



August 2018

CONSUMER PROTECTION

Gender-Related Price Differences for Goods and Services

Accessible Version

GAO Highlights

Highlights of [GAO-18-500](#), a report to congressional requesters

Why GAO Did This Study

Gender-related price differences occur when consumers are charged different prices for the same or similar goods and services because of factors related to gender. While variation in costs and consumer demand may give rise to such price differences, some policymakers have raised concerns that gender bias may also be a factor. While the Equal Credit Opportunity Act and Fair Housing Act prohibit discrimination based on sex in credit and housing transactions, no federal law prohibits businesses from charging consumers different prices for the same or similar goods targeted to different genders.

GAO was asked to review gender-related price differences for consumer goods and services sold in the United States. This report examines, among other things, (1) how prices compared for selected goods and services marketed to men and women, and potential reasons for any price differences; (2) what is known about price differences for men and women for products not differentiated by gender, such as mortgages; and (3) the extent to which federal agencies have identified and addressed any concerns about gender-related price differences.

To examine these issues, GAO analyzed retail price data, reviewed relevant academic studies, analyzed federal consumer complaint data, and interviewed federal agency officials, industry experts, and academics.

View [GAO-18-500](#). For more information, contact Alicia Puente Cackley at (202) 512-8678 or cackleya@gao.gov.

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Gender-Related Price Differences for Goods and Services

What GAO Found

Firms differentiate many consumer products to appeal separately to men and women by slightly altering product attributes like color or scent. Products differentiated by gender may sell for different prices if men and women have different demands or willingness to pay for these product attributes. Of 10 personal care product categories (e.g., deodorants and shaving products) that GAO analyzed, average retail prices paid were significantly higher for women's products than for men's in 5 categories. In 2 categories—shaving gel and nondisposable razors—men's versions sold at a significantly higher price. One category—razor blades—had mixed results based on two price measures analyzed, and two others—disposable razors and mass-market perfumes—showed no significant gender price differences. GAO found that the target gender for a product is a significant factor contributing to price differences identified, but GAO did not have sufficient information to determine the extent to which these gender-related price differences were due to gender bias as opposed to other factors, such as different advertising costs. Though the analysis controlled for several observable product attributes, such as product size and packaging type, all underlying differences in costs and demand for products targeted to different genders could not be fully observed.

Studies GAO reviewed found limited evidence of gender price differences for four products or services not differentiated by gender—mortgages, small business credit, auto purchases, and auto repairs. For example, with regard to mortgages, women as a group paid higher average mortgage rates than men, in part due to weaker credit characteristics, such as lower average income. However, after controlling for borrower credit characteristics and other factors, three studies did not find statistically significant differences in borrowing costs between men and women, while one found women paid higher rates for certain subprime loans. In addition, one study found that female borrowers defaulted less frequently than male borrowers with similar credit characteristics, and the study suggested that women may pay higher mortgage rates than men relative to their default risk. While these studies controlled for factors other than gender that could affect borrowing costs, several lacked important data on certain borrower risk characteristics, such as credit scores, which could affect analysis of gender disparities. Also, several studies analyzed small samples of subprime loans that were originated in 2005 or earlier, which limits the generalizability of the results.

In their oversight of federal antidiscrimination statutes, the Bureau of Consumer Financial Protection, Federal Trade Commission, and Department of Housing and Urban Development have identified limited consumer concerns based on gender-related pricing differences. GAO's analysis of complaint data received by the three agencies from 2012–2017 found that they had received limited consumer complaints about gender-related price differences. The agencies provide general consumer education resources on discrimination and consumer awareness. However, given the limited consumer concern, they have not identified a need to incorporate additional materials specific to gender-related price differences into their existing consumer education resources.

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Abbreviations

APR	annual percentage rate
BCFP	Bureau of Consumer Financial Protection
DOJ	Department of Justice
ECOA	Equal Credit Opportunity Act
FDIC	Federal Deposit Insurance Corporation
Federal Reserve	Board of Governors of the Federal Reserve System
FHA	Fair Housing Act
FTC	Federal Trade Commission
HMDA	Home Mortgage Disclosure Act of 1975
HUD	Department of Housing and Urban Development
Nielsen	Nielsen Company
SCF	Survey of Consumer Finances
SSBF	Survey of Small Business Finances

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August 9, 2018

The Honorable Robert P. Casey, Jr.
United States Senate

The Honorable Carolyn B. Maloney
Ranking Member
Joint Economic Committee
House of Representatives

Gender-related price differences can occur when manufacturers differentiate their products to appeal separately to female and male consumers, such as with clothing, personal care products, toys, and other consumer goods. In addition, businesses may offer different prices to female and male consumers for services, such as dry cleaning or haircuts, to account for different costs, different consumer preferences, or other factors associated with providing services to different genders. While manufacturing, marketing, or other cost differences may contribute to gender-related price differences, some policymakers have raised concerns that gender bias may play a role.¹ Moreover, if female and male consumers pay different prices for similar products that they purchase frequently, such as personal care products, this could result in substantial differences in expenditures by gender over time. A consumer's annual spending on a product category can be significant, even when prices for products within that category are low.²

You asked us to review gender-related price differences for goods and services sold in the U.S. marketplace. This report examines (1) how prices compared for selected categories of consumer goods that are

¹For example, one U.S. state and some local governments have enacted laws intended to address perceived gender bias in the offering of services such as haircuts or dry cleaning, as discussed later in this report. One of these local governments examined differences in advertised prices for men's and women's products. See New York City Department of Consumer Affairs, *From Cradle to Cane: The Cost of Being a Female Consumer, A Study of Gender Pricing in New York City* (New York City, N.Y.: December 2015).

²For example, U.S. household spending on personal care products and services averaged more than \$700 annually in 2016. See Bureau of Labor Statistics, *Consumer Expenditure Survey* (Washington, D.C.: 2017). Personal care products and services include products for the hair, oral hygiene products, shaving needs, cosmetics and bath products, electric personal care appliances, and other products and services.

differentiated for men and women, and potential reasons for any significant price differences; (2) what is known about the extent to which men and women may pay different prices in, or experience different levels of access to, markets for credit and goods and services that are not differentiated based on gender; (3) the extent to which federal agencies have identified and taken steps to address any concerns about gender-related price differences; and (4) state and local government efforts to address concerns about gender-related price differences.³

To address our first objective, we purchased and analyzed Nielsen Company (Nielsen) data on retail prices paid for 10 personal care product categories for calendar year 2016.⁴ The product categories included underarm deodorants, body deodorants, disposable razors, nondisposable razors, razor blades, shaving creams, shaving gels, and three categories of fragrances. We selected these categories because they are commonly-purchased consumer goods that were categorized by gender in the Nielsen data. The women's and men's versions of personal care products we selected are generally more similar in terms of the form, size, and packaging in comparison to certain other consumer product categories that are also differentiated by gender, such as clothing. We used regression models to analyze data on retail prices paid for 10 categories of personal care products differentiated for men and women. We assessed the reliability of the Nielsen data by reviewing relevant documentation and conducting interviews with Nielsen representatives to review steps they took to collect and ensure the reliability of the data. In addition, we electronically tested data fields for missing values, outliers, and obvious errors. We determined that these data were sufficiently reliable for our purposes. For more details on the methodology for, and limitations of, our analysis of these retail price data, see appendix I.

We also manually collected listed prices for 16 pairs of selected personal care products from four different retailer websites over two 7-day periods

³Our first objective examines price differences for products that are commonly differentiated to appeal either to men or women. It examines the products themselves and not the gender of the consumer actually purchasing them.

⁴In addition to the retail price paid, the data we purchased from Nielsen include data fields for product brand, package size, package design, product scent, and product color, among other product characteristics. Nielsen collected these retail price data from over 200 national retailers, including grocery stores, pharmacies, mass merchandizers, and club stores. According to Nielsen, together these retailers encompass 82 percent of all U.S. sales for 2016. The prices were collected from participating retailers when an item was scanned at the cash register during check out.

in January and March 2018. We selected comparable pairs of similar men's and women's products that were differentiated by product attributes, such as scent or color, and were commonly sold across retailers. We included product pairs from similar categories used in our analysis of the Nielsen data. For more details on our online price data collection and the limitations associated with interpreting the results, see appendix II.

