



Report to the Chairwoman,
Subcommittee on Research and
Technology, Committee on Science,
Space, and Technology,
House of Representatives

May 2022

CONSUMER PROTECTION

Congress Should Consider Enhancing Protections around Scores Used to Rank Consumers

GAO Highlights

Highlights of [GAO-22-104527](#), a report to the Chairwoman, Subcommittee on Research and Technology, Committee on Science, Space, and Technology, House of Representatives

Why GAO Did This Study

The growing use of consumer scores to make decisions affecting consumers has raised questions among some in Congress and others about their usage and potential risks. Scores are generated using various pieces of information about consumers, which can include public data. Some may derive from complex methodologies using technologies such as artificial intelligence.

GAO was asked to review how predictive consumer scores are used and regulated. This report examines (1) how such scores are used, (2) the potential risks to consumers, and (3) federal consumer protections for scores. The review is focused on selected types of scores, some of which may fall outside of the Fair Credit Reporting Act. GAO analyzed publicly available information from the websites of a nongeneralizable sample of 49 consumer scores, selected based on literature reviews and stakeholder interviews; reviewed studies by academics and consumer advocates; interviewed score creators, industry organizations, consumer advocates, and federal officials; and reviewed applicable laws and regulations.

What GAO Recommends

Congress should consider implementing appropriate consumer protections for consumer scores beyond those currently afforded under existing federal laws. Among the issues that should be considered are the rights of consumers to view and correct data used in the creation of scores and to be informed of scores' uses and potential effects.

View [GAO-22-104527](#). For more information, contact Alicia Puente Cackley at (202) 512-8678 or cackleya@gao.gov.

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Congress Should Consider Enhancing Protections around Scores Used to Rank Consumers

What GAO Found

Consumer scores are indicators that group consumers based on their past actions and characteristics. Score creators use public records and nonpublic information such as purchase histories to create scores. Businesses and other entities use these scores to segment or rank individuals to predict how they will behave in the future. For example, businesses use certain scores to target advertising toward consumers most likely to purchase a particular product or service. Consumers may benefit from such scores by receiving targeted discounts or deals that they might not have otherwise received. Consumer scores have a variety of uses, although the full range of uses is unknown. GAO identified a number of score uses, including those in the figure below.

Selected Ways That Consumer Scores Are Used

Score use	Definition and examples
Marketing 	Scores that are designed to group consumers based on various demographic and socioeconomic factors, among others. Companies use these scores to target advertisements for financial or other products, allocate customer service resources, provide individualized pricing, and conduct other marketing activities.
Health care administration 	Scores that assess an individual's health status or history. Health systems, including hospitals and other companies, use these scores to help triage patients, develop billing plans that are suited to patient needs, and identify patients with complex health needs who require additional medical attention, among other things.
Higher education 	Scores that assess potential students' enrollment likelihood, financial need, and likelihood of success at the institution. Higher education institutions use the scores to inform strategies for marketing, financial aid, and student retention.

Source: GAO analysis. | [GAO-22-104527](#)

The risks that consumer scores can pose include potential bias and adverse effects, and the scores generally lack transparency. The data used to create scores may contain racial biases—for example, one study found Black patients were assigned lower risk scores than White patients with the same health care needs, predicting less of a need for a care management program. The use of consumer scores can also have potential negative outcomes for some consumers, who may be charged higher prices or targeted for less desirable financial products. Further, consumers are generally unaware of the ways in which they are scored—which prevents them from knowing how their personal information is being used and responding to negative consequences.

No federal law expressly governs the creation, sale, and use of all consumer scores. Federal consumer protection laws can help to ensure that consumer scores are based on accurate information and used in a fair and transparent manner, but these laws only apply in certain circumstances. For example, whether a law applies to a particular score may depend on the information used to create the score, the source of the score, or the purpose for which the score is used. Without congressional consideration of whether consumer scores should be subject to additional consumer protections, consumers may continue to be at risk of being adversely affected by the use of these scores and may have limited options for recourse.

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Abbreviations

AI	artificial intelligence
CFPB	Consumer Financial Protection Bureau
ECOA	Equal Credit Opportunity Act
FCRA	Fair Credit Reporting Act
FTC	Federal Trade Commission
FTC Act	Federal Trade Commission Act

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May 26, 2022

The Honorable Haley Stevens
Chairwoman
Subcommittee on Research and Technology
Committee on Science, Space, and Technology
House of Representatives

Dear Madam Chairwoman:

Companies are increasingly creating, marketing, and using various types of consumer scores—that is, numeric scores that are generated based on hundreds or thousands of pieces of information about individuals’ past actions and characteristics, and that are used to predict how they will behave in the future.¹ For example, one company offers a medication adherence score that gauges the likelihood that a person will take prescribed medications, while other companies offer scores designed to group students based on their likelihood to succeed at a college.

Unlike traditional credit scores, which are provided by credit bureaus and are used to determine a consumer’s eligibility for such things as loans and credit cards, some types of consumer scores may not be subject to consumer protection laws such as the Fair Credit Reporting Act (FCRA), which helps to ensure that consumer information is used in a fair and transparent manner.² As a result, consumers may be unaware that other types of consumer scores exist.

Concerned about the transparency, fairness, and accuracy of consumer scores, you asked us to review their use and regulation, in particular those consumer scores that may fall outside of the protections afforded

¹While there is currently no universally accepted definition of a consumer score, in general they are numeric scores that segment, rank, or group individuals for purposes defined by the creator of that score. Consumer scores may be used for individuals in situations other than consumer transactions. In this report, we refer to all such uses as consumer scores.

²15 U.S.C. §§ 1681-1681x. See also 12 C.F.R. pt. 1022 and 16 C.F.R. pts. 602-698. FCRA regulates the use of consumer information provided by consumer reporting agencies and used or expected to be used to determine a consumer’s eligibility for such things as credit, insurance, employment, and housing; according to a Federal Trade Commission report, FCRA generally does not cover the sale of consumer data for marketing and other purposes. Federal Trade Commission, *Data Brokers: A Call for Transparency and Accountability* (Washington, D.C.: May 2014), i.

by FCRA. This report examines (1) how consumer scores are used; (2) the potential risks to consumers; and (3) federal consumer protection laws that govern consumer scores.³ We focused our review on selected types of scores whose use may, in some cases, fall outside provisions of FCRA.⁴ We also focused on consumer scores created by third parties rather than scores that organizations create for their own use.

For all three objectives, we reviewed laws, regulations, and other authoritative sources relevant to consumer scoring. We reviewed documents from the Federal Trade Commission (FTC) and the Consumer Financial Protection Bureau (CFPB). We also reviewed literature, including past GAO reports, on consumer scoring and the use of alternative data—any consumer information not traditionally used when calculating a credit score, such as educational background.⁵ We interviewed officials from FTC, CFPB, five industry associations that represent score creators or users, four creators of consumer scores, and nine consumer advocacy and technology policy organizations, as well as one academic expert. We also reviewed 49 websites that describe specific consumer scores to identify publicly available information about these scores' uses, benefits, and risks. We judgmentally selected these scores to include a range of different uses within the scope of our review, based on our literature reviews and interviews with stakeholders. Our findings from the website reviews are not generalizable to all such consumer scores, but provided examples of score uses and their potential benefits and risks.

³We focused on identifying uses of consumer scores, as opposed to scores themselves, because the way in which a score is used or expected to be used is a key factor in determining whether it is a consumer report under FCRA.

⁴The inclusion of scores within the scope of this review is for illustrative purposes only and does not reflect a determination regarding the applicability of FCRA to any particular score or type of score. As discussed later in this report, FCRA's applicability ultimately depends on specific facts and circumstances.

⁵See GAO, *Artificial Intelligence: An Accountability Framework for Federal Agencies and Other Entities*, [GAO-21-519SP](#) (Washington, D.C.: June 30, 2021); *Technology Assessment: Artificial Intelligence: Emerging Opportunities, Challenges, and Implications*, [GAO-18-142SP](#) (Washington, D.C.: Mar. 28, 2018); *Internet of Things: Status and Implications of an Increasingly Connected World*, [GAO-17-75](#) (Washington, D.C.: May 15, 2017); *Identity Theft Services: Services Offer Some Benefits but Are Limited in Preventing Fraud*, [GAO-17-254](#) (Washington, D.C.: Mar. 30, 2017); and *Information Resellers: Consumer Privacy Framework Needs to Reflect Changes in Technology and the Marketplace*, [GAO-13-663](#) (Washington, D.C.: Sept. 25, 2013).

Appendix I includes additional information about our objectives, scope, and methodology.

We conducted this performance audit from August 2020 to May 2022 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Consumer scores are created by data brokers, merchants, consumer reporting agencies, and others. These scores are used in a wide variety of contexts, as discussed below. Consumer score creators generally use three types of information sources, either alone or in combination, in generating consumer scores:

- **Public records** are available to anyone and are generally obtained from government entities. What constitutes a public record depends on state and federal laws, but examples may include birth and death records, property records, tax lien and assessor files, voter registrations, licensing records, and court records (including criminal records, bankruptcy filings, civil case files, and legal judgments).
- **Other publicly available information** is not found in public records but is publicly available through sources such as social media postings, business directories, classified advertisements, newspapers or magazines, and other materials.
- **Nonpublic information** is derived from proprietary sources. For example, consumers may provide information directly to businesses through loyalty card programs at grocery or retail stores, website registrations, warranty registrations, contests, surveys and questionnaires, and purchase histories. Resellers (or a third party such as a website operator acting on behalf of the reseller) also may collect information about consumers, such as websites they visit, search terms they use, or purchases they make.

Multiple methods, some involving sophisticated technologies, can be used to create consumer scores.

- **Rule-based systems** are computers programmed based on expert knowledge. The system does not change unless the rules are

reprogrammed. When these rules are properly documented, the system can be highly explainable.

