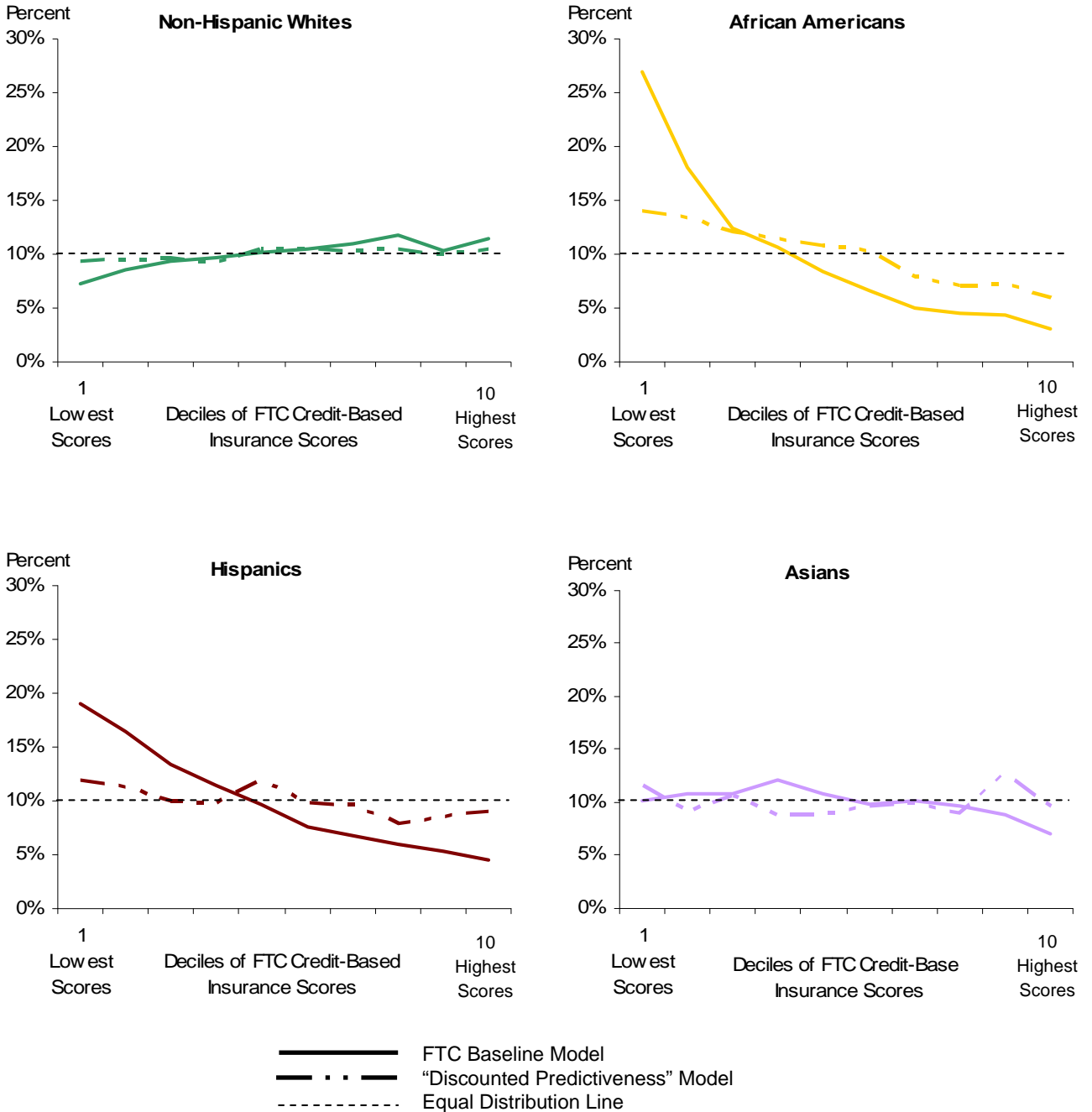


Note that the vertical scale on these graphs is different than for some previous graphs of relative claims and score deciles.

See notes on Figures at the end of this section.