To address our second objective, we identified and reviewed studies that examined differences between the prices men and women paid for, or their access to, consumer services and goods that are not differentiated by gender—specifically interest rates, pricing, or access for mortgages or other loan types while controlling for the effects of factors other than gender or sex. We also identified and reviewed three studies on differences in price for autos and auto repair services. We found the studies we reviewed to be reliable for purposes of determining what is known about price differences for the same products, though several studies analyzed nonrepresentative data samples, such as subprime mortgage loans, and thus the results are not generalizable.

For our third objective, we reviewed relevant federal antidiscrimination statutes and agency documentation related to oversight and enforcement of these statutes. To learn about the potential extent of consumer concerns about price differences that could be based solely on gender or sex, we analyzed federal data on consumer complaints and investigations. We selected a random sample of gender-related consumer complaints from three databases managed by the Bureau of Consumer Financial Protection (BCFP), the Federal Trade Commission (FTC), and the Department of Housing and Urban Development (HUD), respectively, and counted the number of complaints alleging a perceived gender-related price difference.⁵ We assessed the reliability of these data by reviewing documentation and interviewing agency officials about these databases. We determined that these data were sufficiently reliable for our purposes of identifying complaints of gender-related price differences. In addition, we interviewed agency officials from BCFP, FTC, HUD, and the Department of Justice (DOJ), as well as industry experts and academics, on gender-related price differences.

⁵In the years following its creation, BCFP has referred to itself and been commonly known as the Consumer Financial Protection Bureau, or CFPB. According to BCFP officials, BCFP is in the process of discontinuing use of that name and acronym.

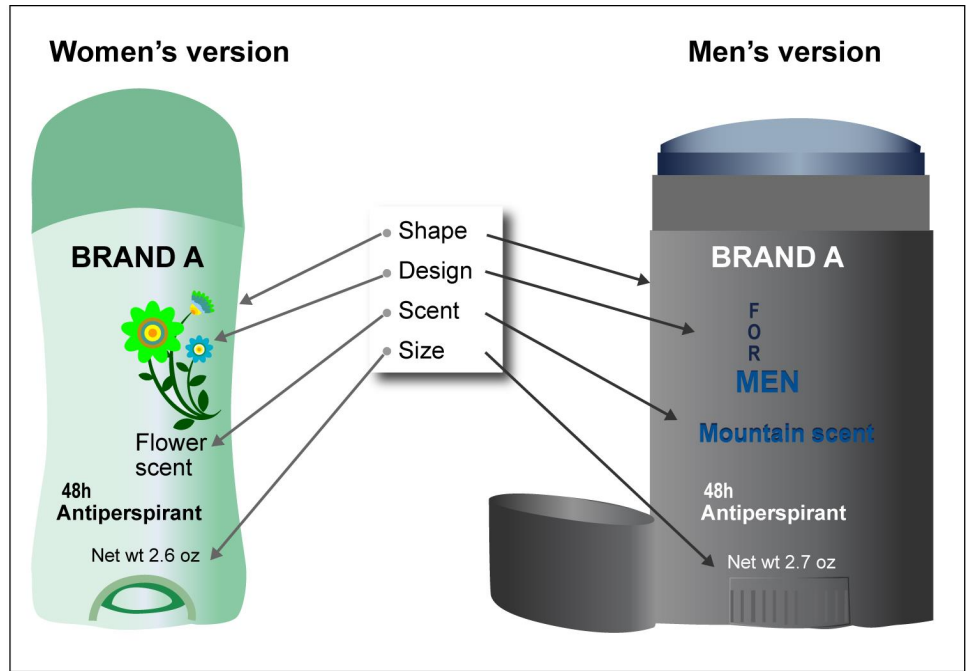
To address our fourth objective, we identified and reviewed three examples of state and local laws that specifically address gender-related price differences. We also interviewed officials from the state and localities that had enacted these laws. See appendix III for more information on our scope and methodology.

We conducted this performance audit from October 2016 to August 2018 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

Many consumer products—such as deodorants, shaving products, and hair care products—are differentiated to appeal specifically to men or women through differences in packaging, scent, or other product characteristics (see fig. 1). These differences related to gender can affect manufacturing and marketing costs that may contribute to price differences in products targeted to different genders.

Figure 1: Illustrative Example of Similar Products Differentiated to Appeal to Men and Women



Source: GAO analysis. | GAO-18-500

However, firms may also charge consumers different prices for the same (or very similar) goods and services even when there are no differences in costs to produce.⁶ To maximize profits, firms use a variety of techniques to charge prices close to the highest price different consumers are willing to pay.⁷ Firms may attempt to get segments of the consumer market to pay a higher price than another segment by slightly altering or differentiating the product. Based on the differentiated products, consumers self-select into different groups according to their preferences and what they are willing to pay.⁸ For example, some consumer goods

⁶The practice of charging consumers different prices, when the differences in price are not completely attributable to differences in cost, is often referred to as “price discrimination” by economists. For the purposes of our report we refer to this practice as price differentiation, so as not to confuse this term with statutorily prohibited discrimination based on sex.

⁷In theory, firms would like to charge each customer the maximum amount that customer is willing and able to pay. This is known in economics as first degree price discrimination, and it occurs when a different price is charged to each consumer.

⁸Economists refer to this as second degree price discrimination.

have different versions of what is essentially the same product—except for differences in packaging or features, such as scent—with one version intended for women and another version intended for men. The two products may be priced differently because the firm expects that one gender will be willing to pay more for the product than the other based on preference for certain product attributes.

Firms may also use some group characteristic, such as age or gender, to charge different prices because some groups may have differences in willingness or ability to pay.⁹ For example, a firm may offer discounted movie tickets to students or seniors, as they may have less disposable income. For the seller the cost of providing the movie is the same for any customer, but the seller is able to maximize its profits by offering tickets to different groups of customers at different prices. A firm's ability to differentiate prices depends on multiple factors, such as the firm's market power (so that competitors cannot put downward pressure on prices to eliminate the price differences), the presence of consumer segments with different demands and willingness to pay, and control over the sale of its product so it cannot be easily resold to exploit price differences.¹⁰

In addition, the extent to which consumers pay different prices for the same or similar goods can depend on other factors, such as consumers':

- willingness to purchase an item they believe may be priced higher for one gender,
- ability to compare prices and product characteristics and choose a product based on its characteristics rather than its price,
- choices about whether to purchase a more expensive version of the product (e.g., a branded item versus a cheaper store brand),
- choices about where to purchase the item (i.e., when different retailers sell the same item at different prices), and
- use of coupons or promotions.

⁹Economists refer to this as third degree, or group-based, price discrimination.

¹⁰One condition for a firm to be able to implement a strategy of price differentiation is that it must be able to segment consumers such that one segment of consumers is not able to buy a product at a lower price and resell at a higher price, or is not able to purchase the product that is meant for the other group. This is referred to as "arbitrage" in economic literature.

No federal law expressly prohibits businesses from charging different prices for the same or similar consumer goods and services targeted to men and women.¹¹ However, consumer protection laws do prohibit sex discrimination in credit and real estate transactions. Specifically, the Equal Credit Opportunity Act (ECOA) prohibits creditors from discriminating against credit applicants based on sex or certain other characteristics and the Fair Housing Act (FHA) prohibits discrimination in the housing market on the basis of sex or certain other characteristics.¹²

ECOA and FHA (collectively known as the fair lending laws) prohibit lenders from, among other things, refusing to extend credit or using different standards in determining to extend credit based on sex.¹³ Credit, such as a credit card account or mortgage loan, is generally made available and priced based on a number of risk factors, including credit score, income, and employment history. A borrower with a lower credit score is likely to pay a higher interest rate on a loan, reflecting the greater

¹¹The Robinson-Patman Act, Pub. L. No. 74-692, 49 Stat. 1526 (1936), prohibits price discrimination by producers in the sale of goods to distributors when the effect of such pricing is to reduce competition and also prohibits certain discriminatory allowances or services furnished or paid to customers. Because this report focuses on gender-based price differences, the actions prohibited by the act are outside our scope. Section 5 of the Federal Trade Commission Act prohibits unfair methods of competition and unfair or deceptive acts or practices in or affecting commerce. See 15 U.S.C. § 45(a)(1). According to an FTC official, a company may violate this section if it misrepresents its practices or if those practices cause or are likely to cause substantial consumer injury that is not reasonably avoidable by consumers or outweighed by benefits to consumers or competition.

