Economics at the FTC: The Google-DoubleClick Merger, Resale Price Maintenance, Mortgage Disclosures, and Credit Scoring in Auto Insurance

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Abstract:
Economics at the Federal Trade Commission (FTC) supports both the competition and consumer protection missions of the agency. In this year's essay we discuss competition activity with a summary of our work on the Google-DoubleClick merger and recent activity on resale price maintenance, an area in which FTC economists had done significant prior research. On the consumer policy front, we discuss our study of ways to improve mortgage disclosures to facilitate consumer shopping and competition. Finally, we discuss our study of the effects of credit scoring on prices paid for auto insurance with a focus on the effects of scores on different racial and ethnic groups.

Keywords: antitrust, consumer protection, credit scores, FTC, insurance, mergers, mortgage disclosures, race and ethnicity, and resale price maintenance.

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1. INTRODUCTION

The Federal Trade Commission's (the FTC or the Commission) Bureau of Economics (BE) is composed of about 70 Ph.D.-level economists, a small group of accountants, and 25 other staff (including research analysts) who support the FTC's two missions of promoting competition (antitrust) and protecting consumers. The bulk of the work done by the Bureau is related directly to law enforcement activities, such as case investigation or litigation support. Other activities involve policy analysis and research related to the missions. That research buttresses our efforts in promoting competition-based policies at the state and federal levels and in fostering coordination in policy development and law enforcement around the globe.

Although BE provides the Commission with its own recommendations based on the economics of various cases and policy matters, the Commission also receives separate legal recommendations from attorneys in other Bureaus and Offices within the FTC. Ultimately, these recommendations are merely inputs in the production process; the FTC's policies are formally determined by the votes of Commissioners, and they are not bound by the recommendations of any Bureau or Office.

Last year's contribution to the Antitrust and Regulatory Update issue of this Review focused on potentially anticompetitive patent settlements in pharmaceutical markets and the implications of behavioral economics for consumer protection policy. This year we focus on the Google-DoubleClick merger, resale price maintenance policy, and on consumer issues involving improved mortgage disclosures, as well as the effects on minorities of the use of credit histories in the sale of auto insurance. Before initiating that discussion, we note that economists at the FTC have been active in several areas this year, including merger review and international policy coordination and training. In the international sphere, we provided inputs to international organizations to help refine and coordinate competition and consumer policies across borders to the advantage of both firms and consumers worldwide. We also continued to participate in training efforts in both competition and consumer protection economics to help other nations better understand how we handle those issues.

On the merger front, the dollar volume of general merger and acquisition (M&A) activity fell substantially as the credit crunch of mid-2007 worked its way through private equity markets and into the more mainstream mid-level M&A areas. Still, we reviewed 31 mergers in great depth last year and the agency challenged all or some aspect of 20 of those transactions. That compares with an in-depth review of 55 and 58 mergers in the peak recent review years (1990 and 1995) and challenges or abandonments in 33 and 43 of those instances, respectively.

This past year we also revised BE's organization to reflect more accurately the important role that research and policy R&D plays in our contributions to the missions of the Commission. This reorganization will further enhance our human capital by expanding the set of BE staff that is able to undertake work on agency-related projects that will build skills and knowledge we need for the future.

In connection with that effort, we are hosting our first annual academic-style Industrial Organization conference in November 2008. Our call for papers reaches out to scholars working in a number of applied microeconomic fields that are vital for the FTC's antitrust and consumer policy missions, including dynamic oligopoly, horizontal and vertical mergers, bundling, loyalty discounts, intellectual property, online advertising, information disclosure, and behavioral and experimental economics. Several leading academic economists agreed to serve as our scientific committee and to participate in the conference. This annual conference will facilitate stronger interaction with academic economists and make them more aware of the theoretical and empirical questions that are important in our antitrust and consumer protection missions. In addition to potentially influencing academic research agendas, the conference will permit our economics staff to enhance their own human capital and to stay abreast of recent developments in the field.

2. GOOGLE'S ACQUISITION OF DOUBLECLICK, INC.

In 2007 the FTC investigated, and eventually approved without condition, Google Inc.'s acquisition of DoubleClick, Inc. This transaction attracted an unusual level of attention from third parties, a number of whom participated in high profile public discussions of the competitive merits of the transaction, in which numerous (sometimes conflicting) theories of competitive

harm were proposed.[1] After thoroughly investigating all of the proposed theories of harm, the FTC ultimately concluded that none could justify an enforcement action against the transaction.[2] Below, we summarize briefly the various theories of competitive harm investigated by the FTC, and discuss why the FTC concluded that the transaction was unlikely to reduce competition in any relevant antitrust market.[3]

2.1. The Parties and the Products

This transaction involved two firms that participate, in very different ways, in Internet advertising. Google receives most of its Internet advertising revenue from the sale of sponsored "search ads;" it receives a smaller portion from its advertising intermediation business, described in greater detail below. DoubleClick, by contrast, does not sell advertising space; rather, as we will discuss, DoubleClick is an "ad server;" i.e., it sells services complementary to the sale of advertising space.

Generally speaking, virtually all Internet advertising space is sold either directly to advertisers by the website publisher (e.g., CNN.com), or indirectly through online intermediaries. Typically, the "premium" space on a popular website (e.g., ads on the home page for a popular website, such as CNN.com) will be sold directly by the website publisher to an advertiser. "Non-premium" ad space (i.e., space that is less desirable from an advertiser's perspective, either because of its location on the web page, or because it is on a less popular website), is usually sold through third-party ad intermediaries, who sell the space to advertisers that are unwilling to incur the high cost of premium ad space. These intermediaries consist of "ad networks" and "ad exchanges." Ad networks and ad exchanges offer similar intermediation services, and differ

[1] For example, in July 2007 the Brookings-AEI Joint Center sponsored a conference entitled "The Economics of Internet Advertising: Implications for the Google-DoubleClick Merger," http://www.aei.org/events/eventID.1539/event_detail.asp.

[2] Several months later, the EU reached a similar conclusion; see European Commission (2008). See also Neven and Albaek (2008).

[3] The case was not devoid of controversy within the FTC. The December 2007 vote to allow the merger to proceed unchallenged was 4 to 1 with one Commissioner (Harbour) writing a dissenting statement and another Commissioner (Leibowitz) concurring in a separate statement.

only in the way that prices for ad space are set. Ad networks purchase inventory from publishers and sell it to advertisers, taking a share of the difference; ad exchanges conduct dynamic auctions for publisher inventory and take a share of the winning bid.