- **Predictive modeling** is a process that relies on statistics and probability to predict likely future outcomes. The goal of predictive modeling is to determine, based on past known behavior, what will most likely happen in the future. Unlike a rule-based expert system, outputs of predictive modeling are often based on probability distributions that account for uncertainties. In addition, modelers often use assumptions to reduce mathematical or computational complexities of the world these models represent. Predictive modeling introduces the potential for false positives or false negatives that can affect performance and create disparate impacts. Like a rule-based expert system, the predictive logic behind such systems will not change until new probabilities and assumptions are incorporated into the model.
- **Machine learning** extends predictive modeling by continually and automatically adjusting the statistical variables used in the model. By using artificial intelligence (AI), such systems can rapidly evolve with changing circumstances such as changing consumer preferences, demographic shifts, and other factors. This helps to increase the relevance and accuracy of the system's outputs. Because machine learning systems can detect patterns in data at a speed and scale that humans cannot comprehend, such systems can lack transparency.⁶

Some consumer scores, such as those produced using AI, are used for instantaneous, autonomous decision-making and have immediate influence on business transactions without human review. That is, such scores are computed while consumers are completing transactions and provide additional information about a consumer's preferences to a company in real time. Other consumer scores can be used to identify transactions for human review and decision-making.

Consumer Scores Are Used for a Wide Range of Purposes









Businesses and other entities—for example, public hospitals and universities—use consumer scores for a variety of purposes, but the full range of consumer scores and their uses is unknown. According to our review of consumer score creators' websites and interviews with industry experts, many different types of consumer scores exist. However, no definitive source of information on them exists. This may be because (1) scores are used for many purposes and across many different industries and (2) businesses and other entities may not be required to disclose

⁶[GAO-21-519SP](#).

their use of such scores. Businesses and other entities may use these scores as a part of their day-to-day operations to identify differences between consumers for a variety of purposes.

We identified eight major categories of uses of consumer scores within the scope of our review (see fig. 1). FTC staff noted that consumer scores in these categories could be subject to FCRA in certain circumstances, such as if the scores were used to determine a consumer's eligibility for a covered purpose and were provided by a consumer reporting agency. We discuss the applicability of FCRA to consumer scores later in this report.

Figure 1: Key Ways That Consumer Scores Are Used

Score use	Definition and examples
<p>Marketing</p> 	<p>Scores that are designed to group consumers based on various demographic and socioeconomic factors, among others. Companies use these scores to target advertisements for financial or other products, allocate customer service resources, provide individualized pricing, and conduct other marketing activities.</p>
<p>Debt collections</p> 	<p>Scores designed to assist companies in collecting debts owed by consumers. Companies use these scores to prioritize collection efforts or to determine the best methods for contacting consumers.</p>
<p>Fraud prevention and identity verification</p> 	<p>Scores that assess the risk that a consumer transaction is fraudulent or whether consumers are who they say they are. Businesses use these scores to determine whether to do business with a particular consumer or whether to complete a specific transaction. This in turn helps to prevent identity theft and other types of fraud, particularly in the context of online transactions.</p>
<p>Health care administration</p> 	<p>Scores that assess an individual's health status or history. Health systems, including hospitals and other companies, use these scores to help triage patients, develop billing plans that are suited to patient needs, and identify patients with complex health needs who require additional medical attention, among other things.</p>
<p>Higher education</p> 	<p>Scores that assess potential students' enrollment likelihood, financial need, and likelihood of success at the institution. Higher education institutions use these scores to inform strategies for marketing, financial aid, and student retention.</p>
<p>Insurance</p> 	<p>Scores that assess a consumer's likelihood to purchase insurance products or file insurance claims and other behavior. Insurance companies use these scores for purposes other than making eligibility or pricing decisions, such as to target marketing resources, make decisions about insurance claims, and prevent fraud.</p>
<p>Legal due diligence</p> 	<p>Scores that assess the risk that a consumer is connected to money laundering, terrorist financing, or other financial crimes. Businesses often use these scores to satisfy due diligence obligations required by law.</p>
<p>Criminal justice</p> 	<p>Scores that predict the future behavior of an individual accused or convicted of a crime based on the individual's criminal history, education, and other factors. State and local government officials may use these scores in policing, pretrial detention, bail, rehabilitation, sentencing, and parole decisions.</p>

Source: GAO analysis. | GAO-22-104527

Marketing. Marketing is one of the most prevalent uses of consumer scores, according to industry experts and consumer advocacy groups we interviewed. To maximize profits, companies may use these scores to group consumers by a variety of demographic or other specifically defined characteristics (such as socioeconomic status) to calculate their likelihood of purchasing a product or service. Businesses can then use this information to help increase sales and customer loyalty. For example, customer lifetime value scores estimate the total amount of money consumers are expected to spend at a business or on its products during their lifetime. These scores can then assist businesses in identifying different consumer groupings and help businesses decide on which groups to focus their digital marketing spending. In some instances, companies can use these consumer groupings to provide different customer service experiences, depending on how often customers frequent the company and purchase its products or services.

For example, one company stated that its scoring product allows marketers to score consumers based on their stages of life, financial or insurance behaviors, and cultural integration, among other things, to understand what products are most relevant to them. According to the product brochure, scoring consumers in this way allows a business to improve marketing campaigns targeted to different consumer groups. In particular, the brochure states that the score can analyze Hispanic/Latino consumers' cultural integration. Businesses may then use the score to market relevant products to specific Hispanic/Latino consumers.

Some marketing scores are used specifically for financial products and services. These scores analyze consumers' wealth, income, likelihood to repay debt, or other measures of financial health to help companies decide which financial products to market to which consumers. These scores may also assess a consumer's financial risk or credit status based on nontraditional characteristics—such as social media or shopping behavior—or at a group level (e.g., ZIP code-level credit scores).⁷ One score we reviewed is meant to assist companies with “invitation to apply” marketing offers for financial products. Marketers may use such a score

⁷According to an FTC report, the use of aggregated credit statistics can be considered a consumer report under FCRA in certain circumstances, including if used to determine a consumer's eligibility for credit. However, if a company uses aggregated credit statistics published in a report by a third-party analytics firm simply to inform the company's general policies, then, according to the FTC report, the agency would likely not regard the report to be a consumer report under FCRA because it did not relate to a particular consumer. Federal Trade Commission, *Big Data: A Tool for Inclusion or Exclusion? Understanding the Issues* (Washington, D.C.: January 2016), 16–17.

to target particular consumers (e.g., recent retirees) for different product offers.

When businesses use marketing scores to target their advertising efforts toward those consumers most likely to purchase a particular product or service, consumers may benefit to the extent that it makes them aware of products in which they may be interested. Consumers may also benefit from targeted discounts or deals that they might not have otherwise received—for example, coupon codes or product offers that are only provided to specific targeted audiences.

Debt collections. Businesses use these scores to assist them in the process of collecting debts owed to them by consumers. Some of these scores are used to stratify accounts based on (1) a consumer's risk of not providing payment, (2) how much a consumer is likely to pay, and (3) historical default information on consumers' debts. Other scores may help locate consumers, determine the best method of communication, and identify which consumers are most likely to respond if a business reaches out to discuss their account

For example, one health score creator's website states that it offers a collection score that assists hospitals with grouping patients based on their likelihood of not making a payment, which could help users identify how much a patient could be expected to pay and which cases would need to be outsourced to collection agencies. Another product site that we reviewed stated that the business provides a numerical score on accounts to assist businesses with prioritizing and targeting collections efforts that could increase business efficiency. This product is intended to help businesses optimize their collection strategies and may account for consumers' needs, such as a need to customize payment time frames.

Fraud prevention and identity verification. Businesses use these scores to analyze (1) a transaction's potential for being fraudulent and (2) whether consumers are who they say they are. These scores can be used to prevent or reduce digital payment fraud and identity theft. These scores use consumers' behavioral data and other factors to either (1) approve a transaction or (2) flag it for review, should it have a score that indicates risk of unauthorized activity. If a transaction is flagged for review, the consumer may be unable to complete it or the consumer's account may be locked.

Consumers can benefit from the use of both fraud prevention and identity verification scores. Typically, credit card companies work to ensure that

transactions are not fraudulent whenever consumers use their credit card, so they may employ a variety of fraud prevention and identity verification scores to protect consumers and to lessen risk for themselves. For example, if consumers forget to notify their credit card company of their travel plans and try to use their card while traveling, a fraud prevention score may alert a credit card company of an anomalous use in a new location, and that transaction may be declined. The consumer can then verify whether the transaction is legitimate or not. If the consumer cannot provide that verification, the company may freeze the credit card and provide the consumer with steps to obtain a new card.

Health care administration. Health care providers use these scores to analyze an individual's health status and history to assist with treatment triage services, patient payment strategies, and more. Health care systems currently rely on commercial risk scoring tools to target patients for high-risk care management programs. These tools are meant to help identify patients who require additional attention for complex health needs and to assist health systems with deploying the resources that may be needed for those patients. According to a study we reviewed, decisions from these tools may lead to greater provider attention or other interventions necessary to coordinate patient care.⁸ We previously reported that the use of AI-based and analytical technologies in health care, such as these commercial risk scoring tools, is expected to increase over time.⁹

Websites that we reviewed advertised uses for health care scores including identifying patient risks so that health care systems could provide outreach and assist in understanding patients' needs, as well as increasing health system revenue. Other scores we identified include (1) total-cost risk scores, which attempt to predict a patient's potential health risk using prior health costs as an indicator; (2) medication adherence scores, which are intended to help analyze the expected compliance of individuals with their medication protocol; and (3) billing optimization scores, which are meant to assist health care facilities with grouping patients based on payment burden, services received, and individual

⁸Zaid Obermeyer et al., "Dissecting Racial Bias in an Algorithm Used to Manage the Health of Populations," *Science*, vol. 366, no. 6464 (2019), 447–453.

⁹GAO and the National Academy of Medicine published a joint report in 2020 regarding the benefits and challenges of AI technologies to augment patient care. For more information, see GAO and the National Academy of Medicine, *Artificial Intelligence in Health Care: Benefits and Challenges of Technologies to Augment Patient Care*, [GAO-21-7SP](#) (Washington, D.C.: Nov. 30, 2020).

behaviors. For example, should a patient be identified by a billing optimization score as being in need of assistance with or burdened by bill payment, the score may provide insights into how hospitals can customize their billing strategy to that patient's propensity and willingness to pay.