¹²In addition to prohibiting discrimination based on sex, ECOA prohibits discrimination in the credit market on the basis of race, color, religion, national origin, marital status, or age. See 15 U.S.C. § 1691(a)(1). The statute and its implementing regulation, Regulation B, also prohibit discrimination against an applicant because that applicant receives income from a public assistance program, or because an applicant has in good faith exercised any right under the Consumer Credit Protection Act or any state law upon which an exemption has been granted by BCFP. See 15 U.S.C. § 1691(a)(2)-(3) and 12 C.F.R. § 1002.2(z). In addition to prohibiting discrimination based on sex, FHA prohibits discrimination in the housing market based on race, color, religion, handicap, familial status, or national origin. See 42 U.S.C. § 3604.

¹³15 U.S.C. § 1691(a)(1); 42 U.S.C. § 3605(a). Lenders in the housing market are also prohibited from varying the terms of credit offered, including the amount, interest rate, duration, or type of loan based on sex or certain other characteristics. See 24 C.F.R. § 100.130.

risk to the lender that the borrower could default on the loan.¹⁴ In addition to the interest rate, borrowing costs for consumers can also include fees and other costs charged by lenders or brokers.¹⁵ However, there may be differences in average outcomes for men and women—such as for availability of credit or interest rates—if there are differences related to gender in the factors that determine creditworthiness, such as income.

BCFP, FTC, the federal prudential regulators, and DOJ have the authority to investigate alleged violations of ECOA and are primarily responsible for enforcing the act's requirements, while HUD and DOJ share responsibility for enforcing the provisions of FHA.¹⁶ Further, BCFP and the prudential regulators oversee regulated entities for compliance with ECOA by, among other things, collecting complaints from the public and through routine inspections of the financial institutions they oversee. HUD and DOJ have the authority to bring enforcement actions for alleged violations of FHA.

¹⁴A credit score predicts how likely a borrower is to pay back a loan on time. Credit reporting agencies use a mathematical scoring model with information from a person's credit report to create a credit score. Factors that make up a typical credit score include bill-paying history, current outstanding debt, and the number and type of loan accounts a person has. Lenders use credit scores to make decisions such as whether to offer you a mortgage, credit card, auto loan, or other credit product, and on what terms.

¹⁵The Truth in Lending Act and its implementing Regulation Z require that, for certain credit transactions, borrowers receive written disclosures about important terms relating to the costs of credit, which includes an annual percentage rate (APR) that reflects, among other things, the interest rate charged. See 12 C.F.R. pt. 1026.

¹⁶The other agencies responsible for enforcing ECOA include the Board of Governors of Federal Reserve System (Federal Reserve), the Federal Deposit Insurance Corporation (FDIC), the Office of the Comptroller of the Currency, the National Credit Union Administration, the Farm Credit Administration, the Department of Transportation, the Securities and Exchange Commission, the Small Business Administration, and the Grain Inspection, Packers, and Stockyards Administration of the Department of Agriculture. See 15 U.S.C. § 1691c.

Prices Differed Significantly for Selected Men’s and Women’s Personal Care Products, but We Could Not Attribute the Differences to Bias as Opposed to Other Factors

In 5 out of 10 product categories we analyzed, personal care products targeted to women sold at higher average prices than those targeted to men after controlling for certain observable factors.¹⁷ For 2 of the 10 product categories, men’s versions sold at higher average prices. While the factors we controlled for likely proxy for various costs and consumer preferences, we could not fully observe all underlying differences in costs and demand for products targeted to different genders. As a result, we could not determine the extent to which the gender-based price differences we observed may be attributed to gender bias as opposed to other factors.

For 5 of 10 Product Categories Analyzed, Women’s Products Sold at Higher Average Prices Than Men’s after Controlling for Some Observable Factors

Women’s versions of personal care products sold at a statistically significant higher average price than men’s versions for 5 of the 10 personal care product categories we analyzed—using two different price measures and after controlling for observable factors that could affect price, such as brands, product size or quantity, promotional expenses (see table 1) and other product-specific attributes (e.g., scent, special claims, form).¹⁸ Because women’s and men’s versions of the same

¹⁷Throughout this report section, we refer to products targeted to men and women, but we could not observe the gender of the consumers who actually bought the products in the dataset. Instead, we could only observe the target gender for the product based on Nielsen’s categorization of the product as a men’s or women’s product. In other words, our analysis compares the prices at which products targeted to men or women were sold. We could not determine the extent to which men or women bought products designed for a different gender (e.g., a woman choosing to buy a deodorant targeted to men) or buy on behalf of another gender (e.g., buying for a spouse of the opposite gender).

¹⁸We used regression models to analyze data on retail prices paid for 10 categories of personal care products differentiated for women and men and determined the significance of price differences at 5 percent or lower level. For more information on our regression analysis, see appendix I.

product were frequently sold in different sizes, we compared prices using two price measures: average item price and average price per ounce or count of product.¹⁹ For 2 of the 10 product categories—shaving gel and nondisposable razors—men’s versions sold at a statistically significant higher price using both price measures. For one category (razor blades), women’s versions sold at a statistically significant higher average price per count, but there was no gender price difference using average item prices. Additionally, for two product categories—disposable razors and mass-market perfumes—there were no statistically significant price differences between men’s and women’s products using either price measure.

¹⁹The average item price is the total dollar sales for a product category divided by the total number of items sold for that category. This measure of price automatically incorporates all prices, including sale prices and other discounts, and is mathematically equivalent to the weighted average of all individual item prices, where the weights are each item’s proportional share of the total volume sales. The average price per ounce or count is the item price divided by the quantity of product and weighted by the proportional share of items sold, where quantity or size depicts the number of ounces as in the case of fragrances or the count of blades in razor blade packs. Sizes for women’s products were generally smaller than for similar men’s products. For information about how these two price measures compared for women’s and men’s products—without controlling for other observable factors that may also affect price—see appendix IV.

Table 1: Comparison of Average Prices Paid for Men’s and Women’s Personal Care Products After Controlling for Observable Product Characteristics

Product	Higher average item price for products targeted to ^a	Higher average price per ounce or count for products targeted to ^a
Underarm deodorants	Women	Women
Body deodorants	Women	Women
Shaving cream	Women	Women
Shaving gel	Men	Men
Disposable razors	No difference	No difference
Nondisposable razors	Men	Men
Razor blades	No difference	Women
Designer perfume	Women	Women
Mass-market perfume	No difference	No difference
Mass-market body sprays	Women	Women

Source: GAO analysis of Nielsen Company data. | GAO-18-500

Notes:

1. We selected these categories of personal care products because they are commonly-purchased consumer goods that were categorized by gender in the Nielsen Company’s data. Our analysis is limited to the set of personal care products that we analyzed. Our findings are not generalizable or applicable to other consumer goods. The average item price is the total dollar sales for a product category divided by the total number of items sold for that category. The average price per ounce or count is the item price divided by the quantity of product and weighted by the item’s proportional share of total volume sales, where quantity depicts the number of ounces as in the case of fragrances or the count of blades in razor blade packs.
2. All price comparisons are for similar products after controlling for size, promotional activity, owner brands, product packaging features, and other product attributes.

^aStatistically significant at the 95 percent level.