Google's ad network is known as "AdSense for Content," or simply "AdSense." The advertising inventory sold by AdSense consists almost entirely of space on small to medium-sized websites, plus less desirable "remnant" space on larger sites. Its customers are typically small advertisers who place text-link ads into low value advertising space. AdSense utilizes contextual targeting that places ads that relate to the content of a web page on which the ad is shown.[4] Advertisers buy advertisements from AdSense by bidding for "keywords" in Google's AdWords program.

Advertising space that is sold directly by website publishers to advertisers requires services typically provided by third party "ad servers." "Ad serving" refers to the technology that actually places ads on a web site. For the web publisher, ad serving technology is essentially a rules-based system that attempts to optimize the ads that run across the site in order to maximize revenues.[5] A leading type of ad serving software for publishers is DoubleClick's "Dart for Publishers" (DFP).

For advertisers, ad serving tools enable the advertisers to plan the campaign, deliver the ads, analyze the results, and optimize the campaign. Ad server products also ensure that the ads selected by the publishers' tools are transmitted to the publishers' sites and served. When a publisher-side ad server makes a call to retrieve an advertisement, the advertiser-side ad server determines the optimal advertisement, pulls that ad from its inventory, and serves it into the

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[4] Contextual advertising is a type of targeting technology used by certain ad intermediaries. Contextual ads are predominantly text ads that are delivered to a web page using technology that scans the text of a web page for key words and delivers ads to the page based on what the user is viewing. For example, a user reading a review of a recent movie on the local newspaper's website may be served with an advertisement placed by local theaters.

[5] These rules can include the time of day, the location of the user, and whether the user is a new or previous customer, as well as more complex behavioral analysis. The software typically also includes inventory management and forecasting as well as reporting and analysis tools.

designated place on the publisher's web page.[6] DoubleClick's "Dart for Advertisers" (DFA) is one of the leading ad serving software products for web advertisers.

2.2. Competitive Effects Analysis

The FTC investigated three theories of possible harm from the transaction. First, we examined whether the merger would eliminate actual direct competition between the parties in any relevant market, thus allowing the merged entity to raise price(s), either unilaterally or by coordinating with rivals. Second, the Commission investigated whether the transaction eliminated *potential* competition between the parties. Third, we investigated whether the merger might reduce competition by foreclosing access by rivals to key competitive assets. We discuss each of these in turn.

2.2.1. Loss of Actual or Potential Competition

The "horizontal" theories of competitive harm – namely, that the transaction would reduce actual or potential competition between the parties – lacked any evidentiary support. As the Commission observes in its closing statement, "Google sells advertising on its search engine and through its ad intermediation product, AdSense. It had been developing a third party ad serving solution prior to its agreement to purchase DoubleClick, but it had not released a commercially viable product. DoubleClick sells two third-party ad serving products – DART for Advertisers and DART for Publishers. It does not buy or sell advertisements or advertising inventory."[7]

With respect to potential competition, Google had been attempting to develop a third-party ad serving solution, and DoubleClick was developing an ad exchange product that would compete with Google's AdSense and other ad intermediation firms. However, by themselves, these efforts to enter new markets would not justify an enforcement action against the transaction. The Commission also must show that this loss in potential competition is substantial; that is, that the

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[6] Advertiser-side ad servers also provide key data that are used to plan, manage, maintain, track, and analyze the results of online campaigns across multiple publisher websites.

[7] FTC (2007b, p. 7).

loss of this competition has a substantial impact on future prices, quantities, qualities, or some other important dimension of competition. The facts failed to support such a conclusion. With respect to the ad intermediation market, the investigation revealed that "the ad intermediation market today is highly fragmented and correspondingly competitive, and there is no evidence suggesting that DoubleClick is uniquely positioned to significantly enhance competition in this market." The Commission also concluded that the loss of Google's entry into ad serving would be unlikely to have a significant competitive effect because the evidence showed that the third-party ad serving markets already were highly competitive.

2.2.2. Vertical Foreclosure and Monopoly Extension

The Commission staff devoted considerable resources to analyzing various theories of harm from vertical foreclosure, most of which were suggested to the Commission by Google's and DoubleClick's actual or likely future rivals. Here we can only briefly summarize this analysis and the Commission's conclusions (interested readers are urged to read the Commission's statement, which discusses the theories and related evidence in greater detail). Essentially, the complainants contended that the transaction would facilitate the "leveraging" of pre-existing market power from one antitrust market into another (currently competitive) market, thereby creating an additional market distortion. More specifically, it was claimed that post-transaction, DoubleClick's DFP (the product that allegedly enjoyed substantial pre-merger market power) and Google's AdSense would be sold as a bundle, thereby taking away sales from AdSense's rivals, inducing their exit (thus altering the structure of the ad intermediation market), and thereby conferring market power on AdSense.

This allegation proved ill-founded both theoretically and empirically. Although it is possible, as a matter of theory, for a firm possessing substantial market power in one market ("market A") to extend this market power profitably into another market ("market B"), the conditions necessary for this are stringent (and are *necessary*, but not *sufficient* conditions).[8] They are: (1) The firm must have substantial market power in the market for A; (2) The seller of A must credibly

[8] For example, see Whinston (1990); Choi & Stefanadis (2001); Carlton & Waldman (2002).

commit to bundling A and B together; e.g., by technologically integrating them such that it is very costly to unbundle them; it is *not* sufficient for the monopolist merely to offer A and B as a bundle if the bundle can be easily unbundled by the firm at a later date; (3) The production of B must be characterized by substantial scale economies (so that in equilibrium, only a few firms will be active, leading potentially to imperfectly competitive pricing; and the prospective loss of sales by independent sellers of B from the bundling of A and B will cause a substantial increase in their unit costs, leading to exit/entry deterrence); (4) A and B should not be strongly complementary; otherwise the standard "one monopoly profit" critique applies (i.e., the monopolist is better off with competition in the complementary market); and (5) The producers of B cannot easily enter the market for A; if they can, then competition will take place in the sale of the bundle, and the attempt to deter entry/induce exit from market B will fail.