Source: Analysis of FTC Automobile Insurance Policy Database

**FIGURE 22.**  
**Distribution of FTC Credit-Based Insurance Scores,**  
**by Race and Ethnicity (B)**



See notes on Figures at the end of this section.  
 Source: Analysis of FTC Automobile Insurance Policy Database

## Notes on Figures

### Figure 1:

The lines labeled “without controlling for other variables” show the actual average amount paid out on claims per year of coverage for each score decile, relative to the highest score decile. These are derived from the information in Table 2. For example, the relativity for the lowest decile on the PD graph has a value of 1.89. This number is calculated from column (c) on Table 2; by taking the average total paid on PD claims per year of coverage for the 1<sup>st</sup> decile (\$118.73) and dividing it by the respective value for the 10<sup>th</sup> decile (\$62.70).

The lines labeled “after controlling for other variables” show the predicted amount paid out on claims per year of coverage for each score decile, relative to the highest score decile, from Tweedie GLMs (Generalized Linear Models) of claims risk that included score and a set of standard risk variables as controls. Since our GLM models are multiplicative, the relativities shown by these lines are equivalent to the exponentiated coefficients of the score decile indicator variables. Modeling details and a description of the variables in the models are provided in Appendix D.

### Figure 2:

The lines labeled “frequency of claims” show the predicted number of claims per year of coverage for each score decile, relative to the highest score decile, from Poisson GLM models (“Poisson Regressions”) that included score and a set of standard risk variables as controls. Since our GLM models are multiplicative, the relativities shown by these lines are equivalent to the exponentiated coefficients of the score decile indicator variables. Modeling details and a description of the variables in the models are provided in Appendix D.

The lines labeled “average size of claims” show the predicted average size of claims for each score decile, relative to the highest score decile, from Gamma GLM models that included score and a set of standard risk variables as controls. Since our GLM model is multiplicative, the relativities shown by these lines are equivalent to the exponentiated coefficients of the score decile indicator variables. Modeling details and a description of the variables in the models are provided in Appendix D.

### Figure 3:

“CLUE” stands for Comprehensive Loss Underwriting Exchange. This informational/database exchange service is run by ChoicePoint, which collects data on claims from most major automobile insurance firms in the United States. These data allow firms to determine whether a potential new customer has filed a claim under a previous policy with another firm, and use that information in underwriting and rating.

Each line on this graph shows the average total amount paid out on claims per year of coverage for each score decile, relative to the highest decile. These results do not include controls for other risk variables because reliable non-credit risk variables are not available for the CLUE claims data. For this figure we use the full sample of 1.4 million policies, as opposed to the set of policies within the sub-sample of 400,000 normally used. This is because the latter would have proved a very limited sub-sample for the CLUE analysis for the half a year period moving forward, *i.e.*, for July 2001 to December 2001. See Appendix C for a description of the company-provided claims data and the CLUE database and claims data.

**Figure 4:**

Each line shows the predicted amount paid out on claims per year of coverage for each score decile, relative to the highest score decile, for each of three ranges of car model years from a Tweedie GLM risk model of claims that included score and a set of standard risk variables as controls. The different lines for the three groups of model years were estimated by interacting three model year range indicator variables with the score decile indicator variables. Modeling details and a description of the variables included in the models are provided in Appendix D.

**Figure 5:**

Predicted change in premium was estimated by comparing individuals' predicted total claims from risk models that included ChoicePoint Attract Standard Auto credit-based insurance score decile indicator variables with risk models that did not include scores. (By construction, the average of all changes is zero.) Both of these models were run separately for property damage liability, bodily injury liability, collision, and comprehensive coverage. In the final step we summed the predicted dollar risks for all four types of insurance coverage with and without the use of credit-based insurance scores. See section V.A. of the report for additional details on this analysis. Modeling details and a description of the variables included in the models are provided in Appendix D.

**Figure 6:**

Analysis based on data from several National Association of Insurance Commissioners Database Reports. (*e.g.*, National Association of Insurance Commissioners, "Auto Insurance Database Report 2003/2004" (2006)) The states included in the category "states not allowing the use of credit-based insurance scores" are California, New Jersey, Massachusetts, and Hawaii. The category "states allowing the use of credit-based insurance scores" includes all other states, except South Carolina and Texas (for which complete information was not provided in the NAIC reports).