Higher education. Colleges use these scores to analyze and group students based on a variety of demographic factors, demonstrated interest, and other data to help identify potential candidates for enrollment and monitor students that are already enrolled.¹⁰ A representative from an association for U.S. collegiate admissions offices told us that education scores are primarily used by admissions offices for a variety of purposes, including identifying desirable candidates for recruitment, determining financial aid awards, predicting retention and admissions, and analyzing enrollment, among other things. In the case of prospective students, colleges collect information from students when they first state interest and then provide that information to consumer score creators, which group the students in a variety of ways to target promotional information. Colleges may also use such scoring to target support to current students during the academic year by identifying students who experience a change in performance.

A representative of an association for U.S. collegiate admissions offices told us that these scores may also be maintained during a student's lifecycle at a college to assist with retention. For example, we reviewed the website of a retention score that attempts to identify students who are less likely to remain at an institution and, of these students, those who are most likely to enroll for classes the next semester after supportive services are provided (e.g., discussion with counselors). This score assesses factors such as high school grade point average, percentage of financial need met, desire to transfer, and emotional and financial security, among potentially hundreds of variables, to create a numeric risk threshold at which a student would be flagged. Admissions offices would refer such students to university counselors or personnel. While students may be unaware of these scores, retention scores may benefit struggling students by helping them get assistance and resources they need.

Education scores can also be used in an effort to optimize financial aid awards, such as by providing prospective students a financial aid

¹⁰For this report, we use the term *college* to include any institutions of higher education.

package that they will find acceptable enough to enroll.¹¹ By not providing more funds than are necessary to encourage enrollment, the college might have more funds to provide to other potential students. For example, we reviewed the website of an education score creator that marketed a financial aid optimization score that is meant to analyze how many students accepted financial aid packages and what amount they were provided and to monitor student performance. With this score, colleges may be able to learn more about what level of funding prospective students with traits similar to those of current students may need to induce them to enroll at the college.

Insurance. Insurance companies use these scores to analyze how likely a consumer is to purchase insurance products or file insurance claims or other information related to the business of insurance.¹² These scores may help insurers with targeting their marketing efforts, settling claims, preventing fraud, or reducing claim processing time. Insurance scores may use demographic information from public sources or data brokers, as well as previous claim information, to understand the consumer's likelihood of filing a claim in the near future. Scores may also enhance fraud detection efforts by validating consumer information continually through the claims process.

According to a representative of the Center for Economic Justice, a consumer advocacy organization focused on insurance, insurers may use insurance scores to help determine which insurance products to market to certain consumers based on their targeting strategies. For example, we reviewed a lifecycle insurance score, which is meant to market insurance products or services to consumers during major life events.

Representatives of the National Association of Insurance Commissioners and a representative of the Center for Economic Justice also noted that insurance scores may be based in part on vehicle telematics, or on a consumer's driving performance (e.g., average speed). A representative of the Center for Economic Justice mentioned that the use of telematics in

¹¹FTC staff noted that scores that are used to determine the amount of a financial award could be subject to FCRA under certain circumstances, such as if the score were provided by a consumer reporting agency. We discuss the applicability of FCRA to consumer scores later in this report.

¹²For this report, insurance scores do not include credit-based insurance scores or other scores used to determine a consumer's eligibility for insurance or to make insurance rate and premium determinations, as those uses are subject to FCRA. 15 U.S.C. §§ 1681a(d)(1)(A), 1681b(a)(3)(C).

insurance scores can benefit consumers because consumers can actively control some of the factors that determine scores related to their driving habits, such as how fast they drive or how hard they brake. Insurers may be able to use these scores to retain good drivers and issue warnings to drivers who have not been driving cautiously. A safe driving insurance score we reviewed used telematics to monitor a consumer's driving habits and behaviors and was marketed to insurance companies.

Legal due diligence. Financial institutions and other companies use scores to comply with legal requirements designed to prevent money laundering, terrorist financing, or financial crimes.¹³ Similar to the fraud prevention and identity verification scores discussed above, these legal due diligence scores may prevent consumers from completing financial transactions. For example, the website of a major technology company we reviewed marketed a score meant to help insurance providers ensure their compliance with different regulations, such as those that require businesses to perform due diligence on their customers.

Criminal justice. These scores are designed for use in the criminal justice system to predict the future behavior of an individual accused or convicted of a crime. Scores may use information about past criminal history, education, and other factors, depending on the purpose of the score. We identified scores created by both for-profit and nonprofit organizations that are designed for use by state and local government officials in policing, pretrial detention, bail, rehabilitation, parole, and sentencing decisions.¹⁴

For example, the website for one criminal justice score we reviewed states that the score may help officials to predict parole outcomes, success in correctional halfway houses, institutional misconduct, and recidivism based on a variety of factors. Another score we reviewed is intended to help judges gauge the risk posed by releasing a defendant before trial. For example, the website says the score can predict defendants' likelihood of committing a new crime before their trial or the risk of a defendant failing to show up for a future court hearing. The score's brochure states that it is meant to be one tool used in the judge's

¹³See, e.g., Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (USA PATRIOT ACT), Pub. L. No. 107-56, 115 Stat. 272.

¹⁴The development or use of consumer scores within the federal government was outside the scope of this review.

decision and is not meant to replace judicial discretion. However, scores that indicate high risk levels may influence judges or others to detain an individual before trial, deny parole, or make other significant decisions.

Consumer Scores May Create Risks for Consumers

Scores May Create Biased Outcomes

Several studies and FTC staff have raised concerns about the potential for bias or discrimination in the use of consumer scores. Specifically, use of these scores may have a dissimilar impact on consumers based on their race, disability, or other characteristic that may be protected under federal nondiscrimination laws, according to FTC staff. As discussed below, this bias may be introduced through the use of data that reflect historical biases or social inequities or data that use variables that correlate with protected characteristics.

Use of biased data. Bias in consumer scoring can arise from the use of data that reflect preexisting or historical biases or social inequities, according to some studies and representatives of the Center for Economic Justice and Consumer Reports.¹⁵ The use of scoring in the criminal justice system has been the focus of several studies, in part because of questions about potential bias in data used to develop the models.

One study examined the possibility that “dirty data,” including data “derived from or influenced by corrupt, biased, and unlawful practices,” could be used in the development of predictive policing systems in

¹⁵See also Federal Trade Commission, *Big Data* and Elisa Jillson, “Aiming for Truth, Fairness, and Equity in Your Company’s Use of AI,” *Business Blog* (Washington, D.C.: Federal Trade Commission, Apr. 19, 2021), accessed Feb. 22, 2022, <https://www.ftc.gov/news-events/blogs/business-blog/2021/04/aiming-truth-fairness-equity-your-companys-use-ai>.

specific jurisdictions.¹⁶ These systems use historical police and other data to predict who will be involved in crimes—a type of consumer score—or where a crime may occur. The study found that in nine of 13 jurisdictions identified, the data available to develop predictive policing tools were generated during periods when the respective departments had engaged in unlawful or biased police practices, as determined by the Department of Justice or federal court judgments.¹⁷ The researchers concluded that the predictive systems these jurisdictions used to identify who would be involved in crime risked having “dirty data” influence predictions. Further, the researchers stated that police data may be biased due to police disproportionately having targeted a particular group or area in the past, resulting in this group or area being overrepresented in the data available

¹⁶Rashida Richardson, Jason M. Schultz, and Kate Crawford, “Dirty Data, Bad Predictions: How Civil Rights Violations Impact Police Data, Predictive Policing Systems, and Justice,” *New York University Law Review*, vol. 94 (2019): 192. The definition of dirty data used in this study also included data that had been intentionally manipulated, data that were distorted by individual and societal biases, data generated from the arrest of innocent people who had evidence planted on them or were otherwise falsely accused, calls for service or incident reports that reflected false claims of criminal activity, and subsequent uses of data that reflected system manipulation to try to promote particular public relations, funding, or political outcomes.

¹⁷Specifically, the study identified 13 jurisdictions between 2003 and 2019 where publicly available information indicated an overlap in time between development or use of predictive policing systems and the existence of government commissioned investigations, federal court monitored settlements, consent decrees, or memorandums of agreement that found that the police departments engaged in corrupt, racially biased, or otherwise illegal police practices. Of these 13 jurisdictions, the authors identified nine where dirty data were available to train or inform predictive policing systems and four jurisdictions where the findings were not definitive. The authors identified jurisdictions with the potential for using dirty data in their predictive policing systems, but they did not evaluate the extent to which these jurisdictions actually included dirty data in their predictive models.

to build a model.¹⁸ Overrepresentation or underrepresentation of certain groups in data sets used in modeling scores can result in bias.

A representative from the Center for Economic Justice told us that antifraud consumer scores used by insurance companies may have been developed using data that reflected historical biases. For example, if communities of color were historically selected more frequently for fraud examinations than others, then more fraud would have been found in transactions from those communities. According to the representative, this would result in the models selecting transactions completed by people of color for fraud investigations at greater rates than transactions completed by others, perpetuating the bias.

Bias may also arise in consumer scores because of historical social inequities. For example, in the health care field, a study examining a predictive model that generated risk scores to identify patients who could benefit from high-risk care management observed racial bias in the scores.¹⁹ Specifically, it found that Black patients were assigned lower risk scores than White patients with the same health care needs. This resulted in Black patients being under-identified as potentially benefitting from additional help. Although the model excluded the patients' race, the study found that the model produced biased risk scores because the developers used health care expenses as a proxy for health care needs, and less money is generally spent on Black patients who have the same level of need as White patients, according to the study.

¹⁸For other studies of bias in criminal justice scoring, see Kristian Lum and William Isaac, "To Predict and Serve?" *Significance*, vol. 13, no. 5 (2016): 14–19. This study found that a predictive policing tool disproportionately identified low-income or minority communities as targets for policing despite estimates indicating that drug use was more evenly distributed throughout the jurisdiction studied. See also Julia Angwin et al., "Machine Bias," *ProPublica* (May 23, 2016), accessed Oct. 29, 2020, <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing>. This study found that scores judges used to help determine the recidivism risk of accused individuals produced by a widely used risk assessment tool were biased against Black defendants. For example, when researchers looked at whether individuals the tool had identified as being at a high risk for recidivism actually had recidivated after a 2-year period, they found that the tool was almost twice as likely to incorrectly identify a Black defendant as being high risk compared to a White defendant.