As the FTC noted in its closing statement, the evidence did not support the proposition that DoubleClick possessed significant market power in ad serving.[9] Without this initial condition, the leveraging story cannot work. Moreover, there was no evidence to support the proposition that ad intermediation is characterized by substantial scale economies. Indeed, the current fragmented structure of that market and the recent history of entry contradict that possibility.

We also saw no evidence indicating a commitment irreversibly to tie or bundle Google's AdSense with DoubleClick's ad servers. All of the concerns raised by complaining rivals during the investigation alleged the possibility of what might be called "contractual" tying, such as contractually requiring the joint use of AdSense and DoubleClick's services or offering preferential pricing for customers who do use them together. We saw no evidence that such contracts would be used; but more importantly, as the literature on bundling emphasizes, contracts lack commitment power. Without such commitment power, entry cannot be profitably deterred.

[9] FTC (2007b, p. 9-10).

Last, at the time of the investigation, there were multiple competitors selling both of the products sold by the merged entity. There are now (or soon will be) four large firms offering both ad intermediation and ad serving. Yahoo has an ad network (Yahoo! Publisher Network) and an ad exchange (Right Media Exchange), and recently acquired a behavioral targeting ad network (Blue Lithium). It is also well-placed to enter with a third-party ad server. Microsoft has two ad networks (Microsoft AdCenter and DRIVEpm) and an ad exchange (AdECN). It also owns third-party ad servers (Atlas and Accipitor). AOL owns the leading display ad network (Advertising.com), the leading behavioral targeting ad network (Tacoda), an ad server (AdTech), and a contextual ad network (Quigo), which is a close competitor to AdSense. WPP (one of the largest global advertising and marketing groups) recently acquired an ad server (24/7 Real Media) and an ad network (Global Web Alliance).

In short, there was no significant actual horizontal overlap between the firms, and a search for foreclosure and entry deterrence possibilities did not reveal theories and evidence consistent with such possibilities. The new markets at issue were growing rapidly and evolving in largely unpredictable ways. The rivals were continuously innovating to gain customers and market share. This is surely a world of high tension rivalry, and not one that seemed in either theory or fact to pose a significant antitrust concern.

3. RESALE PRICE MAINTENANCE IS GIVEN NEW LIFE IN *LEEGIN*

For almost a century, the federal courts had imposed a *per se* prohibition under the Sherman Act[10] against resale price maintenance (RPM): the practice in which a manufacturer and its distributor agree on restricting the distributor's resale price for the product. The *per se* rule is supposed to be reserved for conduct that is so frequently anticompetitive (and so infrequently procompetitive) that summary condemnation is appropriate for administrative efficiency reasons. In 2007 the Supreme Court altered this long-standing treatment of RPM in the *Leegin* case, which involved a leather goods manufacturer's (Leegin) termination of a dealer unwilling to

[10] Dr. Miles Med. Co. v. John D. Park & Sons, 220 U.S. 373 (1911).

limit discounting of Leegin's goods.[11] The Court cited economic theory and evidence as the rationale for doing so, including studies done in the Bureau of Economics.

By the early 1980s, most economists, including economists at the antitrust agencies, had become increasingly uncomfortable with the *per se* condemnation of RPM. A number of economic theories had developed in which RPM could be used pro-competitively to induce dealer provision of a variety of consumer services before or after the sale, reduce some types of dealer risk, affect the type of dealer willing to sell the product, and enhance dealer marketing efforts, as well as used anti-competitively to support collusive agreements at the manufacturer or dealer levels, or distribute rents within the vertical chain.[12] With such a broad range of potential uses, it is not surprising that RPM can either increase or reduce welfare, with the effects depending on the particulars of the market in which it is used.

In 1977 the Supreme Court declared non-price vertical restraints to be subject to the rule of reason under the antitrust laws,[13] replacing *per se* liability, but left RPM under the *per se* rule. This ruling was a catalyst inducing the FTC to devote resources to better understand the economic theories of vertical restraints, develop evidence to test the theories, and explore whether the disparate treatment of price and non-price vertical restraints was justified. These efforts, summarized below, helped build greater understanding of the economic concerns in the legal community and formed an important part of the evidentiary base cited in the *Leegin* decision 30 years later.[14]

The first major initiative in this effort was a systematic *ex post* review of the FTC's then recent vertical cases. Academics Richard E. Caves and Benjamin Klein were commissioned to lay out

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[11] Leegin Creative Leather Products, Inc. v. PSKS, Inc., 127 S. Ct. 2705 (2007).

[12] See Ippolito (1991), Cooper et al. (2005), and Lafontaine & Slade (2007, 2008) for summaries of the economic theories.

[13] Continental TV, Inc. v. GTE-Sylvania, Inc., 433 U.S., 36 (1977).

[14] For a more detailed discussion of the origin of this effort, see Kovacic (2006).

a protocol for selecting and evaluating past cases, and other academics were contracted to conduct independent reviews of the effects of prohibiting the practices. These case studies were published in Lafferty, Lande, and Kirkwood (1984) and presented a mixed picture of welfare effects.

A second initiative was a comprehensive review and evaluation of the RPM literature at the time by Thomas Overstreet (1983), an FTC economist. He reviewed the history, available economic theory, and range of empirical studies at that point, including studies of the Fair Trade Laws,[15] which allowed states to authorize RPM between 1937 and 1975, despite the federal antitrust laws. This review found that even where allowed, RPM was not usually adopted by firms; but where it was adopted, no single economic theory seemed capable of explaining RPM's use. He also found that efficient uses of RPM did not seem unusual or rare, that RPM was not usually supporting dealer cartels, and that substitutes for RPM might not be as effective in many cases.

A third study in this effort by Pauline Ippolito (1991), another FTC economist, evaluated a large sample of private and government cases that alleged RPM between 1976 and 1982. This study showed that approximately 30 percent of cases involved maximum (rather than minimum) RPM, that collusion appeared to explain few of the minimum RPM cases, and that the special services theory, in which RPM prevents free-riding, was a potential explanation for many, but not all, of the uses of minimum RPM. Other efficiency theories, such as sales- and service-enhancing theories, might also have been consistent with much of the case evidence.