Credit-based insurance scores for use in automobile insurance were first commercially available in 1995, and were widely adopted by insurance companies (in states that allowed their use) during the late 1990s.

**Figure 7:**

The “residual market” consists of state-sponsored programs to sell insurance to drivers who are unable to purchase insurance in the normal “voluntary” market. Analysis based on data from several National Association of Insurance Commissioners Database Reports. (e.g., National Association of Insurance Commissioners, “Auto Insurance Database Report 2003/2004” (2006)) The states included in the category “states not allowing the use of credit-based insurance scores” are California, New Jersey, Massachusetts, and Hawaii. The category “states allowing the use of credit-based insurance scores” includes all other states, except South Carolina and Texas (for which information was not provided in the NAIC report).

Credit-based insurance scores for use in automobile insurance were first commercially available in 1995, and were widely adopted by insurance companies (in states that allowed their use) during the late 1990s.

**Figure 8:**

Each line shows the share of each racial and ethnic group that is in each of the ten deciles of the ChoicePoint Attract Standard Auto credit-based insurance score. If each racial and ethnic group had the same distribution of scores, 10% of each group would be in each decile.

**Figure 9:**

[No Notes]

**Figure 10:**

Each line shows the share of each neighborhood income group that is in each of the ten deciles of the ChoicePoint Attract Standard Auto credit-based insurance score. If each neighborhood income group had the same distribution of scores, 10% of each group would be in each decile.

**Figure 11:**

[No Notes]

**Figure 12:**

Each line shows the share of each racial and ethnic group that is in each of the ten deciles of the ChoicePoint Attract Standard Auto credit-based insurance score *after controlling* for age, gender, and neighborhood income. This was calculated based on the residuals from an Ordinary Least Squares regression of ChoicePoint Attract Standard Auto credit-based insurance scores on age, gender, and neighborhood income. If each racial and ethnic group had the same distribution of scores, after controlling for age, gender, and neighborhood income, 10% of each group would be in each decile.

**Figure 13:**

Predicted change in premium was estimated by comparing individuals' predicted total claims from risk models that included ChoicePoint Attract Standard Auto credit-based insurance scores with risk models that did not include scores. By construction, the average of all changes for the entire sample is zero as in Figure 5, but the changes by race or ethnic group are not. See note for Figure 5 above or section V.A. of the report for additional details on this analysis. Modeling details and a description of the variables included in the models are provided in Appendix D.

**Figure 14:**

Each line shows the predicted amount paid out on claims per year of coverage for each score decile, relative to non-Hispanic whites in the highest score decile, from a Tweedie GLM risk model of claims that included score and a set of standard risk variables as controls. These values were generated by interacting the race and ethnicity indicator variables with the score decile indicator variables. The score decile cut-points used are the same across all race and ethnicity groups (these are the same deciles used for all previous Figures). Thus, given the race and ethnicity distributions across score deciles observed in Figure 8, there are relatively few African Americans and Hispanics in each of the higher score deciles intervals (*i.e.*, fewer than 10% of their group). Modeling details and a description of the variables included in the models are provided in Appendix D.

**Figure 15:**

Each line shows the predicted amount paid out on claims per year of coverage for each score decile, relative to the residents of high-income neighborhoods in the highest score decile, from a Tweedie GLM risk model of claims that included score and a set of standard risk variables as controls. These values were generated by interacting the neighborhood income category indicator variables with the score decile indicator variables. Modeling details and a description of the variables included in the models are provided in Appendix D.

**Figure 16:**

Each line shows the predicted amount paid out on claims per year of coverage for each score decile, relative to the highest score decile, from a Tweedie GLM risk model of claims that included score and a set of standard risk variables as controls. Since our GLM model is multiplicative, the relativities shown by this line are the exponentiated coefficients of the score decile indicator variables. The lines labeled “with race, ethnicity, and neighborhood controls” come from a model that also included indicator variables for race, ethnicity, and Census tract median income category. Modeling details and a description of the variables included in the models are provided in Appendix D.