¹⁹Obermeyer et al., "Dissecting Racial Bias," 447–453. According to the study, the model it examined was "one of the largest and most typical examples of a class of commercial risk-prediction tools that, by industry estimates, are applied to roughly 200 million people in the United States each year."

Correlation with protected characteristics. In addition, variables chosen by score creators to use in models may inadvertently correlate with protected characteristics, which could result in biased scores. For example, geo-credit scores, as discussed below, use a consumer's address as an input, which can correlate with race. In addition, a report published by the Partnership for AI states that scores designed to predict recidivism use variables that may correlate with race, such as the number of friends or acquaintances who have been arrested or were victims of crime.²⁰ Consumer Reports noted that several data points can work together to become a proxy for race—for example, where a consumer shops for groceries or went to college—even when an individual variable does not.

A consumer score's methodology may also influence its potential for bias. For example, several recent studies and articles have discussed the potential for bias in AI and machine learning algorithms in particular.²¹ We have also previously reported that AI systems can produce biased results and other unintended consequences if developed without proper controls.²² Specifically, we noted that the use of AI has the potential to amplify existing biases and concerns related to civil liberties, ethics, and social disparities. We found that AI was used in 20 of the 49 consumer scoring products that we reviewed, and the use of AI and machine learning is increasing.

²⁰Partnership on AI, *Report on Algorithmic Risk Assessment Tools in the U.S. Criminal Justice System* (Apr. 23, 2019), accessed June 16, 2021, <https://partnershiponai.org/download/4076>. The Partnership on AI is a nonprofit organization formed to study and formulate best practices for AI technologies. It consists of civil society groups, corporate developers and users of AI, and numerous academic AI research labs. This report was written to gather, synthesize, and document the views of the AI research community on the use of risk assessment tools in the U.S. criminal justice system.

²¹Studies have discussed, for example, that AI algorithms using biased data may perpetuate and further solidify those biases in society. See Daron Acemoglu, "Harms of AI," (working paper 29247, National Bureau of Economic Research, Cambridge, MA, September 2021), accessed Jan. 31, 2022, <http://www.nber.org/papers/w29247>, and Reuben Binns and Victoria Gallo, "Human Bias and Discrimination in AI Systems" (June 25, 2019), accessed Jan. 3, 2022, <https://ico.org.uk/about-the-ico/news-and-events/ai-blog-human-bias-and-discrimination-in-ai-systems/>.

²²[GAO-21-519SP](#). This report includes key practices score creators can use to ensure accountability and responsible use of AI.

A recent report by the United Nations High Commissioner for Human Rights on AI noted that the ability to use AI on large-scale projects can dramatically increase the negative effects of any incorrect results based on biased data. That report contained numerous recommendations to nations and the private sector to minimize harmful outcomes of the use of this technology.²³

Some Scores May Use Incorrect Data

Score developers may use inaccurate or out-of-date data about consumers when developing scores, possibly resulting in inaccurate or unreliable scores. Consumers generally do not know that scores are being used or how they were developed. In addition, consumers may not have the right to request consumer scores or correct inaccuracies with respect to their data. Some consumer organizations and an academic we spoke with questioned the accuracy of the data used to create consumer scores. Consumer Reports and the Consumer Education Foundation told us they were concerned about the accuracy of the data used in consumer scores given the significant amount of inaccurate data that studies have found in credit reports—which, in contrast to consumer scores, are specifically regulated. FCRA also gives consumers the right to obtain their credit report and dispute the accuracy of its content, a right which consumers may not have with respect to consumer scores.²⁴

Several other studies have also examined the accuracy of consumer and other data. For example, in a 2014 study, National Consumer Law Center staff members obtained reports containing the data that five data brokers maintained on them.²⁵ Such data may be one input into consumer scores.

²³United Nations High Commissioner for Human Rights, “The Right to Privacy in the Digital Age (2021)” (paper presented at the Human Rights Council, 48th Session, September 2021), https://www.ohchr.org/EN/HRBodies/HRC/RegularSessions/Session48/Documents/A_HRC_48_31_AdvanceEditedVersion.docx.

²⁴We discuss the applicability of FCRA to consumer scores later in this report. In 2021, Consumer Reports conducted a study on the accuracy of credit report data using members of the public. It reported that one-third of nearly 6,000 consumers that responded to a Consumer Reports survey had found mistakes after checking their credit reports. See Syed Ejaz, *A Broken System: How the Credit Reporting System Fails Consumers and What to Do About It*, (Consumer Reports, June 10, 2021). In 2012, FTC conducted a nationwide study that found over 25 percent of participating consumers had a potentially material error on at least one of their credit reports. See Federal Trade Commission, *Report to Congress Under Section 319 of the Fair and Accurate Credit Transactions Act of 2003* (Washington, D.C.: December 2012).

²⁵National Consumer Law Center, *Big Data: A Big Disappointment for Scoring Consumer Credit Risk* (Boston, MA: March 2014).

The study found that the reports were incomplete or contained numerous inaccuracies. For example, of the staff members' addresses maintained by the four data brokers with the most complete information, about two-fifths were incorrect (although some companies had significantly higher rates of accuracy than others). Further, one report by a law professor with expertise in digital technologies and poverty noted that criminal records and evictions that were later expunged may still be in the databases of data brokers, which can affect various scores even though the records were deleted from the official state record.²⁶

Further, score creators may not attempt to verify the accuracy of the data they use to create scores. One leading score creator—which produces scores used in insurance, fraud prevention, identity verification, health care, and more—states on several of its scoring product web pages or product brochures that the public records and commercially available data sources underlying several of its products may contain errors due to inaccurate reporting, data entry, or processing. These web pages further state that before relying on the data, score users should independently verify them. Similarly, one large consumer reporting agency that also produces marketing scores told us it does not verify the accuracy of the public records data it uses to create marketing scores because it purchases the data from companies that indicate they have already cleaned them. We found that one consumer score we reviewed that is meant to aid insurance companies in processing and verifying claims uses information from consumers' social media accounts that would be hard to review for accuracy.

Some Scoring Methodologies May Have Limitations

Methodologies used to create scores may have various limitations. For example, the use of proxy variables can result in scoring models measuring something other than what was intended. When data are not available on a specific characteristic that a score creator is trying to measure, the creator must choose another variable from existing data as a substitute. However, the choice of the proxy variable may result in the measurement of something other than what was intended or produce incorrect results. As discussed above, a model used to predict which patients were likely to benefit most from high-risk care management used health care expenses as a proxy for health care needs. As a result, the

²⁶Michele Gilman, "Poverty Lawgorithms: A Poverty Lawyer's Guide to Fighting Automated Decision-Making Harms on Low-Income Communities," *Data & Society* (Sept. 15, 2020), accessed Nov. 15, 2021, <https://datasociety.net/library/poverty-lawgorithms/>.

model measured which patients were most likely to spend the most on health care in the future rather than those that had the greatest need.²⁷

In addition, one way score creators use predictive analytics to score consumers or predict their behavior is by categorizing them based on interests, characteristics, or other qualities and then inferring their behavior based on others who have similar characteristics. For example, look-alike audience modeling is a digital advertising strategy that identifies consumers who may be interested in an advertisement by finding consumers with demographics, interests, and behaviors similar to those of existing customers. This technique can disadvantage some consumers if businesses or others draw unfair conclusions based on their assumptions, according to the Center for Digital Democracy and the U.S. Public Interest Research Group.²⁸

For example, look-alike modeling can create generalizations about consumers based on analysis of large data sets of consumers' own and others' actions. These generalizations influence the kinds of advertisements consumers are served, which can lead to different product offers than other consumers in different categories. One company that creates look-alike audience groups says on its website that it uses data about existing customers to find a new group of people to send advertisements for the client company's product. Consumers not in that group would not receive the advertisement for that product. In addition, the Partnership on AI has noted that with regard to scores used in criminal justice, fundamental philosophical and legal questions exist about whether it is acceptable to make determinations about an individual's incarceration based on data about others with similar demographic characteristics.²⁹

Similarly, some scores also group consumers based on where they live. Although this methodology may be innocuous when used for certain purposes, we found examples of its use that could have a negative effect if scores were incorrect. For example, a national college readiness and testing organization's scoring product aims to help college admissions professionals recruit students who will be attracted to their college and

²⁷Obermeyer et al., "Dissecting Racial Bias," 447–453.

²⁸The Center for Digital Democracy is a consumer protection organization focused on digital rights and privacy. The U.S. Public Interest Research Group is a public interest advocacy organization.

²⁹Partnership on AI, *Report on Algorithmic Risk Assessment Tools*.

match their schools' enrollment goals. To do this, the product places current high school students in different clusters based on their neighborhood and high school, according to the product guide. Each cluster includes scores of associated socioeconomic, demographic, and "educationally relevant" characteristics, such as family history of attending college, average test scores, degree aspirations, racial characteristics, and assumptions about parents' incomes. Admissions professionals can use these scores in identifying desirable candidates and formulating their college's recruitment strategy. However, some students may not fit the predominant characteristics of their neighborhood or high school and may miss out on recruiting efforts others receive.

Geo-credit scores are another type of score that groups people based on where they live. These scores attempt to estimate people's purchasing power or financial stability based on where they live. We reviewed a score aimed at businesses wishing to provide "invitation to apply" marketing offers for financial products or aiming to build predictive models. The website states that each geo-credit score covers people who live within a 9-digit ZIP code area. However, not everyone who lives in the same area has the same level of purchasing power.

