# Fair Lending:

## Implications for the Indirect Auto Finance Market

# Executive Summary

### Prepared by:  Arthur P. Baines and Dr. Marsha J. Courchane

### For: American Financial Services Association

Charles River Associates
1201 F Street, NW
Suite 700
Washington DC 20004

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## 1.    INTRODUCTION

Over the past few years, regulatory focus on fair lending examination of the indirect automotive finance market has increased significantly.  Recent regulatory developments that impact the indirect auto finance market include the issuance on March 21, 2013 of the Consumer Financial Protection Bureau (CFPB) Bulletin 2013-02, "Indirect Auto Lending and Compliance with the Equal Credit Opportunity Act." At the same time, methodologies used by regulatory agencies for fair lending examinations have changed significantly.

The study provided by Charles River Associates illustrates the complexities of indirect automobile financing in the context of current regulatory fair lending practices, concluding that a focus on portfolio wide measurement of disparities with respect to dealer reserve, with no consideration for economic factors that might influence dealer reserve, ignores realities of the market. Such an approach does not appropriately measure dealer reserve disparities on a prohibited basis.

Utilizing a wide array of industry data and a database (CRA Contract Data) consisting of approximately 8.2 million new and used vehicle contracts originated during 2012 and 2013, the study measures disparities in dealer reserve using the CFPB's methodology to proxy for race/ethnicity (BISG).

Our research concludes there is little evidence that dealers systematically charge different dealer reserves on a prohibited basis.  Rather, variations in dealer reserves across contracts can be largely explained by objective factors other than race and ethnicity.  In addition, the use of race and ethnicity proxies creates significant measurement errors, overestimates minority population counts, and results in overstated disparities.  These overestimates and overstatements can contribute to inflated estimates of alleged consumer harm.  The key findings below demonstrate errors or omissions in the CFPB's current approach and offer measures that can improve regulatory reviews.

## 2.    KEY FINDINGS

a) **When appropriately considering the relevant market complexities and adjusting for proxy bias and error, the observed variations in dealer reserve are largely explained.**

In the CRA Contract Data, contracts for new vehicles financed $25,525, on average, with average dealer reserve of 110 bps, while used-vehicles financed $18,753, on average, with average dealer reserve of 132 bps.[i]  Ignoring proxy bias and market complexities, estimated disparities in the CRA Contract data are 17 bps for African Americans, 9 bps for Hispanics and 13 bps for Asian consumers (Step 1 in graphic below).[ii]

After adjusting, in part, for the biases inherent in race and ethnicity proxies (Step 2), and controlling for basic and observable objective factors that impact dealer reserve (Step 3), we observe potential disparities for African American, Hispanic and Asian consumers, identified by proxy, in the range of 6 - 9 bps. Given the average amounts financed and contract terms in our data, this equates to less than $1 of monthly payment, or approximately 0.2% of the average monthly payment amount. Furthermore, this analysis does not consider the many unobservable factors that have a causal impact on dealer reserve, including those recognized by DOJ, which include, among others whether or not the consumer had a competing offer of financing from another dealer or finance company and whether or not the dealer has implemented a dealer reserve policy similar to those described in the Pacifico and Springfield consent orders or the NADA Fair Credit Compliance Policy and Program.

While we cannot observe these factors, we can proxy for them. When a contract is observed to have zero dealer reserve, it may reflect the downward adjustments contemplated in the DOJ in Pacifico and Springfield, and it is economically reasonable to assume that one of more of the seven factors in those consent orders was potentially present. If we exclude from our analysis all contracts with zero dealer reserves the observed raw disparities fall to 8, 6 and 12 for African American, Hispanic and Asian contracts identified by proxy, respectively. Once we apply the same controls described above, we identify disparities of 5, 6 and 6, respectively. Disparities at this level are in the range of $.50 - $.60 per month and economically de minimis as a share of the average monthly payment.