Finally, Ippolito and Overstreet (1996) also conducted a detailed case study of the FTC's RPM case against the Corning Glass Works, which had long used RPM during the Fair Trade era and beyond. The case is of interest because the products sold by Corning were relatively simple products rather than the more complex products usually envisioned in the classic free-riding theory. The evidence suggests little support for classic anticompetitive theories and also

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[15] The Miller-Tydings Act, 15 U.S.C.A. XX1 (1937), and the McGuire Act, 66 Stat. 631 15 U.S.C.A. XX45 (1952), authorized the states to enact Fair Trade Laws. These two laws were repealed by the Consumer Goods Pricing Act of 1975, Public Law 94-145, 89 Stat. 801 (1975).

suggests that Corning used RPM to affect the types of dealers willing to carry the products, one of the then-lesser-known efficiency rationales for RPM.

Recent papers by Cooper et al. (2005) and LaFontaine and Slade (2007, 2008) review the existing empirical work on vertical restraints and find that the weight of the evidence for privately adopted vertical restraints clearly favors the efficiency explanations. This evidence is insufficient, however, to persuade all evaluators. As the *Leegin* decision itself shows, many antitrust commentators are quite dubious about RPM's likely efficiency uses and worry about its potential to raise consumer prices and soften competition.[16] The agencies and the courts are looking for ways to structure rule-of-reason inquiries.[17] Additional empirical evidence from market uses of RPM and other vertical restraints would be very useful in informing those efforts.

4. CONSUMER MORTGAGE DISCLOSURE: RESEARCH AND CONFERENCE

For decades, Federal law has required lenders to disclose various costs and mortgage terms to borrowers through the Truth-in-Lending Statement (TILA statement) and Good Faith Estimate of Settlement Costs (GFE).[18] These laws, in part, reflect an understanding that consumer information is an important underpinning of the many virtues of competitive markets.

Despite the long history of the disclosures, there has been almost no empirical examination of their impact on consumer understanding of mortgage costs, consumer mortgage shopping, or

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[16] Many state attorneys general have announced their opposition to the change in law, and RPM might be challenged under state antitrust laws in some states. Also, federal legislation has been introduced to prohibit RPM legislatively. See the recently proposed legislation entitled "The Discount Pricing Consumer Protection Act" S.2261, 110th Congress.

[17] For instance, see the recent modification of an existing FTC RPM order against the shoe company Nine West Group, C-3937, available at http://www.ftc.gov/os/caselist/9810386/080506order.pdf.

[18] The TILA statement disclosures are required by the *Truth in Lending Act* (TILA), 15 U.S.C. § 1601 *et seq.*, and its implementing regulation, *Regulation Z*, 12 C.F.R Part 226. The GFE disclosures are required by the Real *Estate Settlement Procedures Act* (RESPA), 12 U.S.C. § 2601 *et seq.*, and its implementing regulation, *Regulation X*, 24 C.F.R Part 3500.

consumer mortgage choice. The FTC's Bureau of Economics (BE) conducted a study to examine how consumers search for mortgages, how well they understand current mortgage cost disclosures, how well they understand the terms of their own recently obtained loans, and whether better disclosures could improve consumer understanding of mortgage costs, consumer mortgage shopping, and consumer mortgage choice.[19] The two-part study consisted of 36 in-depth interviews with recent mortgage customers and quantitative consumer testing in an experimental setting with over 800 mortgage customers. The potential for improving consumer understanding of mortgage costs was tested using prototype disclosures developed for the study by BE economists.

In the first part of the study, 36 in-depth interviews were conducted with consumers who had obtained a mortgage loan within the previous four months. Approximately half of the participants had obtained their loans from a prime lender and the other half from a subprime lender. The interviews found that many borrowers, both prime and subprime, were confused by disclosures in the current TILA and GFE forms and did not understand key terms. Further, some of the required disclosures actually misled consumers. Many believed, for example, that the "amount financed" disclosed on the TILA statement was their total loan amount, even though this figure is calculated by subtracting finance charges from the loan amount. A number of borrowers also mistakenly believed that the "discount fee" disclosed on the GFE was a discount they had received rather than a fee they had paid. Many borrowers also did not understand important costs and terms of their own recently obtained loans. Many had loans that were significantly more costly than they believed, or that contained significant restrictions, such as prepayment penalties, of which they were unaware. Many of these borrowers did not learn of these costs and terms until at or after the loan settlement, and some appeared to learn this information for the first time during the study interview.

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[19] Lacko and Pappalardo (2007). BE economists also conducted an earlier study of mortgage disclosures that focused on mortgage broker compensation disclosures proposed by the Department of Housing and Urban Development (HUD); see Lacko and Pappalardo (2004).

The second part of the study examined the effectiveness of current and prototype mortgage disclosures using quantitative testing in a controlled experiment with 819 recent mortgage customers in 12 locations across the country. As in the in-depth interviews, about half of the participants had obtained their loans from subprime lenders and half from prime lenders.

Participants were given cost disclosure forms for two hypothetical mortgage loans and asked a series of questions about various costs and terms of the loans. Half of the participants were given current mortgage cost disclosure forms, and half were given a prototype form developed for the study.[20] The design of the prototype form was guided by a general financial analysis of the key costs of a mortgage, the types of consumer problems encountered in the FTC's deceptive lending cases, FTC experience designing and evaluating consumer disclosures, and insights gained from the consumer interviews conducted in the first part of the study.[21]

The tests were conducted with two different loan scenarios: one consisting of relatively simple loans, and the other involving more complex loans that included features such as interest-only payments, lack of escrow for taxes and insurance, a large balloon payment, charges for optional credit insurance, and prepayment penalties. The results from 25 and 21 questions in the complex and simple loan scenarios, respectively, were analyzed to assess the ability of participants to understand and use the disclosures.

The quantitative testing confirmed and quantified the shortcomings of current mortgage cost disclosures. The failure of current disclosures effectively to convey key mortgage costs was evident across a wide range of loan terms. Nearly a quarter of the participants using current

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[20] The current disclosure forms tested consisted of the TILA statement and the GFE form. The GFE form was an enhanced version that included information not required by the current regulations, such as the loan amount, interest rate, cash due at closing, and total settlement charges. Many lenders use a GFE that goes beyond the regulatory requirements. Such a form was used in the tests to reflect more closely the information that many consumers actually receive. Use of an enhanced GFE implies that the test results understate any problems consumers may have with a GFE that merely complies with the regulations.