In addition to this analysis of retail price scanner data, we also manually collected advertised online prices for a limited selection of personal care products targeted to women and men from several online retailers.²⁰

Some price comparisons of advertised online prices for men’s and women’s versions of a product were similar to comparisons of average prices paid based on the Nielsen retail price scanner data. For example, for three pairs of comparable underarm deodorants, the women’s

²⁰We collected prices for 16 pairs of selected personal care products sold on 4 selected websites for 7 consecutive days in January 2018 and again in March 2018. Generally, we selected pairs of products that had the same brand, packaging type, and other characteristics but were marketed to appeal separately to female and male consumers. We collected the online price data and Nielsen retail price data during different periods of time. Market shifts in demand or other factors that may change over time could account for differences between the online price data and Nielsen retail price data. See appendix II for further details.

deodorant was listed at a higher price per ounce on average than the men's deodorant (see app. II).²¹ In addition, for one pair of shaving gel products we analyzed, the men's shaving gel was listed at a higher price per ounce on average. However, for both pairs of nondisposable razors we analyzed, the women's razors were listed at a higher average price per count than the men's razors. This contrasted with the Nielsen data showing that men's nondisposable razors sold at higher prices on average than women's. An important limitation of our analysis of these advertised prices is that we were unable to determine the extent to which consumers actually paid these prices and in what volume the products were sold, and our results are not generalizable to the broader universe of prices for these products sold at other times or by other online retailers.

We Could Not Determine the Extent to Which Price Differences May Be Due to Market Factors as Opposed to Gender Bias

Though we found that the target gender for a product is a significant factor contributing to price differences we identified, we do not have sufficient information to determine the extent to which these gender-related price differences were due to gender bias as opposed to other factors. Versions differentiated to appeal to men and women can result in different costs for the manufacturer. Our econometric analysis controlled for many observable factors related to costs, such as product size, promotional activity, and packaging type. We also controlled for many product attributes such as forms, scents, and special claims that products make to account for underlying manufacturing cost differences.²² In addition, we controlled for brands, which can reflect consumer preferences. However, we do not have firm-level data on all cost differences—for example, those related to advertising and packaging. As a result, we could not determine the extent to which the price differences we observed may be explained by remaining cost differences between men's and women's products.

²¹For one comparison pair of underarm deodorants, the men's and women's version were listed at the same price or close to the same price on average.

²²Some academic experts and industry representatives we spoke with suggested that cost differences for some product attributes that firms use to differentiate products, such as scent and colors, may have negligible manufacturing cost differences.

We also do not have the data to determine the extent to which men and women have different demands and willingness to pay for a product, which would be expected to affect the prices firms charge for differentiated products. For example, some academic experts we spoke with said that women may value some product attributes, such as design and scent, more than men do. If products differentiated to incorporate those attributes do not result in different costs, then differences in prices could be part of a firm's pricing strategy based on the willingness of one gender to pay more than another.

The conditions necessary for firms to be able to implement a strategy of price differentiation likely exist for the personal care products we analyzed.²³ First, our analysis suggests that due to industry concentration, there is limited market competition for the 10 personal care products we analyzed. With more market power, firms can more easily set different prices for different consumer segments. Second, firms have the ability to segment the market for personal care products by tailoring product characteristics related to gender, such as by labeling the product as women's deodorant or men's deodorant, or by altering scent or colors. Third, while men and women are able to freely purchase a product targeted to the opposite gender, certain factors may limit the extent to which this occurs.²⁴ For example, some product differences such as scents may discourage one gender from buying products targeted to another gender.²⁵ In addition, consumers may find it difficult and time-consuming to compare prices for similar men's and women's products because of the ways they are differentiated (such as product size and scents) and because they may be sold in different parts of a store.

²³As mentioned previously, the extent to which firms are able to implement a strategy of price differentiation depends on the extent of the firm's market power, whether the firm can easily segment the market, and whether the firm has some control over the sale of its product.

²⁴In other words, an opportunity to exploit price differences by reselling lower-priced products at a higher price exists, but certain factors limit this opportunity.

²⁵Some research suggests social conditioning and expectations can affect women's willingness to purchase products targeted to men. See Megan Duesterhas, Liz Grauerholz, Rebecca Weichsel, and Nicholas A. Guittar, "The Cost of Doing Femininity: Gendered Disparities in Pricing of Personal Care Products and Services," *Gender Issues*, vol. 28 (2011), 175-191.

Studies We Reviewed Found Limited Evidence of Price Differences for Men and Women for Mortgages, Small Business Credit, and Auto Purchases

We reviewed studies that compared prices for men and women in four markets where the product or service is not differentiated by gender: mortgages, small business credit, auto purchases, and auto repairs.²⁶ First, we reviewed studies on mortgage and small business credit that analyzed interest rates and access to credit to identify any differences for men and women. Second, we reviewed studies that compared prices quoted to men and women in auto purchase and repair markets. However, several of these studies have important limitations, such as using nonrepresentative data samples, and the results are not generalizable.

Studies on Mortgages Found Mixed Evidence of Disparities in Borrowing Costs between Men and Women

Studies we reviewed found that women as a group pay higher interest rates on average than men in part due to weaker credit characteristics. After controlling for borrower credit characteristics and other factors, three studies did not find statistically significant differences in interest rates between men and women for the same type of mortgage, while one study found that women paid higher mortgage rates for certain subprime loans. In addition, one study found that female borrowers defaulted less frequently on their loans than male borrowers with similar credit characteristics, suggesting that women as a group may pay higher mortgage rates than men relative to their default risk. While these studies attempted to control for factors other than gender or sex that could affect borrowing costs, several lacked important data on certain borrower risk characteristics. For example, several studies we reviewed rely on Home Mortgage Disclosure Act of 1975 (HMDA) data, which did not include data

²⁶Transactions for these products and services generally can involve some negotiation between buyers and sellers. Some experts and academics, as well as agency officials with whom we spoke, have noted that disparate treatment based on gender can take place in transactions involving negotiations, in part, because buyers may not know the price other consumers have paid for a product or service.

on risk factors such as borrower credit scores that could affect analysis of disparities between men and women.²⁷ Also, several studies analyzed nonrepresentative samples of loans, such as subprime loans or loans originated more than 10 years ago, which limits the generalizability of the results (see table 2).

Table 2: Summary of Selected Studies on the Effect of Gender or Sex on Mortgage Borrowing Costs

Study authors	Data sources	Scope of data analyzed	Identified effects of gender or sex on borrowing costs	Example of data limitations
Cheng, Lin, and Liu (2011)	Survey of Consumer Finances, 2004	Sample of 1,511 loans originated between 2000 and 2004	No significant effect of gender or sex on mortgage loan interest rates	Did not control for credit score and debt-to-income ratio
Goodman, Zhu, and Bai (2016)	Home Mortgage Disclosure Act (HMDA), 2004-2014; CoreLogic, 2004-2014	All loans matched between datasets originated between 2004 and 2014	Women default less than men with similar credit characteristics	HMDA and CoreLogic data track loans by different geographic measures, requiring some estimation to match loans between datasets
Haughwout et al. (2009)	HMDA, 2005; First American LoanPerformance, 2005	Sample of adjustable rate subprime loans originated in 2005	No significant effect of gender or sex on mortgage loan interest rates	Did not control for any fees paid at loan origination
Van Rensselaer et al. (2014)	Mortgage data from one large subprime lending company, 1997-2007	Random sample of 30-year fixed rate subprime loans originated between 2003 and 2005	Women had significantly higher borrowing costs compared to men	Did not control for education level and shopping behavior
Wyly and Ponder (2011)	HMDA, 2006; National Mortgage Data Repository, 1994-2008	619 subprime loans originated between 1994 and 2008	No significant effect of gender or sex on mortgage loan interest rates	Did not control for credit score

²⁷We previously identified limitations of HMDA data, such as a lack of information on the credit risks of mortgage borrowers, which could affect the ability of agencies and regulators to identify discrimination violations of fair lending laws. See GAO, *Fair Lending: Data Limitations and the Fragmented U.S. Financial Regulatory Structure Challenge Federal Oversight and Enforcement Efforts* GAO-09-704 (Washington, D.C.: July 15, 2009). Effective January 1, 2018, some financial institutions are required to report additional data points, including borrower credit scores, for certain credit transactions covered by HMDA. See 12 C.F.R. pt. 1003. In addition, some research suggests that controlling for certain variables not related to gender may be inappropriate if those variables themselves may reflect outcomes related to gender discrimination. For example, see Ian Ayres, "Testing for Discrimination and the Problem of 'Included Variable Bias,'" unpublished working paper, Yale Law School (2010), accessed on June 4, 2018, at <https://ianayres.yale.edu/sites/default/files/files/Testing%20for%20Discrimination.pdf>.