| Steps for Analyzing Dealer Reserve Disparities | | |
|---|---|---|
| **Step 1** | Uncontrolled 'Raw' Disparities ⟶ | 9-17 bps |
| **Step 2** | Adjust for BISG bias ⟶ | 6-10 bps |
| **Step 3** | Control for relevant observable factors ⟶ | 6-9 bps |
| **Step 4** | Proxy for unobservable consumer and dealer attributes ⟶ | 5-6 bps |
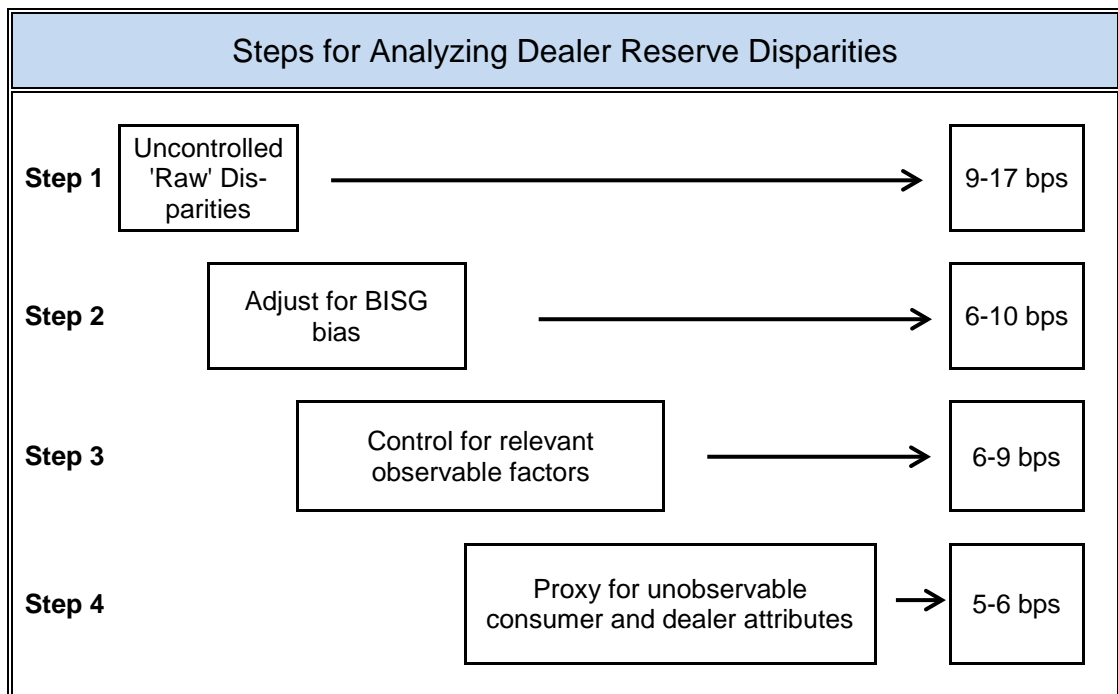
**b) The Bayesian Improved Surname Geocoding (BISG) proxy methodology is conceptually flawed in its *application* and subject to significant bias and estimation error.**