Scores Can Result in Various Negative Outcomes for Consumers

Some consumer scores, even if they are not subject to some of the biases and limitations described above, can result in negative outcomes for consumers. First, some consumer and technology rights organizations noted that because consumer scores may be able to drive consumer behavior without consumers' knowledge, they may present additional risks to consumers. For example, as previously discussed, some scoring products help colleges determine the optimal amount of financial aid to offer incoming students to entice them to enroll, without providing more than necessary. To do this, colleges may use a variety of inputs to determine the final amount of financial aid offered to a student. In particular, some schools use student interest as a factor in their score for determining a student's financial aid offer. For example, a representative of a collegiate admissions association told us that students who have shown strong interest in a particular school by making multiple visits to the campus or college website may receive less financial aid than other students because the scoring product has determined they have a strong interest in the college.

Second, many of the consumer and technology rights organizations expressed concern about the use of consumer scores—some of which attempt to approximate income level, wealth, or other alternative measures of creditworthiness—to target advertisements for financial

products to specific consumers.³⁰ Targeted marketing, or providing direct advertisements for specific products to a group of consumers or specific individuals rather than the complete market, is a common practice to make the most efficient use of marketing resources. However, three of these stakeholders noted that given how effective the scoring technologies used for targeted marketing are at influencing consumers to purchase or apply for certain products, there may be increased risk to consumers when targeted marketing is used for financial products such as credit cards and insurance. Specifically, consumers do not receive equal opportunities, and certain groups may be targeted for products with less favorable terms. Both the Center for Economic Justice and the U.S. Public Interest Research Group questioned whether the practice of “microtargeting” advertisements to specific individuals was akin to making decisions about a consumer’s eligibility for credit or insurance, as it allows businesses to effectively steer consumers into certain products.³¹

In particular, two stakeholders and FTC have expressed concern that highly targeted marketing—such as through use of consumer scores—could be an important factor in who obtains products with either fair or predatory terms.³² One concern is that such targeting may be used to steer people of little means or poor credit into high-interest-rate credit products or payday loans, further perpetuating their challenging financial situation. An FTC report stated that advertising and marketing practices could affect a creditor’s subsequent lending patterns and the terms and conditions of the credit received by borrowers, even if credit offers are open to all who apply.³³

Conversely, scores may be used by businesses to target high-value consumers, or consumers a business otherwise finds desirable, with advertisements for premium products or invitations to apply for insurance

³⁰Unlike traditional credit scores, these scores do not use baseline credit data as inputs. Companies may only use traditional credit scores for marketing purposes in very limited circumstances, such as to extend prescreened firm offers of credit or insurance. The targeted advertisements we discuss here may invite consumers to apply for financial products but are not intended to provide a firm offer of credit or insurance.

³¹Courts have found that a marketing offer such as an invitation to apply for a credit card is not the same thing as a determination of the consumer’s eligibility for credit so as to constitute a “consumer report” under FCRA. See *Skiles v. Tesla*, 472 F.Supp.3d 566, 570 (N.D.Cal. 2020).

³²Federal Trade Commission, *Big Data*.

³³Federal Trade Commission, *Big Data*. The report also noted that the Department of Justice has cited a creditor’s advertising choices as evidence of discrimination.

or credit products that other consumers do not receive. For example, a telematics company has advertised that it can provide personalized invitations to apply for auto insurance on behalf of insurance companies to “the most profitable customers,” which the company identifies by analyzing driving data it collects and separating drivers into risk groups.

Third, the use of consumer scores to facilitate the differential treatment of consumers in order to maximize the aims of businesses has raised questions of fairness among some stakeholders. Specifically, treating consumers differently based on scores they are not aware of may be unfair. For instance, a petition filed by the Consumer Education Foundation with FTC noted that the use of consumer scores to treat consumers differently may undermine the ideals of equality and fair competition in the marketplace.³⁴ It states that using scores consumers are not aware of to charge different prices to different consumers, which we discuss below, or to provide differing levels of customer service is unfair to consumers. In addition, a law review article argued that consumer scores’ lack of transparency inhibits proper market regulation that could help address questions of fairness.³⁵ It states that the lack of transparency prevents consumers from learning about or notifying others of unfair practices and taking their business elsewhere if companies do not make changes.

Three stakeholders expressed concern about customer lifetime value scores, which are scores that represent a consumer’s value to a business. These scores are meant to help businesses decide to whom they should market and what level of customer service they should provide. The Consumer Education Foundation said in its petition to FTC that customer lifetime value scores may punish consumers for exerting their rights by, for example, giving lower scores to consumers that buy items on sale or make calls to customer service. In our review of consumer score websites, we found products that aim to differentiate between consumers based on their “value” to a company. For example, the brochure for a fraud prevention product states that its machine learning models weigh “the risk of fraud against the value of the

³⁴The petition is available at <https://www.representconsumers.org/wp-content/uploads/2019/06/2019.06.24-FTC-Letter-Surveillance-Scores.pdf>. To date, FTC has not taken any enforcement action in response to this petition.

³⁵A. J. Schmitz, “Secret Consumer Scores and Segmentations: Separating ‘Haves’ from ‘Have-Nots,’” *Michigan State Law Review* (2014): 1411.

customer” when deciding if a consumer is committing fraud. This may mean that higher value customers, such as those who have spent more at the company, will receive a greater benefit of the doubt in transactions whose authenticity is questioned.

Marketing scores may also help businesses advertise—and thereafter charge—individualized prices.³⁶ In one recent study, economists theorized that such price discrimination may benefit some consumers who are aware it is happening and adjust their actions accordingly.³⁷ However, consumers who are not aware of or who do not have access to their scores and consumers who do not know how to adjust their actions to influence prices may end up paying higher prices, according to the study.

Lack of Transparency into Score Usage and Development Can Create Additional Risk

There is a lack of transparency into consumer score usage, data inputs, and the methods companies use to develop scores. Many stakeholders we spoke with, as well as some studies we reviewed, noted that scores likely affect consumers regularly without consumers being aware of their existence. Of the four scoring companies we spoke with, only one developed a score that was meant to be seen by the consumer it scored. Similarly, in our review of the websites of 49 consumer scores, only two stated that consumers may obtain their score by contacting the creator—and the consumer would need to know the score existed in order to do so.

FTC staff, more than half of the consumer and technology rights organizations, and the academic we spoke with said that the lack of transparency into the use and creation of scores presents risks to consumers. Some risks we identified include the following:

³⁶FCRA requires companies to send “adverse action” or “risk-based pricing” notices to consumers in certain circumstances, including if the consumers are charged more for credit or insurance products based on consumer report information. 15 U.S.C. § 1681m; 12 C.F.R. pt. 1022, subpt. H. FTC has brought actions against companies for violating FCRA when, for example, companies used consumer reports to charge additional deposits or fees in connection with cable or mobile phone services and failed to send the requisite risk-based pricing notice. Federal Trade Commission, *Big Data*.

³⁷Alessandro Bonatti and Gonzalo Cisternas, “Consumer Scores and Price Discrimination,” *Review of Economic Studies*, vol. 87 (2020): 750–791. FTC also reported that there is concern that price discrimination leads to higher-priced goods and services for lower-income communities. Federal Trade Commission, *Big Data*.

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- If consumers are not aware that a score is being used to make a particular decision about them, they cannot question how the score was created, whether the data used to develop it are accurate, or whether they have recourse if they believe the results to be incorrect. For example, in its 2014 report on data brokers, FTC stated that if consumers are not aware that marketing scores are being used, then they are not able to take steps to mitigate the effects of lower scores, such as being limited to advertisements for subprime credit.³⁸
 - Consumers may not have the knowledge needed to identify and respond to erroneous conclusions or negative consequences of the scores. For example, if consumers knew that businesses were using information about them, such as past purchases, to determine the price they would be charged for a product, they would have the opportunity to behave differently and receive a different outcome.
 - Even if consumers are aware of a score, they may not be able to gain access to meaningful information on the data or methodology used to develop it. In our review of the websites and privacy policies of consumer score creators, we found that few score producers allow consumers the ability to access their personal data other than where required by law.³⁹ Also, score creators may choose not to share information on their data or methodologies if they consider the information to be proprietary. Two studies that examined specific consumer scores noted the difficulty of gaining access to the data and models used to create them.⁴⁰ Further, the models used to create scores can be highly complex and likely not understandable to the typical consumer.
 - The lack of transparency also underscores the concerns we discuss above because there is no information available on the extent to which these or other risks are affecting consumers. For example, there is no comprehensive information on the extent to which

³⁸Federal Trade Commission, *Data Brokers*, v–vi.

³⁹Some websites referred to the California Consumer Privacy Act of 2018, which gives California residents rights to view and control personal information collected about them by companies that do business in California. Cal. Civ. Code tit. 1.81.5 (West 2022). For example, that act requires companies to disclose, upon request, the categories and specific pieces of personal information they collect about the resident, the business or commercial purpose for collecting or selling such information, and the categories of third parties with whom they share the information. The act also requires companies to delete the personal information upon the resident’s request, with some exceptions.

⁴⁰See Obermeyer et al., “Dissecting Racial Bias,” 447–453, and Lum and Isaac, “To Predict and Serve?” 14–19.

companies verify the accuracy of the data used to create consumer scores.

In addition to the lack of transparency to consumers, FTC has raised concerns about the extent to which businesses and other entities that use consumer scores understand how they are created.⁴¹ A representative of a higher education industry group told us that the group's member colleges were often not aware of the data and methods used to create scores used in marketing, recruiting, and sometimes determining financial aid amounts for students. In addition, an organization focused on technology policy told us that the methods some large internet companies use to group audiences and target advertisements to specific users are unseen by and out of the control of the businesses that are advertising on the platform. Similarly, as we have previously reported and some stakeholders noted, questions exist about how much developers of highly technical algorithms, including those used in AI and machine learning, are aware of how their algorithms make decisions.⁴² We have said that AI systems can be an opaque "black box," both because the inner workings are inherently very difficult to understand and because vendors do not wish to reveal proprietary information. Therefore, it is unclear whether score creators themselves or people external to the companies are able to know whether certain scores present risks to consumers.