Source: GAO analysis of selected studies that evaluate the effects of gender on mortgage borrowing costs. | GAO-18-500

Three of the studies we reviewed found that while women on average were charged higher interest rates on mortgage loans than men, this difference was not statistically significant after controlling for other factors. For example, one study found that differences in mortgage interest rates between men and women became insignificant after controlling for differences in how men and women shop for mortgage rates.²⁸ The authors used data from the 2004 Survey of Consumer Finances (SCF) to analyze the effect on interest rates of mortgage features, borrower characteristics such as gender, and market conditions.²⁹ However, their analysis did not include data on some borrower credit characteristics such as credit score and debt-to-income ratio that could affect borrowing costs.³⁰ Another study found that women were charged higher interest rates for subprime loans made in 2005, but once the authors controlled for observed risk characteristics there was no evidence of disparity in

²⁸Ping Cheng, Zhenguo Lin, and Yingchun Liu, “Do Women Pay More for Mortgages?” *The Journal of Real Estate Finance and Economics*, vol. 43 (2011), 423-440. The authors concluded that men are likely to pay lower rates on mortgages because they tended to search for the lowest rates, and search is rewarded by the market, whereas women are more likely to receive higher rates—and subprime loans—because they are more likely to rely on referrals from people they know. In May 2018, BCFP published a series of briefs on the effect of shopping for a mortgage on interest rates, accessed on July 17, 2018, at <https://www.consumerfinance.gov/data-research/research-reports/know-before-you-owe-mortgage-shopping-study/>.

²⁹SCF is a triennial survey of the various financial and demographic characteristics of U.S. families. The study is sponsored by the Federal Reserve in cooperation with the Department of the Treasury. The SCF is conducted among a representative sample of U.S. households. It contains information on mortgages as well as on broader household finances and demographics, but it does not contain data on credit scores, discount points or fees, or other factors that could affect interest rates.

³⁰In a separate study, the same authors also used SCF data to look for racial disparity and found that African American borrowers pay more than white borrowers. They also found that the disparity between African American and white borrowers is more pronounced for women than it is for men. They did not conduct any analysis directly comparing rates between African American men and women. See Ping Cheng, Zhenguo Lin, and Yingchun Liu, “Racial Discrepancy in Mortgage Interest Rates,” *The Journal of Real Estate Finance and Economics*, vol. 51 (2015), 101-120.

interest rates by gender of the borrower in the subprime market.³¹ However, the authors' data did not include any fees paid at loan origination, which could affect the overall cost of borrowing. A third study that examined disparities between men and women in subprime loans found no significant evidence that gender affected the cost of borrowing within the subprime market, though it did find that women—particularly African American women—were more likely to have subprime loans.³² The authors found that, even after controlling for some financial characteristics and loan terms, single African American women were more likely than non-Hispanic white couples to have subprime loans.

One study analyzed subprime loans made by one large lender from 2003 through 2005 and found that women paid more for subprime mortgages than men after controlling for some risk factors.³³ This study found that women had higher average borrowing costs—as measured by annual percentage rate—than men, and controlling for credit characteristics such as credit scores and debt-to-income ratios did not fully explain the differences.³⁴ However, the authors did not control for other factors that could also affect borrowing costs, such as differences in education, shopping behaviors, and geographic location.

³¹Andrew Haughwout et al., "Subprime Mortgage Pricing: The Impact of Race, Ethnicity, and Gender on the Cost of Borrowing," *Brookings-Wharton Papers on Urban Affairs* (2009), 33-63. The authors examined the mortgage rates charged to a group of subprime mortgage borrowers in 2005 on a particular type of mortgage. The risk characteristics that the authors controlled for were the borrower's credit score (FICO score), the initial combined loan-to-value and debt-to-income ratios, level of documentation used in the underwriting, whether the mortgage is for a purchase or a refinance, the loan amount, the presence and duration of a prepayment penalty, the type of property used as collateral, and the loan type.

³²Elvin Wyly and C.S. Ponder, "Gender, age, and race in subprime America," *Housing Policy Debate*, vol. 21, no. 4 (2011), 529-564. The authors also used data that combine demographic information with detailed financial circumstances of mortgage transactions for approximately 600 subprime loans that originated between 1994 and 2008.

³³Kristy N. Van Rensselaer et al., "Mortgage Pricing and Gender: A Study of New Century Financial Corporation," *Academy of Accounting and Financial Studies Journal*, vol. 18, no. 4 (2014), 95-110. Generally, a borrower with a higher debt-to-income ratio is more likely to default.

³⁴According to BCFP, the annual percentage rate (APR) is a broader measure of the cost of borrowing money since it reflects not only the interest rate but certain other credit costs. The higher the APR, the more costs over the life of the loan. See Consumer Financial Protection Bureau, "What is the difference between an interest rate and the Annual Percentage Rate (APR) in an auto loan?" *Ask CFPB*, accessed on July 30, 2018, at <https://www.consumerfinance.gov/ask-cfpb/what-is-the-difference-between-an-interest-rate-and-the-annual-percentage-rate-apr-in-an-auto-loan-en-733/>.

Additionally, a research paper found that female-only borrowers—that is, where the only borrower is a woman—default less than male-only borrowers with similar loans and credit characteristics.³⁵ The authors found that female-only borrowers on average pay more for their mortgage loans because they generally have weaker credit characteristics, such as lower income, and also because a higher percentage of these mortgage loans are subprime.³⁶ However, after controlling for credit characteristics such as credit score, loan term, and loan-to-value ratio, among others, the analysis showed that these weaker credit characteristics do not accurately predict how well women pay their mortgage loans. Since pricing is tied to credit characteristics and not performance, women may pay more relative to their actual risk than do similar men.

Studies on Small Business Credit Did Not Identify Gender Differences in Borrowing Costs but Found Mixed Evidence of Differences for Access to Credit

Studies we reviewed on small business loans generally did not find differences in interest rates, though some found differences in denial rates and other accessibility issues between female- and male-owned firms.³⁷ Most of the studies we reviewed used data from the 1993, 1998, or 2003 Survey of Small Business Finances (SSBF), which could limit the applicability or relevance of their findings today.³⁸ A study that analyzed

³⁵Laurie Goodman, Jun Zhu, and Bing Bai, “Women Are Better than Men at Paying Their Mortgages,” *Urban Institute*, Research Report (2016).

³⁶The authors also found that women faced higher denial rates than men.

³⁷Most of these studies looked only at white women due to lack of data on minority-owned firms, thus limiting their generalizability.

³⁸The SSBF, conducted by the Federal Reserve, collected information on small businesses (fewer than 500 employees) in the United States, such as owner characteristics, firm size, use of financial services, and the income and balance sheets of firms, among others. This survey has been suspended since 2003. In 2010, the Federal Reserve Bank of New York established the Small Business Credit Survey to annually survey firms about business performance, financing needs and choices, and borrowing experiences. The 2016 survey was the first iteration to be conducted on a nationwide level with the involvement of all 12 Federal Reserve Banks. For its report on women-owned firms, see Federal Reserve Banks of New York and Kansas City, *Small Business Credit Survey: Report on Women-Owned Firms* (New York City, N.Y.: Nov. 2017), accessed on July 9, 2018, at <https://www.newyorkfed.org/medialibrary/media/smallbusiness/2016/SBCS-Report-WomenOwnedFirms-2016.pdf>.

data from the 1993 SSBF did not find evidence that businesses owned by women paid more for credit than firms owned by white men.³⁹ However, when the authors took into account the market concentration and competition, they found that white female-owned firms experienced increased denial rates in less competitive markets.⁴⁰ In addition, the study found that women may avoid applying for credit in those markets because of the fear of being denied. For example, almost half of all small business owners who needed credit reported that they did not apply for credit, and these rates were even higher for businesses owned by women and minorities.

Other studies found that women may have less access to small business credit than men, in part because of higher denial rates and because they may not apply for credit out of fear of rejection. For example, one study found that women-owned firms have higher loan denial rates compared with men; however, this is mainly due to differences in business characteristics of female- and male-owned firms.⁴¹ The authors also found that even when denial rates are the same for small businesses with similar characteristics, women's loan application rates are lower, suggesting that women may be discouraged from applying for credit by

³⁹Ken S. Cavalluzzo, Linda C. Cavalluzzo, and John D. Wolken, "Competition, Small Business Financing, and Discrimination," *The Journal of Business*, vol. 75, no. 4 (2002).