While BISG-based probabilities may be relatively less inaccurate than geography-only and name-only proxy methods, BISG methods are characterized by objectively high error rates.  Applying BISG with an 80% threshold to a sample of HMDA-reportable mortgages with known race/ethnicity correctly identifies only 24.2% of the actual African American consumers.[iii]  In a threshold application, all consumers with a categorical probability exceeding the threshold are assigned to that group.  In this way, consumers (and their contracts) can be classified into groups of 'likely' African Americans, Hispanics, Asians, non-Hispanic whites.  Even at a the considerably less precise 50% threshold, BISG fails to identify approximately half of the actual African American and Asian consumers, while the rates of wrongly included applicants increase dramatically.  We identified the following rates of false positives and negatives. [iv]
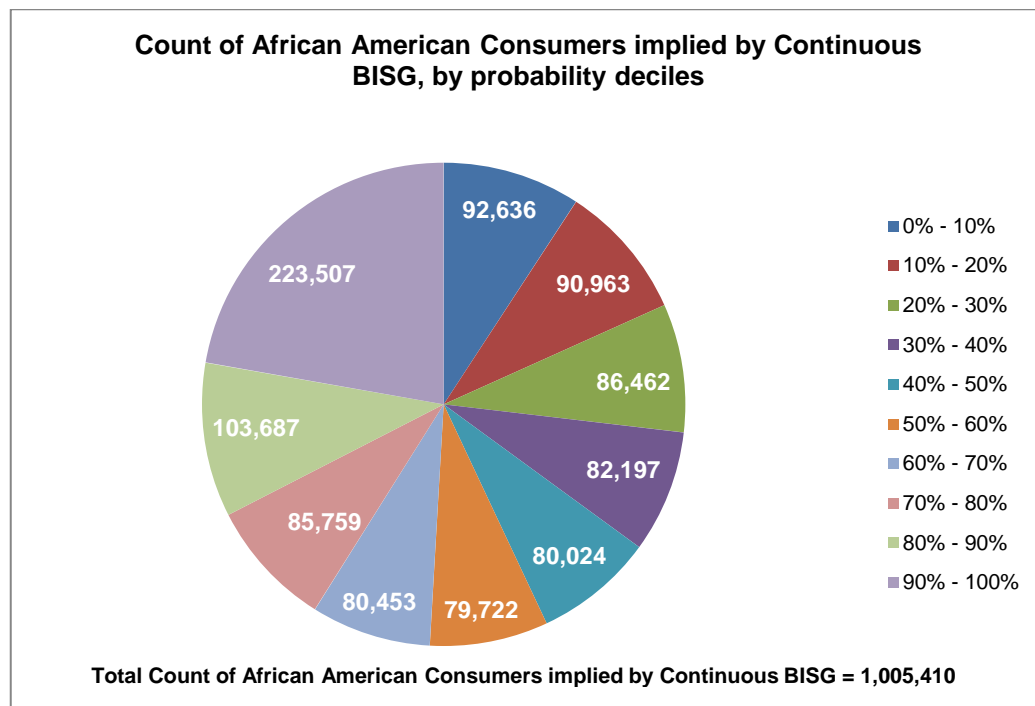
| Table 1. Testing BISG Accuracy at 80% Threshold | | | | |
|---|---|---|---|---|
| | | Share of Actual Group | | Percent Wrongly Included (false positives) |
| Proxy Method | Race/Ethnicity | Correctly Identified by Proxy | Not Identified by Proxy (false negatives) | |
| BISG-80% | African American | 24.2% | 75.8% | 22.4% |
| | Hispanic | 58.6% | 41.4% | 13.2% |
| | Asian | 50.3% | 49.7% | 14.2% |
| | Non-Hispanic White | 77.7% | 22.3% | 5.6% |

Source: HMDA augmented with proprietary data

The CFPB, using the same methodology and a different sample population, correctly identified only 39% of the actual African American consumers, compared to the 24.2% we identify.  Clearly the bias varies depending on the population.

Applying the BISG using a continuous method also systematically overestimates the number of African Americans and, to a lesser extent the Asians and Hispanics in the portfolio.[v] BISG probabilities imply that there are approximately 32,415 African Americans in the test population, when in fact there are only 23,036 African Americans – an overestimation of 41%.  The CFPB reported a 21% overestimation of African Americans in its test population.[vi]

The BISG continuous method predicts slightly more than one million African American consumers in the CRA Contract Data sample of 8.2 million.  While nearly 6 million of the contracts in our database have BISG African American probabilities of less than 10%, application of the CFPB's BISG method would suggest that 92,636 of these low probability contracts are associated with African American consumers. Chart 1 shows the counts of BISG- implied African American consumers by probability deciles.