Some Score Creators and Others Have Taken Steps Intended to Reduce Risks to Consumers

A few score creators that we spoke with or whose score websites we reviewed had taken steps to address some of the risks we discuss above. For example, one creator of marketing and identity verification scores said it tests for negative effects on demographic groups when developing a model. The creator said it does this by reviewing variables to make sure they are not proxies for protected characteristics and by running reports to determine if the results skew toward or against a protected class. In addition, the website of a company that develops a product used to score employees stated that it tests every algorithm for bias and has open-sourced the methodology it uses to remove bias from models so other entities may use it as well. The company also stated that it only releases algorithms that do not have a negative and disproportionate effect on any

⁴¹Federal Trade Commission, *Big Data*.

⁴²[GAO-21-519SP](#). As previously stated, this report included key practices score creators can use to ensure accountability and responsible use of AI. One key practice was to promote transparency by enabling external stakeholders to access information on the design, operation, and limitations of the AI system.

demographic groups and that its platform has been independently audited.

Some score creators have also made efforts to be transparent. One foundation that develops a pretrial risk assessment tool has made publicly available its methodology, research studies verifying the accuracy of the tool, and information on jurisdictions where the tool is used. In addition, two marketing score creators told us that they have extended to all U.S. residents the rights provided to California residents by the California Consumer Privacy Act of 2018, including the ability to request to view and delete their personal information used to create scores.⁴³

Some score creators said bias or the possibility of incorrect data was not a concern because of the nature of their scores. For example, two companies that create widely used fraud prevention scores said their models do not include data on protected characteristics such as race. They do not test how their models perform for different demographic groups because they do not have the data needed to do so. In addition, these companies noted that their products score the riskiness of transactions, not individual consumers. They also told us their score was only one input a client would use to decide whether to take further action on a particular transaction.

Similarly, one consumer reporting agency that creates marketing scores said it does not believe erroneous data or potentially biased models used to create marketing scores lead to adverse results for consumers other than receiving less relevant advertisements. In addition, representatives said the company only provides the scores to its clients; it is the clients who determine how to use them.

The National Association of Insurance Commissioners—which helps set standards for state regulation of insurance companies—told us its committee on race and insurance and its AI working group monitor the potential for proxy variables to result in discrimination in models used in the industry. The association recently developed principles for the use of AI in the insurance industry and is developing guidance to insurance companies and state regulators on the use of the technology. The

⁴³As discussed later in this report, the California Consumer Privacy Act of 2018 grants California residents certain rights to view and control personal information businesses collect about them, which may include information used to create consumer scores. Cal. Civ. Code §§ 1798.100 - 1798.199.100.

principles include transparency and fair and ethical use, including avoiding proxy discrimination.

With respect to the consumer scores we reviewed, very little is known about the extent to which companies test models for bias before use or monitor whether the models are having a negative and disproportionate effect on protected classes of consumers once deployed. Further, the quality and thoroughness of any such testing is not known. At the Comptroller General's September 2020 forum on oversight of AI, some forum participants stated that companies should collect information on the use and effects of AI on protected characteristics, because without it they cannot know how or if their models are performing differently for different demographic groups.⁴⁴

No Federal Law Expressly Governs All Consumer Scores, and Gaps May Remain in Federal Consumer Protections

No federal law expressly governs the creation, sale, and use of all consumer scores. Federal consumer protection laws can help to ensure that consumer scores are based on accurate information and are used in a fair and transparent manner, but these laws only apply in specific circumstances.⁴⁵ As a result, consumers may lack protections with respect to consumer scores. Although some efforts have been made to improve consumer protections around consumer scores, the statutory framework may not address all potential risks to consumers.

Federal Consumer Protection Laws Apply to Consumer Scores but Only in Certain Circumstances

Whether FCRA's protections apply to consumer scores depends on individual facts and circumstances. In general, FCRA regulates companies that contribute to, provide, or use consumer reports, which contain credit histories or other personal information used to make certain types of decisions about consumers. The act protects consumers by limiting the distribution and use of such reports to certain permissible

⁴⁴[GAO-21-519SP](#).

⁴⁵The discussion below includes examples of federal consumer protection laws that may govern consumer scores and is not intended to identify all such laws.

purposes and enabling consumers to access and correct the information reported about them.⁴⁶

A consumer score can be a consumer report and thus give rise to such protections but only if the score meets all three of the following criteria: (1) the score relates to credit or personal characteristics of a consumer, (2) the score is provided by a consumer reporting agency, and (3) the score is used or expected to be used in determining the consumer's eligibility for credit, insurance, employment, or certain other permissible purposes.⁴⁷ Consumer scores may not meet these criteria, depending on the information used to generate the score, the source of the score, or the expected or actual use of the score. For example, scores designed solely for law enforcement, fraud prevention, identity verification, general marketing, or the processing of insurance claims may lack the requisite eligibility determination under FCRA, leaving affected consumers without

⁴⁶FCRA requires that consumers be notified when adverse actions are taken based on a consumer report, enables consumers to access and dispute the accuracy of information in the report, and holds those that furnish and collect such information responsible for correcting inaccuracies and incomplete information, among other things. See, e.g., 15 U.S.C. §§ 1681b, 1681g, 1681i, 1681j, 1681m, 1681s-2. FCRA includes some consumer protections for information that is not a consumer report. See, e.g., 15 U.S.C. § 1681s-3 (Information that would be a consumer report but for certain statutory exclusions may not be used by affiliates for marketing purposes unless the consumer was provided notice and an opportunity to opt out of the solicitation).

⁴⁷FCRA generally defines a consumer report as any communication of information by a consumer reporting agency bearing on a consumer's creditworthiness, credit standing, credit capacity, character, general reputation, personal characteristics, or mode of living which is used or expected to be used or collected in whole or in part for the purpose of serving as a factor in establishing the consumer's eligibility for credit or insurance to be used primarily for personal, family, or household purposes; employment purposes; or any other purpose authorized under Section 604 of FCRA. 15 U.S.C. § 1681a(d)(1). The law excludes certain types of communications from this definition, such as reports containing information solely as to transactions or experiences between a consumer and the person making the report. 15 U.S.C. § 1681a(d)(2).

many of the act's protections.⁴⁸ Even if a consumer score meets all of the criteria described above, the score itself may be exempt from required disclosure under FCRA.⁴⁹ Further, as FCRA was enacted in the 1970s with provisions that did not contemplate a digital world, determining whether and how FCRA applies to today's technology-based consumer scores can be challenging.

Federal nondiscrimination laws may also govern the use of consumer scores, but only when the score is used for certain purposes. For example, the Equal Credit Opportunity Act (ECOA) prohibits creditors from discriminating in any aspect of a credit transaction on the basis of an applicant's race, color, religion, national origin, sex, or certain other protected characteristics.⁵⁰ This prohibition can help to protect consumers against potential disparate effects or disparate treatment when consumer scores are used in any aspect of a credit transaction, but not when

⁴⁸See, e.g., *Kidd v. Thomson Reuters Corporation*, 925 F.3d 99, 108-9 (2d Cir. 2019) (The provider of an online research platform that scored consumers did not intend to provide consumer reports because the platform was marketed for law enforcement, fraud prevention, and identity verification (non-FCRA) purposes only and incorporated mechanisms to ensure compliance with use restrictions), *Skiles v. Tesla*, 472 F.Supp.3d 566, 570 (N.D. Cal. 2020) (A marketing offer, such as an invitation to apply for a credit card, is not the same thing as a determination of credit eligibility, as will constitute a "consumer report" under FCRA), Federal Trade Commission, *40 Years of Experience with the Fair Credit Reporting Act: A Summary of FTC Staff Interpretations* (Washington, D.C.: 2011), 23. (Reports provided to insurers by claims investigation services solely to determine the validity of insurance claims—and not for underwriting purposes—are not consumer reports). Ultimately, FCRA's applicability to any particular consumer score depends on the specific facts and circumstances.

⁴⁹For example, FCRA requires consumer reporting agencies to disclose to a consumer upon request all information in the consumer's file but specifically exempts risk scores or other predictors. 15 U.S.C. § 1681g(a)(1). The law contains separate disclosure requirements for certain types of credit scores but lacks mirror requirements for other types of risk scores and predictors. See, e.g., 15 U.S.C. § 1681g(f).

⁵⁰15 U.S.C. §§ 1691-1691f. See also 12 C.F.R. pt. 1002. Under the act and its implementing regulation (Regulation B), creditors are generally prohibited from collecting certain demographic information unless an exception applies. 12 C.F.R. §§ 1002.5, 1002.6. Creditors must also make available the specific reasons for denying credit or taking other adverse action with respect to an application for credit. 12 C.F.R. § 1002.9.

consumer scores are used for other purposes.⁵¹ While other nondiscrimination laws may protect consumers in other contexts, stakeholders have observed gaps in this framework.⁵² For example, FTC officials have observed gaps with respect to data broker products used for marketing and risk mitigation (that is, fraud detection and identity verification).⁵³

The use of consumer scores may also be governed by Section 5 of the Federal Trade Commission Act (FTC Act), which prohibits unfair or deceptive acts or practices in or affecting commerce.⁵⁴ According to FTC staff, the agency has brought cases related to consumer scores using this authority. For example, one credit card company settled FTC allegations that it failed to disclose its practice of using a behavioral scoring model to reduce consumers' credit limits because they used their cards for cash advances or to pay for certain types of transactions, such as marriage counseling or tire-repair services. Specifically, FTC argued that the company's failure to disclose to consumers that it was using the behavioral scoring model was a deceptive act or practice under Section

⁵¹According to CFPB officials, whether a particular consumer score falls within the scope of ECOA depends on the circumstances. Regulation B defines a credit transaction as every aspect of an applicant's dealings with a creditor regarding an application for credit or an existing extension of credit (including, but not limited to, information requirements; investigation procedures; standards of creditworthiness; terms of credit; furnishing of credit information; revocation, alteration, or termination of credit; and collection procedures). 12 C.F.R. § 1002.2(m). The only scoring systems expressly addressed in Regulation B are those that evaluate a consumer's creditworthiness. ECOA and Regulation B may prohibit a creditor practice that is discriminatory in effect because it has a disproportionately negative impact on a prohibited basis, unless the creditor practice meets a legitimate business need that cannot reasonably be achieved by means that are less disparate in their impact. 12 C.F.R. pt. 1002, Supp. I, ¶ 6(a). ECOA and Regulation B also prohibit a credit practice that treats applicants differently on a prohibited basis or statements to applicants or prospective applicants that would discourage on a prohibited basis a reasonable person from making or pursuing an application. 12 C.F.R. pt. 1002, Supp. I, ¶ 4(a).