⁴⁰A concentrated market has fewer firms and therefore generally less competition. In a more competitive market, discriminatory practices that could hurt a firm's profits are more likely to be eliminated.

⁴¹Naranchimeg Mijid and Alexandra Bernasek, "Gender and the credit rationing of small businesses," *The Social Science Journal*, vol. 50 (2013). At the same time, another study looking at data from three SSBFs did not find gender of the owner to have an effect on a firm being discouraged to apply for a loan or on being denied. See Rebel Cole and Tatyana Sokolyk, "Who Needs Credit and Who Gets Credit? Evidence from the Surveys of Small Business Finances," *Journal of Financial Stability*, vol. 24 (2016), 40-60. An older paper looking at a different survey found that women-owned businesses were significantly less likely to apply for a bank loan as well as obtain a lower loan amount compared with men even after controlling for important business characteristics. However, they say that these results may be due to women owners having different concerns about how much control they would like to have over their business, and their analysis did not include any variable to account for this difference. See Monica Zimmerman Treichel and Jonathan A. Scott, "Women-Owned Businesses and Access to Bank Credit: Evidence from Three Surveys Since 1987," *Venture Capital*, vol. 8, no. 1 (2006), 51-67. The data in this study come from the Credit, Banks and Small Business survey conducted by the National Federation of Independent Business in 1987, 1995, and 2001.

the higher overall denial rates for female-owned firms.⁴² Another study by one of the same authors examined the reasons why female borrowers may be discouraged from applying for a business loan compared to male business owners and found that it was mainly because they fear that their application will be rejected.⁴³ A third study by the same author found that women in general did not have less access to credit than men, though newer female-owned firms received significantly lower loan amounts than requested compared to their male-owned counterparts.⁴⁴ Similarly, the study also found that women with few years of experience managing or owning a business received significantly lower loan amounts compared with men with similar years of experience. A fourth study looked at six different types of loans, including lines of credit, and found that white women were significantly more likely than white men to avoid applying for a loan because they assume they would be denied.⁴⁵ However, once the authors' model controlled for education differences, all gender disparities in applying for credit disappeared, though white women were still less likely than white men to have loans.⁴⁶

Studies Found That Men and Women Paid or Were Quoted Different Prices for Auto Purchases and Auto Repairs

Studies we reviewed on auto purchases and repairs found that a seller's expectation of what customers are willing to pay and how informed they seemed can differ by gender, which can affect the price customers are quoted. However, these studies were published in 1995 and 2001, which may limit the applicability or relevance of their findings today. The 2001

⁴²The study suggests that "non-application" arising out of fear of rejection is a form of credit rationing, or limiting by lenders of the amount of credit made available to borrowers, and therefore included these discouraged borrowers in its model to analyze the effects of the gender on credit rationing of small businesses.

⁴³Naranchimeg Mijid, "Why are female small business owners in the United States less likely to apply for bank loans than their male counterparts?" *Journal of Small Business & Entrepreneurship*, vol. 27, no. 2 (2015), 229-249.

⁴⁴Naranchimeg Mijid, "Gender differences in Type 1 credit rationing of small businesses in the US." *Cogent Economics & Finance*, vol. 3 (2015).

⁴⁵Susan Coleman, "Access to Debt Capital for Women- and Minority-Owned Small Firms: Does Educational Attainment Have an Impact?" *Journal of Developmental Entrepreneurship*, vol. 9, no. 2 (2004), 127-143.

⁴⁶The study found that white women were no less likely to apply for loans or be denied.

study we reviewed on auto purchases found that though women paid higher prices than men for car purchases on average, these differences declined when cars were purchased online.⁴⁷ The authors suggest that this may be because Internet consumers can effectively convey their level of price knowledge and therefore may seem better informed to the sellers. They also suggest it could be because the dealerships have less information about online consumers and their willingness to pay, which may limit the extent of price differentiation.⁴⁸ The 1995 study on auto purchases found that the dealers quoted significantly lower prices to white males than to female or African American test buyers using identical, scripted bargaining strategies in part because dealers may have made assumptions about women's willingness to bargain for lower prices.⁴⁹

We also reviewed one study on auto repairs that found that women were quoted higher prices than men if they seemed uninformed about the cost of car repair when requesting a quote, but the price differences disappeared if the study participant mentioned an expected price.⁵⁰ The study suggests that a potential explanation for this result could be that auto repair shops expect women to accept a price that is higher than the market average and men to accept a price below it.

⁴⁷Fiona Scott Morton, Florian Zettelmeyer, and Jorge Silva-Risso, "Consumer Information and Price Discrimination: Does the Internet Affect the Pricing of New Cars to Women and Minorities?" *National Bureau of Economic Research*, Working Paper 8668 (2001).

⁴⁸The authors analyzed data on every new car transaction at selected dealerships from January 1, 1999 to February 28, 2000, to examine the relationship between car prices and demographics for both online and offline purchases, and they controlled for transactional and car-related factors that may affect the price of a car.

⁴⁹Ian Ayres and Peter Siegelman, "Race and Gender Discrimination in Bargaining for a New Car," *The American Economic Review*, vol. 85, no. 3. (1995), 304-321, accessed on November 7, 2016, at <http://links.jstor.org/sici?sici=0002-8282%28199506%2985%3A3%3C304%3ARAGDIB%3E2.0.CO%3B2-W>. The authors sent 38 testers to bargain for 306 cars at 153 new-car dealerships in the Chicago area.

⁵⁰Meghan R. Busse, Ayelet Israeli, and Florian Zettelmeyer, "Repairing the Damage: The Effect of Price Expectations on Auto Repair Price Quotes," *National Bureau of Economic Research*, Working Paper 19154 (2013).

Federal Agencies Have Identified Limited or No Consumer Concerns about Price Differences Based on Sex or Gender

Federal Agencies Monitor Consumer Complaints and Identified Limited Examples of Concerns of Price Differences Based on the Consumer's Sex or Gender

BCFP and HUD have responsibilities to monitor consumer complaints in the consumer credit and housing markets, respectively.⁵¹ Additionally, FTC monitors complaints about the consumer credit and consumer goods markets. All three agencies play a role in potentially monitoring or addressing issues of gender-related price differences and have online complaint forms for submission of consumer complaints.⁵²

- BCFP collects and reviews consumer complaints about financial products and services and provides complaints and related data in its Consumer Complaint Database. In 2017 BCFP received approximately 320,200 consumer complaints. The products that generated the most complaints in 2017 were “Credit or consumer

⁵¹Agency monitoring of market trends and consumer concerns is important because consumers cannot easily identify discrimination. For example, we reported that some marketplace lenders, which consumers can use to cover personal expenses (such as home or medical expenses), may use less traditional data during the underwriting process. See GAO, *Financial Technology: Information on Subsectors and Regulatory Oversight*, [GAO-17-361](#) (Washington, D.C.: April 19, 2017). The use of less traditional data, such as utilities, rent, telephone bills, and educational history, introduces the risk that the data used are inaccurate and raises concerns that consumers may not have sufficient recourse if the information being used is incorrect.

⁵²In addition to their online complaint forms, consumers can also submit complaints by phone or mail. All three agencies also receive complaints through other means, such as from other federal agencies (in the case of BCFP and FTC) or partner organizations, among others. See appendix V for more information on these agencies' consumer complaints processes.

reporting,” “Debt collection,” and “Mortgage.”⁵³ According to BCFP officials, BCFP also analyzes loan and demographics data collected through HMDA and other data sources to monitor and identify market trends. In addition, BCFP and the federal financial regulators examine fair lending practices of the institutions they regulate, and these examinations have uncovered sex discrimination in credit products by FDIC and NCUA.⁵⁴

- FTC receives complaints and the complaints are stored in the Consumer Sentinel Network, a database of consumer complaints received by FTC, as well as those filed with other federal and state agencies and organizations, such as mass marketing fraud complaints from the Council of Better Business Bureaus. The complaints in the Consumer Sentinel Network focus on consumer fraud, identity theft, and other consumer protection matters, such as debt collection, and can include complaints related to consumer credit markets.
- HUD receives consumer complaints about potential FHA violations through its website, via its toll-free phone hotline, and in writing. HUD monitors those complaints through its online HUD Enforcement Management System. HUD investigates all complaints for which it has jurisdictional authority. HUD may monitor complaints to identify trends, but HUD officials stated that the agency does not generally monitor consumer credit and housing market data, absent a specific complaint. In cases where HUD has jurisdictional authority under FHA, HUD offers conciliation between the parties. If resolution is not reached, and HUD determines there is reasonable cause to believe a violation has occurred, the parties may elect to have the matter heard in U.S. District Court or at HUD.

