

Further Evidence of Discrimination in New Car Negotiations and Estimates of Its Cause

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Introduction

In 1991, testing of new car dealerships in Chicago indicated that dealerships offered significantly lower prices to white males than to similarly situated black and/or female testers: A white woman was asked to pay forty percent higher markups than white male testers; a black man was asked to pay more than twice the markup, and a black women was asked to pay more than three times the markup of white male testers. This comment extends the results of this initial testing by presenting not only more authoritative evidence of discrimination, but also a new quantitative method of identifying the causes of discrimination.

Although the results of the original study were based on 165 negotiations, the original article emphasized that:

[t]he most significant methodological weakness concerns the number of testers per tester type . . . Only six testers were hired: one white female, one black female, one black male, and three white males. Thus, for example, the results demonstrating discrimination against black females are based on tests conducted by an individual black female (paired with one of three white males).

This comment presents the results of an expanded audit study that corrects for this weakness. In the expanded audits, 38 testers (including 5 black males, 7 black females and 8 white females) negotiated for more than 400 automobiles. The results are more authoritative both because there is a larger sample size and more testers in each race/gender category, and because the tests were conducted with enhanced controls (to further ensure that testers were similar except for their race and gender).

This larger data set confirms the previous finding that dealers systematically offer lower prices to white males than to other tester types. But the more comprehensive data reveal a different ordering of discrimination: Dealers continue to offer all black testers significantly higher prices than white males, but (unlike the original study) the black male testers were charged higher prices than the black female testers. This comment examines whether this different gender ordering of discrimination for black testers provides insights about the causes of discrimination or whether it suggests weaknesses with the audit design.

This comment also uses a game-theoretic analysis of sellers' negotiation strategy to infer the causes of the sellers' race and gender discrimination. At first blush, it seems difficult to use evidence of higher offers to distinguish between different possible causes of discrimination: For example, because either animus or statistical inference might cause a dealer to make a higher offer, it would be impossible to infer from a higher offer whether the dealer was motivated by hatred or profits. This reasoning holds true if the dealer only makes a single offer to each buyer. It is possible, however, to infer more about the causes of discrimination when the dealer makes multiple offers. The dealer's choice of an initial offer, the size of concessions and the speed of concessions will vary if the discrimination has different causes. For example, sellers might offer a higher initial price to a black customer either if they believe that the black consumers are averse to bargaining or if the sellers have a particular desire to disadvantage black consumers. But game theory suggests that these two causes of discrimination will give rise to different concession rates: in particular, a desire to disadvantage blacks would cause sellers to holdout longer for a high price (implying a lower concession rate). Our evidence of the dealers' initial offers and willingness to make concessions can thus be used to distinguish between different causal theories.

Game-theoretic analysis of bargaining predicts that a seller's strategy will be a function of the seller's beliefs about certain variables, including the buyer's reservation price and the buyer's and seller's costs of bargaining. These variables

are thought as a matter of theory to determine the buyer's and seller's negotiation strategies, but to date no one has estimated the actual size of these variables in real world negotiations. This comment provides a first attempt at deriving numerical estimates of these structural parameters. Evidence about the sellers' initial offers, final offers and the lengths of the negotiation is used to crudely estimate the sellers' beliefs about buyers' reservation prices, the buyers' costs of bargaining and the sellers' costs of bargaining.

Estimating the underlying parameters of a standard bargaining model in itself is an interesting contribution to negotiation theory. This comment, however, goes further and repeats this process to estimate the sellers' beliefs with regard to each (race/gender) tester type. Using the findings of how sellers negotiated with different types of testers, it is possible to infer the sellers' beliefs about particular types of buyers. By then comparing these estimates of sellers' beliefs, it is possible to distinguish between four different causal theories of discrimination:

- (1) Sellers may have higher costs per period negotiating with certain buyer types ("associational animus");
- (2) Sellers may desire to disadvantage certain buyer types ("consequential animus");
- (3) Certain buyer types may have higher per-period negotiating costs ("cost-based statistical discrimination"); and,
- (4) Certain buyer types may have higher reservation prices ("revenue-based statistical discrimination").

Estimating the sellers' beliefs about different buyer types can thus "nest" these four causal tests of discrimination in a single parameterization which lets the sellers' own conduct reveal their motives.

The estimates of the buyers' and sellers' cost of bargaining and of the buyers' reservation price are based on a number of extreme assumptions that are not only literally false but probably fail to capture important parts of reality. The estimates are at best a heuristic exercise to guide us imperfectly toward determining the causes of discrimination. But given that virtually no other quantitative evidence about the causes of discrimination exists (in this or any other market) and given the usefulness of estimating the basic determinants of negotiation strategies, these estimates of the sellers' beliefs may shed some additional light into a relatively dark corner of the civil rights' landscape.

With these important caveats, this parameterization of the bargaining game suggests three primary conclusions:

Sellers discriminate against different buyer types for different reasons. Cost-based inferences may explain part of sellers' discrimination against black females, while consequential animus may explain part of sellers' discrimination against black males;

The sellers' bargaining behavior is inconsistent with associational animus but supports (especially regarding black males) consequential animus as a partial cause of the sellers' discrimination; and

The sellers' bargaining behavior is broadly consistent with revenue-based statistical inference as a partial cause of the sellers' discrimination.

These conclusions are also generally consistent with ancillary evidence about the causes of discrimination. As suggested in the original article, revenue-based discrimination explains at least part of sellers' behavior. But the game-theoretic parameterization (with all its limitations) suggests a less monolithic explanation.

The first section describes the design of the expanded audit study and reports the evidence of race and gender discrimination. Section II then uses the game-theoretic analysis to distinguish potential causes of the discrimination.

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