**Figure 17:**

The line labeled “Within Sample” shows the predicted amount paid out on claims per year of coverage for each score decile relative to the highest score decile, *of the FTC baseline model*, from Tweedie GLM risk models of claims that included score and a set of standard risk variables as controls. Modeling details and a description of the variables

included in the models are provided in Appendix D. Details on the score building process are provided in Appendix E.

The line labeled “Within Sample without Controls” shows the average total amount paid out on claims per year of coverage for each score decile relative to the highest decile, *of the FTC baseline model*, without controlling for any other risk variables. (This line is shown for comparison with the “Out of Sample” values below, for which we do not have controls.)

The “Out of Sample” line is based on CLUE claims data and shows the average total amount paid out on claims per year of coverage for each score decile relative to the highest decile, *of the FTC baseline model*, without controlling for any other risk variables (since reliable non-credit risk variables are not available in CLUE). This “Out of Sample” line is for the period July 2001 to December 2001, and uses CLUE claims data only for individuals who were not in the score development sample.

The development sample consisted only of the sub-sample of the FTC database for which we obtained SSA race and ethnicity data, which includes everyone who had a claim in the company data, so there is no way to use the company data to look at claims outside of the development sample. Therefore, we use CLUE data on claims for a different time period and for a different set of people instead (we were able to use data on roughly 800,000 policies for this from the original 1.4 million dataset). See Appendix C for a description of the CLUE database and claims data. Details on the score building process are provided in Appendix E.

(Note that the vertical scale on the graphs in this Figure rises higher than it does for previous graphs of relative claims and score deciles in Figures 1-4 and Figures 14-16)

**Figure 18:**

Each line shows the share of each racial and ethnic group that is in each of the ten deciles of the scores produced by the FTC’s baseline credit-based insurance scoring model. If each racial and ethnic group had the same distribution of scores, 10% of each group would be in each decile.

**Figure 19:**

Each line shows the predicted amount paid out on claims per year of coverage for each score decile, relative to the highest score decile, from Tweedie GLM risk models of claims that included score and a set of standard risk variables as controls. Since our GLM models are multiplicative, the relativities shown by these lines are equivalent to the exponentiated coefficients of the score decile indicator variables. The lines labeled “baseline model” use scores from the FTC baseline scoring model. The lines labeled “race, ethnicity, and income controls model” use scores from a model built by controlling for those variables during the score building process. The lines labeled “Non-Hispanic whites model” come from a scoring model built using a development sample made up exclusively of non-Hispanic white insurance customers. Modeling details and a

description of the variables included in the models are provided in Appendix D. Details on the score building process are provided in Appendix E.

(Note that the vertical scale on the graphs in this Figure rises higher than it does for previous graphs of relative claims and score deciles in Figures 1-4 and Figures 14-16)

**Figure 20:**

Each line shows the share of each racial and ethnic group that is in each of the ten deciles of three FTC credit-based insurance scoring models. The lines labeled “baseline model” use scores from the FTC baseline scoring model. The lines labeled “race, ethnicity, and income controls model” use scores from a model built by controlling for those variables during the score building process. The lines labeled “Non-Hispanic whites model” come from a scoring model built using a development sample made up exclusively of non-Hispanic white insurance customers. If each racial and ethnic group had the same distribution of scores, 10% of each group would be in each decile. Details on the score building process are provided in Appendix E.

**Figure 21:**

Each line shows the predicted relative amount paid out on claims per year of coverage for each score decile, relative to the highest score decile, from Tweedie GLM risk models of claims that included score and a set of standard risk variables as controls. Since our GLM models are multiplicative, the relativities shown by these lines are equivalent to the exponentiated coefficients of the score decile indicator variables. The lines labeled “baseline model” use scores from the FTC baseline scoring model. The lines labeled “discounted predictiveness model” use scores from a model built by discounting the power of a variable to predict risk based on how different the variable was across racial and ethnic groups. Modeling details and a description of the variables included in the models are provided in Appendix D. Details on the score building process are provided in Appendix E.