**Count of African American Consumers implied by Continuous BISG, by probability deciles**



Legend:
- 0% - 10%
- 10% - 20%
- 20% - 30%
- 30% - 40%
- 40% - 50%
- 50% - 60%
- 60% - 70%
- 70% - 80%
- 80% - 90%
- 90% - 100%

**Total Count of African American Consumers implied by Continuous BISG = 1,005,410**

These error rates are correlated with tract population shares, credit score (FICO), income and Census tract Low-Moderate-Income (LMI) status.  As FICO, income, and relative income (LMI status) increase, BISG's ability to accurately identify African Americans and Hispanics is diminished, and the BISG probabilities are increasingly less accurate.

### c)  The use of biased race and ethnicity proxies creates significant measurement error, which likely results in overstated disparities.

The use of actual race and ethnicity in predictions of annual percentage rates (APRs) in models with no explanatory controls estimates disparities of 14.1 bps for African Americans and 19.0 bps for Hispanic mortgage borrowers.[vii]  Using BISG proxies for race and ethnicity identifies disparities of 26.4 and 29.7 bps, respectively.  The proxied disparities are inflated by 87% for African Americans and 57% for Hispanics relative to the actual disparities.

| Table 2. Comparison of Estimated *Raw* APR Disparities, by Race/Ethnicity | | | | | |
|---|---|---|---|---|---|
| Minority Group | Method | # Minorities | # Non-Hispanic White | Coef. (bps) | p-Value |
| African American | Actual Race / Ethnicity | 12,022 | 157,579 | 14.1 | 0.000 |
| | BISG Proportional | 19,072 | 148,247 | 26.4 | 0.000 |
| Hispanic | Actual Race / Ethnicity | 13,587 | 157,579 | 19.0 | 0.000 |
| | BISG Proportional | 13,991 | 148,247 | 29.7 | 0.000 |
| Asian | Actual Race / Ethnicity | 6,405 | 157,579 | -5.2 | 0.000 |
| | BISG Proportional | 6,848 | 148,247 | -7.3 | 0.000 |

BISG may be relatively less inaccurate than proxies based on geography or surname alone, but BISG is still subject to significant biases and estimation errors. These problems, left unaddressed, result in the potentially dramatic overstatement of disparities and alleged consumer harm.

**d) The Department of Justice (DOJ) recognizes that dealer reserves depend on objective, observable business factors. Failure to consider legitimate business factors for observed disparities increases the potential for reaching erroneous conclusions.**

The vehicle purchase transaction includes complex sequential decisions made by both the dealer and consumer, which result from the components of the vehicle purchase (new, used, trade-in, options, insurance, warranties, servicing). While the DOJ has recognized that several of these objective business factors have a direct impact on dealer reserves, these factors are generally unknown to the financial institution and regulators.[viii] Given these complexities and the resultant pricing dynamics, attempts to evaluate the cost of dealer compensation in isolation from the prices of other products and services accompanying the vehicle transaction presents many challenges and increases the potential for drawing erroneous conclusions.[ix]

Given the highly competitive nature of automotive finance, each financial institution observes the pricing of only a subset of a dealer's contract portfolio, rather than the entire portfolio. The assignment of contracts is not random, and may reflect the dealer's desire to maximize reserve given the contract rate, which suggests that conclusions about dealer compensation patterns cannot be ascertained from the analysis of the contracts assigned to a given individual financial institution.

**e) Aggregating contracts originated by individual dealers to the portfolio level may create the appearance of differential pricing on a prohibited basis when none exists.**

Portfolio level analysis aggregates contracts sourced from dealers with different operating models, cost structures, pricing policies, competitive landscapes and regulatory structures.  Even if each dealer sets prices in a manner that is race/ethnicity neutral, differences in the relative proportion of consumer market segments served by each dealer can lead to the appearance of pricing differences on a prohibited basis when the contracts from different dealers are aggregated to the financial institution's portfolio level.