In their oversight of federal antidiscrimination statutes, BCFP officials said they have not identified significant consumer concerns about price

⁵³Bureau of Consumer Financial Protection, *Consumer Response Annual Report January 1-December 31, 2017*, accessed on June 26, 2018, at https://s3.amazonaws.com/files.consumerfinance.gov/f/documents/cfbp_consumer-response-annual-report_2017.pdf.

⁵⁴For example, according to FDIC officials, from January 2012 to December 2017, FDIC cited three ECOA violations related to sex. FDIC officials stated that all three involved female loan applicants being charged higher prices than comparable males. The violations were identified in examinations that occurred, respectively, in 2013, 2015, and 2015. In two of the cases, restitution was provided. The third case was referred to DOJ. According to DOJ officials, after considering the matter, DOJ deferred to FDIC for administrative enforcement.

differences based on a consumer's sex or gender. FTC and HUD officials identified some examples of concerns of this nature. For example, FTC has taken enforcement actions alleging unlawful race- and gender-related price differences.⁵⁵ HUD has also identified several cases where pregnant women and their partners applied for a mortgage while the woman was on maternity leave, and the couple's mortgage loan application was denied.⁵⁶

Our Analysis of Federal Agency Data Identified Few Consumer Complaints about Price Differences Based on Sex or Gender

BCFP, FTC, and HUD have received few consumer complaints about price differences related to sex or gender, according to our analysis of a sample of each agency's 2012–2017 complaint data (see table 3).⁵⁷ In separate samples of 100 gender-related complaints at BCFP, HUD, and FTC, we found that 0, 4, and 1 complaint, respectively, were related to price differences based on sex or gender.⁵⁸ Three of the complaints from HUD also cited differences in price based on other protected classes (such as race or ethnicity).

⁵⁵For example, in *United States v. Delta Funding Corp.*, No. 00-1872 (E.D.N.Y. 2000), the complaint alleged that higher mortgage broker fees were charged to African American females than to white males in violation of ECOA and FHA.

⁵⁶According to HUD, refusing to provide a mortgage loan or mortgage insurance because a woman is pregnant or on family leave violates FHA's prohibition against sex and familial-status discrimination, which includes discrimination against individuals who have or are expecting a child. As of May 2017, HUD received nearly 150 complaints alleging maternity leave discrimination and has obtained more than \$8 million in compensation for victims.

⁵⁷We drew a stratified random probability sample of 100 gender-related consumer complaints with narratives from each database. With this probability sample, each member of the study population had a nonzero probability of being included, and that probability could be computed for any member.

⁵⁸Examples of gender-related complaints about price differences include being charged more for an auto lease and paying more for rental housing and home repairs.

Table 3: Consumer Complaints about Price Differences Related to Gender or Sex by Agency, 2012–2017

Agency	Number of gender or sex-related complaints ^a	Sample of gender or sex-related complaints reviewed	Estimate of gender or sex-related complaints about price differences (percent)	95 percent confidence interval
Bureau of Consumer Financial Protection (BCFP)	6,117	100	0.0	0.0 – 3.0
Department of Housing and Urban Development (HUD)	5,421	100	4.0	1.1 – 9.9
Federal Trade Commission (FTC)	10,472	100	1.0	0.0 – 5.4

Source: GAO analysis of BCFP, HUD, and FTC consumer complaints data from 2012 - 2017. | GAO-18-500

Note: We drew a stratified random probability sample of 100 gender-related consumer complaints with narratives from BCFP’s, FTC’s, and HUD’s consumer complaint databases. With this probability sample, each member of the study population had a nonzero probability of being included, and that probability could be computed for any member. All estimates in this table have a margin of error at 5.9 percentage points or fewer at a 95 percent confidence level.

^aTo identify our universe of gender-related consumer complaints in BCFP’s and FTC’s databases, we used search terms that targeted sex or gender discrimination (e.g., gender, sex, female, male, treatment, discrimination). See our complete list of search terms in appendix III. HUD’s consumer complaint database is categorized by protective class (e.g., race, sex, national origin), and we did not need to use search terms to identify gender-related complaints.

Half of the academic experts and consumer groups we interviewed told us that in some markets it is difficult for consumers to observe and compare prices paid by other consumers, such as when prices are not posted or can be negotiated (e.g., car sales). In such cases, consumers may not know if other consumers are paying a higher or lower price than the price quoted to them. Most academic experts also told us that when consumers are aware that price differences could exist, they may make different decisions when making purchases. Additionally, officials from BCFP noted that price differences related to gender may be difficult for consumers to identify, or that consumers may not know where to complain.

Agencies Provide Resources on Discrimination and Have Not Developed Other Consumer Education Efforts on Gender in Part Due to Limited Public Complaints

The consumer education resources of BCFP, FTC, and HUD provide general consumer education resources on discrimination (i.e., consumer user guide or a website) and consumer awareness. Officials from BCFP and HUD said they have not identified a need to develop other consumer education resources specific to gender-related price differences. For example, BCFP’s print and online consumer education materials are

intended to inform consumers of their rights and protections related to credit discrimination, which includes discrimination based on sex or gender. The three agencies' consumer education materials also provide advice that could help consumers avoid paying higher prices regardless of their gender—such as home-buying resources and resources on comparison shopping. However, the agencies have not developed additional educational resources focused specifically on potential gender-related price differences in part because few complaints on this topic have been collected in their databases, agency officials told us. FTC officials noted that it tries to focus its education efforts on topics that will have the greatest benefit to consumers, often determined by information it gathers through complaints and investigations.

Representatives of five consumer groups and industry associations told us that they have received few complaints about gender-related price differences. However, four consumer groups noted that low concern could be the result of consumers being unaware of price differences related to gender. For example, as indicated above, price differences related to gender may be difficult for consumers to identify when they cannot determine whether they are paying a higher price than others. Representatives of two retailing industry associations similarly stated that they have not heard concerns about price differences related to gender.

Some State and Local Governments Have Passed Laws to Address Concerns about Gender-related Price Differences

In response to consumer complaints or concerns about gender disparities in pricing, at least one state (California) and two municipalities (Miami-Dade County and New York City) have passed laws or ordinances to prohibit businesses from charging different prices for the same or similar goods or services solely based on gender (see table 4).⁵⁹ In addition, two of these laws included requirements related to promoting price transparency. California enacted the Gender Tax Repeal Act of 1995, which prohibits businesses from charging different prices for the same or similar services based on a consumer's gender. The law also requires

⁵⁹In addition to these jurisdictions, the U.S. territory of Guam also prohibits charging consumers different prices for the same goods or services based on, among other factors, the sex of the consumer.

certain businesses to display price information and disclose prices upon request, according to state officials with whom we spoke. Similarly, in 1997, Miami-Dade County passed the Gender Pricing Ordinance, which prohibits businesses from charging different prices based solely on a consumer's gender (though businesses are permitted to charge different prices if the goods or services involve more time, difficulty, or cost). In the same year, it also passed an ordinance that prohibits dry cleaning businesses from charging different prices for similar services based on gender. This ordinance also requires those businesses to post all prices on a clear and conspicuous sign, according to county officials with whom we spoke.