[21] The prototype disclosures were developed for fixed-rate loans, including those with interest-only and balloon payments, in order to test first whether better disclosures could be designed for these relatively simple loan products. The disclosures could be modified for adjustable-rate loans by adding disclosures that described how the interest rate and monthly payments may change over the course of the loan.

disclosures could not correctly identify the amount of settlement charges, about a third could not identify the interest rate, a third did not recognize that the loan included a large balloon payment, a third did not recognize that the loan amount included money borrowed to pay for settlement charges, half could not correctly identify the loan amount, two-thirds did not recognize that they would have to pay a prepayment penalty if they refinanced, three-quarters did not recognize that a substantial charge for optional credit insurance was included in the costs, and nearly nine-tenths could not identify the total amount of up-front charges.

The quantitative testing also demonstrated that consumer mortgage disclosures can be significantly improved. Participants viewing the prototype disclosures answered an average of 80 percent of the loan term questions correctly, compared to an average of 61 percent for participants viewing the current disclosures, an improvement of 19 percentage points. The improvements were evident across a wide range of loan terms. The prototype form produced a 66 percentage point increase in the proportion of participants correctly identifying the total up-front charges in the loan, a 43 percentage point increase in the proportion recognizing that the loan contained charges for optional credit insurance, a 37 percentage point increase in the proportion correctly identifying the amount borrowed, a 24 percentage point increase in the proportion recognizing that a prepayment penalty would be assessed if the loan was refinanced, a 15 percentage point increase in the proportion correctly identifying the amount of settlement charges, and a 12 percentage point increase in the proportion correctly identifying the interest rate.

The results of the study show that the current mandated disclosures fail to convey key costs and terms of a mortgage loan to many consumers. The study also demonstrates that new disclosures could significantly improve consumer understanding of the costs and terms of their loans. The use of improved disclosures holds the promise of aiding consumers in a number of ways. They will be better able to understand the terms and bottom line cost of their loan, better able to comparison shop for the best deal, ensure that loan terms are appropriate to their circumstances, and avoid deceptive lending practices.

The study also illustrates the importance of quantitative consumer testing in the development and evaluation of consumer disclosure policy. Without consumer testing it can be difficult to know whether existing or proposed disclosures effectively convey the desired information to consumers in a way that can be understood and used.

As a follow up to its study, BE economists organized a conference to explore further the role of consumer information in the current mortgage market crisis.[22] The conference brought together academics from a wide variety of disciplines, including real estate finance, economics, consumer behavior, and information regulation, to examine how consumer information and information regulation affects consumer choices, outcomes, and welfare in the mortgage market. Panelists discussed changes that have occurred in the types of products offered in the mortgage market over the last decade, the role of information in consumer markets, how information problems may have affected the mortgage market, and strategies for ensuring that any new consumer protection regulations, especially information disclosures, will be designed in ways that provide the greatest possible long-run net benefit to consumers.

5. EFFECTS OF CREDIT SCORING ON AUTO INSURANCE PRICING WITH A FOCUS ON MINORITIES

Over the past decade, insurance companies increasingly have used information about credit history, in the form of credit-based insurance scores, to make decisions regarding whether to offer automobile and homeowners insurance to consumers, and if so, at what price. Credit-based insurance scores, like credit scores, are numerical summaries of consumers' credit histories. Insurance companies do not use credit-based insurance scores to predict prospective customers' payment behavior, such as whether premiums will be paid. Rather, they use scores as a factor when estimating the number or total cost of insurance claims that prospective customers (or customers renewing their policies) are likely to file.

[22] Information (including a transcript and summary) from the May 2008 conference is available on the FTC webpage Consumer Information and the Mortgage Market, http://www.ftc.gov/be/workshops/mortgage/index.shtml.

In 2003, Congress enacted the Fair and Accurate Credit Transactions Act (FACTA) to make comprehensive changes to the nation's system of handling consumer credit information. As part of that effort, Congress directed the FTC to conduct an inquiry into the effects of credit-based insurance scores and submit a report to Congress.[23] The FTC was asked to include a description of how these scores are created and used; an assessment of the impact of these scores on the availability and affordability of the relevant financial products; an analysis of whether scores act as a proxy for membership in racial, ethnic, and other protected classes; and an analysis of whether scoring models could be constructed that are effective predictors of insurance risk but have smaller differences in scores among racial, ethnic, and other protected classes. A report on the use and effects of credit-based insurance scores in automobile insurance markets was released in July 2007, and that report is discussed here.[24, 25] A study of credit-based insurance scores and homeowners insurance is ongoing.

5.1. Data

The insurance policy data that we used for the FTC report came from five firms that together represented 27% of the automobile insurance market in the year 2000. Geographically stratified random samples were drawn to ensure nationwide representation of policies. The data included information on policy and driver characteristics and claims data for policies in place at any time between July 1, 2000, and June 30, 2001. An actuarial consulting firm combined the records from the five firms into a single database that was submitted to the Commission. The database submitted included over 2.5 million records, each containing data on one car for up to one year.

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[23] 15 U.S.C. § 1681 note (2006). The Federal Reserve Board took the lead in studying credit scores used in credit markets, and submitted its report in August 2007.

[24] Federal Trade Commission (2007a). One Commissioner dissented from the release of the report based mainly on concerns regarding the voluntary submission by insurance companies of the data sample used in the study.

[25] There has been some prior research on credit-based insurance scores carried out by other entities, which has focused primarily on two of the questions that we address in our report: Do scores predict insurance claims risk? And, do average scores differ across racial, ethnic, and/or income groups? All these prior studies, as well as ours, answer "yes" to these questions. See, for instance, Texas Department of Insurance (2004, 2005) on both questions, Monaghan (2000) and Miller & Smith (2003) on scores and insurance risk, and Kabler (2004) on scores and race.

Many of the policies in the database cover more than one car; the total number of policies in the database was 1.4 million.

We combined the insurance company information with data from a number of other sources. ChoicePoint Attract Standard Auto credit-based insurance scores and 180 variables based on the contents of consumers' credit reports were appended for the "first named-insured" on each policy.[26] Prior automobile insurance claims data were obtained from ChoicePoint, which collects data on claims from most major automobile insurance firms in the United States through its Comprehensive Loss Underwriting Exchange ("CLUE").