For example, consider contracts originated by two dealerships.  Dealer reserve is a flat 200 bps at dealer #1 and a flat 150 bps at dealer #2.  Assume that dealer #1 is in a higher-cost urban area with proportionately more African American consumers, while dealer #2 is located in a lower-cost suburban area with proportionately fewer African American consumers.   When portfolio level analysis is performed using the CFPB's methods, a statistically significant disadvantageous disparity will be observed, when in fact, there is no pricing disparity at either dealership individually.  The observed portfolio-level disparity is simply the result of aggregating across dealerships with different pricing structures located in different geographies.

**f) Alternative dealer compensation structures, such as flats, may lead to increased borrowing costs for many minority and non-minority consumers and, in turn, may limit access to credit for some consumers.**

In our cost/benefit scenarios, about a third of all consumers would face higher costs of credit, regardless of race/ethnicity.  If a compensation structure required flats (fixed compensation per contract), financial institutions would likely directly set the contract rate they offer to dealers.   These contract rates would have to be substantially higher than current buy rates in order to pay flats on every contract.  Dealers would have an incentive to assign a given contract to the financial institution offering the highest flat rate.  Higher flats necessitate a higher contract rate, all else equal.

The vigorous competition among financial institutions that is observed today results from offering dealers lower buy rates.  The effect of caps currently set by many financial institutions is to pass some of the benefit of the lower buy rate on to the consumer.  Dealers have strong incentives to collect their dealer reserve on the lowest buy rate they can obtain from their network of financial institutions.  While the degree to which consumers benefit may vary across credit tranche, significant benefits to consumers were identified in all credit tranches.

Higher borrowing costs may limit access to credit for some consumers who are able to successfully arrange dealer financing using today's market structure.

## 3.    SUMMARY

The automotive finance market is complex and highly competitive.  Attempts to evaluate the price of financing, and specifically the dealer reserve, in isolation from those market dynamics present significant challenges and may lead to erroneous conclusions.

Our research concludes that there are numerous factors that have a causal impact on the amount of dealer reserve charged by the dealer, and the variations in dealer reserves across contracts are largely explained by objective factors other than by race and ethnicity.

The application of the BISG proxy methods may significantly overestimate the minority population counts and contribute to the overstatement of observed disparities and alleged consumer harm.

The introduction of a new 'tool' for identifying minority consumers must be accompanied by recognition of its limitations and adjustments for inherent bias.

## End Notes

[i] This excludes subvented contracts from the analysis.

[ii] Raw disparities are reported from a continuous regression model with no controls beyond the BISG race/ethnicity probability vector.

[iii] We use a testing approach similar to that used in the CFPB's White Paper.

[iv] False positives occur when an applicant is assigned to the wrong race/ethnicity group. For example, BISG assigns a high probability that the applicant is African American, when in fact the applicant is white. False negatives occur when BISG fails to assign the applicant to the correct race/ethnicity group. For example, BISG assigns a low probability that an applicant is African American, when in fact the applicant is African American.

[v] In the BISG continuous methodology, contracts are not assigned to a definitive group, but rather each contract is assigned a vector of probabilities and the overall population is then divided based on the aggregated probabilities across contracts.

[vi] "Using Publically Available Information to Proxy for Unidentified Race and Ethnicity," CFPB, September 17, 2014, Table 10, p. 34.

[vii] We would expect an APR model with no controls to measure some level of disadvantageous disparity with respect to race/ethnicity due to differing distributions of credit scores.

[viii] See DOJ Consent Orders in Pacifico Ford and Springfield Ford at: http://www.justice.gov/crt/about/hce/documents/pacifico_order.pdf, p 4, and http://www.justice.gov/crt/about/hce/documents/springfield_order.pdf, p 4, last accessed September 8, 2014.

[ix] In previous research, the authors found that dealers price these transactions, on average, at a level that does not generate net profits. This study is available at: http://www.crai.com/uploadedFiles/Publications/Automotive-Finance-FE-Whitepaper-0313.pdf.