⁵²For example, the Fair Housing Act prohibits discrimination in housing, and Title VII of the Civil Rights Act of 1964 prohibits discriminatory employment practices. 42 U.S.C. §§ 2000e-2000e-17, 3601-3619.

⁵³See statement of former FTC Commissioner Julie Brill. Federal Trade Commission, *Data Brokers*, C-7.

⁵⁴15 U.S.C. § 45. In addition, providers of consumer financial products and services are subject to similar restrictions under Section 1031 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (*codified at* 12 U.S.C. § 5531), which prohibits unfair, deceptive, or abusive acts or practices in connection with a transaction with a consumer for, or the offering of, a consumer financial product or service.

5.⁵⁵ However, FTC staff confirmed that while Section 5 can help to prevent unfair or deceptive acts or practices in connection with the use of consumer scores, it does not prescribe specific remedies for consumers, such as viewing and correcting data used in the creation of a consumer score. Also, in order to challenge the use of a consumer score as an unfair act or practice, FTC must demonstrate that the potential harm caused by the score would outweigh any countervailing benefits to consumers or competition created by the score.⁵⁶ As a result, FTC staff said some consumer scores, such as those designed to protect consumers against fraud, may not make a good case under Section 5, depending on the circumstances.

FTC staff noted that the agency has investigated complaints and petitions it has received regarding consumer scores. For example, in 2019, FTC received a petition from a consumer advocacy group requesting that FTC investigate a number of consumer scores for potential violations of Section 5 of the FTC Act.⁵⁷ The petition was about the use of consumer scoring in a variety of contexts. For example, it questioned a company's practice of using consumer scores created by algorithms based on activities—such as liking things on Facebook—that were unrelated to how the score was being used (e.g., determining the most qualified person for a job). FTC had not taken any enforcement action in response to this petition as of May 2022.

FTC and Others Have Taken Steps to Improve Transparency of Uses of Consumer Information, but Gaps Remain with Consumer Scores

FTC staff have provided recommendations for improving transparency to companies using technologies that may be used to create consumer scores. For example, in 2020, the Director of FTC's Bureau of Consumer Protection published a blog post that noted that while the use of AI technology to make predictions, recommendations, or decisions had enormous potential to improve welfare and productivity, the use of these technologies also presented risks, such as the potential for unfair or discriminatory outcomes or the perpetuation of existing socioeconomic

⁵⁵See *FTC v. CompuCredit Corp.*, No. 1:08-cv-1976-BBM-RGV (N.D. Ga. June 10, 2008).

⁵⁶FTC may not challenge an act or practice as unfair under Section 5 of the FTC Act unless the act or practice causes or is likely to cause substantial injury to consumers which is not reasonably avoidable by consumers themselves and not outweighed by countervailing benefits to consumers or to competition. 15 U.S.C. § 45(n).

⁵⁷The petition is available at <https://www.representconsumers.org/wp-content/uploads/2019/06/2019.06.24-FTC-Letter-Surveillance-Scores.pdf>.

disparities.⁵⁸ Among other things, the FTC blog post noted that companies should not deceive consumers about how they use automated tools. Further, FTC advised that companies should be transparent with consumers when collecting sensitive data about them. Finally, FTC noted that companies that use certain third-party data (e.g., a score provided by a consumer reporting agency) need to notify consumers when an adverse action is taken based on such data. An adverse action notice under FCRA tells consumers about their right to see the information reported about them and to correct inaccurate information.

FTC has also conducted studies of data brokers and the use of big data (that is, large volumes of data often aggregated from multiple sources), which can be involved in consumer scoring, but it has not recently studied issues related to consumer scores. In a 2014 study of data brokers, FTC reviewed the information provided in response to orders it issued to nine data brokers, information gathered through follow-up communications and interviews, and information gathered through publicly available sources.⁵⁹ In that study, FTC made several observations relevant to consumer scores, including that data brokers collect consumer data from numerous sources, largely without consumers' knowledge. The study also noted that data brokers combine and analyze data about consumers to make inferences about them, including potentially sensitive inferences. It observed that these data brokers may provide consumers with choices about their data, such as the ability to opt out of sharing their information, but because data brokers are not consumer-facing, consumers may not know where to go to exercise any choices that may be offered.

In its 2014 report, FTC made legislative recommendations aimed at the fundamental lack of transparency about data broker industry practices that are also relevant to consumer scores. Specifically, FTC recommended that Congress consider legislation that would provide consumers with transparency when a company uses a risk mitigation product that limits a consumer's ability to complete a transaction, and stated that such legislation could address scenarios that FCRA may not cover. For example, FTC provided an example of John Doe applying for a new mobile telephone contract. If a data broker's product is used to

⁵⁸See Andrew Smith, "Using Artificial Intelligence and Algorithms," *Business Blog* (Washington, D.C.: Federal Trade Commission, Apr. 8, 2020) accessed Sept. 17, 2020, <https://www.ftc.gov/news-events/blogs/business-blog/2020/04/using-artificial-intelligence-algorithms>.

⁵⁹Federal Trade Commission, *Data Brokers*. As noted earlier in this report, data brokers can be a source of data used to create consumer scores.

assess John Doe's ability to pay his bills on time, FCRA would likely apply, because its obligations are generally triggered when consumers are denied the ability to engage in a transaction that they initiated—such as an application for a mobile telephone contract. If, however, the mobile telephone company uses a risk mitigation product only to confirm John Doe's identity—that is, to determine whether John Doe is in fact John Doe and not an identity thief—FCRA may not apply. FTC notes that despite the differing objectives, the ultimate result could be the same—John Doe cannot obtain a mobile telephone contract. In essence, he may be prevented from completing a transaction without knowing why. Consumer scores used for identity verification in this same scenario may not be covered by FCRA, and this proposed legislative solution could address their transparency issues as well. FTC staff told us that Congress has not enacted legislation implementing these recommendations.

In February 2021, the Fair Access to Credit Scores Act of 2021 bill was introduced in the House of Representatives.⁶⁰ Among other things, this bill seeks to improve the transparency of consumer scores, as some disclosure requirements under FCRA do not extend beyond credit scores. If enacted, this bill would amend FCRA to require consumer reporting agencies to disclose, upon request, as part of a consumer's free annual disclosure (1) a current credit score based on the scoring model most frequently used to generate credit scores sold to creditors, as opposed to illustrative credit scores currently permitted by FCRA, and (2) any other information in the consumer's file regarding credit scores or other risk scores or predictors, some of which may currently be exempt from disclosure.⁶¹ The bill defines a risk score as a numerical value or a categorization derived from a statistical tool or modeling system based upon information from a consumer report for the purpose of predicting the likelihood of certain behaviors or outcomes, and includes scores used for the underwriting of insurance. The bill would also require that consumer reporting agencies must maintain these scores or predictors in a consumer's file for at least 1 year after the data were generated. As of March 2022, the bill had been referred to committee but no further action had been taken.

Several states have enacted consumer privacy laws in recent years that can help to ensure that businesses use consumer scores in a fair and

⁶⁰H.R. 745, 117th Cong. (2021).

⁶¹See, e.g., 15 U.S.C. § 1681g(a)(1)(B), (f)(7).

transparent manner.⁶² For example, California, Virginia, and Colorado enacted laws that give state residents the ability to view, correct, and request deletion of personal data that businesses collect about them, which may include data used to generate consumer scores.⁶³ The laws also give residents certain rights to opt out of the sale of their personal data and, in some cases, the use of their data for profiling purposes.⁶⁴ While these laws provide some protections, they only apply to certain types of businesses and personal information. For example, the laws contain specific exemptions relating to information used to prevent fraud or other illegal activity.⁶⁵ As a result, one score creator we spoke with did not consider the laws to apply to models and scores used for such purposes. Also, while companies that operate across state lines may implement changes nationwide to address differences among state laws, they are not required to do so.

Although FTC and policymakers have tried to improve transparency, there is presently no federal law that expressly governs the creation, sale, and use of all consumer scores. The Fair Information Practice Principles, a set of internationally recognized principles for protecting the privacy and security of personal information, highlight the importance of transparency

⁶²Federal privacy laws may also provide consumers with rights to restrict the use or disclosure of personal information underlying consumer scores. However, we previously reported that gaps exist in the federal privacy framework, which relies in part on laws that are specific to certain industries—such as financial services or health care. See GAO, *Internet Privacy: Additional Federal Authority Could Enhance Consumer Protection and Provide Flexibility*, [GAO-19-52](#) (Washington, D.C.: Jan. 15, 2019).

⁶³See, e.g., California Consumer Privacy Act of 2018, Cal. Civ. Code §§ 1798.100, 1798.105, 1798.106 1798.110, Consumer Data Protection Act, Va. Code Ann. tit. 59.1, ch. 53, § 59.1-577(A), and Colorado Privacy Act, Colo. Rev. Stat. tit. 6, art. 1, pt. 13, §§ 6-1-1303, 6-1-1304, 6-1-1306(1). The laws passed in Virginia and Colorado will take effect in 2023.

⁶⁴Residents in Virginia and Colorado can opt out of the processing of their personal data for profiling in furtherance of decisions that produce legal or similarly significant effects concerning the resident. Va. Code Ann. § 59.1-577(A)(5); Colo. Rev. Stat. § 6-1-1306(1)(a)(I)(C). The laws define “profiling” as the automated processing of personal data to analyze or predict personal aspects related to an identifiable person’s economic situation, health, personal preferences, interests, reliability, behavior, location, or movements. Va. Code Ann. § 59.1-575; Col. Rev. Stat. § 6-1-1303(20).