The primary data on race and ethnicity was obtained from the Social Security Administration (SSA). Whenever someone applies for a Social Security card, the Social Security Administration (SSA) asks for information on race, ethnicity, national origin, and gender. For cost reasons, we attempted to obtain these SSA data only for a sub-sample of 400,000 of the 1.4 million policies in the database. To minimize the loss of power from using a smaller sample, the sub-sample was drawn using stratification: all policies with claims were included in the sub-sample, and policies without claims were sampled at a rate sufficient to bring the total to 400,000 policies.

The SSA data have an important limitation: prior to 1981, the only available answers to the race/ethnicity question were: "White," "Black," or "Other." After 1981, the choices were expanded to include "Hispanic," "Asian, Asian-American, or Pacific Islander," and "North American Indian or Native Alaskan," and the "White" and "Black" categories were specifically labeled "non-Hispanic." The "Other" option was dropped. Our only way of identifying Hispanics, Asians, and Native Americans among people for whom we only had pre-1981 responses was to make inferences using their pre-1981 race question response in combination

[26] The results reported in this article are for this ChoicePoint score. The results were similar, both qualitatively and quantitatively, when using a FICO "Standard Auto, Greater than Minimum Limits" credit-based insurance score.

with other SSA information, such as place of birth, as well as Census neighborhood demographic information and a Hispanic surname match.[27]

5.2. Scores and Claims Risk

In assessing the relationship between credit history and claims risk, we analyzed four major types of coverage typically included in automobile policies: property damage liability coverage, bodily injury liability coverage, collision coverage, and comprehensive coverage (coverage against theft, hail, etc.). The dependent variable in the risk models we developed is the total dollars of claims on the relevant coverage per year of coverage.[28]

The explanatory variables used as controls consisted of a standard set of rating factors that many insurance companies use to underwrite and rate policies, such as: demographic factors (e.g., age, gender, marital status); geographic risk; policy contract characteristics (e.g., coverage limits and deductibles); prior driving history and prior claims; vehicle characteristics (e.g., model year); and years of tenure with the current insurance company. All variables entered the models as indicator variables. The distribution of credit-based insurance scores was divided into deciles, and indicator variables for score deciles were used in the models.

We found a robust relationship between credit-based insurance scores and claims risk. In fact, the amount that insurance companies paid out in claims for customers in the lowest score decile relative to those in the highest score decile, ranged from 1.7-times more in the case of property

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[27] To make these inferences, we developed an imputation model based on people for whom we had both a pre- *and* post-1981 response, which was the case for almost one-third of the sample and is probably due to people re-applying for a social security card to replace a lost card or because of a change in information, such as a name-change resulting from marriage or a change in citizenship status. This allowed us to evaluate how people who identified themselves in a given way when presented with the limited set of race/ethnicity choices prior to 1981, would subsequently tend to identify themselves when given the broader set of choices.

[28] We rely on Generalized Linear Models and assume the dependent variable is distributed according to a Tweedie distribution. The Tweedie distribution is a compound distribution of the Poisson and Gamma distributions, and has a mass point at zero (no claims) and a smooth distribution of positive values (dollar cost of claims).

damage liability claims, all the way up to 2.2-times more for bodily injury liability claims (see Figure 1 further below).[29, 30]

5.3. Scores and Minorities

After analyzing the relationship between credit-based insurance scores and claims risk, we turned our attention to the impact of these scores on protected classes of consumers, such as those belonging to racial and ethnic minorities.[31] Our first step here was simply to evaluate the relationship between race/ethnicity and scores. We looked at how non-Hispanic whites, African-Americans, Hispanics, and Asians are distributed across the range of scores in our data. The median scores for non-Hispanic whites and Asians are quite similar to that of the overall sample, with the median scores for non-Hispanic whites and Asians falling in the 54th and 52nd percentile, respectively. In contrast, the median scores for African-Americans and Hispanics are much lower, with their median scores falling in the 23rd and 32nd percentile, respectively.

We then assessed the impact of these large differences in scores across racial and ethnic groups on the likely premiums those groups would pay for automobile insurance if companies were to

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[29] These differences are statistically significant. Statistical significance throughout the study was determined through bootstrapping by randomly selecting 100% samples with replacement 500 times.

[30] We found that it is primarily the number or frequency of claims that falls as scores rise. The average dollar amount (i.e., the size or severity) of the claims paid was nearly constant regardless of credit-based insurance score (except for comprehensive coverage).

[31] We should note that an issue that mostly remains unsettled is the underlying cause of the correlation between credit behavior and insurance risk. In other words, why does a customer's credit history make it more or less likely that he or she will suffer a loss and/or file an insurance claim? Some reasons for the correlation that have been hypothesized by other researchers are: a) liquidity and claim-filing behavior, e.g., not being able to pay for small claims out of pocket; b) omitted ability or behavioral trait which carries into various aspects of one's life, e.g., if someone is careful with credit, he/she is also likely to be careful with driving, or careful with car maintenance; c) financial distress directly leads to less attentive driving; and d) miles driven, e.g., lower score families may have more members per car, and thus, drive each car more intensively.

use these scores for pricing policies. Since most of the premiums in our database likely do not reflect the use of credit-based insurance scores (and we do not actually know which policies in our database were scored and which were not at the time of underwriting or pricing), we used risk, measured in expected total dollars of claims, as a substitute for premiums. We believe that predicted risk is a reasonable substitute for premiums because the premiums that an insurance company charges consumers in a competitive marketplace should be roughly proportional to the risk that those consumers appear to pose.

To evaluate how the expected risk of consumers changes if insurance companies use credit-based insurance scores, we first used a model that did not include scores to predict dollar risk for each consumer. We then predicted risk for each consumer using a model that included scores.[32] We used these estimates to analyze the impact of credit-based insurance scores on the premiums that members of different racial and ethnic groups would be predicted to pay. When scores are used, the predicted risk decreased for 62% of non-Hispanic whites and 66% of Asians. On the other hand, the predicted risk increased for 64% of African-Americans and 53% of Hispanics. These results flow from the fact that, as discussed above, the scores for African-Americans and Hispanics are lower on average than the scores of non-Hispanic whites and Asians. On average, the use of scores in our modeling increased the predicted risk by 10% for African-Americans and by 4.2% for Hispanics, and reduced it by 1.6% for non-Hispanic whites and by 4.9% for Asians.[33]

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[32] Each step was done separately for property damage liability, bodily injury liability, collision, and comprehensive coverage. The predicted dollar risks for the four types of insurance coverage (with and without the use of credit-based insurance scores) were then summed across these four coverage-types to obtain a single number for each consumer.