(Note that the vertical scale on the graphs in this Figure rises higher than it does for previous graphs of relative claims and score deciles in Figures 1-4 and Figures 14-16)

**Figure 22:**

Each line shows the share of each racial and ethnic group that is in each of the ten deciles of two FTC credit-based insurance scoring models. The lines labeled “baseline model” use scores from the FTC baseline scoring model. The lines labeled “discounted predictiveness model” use scores from a model built by discounting the power of a variable to predict risk based on how different the variable was across racial and ethnic groups. If each racial and ethnic group had the same distribution of scores, 10% of each group would be in each decile. Details on the score building process are provided in Appendix E.

APPENDICES  
TABLES

**TABLE A1.**  
**Development of Nationally Representative Weights:**  
**Share of Vehicles by Race, Ethnicity and Neighborhood Income**

	Census	FTC Database		
	(a)	Unweighted (b)	With Tract Weights (c)	With Tract and Race Weights (d)
<b>Race</b>				
African Americans	8.4%	4.3%	6.0%	8.4%
Hispanics	7.8%	2.8%	3.7%	7.8%
Asians	3.1%	3.1%	2.9%	3.1%
Non-Hispanic Whites	80.8%	89.8%	87.5%	80.8%
<b>Income</b>				
Low	18.2%	12.3%	17.6%	19.2%
Medium	50.6%	44.0%	51.0%	50.3%
High	31.3%	43.7%	31.4%	30.5%

Notes:

- 1) Percentages are relative to the group of consumers included in these calculations.
- 2) The tract weights were calculated using the ratio of the share of vehicles in the 2000 Census in each tract divided by the share of vehicles in the FTC database in each tract. The subsequent race weights are simply the ratio of the share of each race group in the Census data over the share of each race group in the FTC database, after applying the tract weights. See Appendix C for details on the development of the weights.
- 3) The final proportions differ slightly from those reported in the table on the sub-sample used for model estimation and analysis because that sample has several additional minor restrictions that were not applied to the sample used to develop the weights.

**TABLE A2.**  
**Summary Statistics for the Full FTC Database and the Sub-Sample Used for**  
**Model Estimation and Analysis**

	Full Sample (a)	Model Sub-Sample (b)	Model Sub-Sample With Nationally Representative Weights (c)
	(Median or Percent)	(Median or Percent)	(Median or Percent)
<b>Gender</b>			
Male	29.8%	29.2%	25.8%
Female	31.4%	32.1%	28.9%
Unknown	38.8%	38.7%	45.3%
<b>Marital Status</b>			
Single	12.3%	13.1%	12.3%
Married	31.6%	33.1%	27.4%
Divorced / Widowed	2.4%	2.6%	2.9%
Unknown	53.7%	51.1%	57.5%
<b>Accidents</b>			
Zero	56.8%	59.7%	60.7%
One or More	4.5%	4.9%	4.7%
Unknown	38.6%	35.4%	34.6%
<b>Miles Driven</b>			
<7500	22.1%	22.0%	22.5%
>7500	50.4%	50.6%	55.0%
Unknown	27.6%	27.5%	22.5%
<b>Multi-Line Discount</b>			
Yes	34.5%	34.1%	36.6%
No	35.3%	34.8%	40.4%
Unknown	30.3%	31.1%	23.1%
<b>Principal Operator</b>			
Yes	28.2%	27.8%	27.0%
No	6.0%	5.7%	5.9%
Unknown	65.8%	66.5%	67.1%
<b>Use</b>			
Business	0.7%	0.6%	0.6%
Farm	0.8%	0.6%	1.0%
Pleasure	42.3%	43.1%	44.0%
Work	15.7%	16.9%	18.5%
All Other	12.8%	9.6%	11.2%
Unknown	27.8%	29.2%	24.8%
<b>Homeowner</b>			
Yes	55.6%	56.3%	52.5%
No	44.4%	43.7%	47.5%
<b>Multiple Cars</b>			
Yes	61.8%	60.1%	53.0%
No	14.5%	14.8%	14.9%
Unknown	23.7%	25.1%	32.0%

(continued. . .)