⁶⁵See, e.g., Cal. Civ. Code § 1798.105(d)(2), Va. Code Ann. § 59.1-582, and Colo. Rev. Stat. § 6-1-1304(3)(a)(X).

for individual consumers regarding the use of their personal information.⁶⁶ These principles include standards for, among other things, (1) openness, meaning consumers should have ready means of learning about the use of personal information, and (2) individual participation, meaning consumers should have the right to access that information, request correction, and challenge the denial of those rights. Consistent with these principles, FCRA requires that consumers be notified when adverse actions are taken based on consumer reports and gives consumers the right to access and correct such information. However, because consumer scores may not always be consumer reports under FCRA, consumers may be left without the protections envisioned under these principles.

In prior work, we identified similar concerns with FCRA's limited applicability to certain uses of consumer information, such as for general marketing.⁶⁷ In particular, we found that the statutory privacy framework did not fully address changes in technology and marketplace practices that fundamentally altered the nature and extent to which personal information was being shared with third parties. We acknowledged that legislative approaches to improving privacy—both comprehensive and sector-specific—involved trade-offs and had advantages and disadvantages. We also observed that it would be challenging to provide appropriate privacy protections without unduly inhibiting the benefits to consumers, commerce, and innovation that data sharing can afford. We recommended that Congress consider strengthening the current consumer privacy framework to reflect the effects of changes in technology and the marketplace. As of March 2022, Congress had not enacted legislation to address the multiple issues we highlighted in that recommendation.

Any efforts to improve transparency or other consumer protections involving consumer scores may face similar challenges, including the vast array of data from numerous sources that feed into creating consumer scores. As FTC acknowledged about its 2014 recommendations to

⁶⁶A U.S. government advisory committee first proposed the Fair Information Practice Principles in 1973 in response to concerns about the consequences computerized data systems could have for the privacy of personal information. While they are principles as opposed to legal requirements, they provide a framework for balancing the need for privacy with other interests.

⁶⁷See [GAO-13-663](#).

Congress, it will be important to weigh the costs and benefits of more concrete legislative proposals as they are developed.

The proliferation of consumer scores in recent years and the effects they can have raise concerns not specifically addressed under the current statutory framework. If consumers do not know a score is being used or which data are being used to create it, they cannot correct inaccuracies in the data underlying a score or understand a potentially biased outcome. Without congressional consideration of whether such scores should be subject to additional consumer protections, consumers may continue to be at risk of being adversely affected by the negative consequences of these scores and may have limited options for recourse.

Conclusions

Consumer scores that predict personal behavior can have benefits for their users—for example, by helping companies target marketing and customer service resources more efficiently or helping court systems in making detention or sentencing decisions. In some cases, they may benefit consumers as well, such as by helping identify health risks or prevent fraud. But widespread use of these scores also raises concerns related to potential adverse effects, potential bias, and a lack of transparency. Further, scores can be based on hundreds or thousands of pieces of personal information, some of which may be inaccurate. Federal law does not currently ensure that consumers have the right to access, control, and correct information used to create all of these scores. While some studies show consumer scores may result in biased outcomes, some scores may fall outside the scope of federal nondiscrimination laws. By expanding protections associated with consumer scores, Congress could help consumers to better understand how these scores affect them and to avoid negative consequences related to bias, inaccurate information, and other risks.

Matter for Congressional Consideration

Congress should consider determining and implementing appropriate consumer protections for consumer scores beyond those currently afforded under existing federal laws. Among the issues that should be considered are the rights of consumers to view and correct data used in the creation of scores and to be informed of scores' uses and potential effects. (Matter for Consideration 1)

Agency Comments and Third-Party Views

We provided a draft of this report to FTC and CFPB for review and comment. We also provided relevant excerpts to the National Association of Insurance Commissioners for review and comment. FTC and CFPB provided technical comments, which we incorporated as appropriate.

We are sending copies of this report to the appropriate congressional committees, the Chair of FTC, the Director of CFPB, the Chief Executive Officer of the National Association of Insurance Commissioners, and other interested parties. In addition, this report will be available at no charge on GAO's website at <https://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-8678 or cackleya@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix II.

Sincerely yours,

A handwritten signature in black ink that reads "Alicia Puente Cackley". The signature is written in a cursive, flowing style.

Alicia Puente Cackley
Director, Financial Markets and Community Investment

Appendix I: Objectives, Scope, and Methodology

The objectives of this report were to examine (1) how consumer scores are used; (2) the potential risks to consumers; and (3) federal consumer protection laws that govern consumer scores. We focused our review on selected types of scores whose use may, in some cases, fall outside provisions of the Fair Credit Reporting Act (FCRA).¹ We also focused on consumer scores created by third parties, rather than scores created by organizations for their own use. As organizations may not always disclose the use of consumer scores, the universe of scores is unknown. Therefore, we focused primarily on scores publically marketed to businesses and others by their creators.

For all three objectives, we reviewed laws, regulations, and other authoritative sources relevant to consumer scoring. We reviewed documents from the Federal Trade Commission (FTC) and the Consumer Financial Protection Bureau (CFPB). We also reviewed literature, including past GAO reports, on consumer scoring and the use of alternative data—any consumer information not traditionally used when calculating a credit score, such as educational background.² We also interviewed officials from FTC, CFPB, and the National Association of Insurance Commissioners. We interviewed industry associations that represent entities that create or use consumer scores: the American Association of Collegiate Registrars and Admissions Officers, the American Hospital Association, the Association of American Medical Colleges, the Consumer Data Industry Association, and the Software and Information Industry Association. In addition, we interviewed the following consumer and technology advocacy groups: the Center for Democracy and Technology, the Center for Digital Democracy, the Center for Economic Justice, the Consumer Education Foundation, Consumer Reports, the National Consumer Law Center, the U.S. Public Interest Research Group, Upturn, and World Privacy Forum. We also interviewed

¹The inclusion of scores within the scope of this review is for illustrative purposes only and does not reflect a determination regarding the applicability of FCRA to any particular score or type of score. As discussed earlier in this report, FCRA's applicability ultimately depends on specific facts and circumstances.

²See GAO, *Artificial Intelligence: An Accountability Framework for Federal Agencies and Other Entities*, [GAO-21-519SP](#) (Washington, D.C.: June 30, 2021); *Technology Assessment: Artificial Intelligence: Emerging Opportunities, Challenges, and Implications*, [GAO-18-142SP](#) (Washington, D.C.: Mar. 28, 2018); *Internet of Things: Status and Implications of an Increasingly Connected World*, [GAO-17-75](#) (Washington, D.C.: May 15, 2017); *Identity Theft Services: Services Offer Some Benefits but Are Limited in Preventing Fraud*, [GAO-17-254](#) (Washington, D.C.: Mar. 30, 2017); and *Information Resellers: Consumer Privacy Framework Needs to Reflect Changes in Technology and the Marketplace*, [GAO-13-663](#) (Washington, D.C.: Sept. 25, 2013).

one academic with expertise in the law of artificial intelligence and algorithms.

In addition, we interviewed representatives of four individual companies that develop and sell consumer scoring products, and we reviewed publicly available information about products offered by each company. We selected these companies based on suggestions during interviews with the entities cited above and a review of relevant literature.

To describe how consumer scores are used, we reviewed literature, interviewed industry experts, and reviewed information on public websites for consumer score products. Our review of scoring products excluded scores that were described on product websites as being subject to FCRA, scores we identified as being based on baseline credit data, and, in some cases, scores that appeared to be for use in making eligibility determinations about such things as credit, insurance, employment and housing.³

To provide examples of consumer scores and their benefits, we developed a structured data collection instrument that included questions related to score use, methodology, potential benefits, potential consumer protections identified on a score creator's website, and other topics. After compiling a list of score creators from our interviews with industry experts and a review of relevant literature, we reviewed those score creators' websites to identify scores that we then could review using our structured instrument. After identifying these scores, team members conducted independent reviews of the websites for the identified scores and removed any that were outside of the scope of our review.

As noted in our report, the full range of consumer scores and their uses is unknown. As a result, we could not identify all consumer score products and, therefore, the results of this analysis only reflect the products that we identified and further sampled for a deeper review. For that review, we identified and reviewed publicly available information on 49 consumer scores. We selected a nongeneralizable sample of four or more products per use category, including a variety of companies and methodologies. We also selected three products that did not fall into the use categories that we identified.

³Baseline credit data are data typically reported to credit reporting agencies regardless of whether they are positive or negative.

To identify risks consumer scores may present to consumers, we reviewed studies from peer-reviewed journals and articles from law reviews on consumer scores and their potential risks. To identify the studies, we searched databases including JSTOR, Scopus, and ProQuest; conducted web searches; and identified new articles or reports cited in studies we had already found on the topic. For some of the studies we cite in the report, we performed an initial in-depth review of the findings and methods, and then a GAO methodologist or economist performed a secondary review and confirmed our reported analysis of the finding. We also reviewed related FTC reports, prior GAO reports, and reports published by consumer advocates, technology policy organizations, academics, and others on potential risks of consumer scores or methods used to create scores, including big data and artificial intelligence.

To examine the extent to which federal consumer protection laws govern consumer scores, we reviewed relevant federal laws and regulations to evaluate their potential applicability to consumer scores. We also reviewed documentation of relevant regulatory and enforcement actions, relevant case law, and articles in law journals and other academic literature. We also reviewed the score uses we identified to discuss, in general terms, the extent to which they may be subject to the laws and regulations we identified, including FCRA. However, the ultimate determination of whether any particular use falls under these laws and regulations is dependent on the specific facts and circumstances. In addition, we compared the federal consumer protections we identified for consumers scores against the Fair Information Practice Principles, which are a set of internationally developed principles for protecting the privacy and security of personal information.

We conducted this performance audit from August 2020 to May 2022 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: GAO Contact and Staff Acknowledgments

GAO Contact

Alicia Puente Cackley, (202) 512-8678 or cackleya@gao.gov

Staff Acknowledgments

In addition to the contact named above, Pat Ward (Assistant Director), Deena Richart (Analyst in Charge), Taka Ariga, Namita Bhatia-Sabharwal, Rachel DeMarcus, Melissa Kornblau, Jill Lacey, Kirsten Noethen, Zamir Ruli, Jennifer Schwartz, and Jena Sinkfield made key contributions to this report.

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