[33] The relatively large decrease in predicted risk for Asians relative to non-Hispanic whites was surprising, given how similar the score distributions are for these two groups. In addition, the increase in predicted risk for Hispanics was only half that of African-Americans, even though Hispanics have average scores closer to African-Americans than to the overall population. Further examination of the results of the models showed that the inclusion of scores affected the impact of other variables on predicted risk. This, in turn, affected the predicted risk of Asians and Hispanics. In particular, the impact that short tenure with a firm and low liability limits had on predicted risk shrank considerably when scores were included in the models. Asians and Hispanics have low average tenure and low average liability limits, so when the impact of those characteristics on predicted risk decreased, so did the average predicted risk of Asians and Hispanics.

Next, we analyzed the potential for scores to act as a proxy for race, ethnicity, and income. We did this by measuring the impact of omitted variable bias on the estimated coefficients for the score decile indicator variables from not including race, ethnicity, or income in the risk models. After including controls for these protected groups, we found that omitted variable bias had affected the previously estimated relationship between score and claims for three of the four coverages studied, but that it was not the primary source of the originally estimated relationship with claims risk. This can be seen on the following figure:

< insert Figure 1 here >

For the three coverages where we observe an impact, we see that after controlling for race, ethnicity, and income, the higher relative claims risk estimate for customers in the lowest score decile (relative to those in the highest decile) drops from 2.20-times greater to 2.10-times greater for bodily injury claims, 2.03-times greater to 1.93-times greater for collision claims, and 1.95-times greater to 1.74-times greater for comprehensive claims.

We then estimated the impact of this omitted variable bias on the predicted risk of the various racial and ethnic groups. We did this by repeating the exercise of calculating the difference in predicted risk from models with and without score, but used the estimated effects of score on risk from a model that included race, ethnicity, and neighborhood income.[34] When these score effects were used, the average predicted risk of African-Americans increased by 8.9% and Hispanics by 3.5%, while the predicted risk of non-Hispanic whites decreased by 1.4% and Asians by 4.8%. Thus, the use of race, ethnicity, and income controls resulted in relatively small decreases in the effect of scores on predicted risk for African-Americans (8.9% versus 10%) and Hispanics (3.5% versus 4.2%).[35] It appears, therefore, that most of the estimated impact of

[34] This was done by using the estimated risk effects of non-credit risk variables from the models without race, ethnicity, and income controls, and the estimated risk effects of the score deciles from the models with the controls.

[35] These differences are statistically significant.

scores on the premiums for these groups is *not* because scores act as a proxy for race, ethnicity, and income.[36]

One other interesting (if unexplained) finding across racial and ethnic groups involved variation in loss ratios. In our data, claims losses divided by premium income ("loss ratios" in industry parlance) vary substantially by race and ethnicity. Loss ratios for African-Americans and Hispanics are near 0.80 while they are near 0.65 for whites and Asians. This means that as of 2000-2001 whites and Asians paid much more for automobile insurance relative to the losses that they imposed than did African-Americans and Hispanics. It is not clear what might account for this sizeable difference.[37]

We also measured whether credit-based insurance scores predict risk *within* racial, ethnic, and income groups, since this also provides insight into whether scores are acting primarily as a proxy for membership in these groups. We found that the differences in the estimates of the larger amount paid out in claims in lower score deciles versus the top score decile, within each racial group, were statistically significant (at the 5% level), with the exception of the smallest racial/ethnic group, Asians (for whom they are only significant for comprehensive coverage).

5.4. Building New Credit-Based Insurance Scores

[36] To provide a basis for comparison in evaluating the importance of these proxy effects, we conducted the same analysis for several other standard risk variables, such as geographic or territorial risk, tenure with the insurance company, and prior driving history or claims. These other rating variables also evidenced a proxy effect with respect to race, ethnicity, and income, which was often larger as a share of that variable's direct or total impact on premiums than was true for the proxy effect in the case of scores.

[37] Recall, though, that we do not actually know which policies in our database were scored and which were not at the time of underwriting or pricing. We believe that most of the premiums in our database likely do not reflect the use of credit-based insurance scores since they were not as prevalent at that time (this was especially true for renewals). Given that scores are more widely used for insurance now, and given the large differences in scores across race and ethnic groups that likely persist to this day, it is probable that the differences in loss-ratios across these same groups have narrowed (i.e., as the relative premiums for minorities have risen over time due to increased use of scores in insurance).

Finally, we attempted to develop credit-based insurance scoring models that would reduce the differences in scores for consumers in protected classes relative to other consumers, yet continue to be effective predictors of risk.

To develop a model that effectively predicts risk while reducing differences between racial/ethnic groups, we first created a baseline scoring model in a completely race-blind fashion. The outcome that our score was designed to predict was total dollars of insurance claims in a year; the variables that were candidates to be used in the model were 180 credit history variables. Variables were chosen using a forward-selection regression procedure with total claims, adjusted for non-credit risk factors, as the dependent variable. The final model was generated by using the 15 "winning" credit history variables from the forward-selection process.

The model produced by this procedure was quite successful at predicting total claims.[38] It did show, however, large differences in scores by race and ethnicity -- differences very similar to those found with the ChoicePoint score.

We then constructed models that were designed to be "neutral" with respect to race, ethnicity, and income. We did this in two ways: One approach was to include controls for race, ethnicity, and income in the forward-selection step, when the "winning" credit history variables were chosen. The other approach was to build the model using only non-Hispanic whites. Both of these race "neutral" models were very similar to the baseline model, in terms of the types of variables selected, their predictive power, and their relationship with race and ethnicity.

As a result, we went one step further and attempted to build models in a way that directly avoided selecting variables with large differences among racial and ethnic groups. We did this by measuring not just how well a given variable predicted claims, but also how well it predicted race and ethnicity. We then chose variables by trading off between predicting risk and predicting race and ethnicity. This procedure chose very different types of variables than did the earlier

[38] We were also able to show that the scores produced by the model were effective at predicting claims out-of-sample, as well.

procedures. Most significantly, there were no longer any variables that related directly to delinquencies; most variables selected related to the number and type of accounts that a consumer had. Other variables selected related to the age of the credit account and total indebtedness. While this model did indeed substantially reduce the differences in scores among members of racial and ethnic groups, it was far less effective in predicting risk.