**TABLE A2.**  
**Summary Statistics for the Full FTC Database and the Sub-Sample Used for**  
**Model Estimation and Analysis (Continued)**

	Full Sample (a)	Model Sub-Sample (b)	Model Sub-Sample With Nationally Representative Weights (c)
	(Median or Percent)	(Median or Percent)	(Median or Percent)
<b>Major Violations</b>			
Positive	0.3%	0.3%	0.4%
Zero	64.6%	64.9%	59.5%
Unknown	35.1%	34.8%	40.1%
<b>Minor Violations</b>			
Positive	5.1%	5.5%	5.1%
Zero	54.3%	53.9%	47.2%
Unknown	40.6%	40.6%	47.8%
<b>Vehicle Body Type</b>			
Convertible	1.6%	1.6%	1.2%
Coupe	5.5%	5.8%	6.2%
Ext/Crew cab pickup	4.4%	4.4%	4.8%
Four-door SUV	9.7%	9.8%	8.5%
Hatchback	3.7%	3.8%	3.7%
Passenger MiniVan	5.5%	5.7%	5.5%
Regular Cab Pickup	3.6%	3.5%	4.5%
Two-door SUV	1.8%	1.8%	1.8%
Wagon	2.9%	3.0%	2.1%
Sedan	31.0%	31.5%	30.2%
Unknown	30.4%	29.0%	31.5%
<b>Restraint System</b>			
Driver's front airbags	10.7%	10.9%	10.8%
Driver/Passenger front airbags	36.3%	37.4%	35.5%
Just active belts	12.1%	12.0%	12.5%
Just passive belts	5.6%	5.7%	6.1%
More than front airbags	5.0%	5.0%	3.5%
Unknown	30.4%	29.0%	31.5%
<b>Prior Claim<sup>†</sup></b>			
Under & Uninsured Motorist	1.6%	1.7%	2.0%
BI & PD	14.4%	15.1%	14.4%
Coll., Med, & PIP	12.9%	13.9%	13.5%
Comprehensive	19.3%	20.6%	19.8%
Towing and Labor	6.7%	7.2%	8.1%
Rental Reimbursement	7.3%	8.1%	8.4%
<i>None of the above</i>	60.9%	58.3%	58.9%
<b>Age</b>			
	47	46	46
<i>Share Unknown</i>	12.6%	12.3%	11.7%
<b>Tenure</b>			
	10	10	8
<i>Share Unknown</i>	11.7%	11.3%	12.8%

(continued. . .)

**TABLE A2.**  
**Summary Statistics for the Full FTC Database and the Sub-Sample Used for**  
**Model Estimation and Analysis (Continued)**

	Full Sample (a)	Model Sub-Sample (b)	Model Sub-Sample With Nationally Representative Weights (c)
	(Median or Percent)	(Median or Percent)	(Median or Percent)
Property Damage Liability Limit	\$50,000	\$50,000	\$50,000
<i>Share Unknown</i>	3.2%	3.1%	2.0%
Bodily Injury Liability Limit	\$100,000	\$100,000	\$100,000
<i>Share Unknown</i>	3.6%	3.4%	2.3%
Collision Deductible	\$500	\$500	\$300
<i>Share Unknown</i>	0.0%	0.0%	0.0%
Comprehensive Deductible	\$200	\$200	\$100
<i>Share Unknown</i>	0.0%	0.0%	0.0%
Model Year	1994	1994	1994
<i>Share Unknown</i>	0.8%	0.4%	0.3%
Coverage Combinations			
All Four Main Coverages	77.3%	82.6%	80.6%
Liability and Comprehensive	13.3%	13.3%	15.4%
Liability Only	4.1%	4.1%	4.1%
Other Coverage Combinations	5.4%	0.0%	0.0%
Race/Ethnicity			
African American	NA	4.3%	8.4%
Hispanic	NA	2.8%	7.7%
Asian	NA	3.1%	3.1%
Non-Hispanic White	NA	89.9%	80.8%
Number of Policies	1,434,041	275,509	275,509
Number of Vehicles	2,284,330	458,940	458,940
Total Car Years	1,808,584	399,100	399,100

†: Some Prior Claims categories are not mutually exclusive, therefore the shares can add up to more than 100%

Note: See Appendix C for details on the data sources and the construction of the database. See Appendix D for a discussion of how the sub-sample used for model estimation and analysis was chosen.