Analyzing things further, we found that the credit history variables that are most unequally distributed across racial and ethnic groups are also the ones that are most predictive of risk: specifically, those relating to payment history (e.g., delinquencies) and public records. This suggests that it would be difficult to develop alternative scoring models that produce scores that are more evenly distributed across race and ethnic groups, and yet are effective predictors of risk.

In summary, we examined the relationship between credit-based insurance scores and insurance risk and any differential effects on racial and ethnic groups. We found that scores do predict claims risk and that they do so both overall and within separate racial and ethnic groups. While credit scores predict risk, they are distributed differently across racial and ethnic groups, with scores being lower for most groups than for majority non-Hispanic whites. Thus, the use of scores results in higher prices paid for insurance by racial and ethnic minorities.

Our efforts to gauge the dollar impact of score-use by insurers indicated that the effect for, say, African-Americans might be on the order of a 10% increase in premiums (e.g ., $50 on an annual $500 auto insurance policy). Is there a portion of this increase that might be attributed to scores acting as a proxy for race, ethnicity, and income? Our estimates indicated that about one-tenth of the predicted 10% increase in premiums for African-Americans may result from scores acting as a proxy for race, ethnicity, and income (e.g., $5 out of a $50 dollar increase on a $500 annual policy).

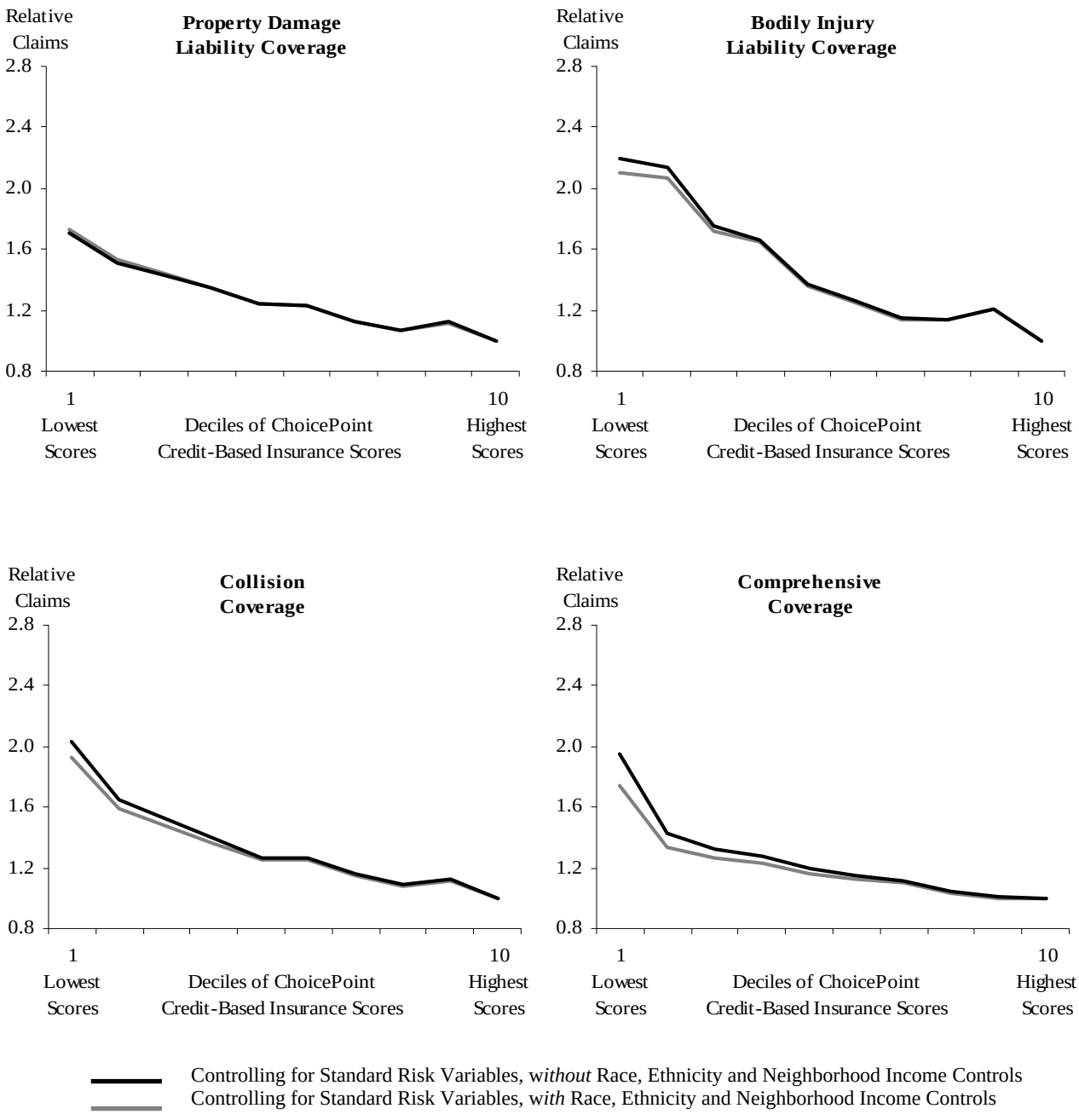
Finally, we were unable to develop an alternative credit-based insurance scoring model that would continue to predict risk effectively, yet decrease the differences in scores on average among racial and ethnic groups. This does not mean that a model could not be constructed that

meets both of these objectives. It does strongly suggest, however, that there is no readily available scoring model that would do so.

6. CONCLUSION

Economists at the Federal Trade Commission examine a wide range of consumer and competition issues. The topics we covered in this article -- Internet mergers, vertical restraints policy, information disclosures, and consumer credit -- illustrate that breadth. The world of both antitrust and consumer protection policy are becoming more empirically oriented as the world becomes more full of interesting and useful data that have policy implications. We are working to keep up with those changes and to bring empirical evidence to as many policy choices as possible.

FIGURES AND TABLES



Source: Analysis of FTC Automobile Insurance Policy Database

Figure 1: Estimated Average Amount Paid Out on Claims, Relative to Highest Score Decile, with and without Controls for Race, Ethnicity, and Neighborhood Income.

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