Table 4: Examples of State and Local Gender-Related Pricing Laws in the United States

U.S. state or locality	Law or ordinance	Exceptions	Enforcement
California	<i>Gender Tax Repeal Act of 1995.</i> Prohibits any business establishment from charging different prices for the same or similar services based solely on a consumer's gender. It also requires businesses that provide clothing alteration, hair care, dry cleaning, or laundry services to publicly display the prices they charge or disclose the prices to consumers upon request.	Excludes insurance, and prices can differ for women and men based on the amount of time, difficulty, or cost to provide services to those specific demographics.	The State Attorney General or an individual can file a complaint in court. Individuals can also submit complaints to California's Department of Fair Employment and Housing. Violators receive written notice to correct the violation within 30 days; if the price is not changed, violators could be liable for a civil penalty of \$4,000.
Miami-Dade County, Florida	<i>Gender Pricing Ordinance, enacted in 1997.</i> Prohibits businesses from charging different prices for goods or services based solely on a consumer's gender. <i>Dry Cleaning and Laundering Ordinance, enacted in 1997.</i> Prohibits cleaners from discriminating against a customer because of a customer's gender with respect to the price charged for like cleaning.	Excludes insurance, and prices can differ based on the amount of time, difficulty, or cost involved in providing goods and services to consumers of different genders; and discounts can be based on gender as long as they do not exclude others from the program.	Office of Consumer Protection in the Department of Regulatory and Economic Resources, Business Affairs Division. Consumers can sue in Small Claims Court; Office of Consumer Protection can issue citations, but does not have capacity to seek and identify violations.
New York City, N.Y.	<i>City Council Bill Number 804-A, 1998.</i> Prohibits businesses that provide services, such as hair cutting and dry cleaning, from basing prices solely on gender.	Applicable to retail service establishments only.	New York City Department of Consumer Affairs can issue violations that can be discovered during routine inspections. Violators must pay a civil penalty of between \$50 and \$250 for first offense and for each successive offense, the penalty is between \$100 and \$500.

Source: GAO analysis and interviews with state and local officials. | GAO-18-500

State and local officials we interviewed identified benefits and challenges associated with these laws. For example, California, New York City, and Miami-Dade County officials noted that these laws give them the ability to intervene to address pricing practices that may lead to discrimination based on gender. In addition, California state officials said that the state's efforts to implement the Gender Tax Repeal Act helped to improve consumer awareness about gender price differences. However, officials from California and Miami-Dade County cited challenges associated with tracking relevant complaints. For example, Miami-Dade County's online complaint form includes a narrative section but does not ask for the complainant's gender. Consumers do not always identify their gender in the narrative or state that that was the reason for their treatment. Additionally, officials from California and Miami-Dade County stated that

seeking out violations would be very resource-intensive, and they rely on residents to submit complaints about violations.

Agency Comments

We provided a draft of this report to BCFP, DOJ, FTC, and HUD. BCFP, FTC, and HUD provided technical comments on the report draft, which we incorporated where appropriate.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to the appropriate congressional committees, BCFP, DOJ, FTC, HUD, and other interested parties. In addition, the report will be available at no charge on the GAO website at <http://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 VI.



Alicia Puente Cackley
Director, Financial Markets and Community Investment

Appendix I: Nielsen Retail Price Data Analysis Methodology

We used a multivariate regression model to estimate the effect of gender (to which a product is targeted to) on the price of that product while controlling for other factors that may also affect the product's price. The factors that we controlled for were the product size, promotional and packaging costs, and other product characteristics discussed in detail later. We used scanner data from the Nielsen Company (Nielsen) for calendar year 2016 and analyzed the following 10 product categories: (1) underarm deodorants, (2) body deodorants, (3) shaving cream, (4) shaving gel, (5) disposable razors, (6) nondisposable razors, (7) razor blades, (8) designer perfumes, (9) mass-market perfumes, and (10) mass-market body sprays.¹ We estimated the following regression model for each of our 10 product categories:

$$P = \alpha + \beta * \text{Male} + \lambda * \text{Size} + \theta * \text{Owner}_i + \eta * \text{Promotion} + \mu * X_j + \delta * Y_k + \varepsilon$$

The dependent variable P in the above equation represents price. For our analysis, we constructed two measures of price. The first is the item price, estimated as the total dollar sales of an item (each item is depicted by a unique Universal Product Code (UPC) in the Nielsen data), divided by the total units sold of that item. The second measure of price that we use is price per ounce or price per count. This is estimated as the item price divided by the total quantity of product, where quantity or size depicts the number of ounces (as in the case of fragrances) or the count of blades in razor blade packs. The total quantity of the product is the ounces or counts of one item multiplied by the number of items included in a specific product configuration. For example, a 2-pack of deodorant sticks where each deodorant stick is 2.7 ounces would be a total quantity of 5.4 ounces.

¹The prices were collected from participating retailers when an item was scanned at the cash register during check out.

The variable *Male* in the above equation is an indicator variable depicting whether the product is designated as a “men’s” product in the Nielsen data. It is represented as a value of “1” for men’s products and a value of “0” for women’s products. The co-efficient for this variable, parameter β , would therefore show the price difference between a men’s and women’s product. A negative value would imply a lower price for products designated as men’s products.

The variable *Size* represents the most appropriate specification of the size of the product.²

Owner_i is a set of indicator variables representing all the brand owners selling a particular product. The brand of a product can be expected to have a substantial effect on prices for the kind of products we analyze because brands can be a proxy for quality for some consumers. However, we also found that firms often create gender-specific brands, so holding brands constant rendered most gender-based price comparisons infeasible. To overcome this, we hold owners instead of brands constant for our price comparison analysis.

The variable *Promotion* represents the percentage of dollar sales that were sold on any type of promotion.³ This variable proxies for promotional costs to some extent based on the assumption that the greater the proportion of sales due to promotional activity, the greater the promotional costs.

The variables *X_i* represent a set of indicator variables for packaging characteristics such as package delivery method (for example, roll-on or aerosol spray deodorants) or package shape (for example, bottle, tube, or

²We tried four different potential functional forms for size—size, square-root of size, log(size) and a quadratic term (size plus size-squared)—for each of our two prices. Since size may affect prices differently for different products (for example, the number of disposable razors in a plastic bag versus number of ounces of designer perfume), we chose different size specifications for different products. We used Akaike’s information criterion to choose the model with the best fit.

³According to Nielsen, these promotions comprise feature w/o Display, Display w/o Feature, Feature & Display or Temporary Price Reduction. Nielsen also reports the total number of weeks a product has been on promotion. We chose not to include both of these variables as they are highly correlated. We chose the former as we expect average prices to be directly influenced more by how much sold at promotional prices versus the amount of time the product was on promotion.

can). We expect these characteristics to proxy for different costs associated with different packaging methods.

The variables Y_k represent a set of indicator variables representing different product characteristics (for example, forms such as gel stick or smooth solid and claims such as “active cooling” or “anti-wetness” for underarm deodorants, and blade types such as “triple edge” and “flexible six” for razors). These product characteristics may proxy for some underlying manufacturing costs or even consumer preferences. Since firms may create gender-specific product attributes—scents like “sweet petals” and “pure sport” or razor head types and colors to differentiate products between genders—we did not always keep every product attribute constant when comparing prices.⁴ The idiosyncratic error term is represented by ε .

All of our regressions are weighted, with the proportion of units sold for a particular item in that year as the weight. This is because, for personal care products, there are large differences in units sold of various product types and brands, and therefore it not useful to compare simple un-weighted average prices. For example, for one company the highest selling men’s deodorant stick sold almost 12 million units in 2016, and the highest selling women’s deodorant stick sold over 8 million units. The average units sold for underarm deodorants as a whole was just over 300,000 units, and 1,000 products out of a total of almost 3,000 products had less than 100 units sold in 2016.

The linear model we used has the usual shortcomings of being subject to specification bias to the extent the relationship between price and each of the independent variables is not linear. The model also does not include complete data on costs, such as advertising and packaging, or consumers’ willingness to pay, both of which have an effect on the price differences. The model may thus also be subject to omitted variable bias.

⁴Firms may use different product characteristics to differentiate one product from another in the expectation that different segments of consumers (in this case, men and women) will self-select into different groups. Thus, firms may create gender-specific scents, razor head types, and even brands. Therefore when we control for the differentiating attribute, the products may not remain comparable, and any price differences become insignificant in our analyses. When controlling for some attribute made price differences insignificant, we explored further to see whether there was enough overlap between men’s and women’s products for that particular attribute. If there was no overlap or if it was limited to only a couple of products with insignificant sales, it did not make sense to conclude that lack of significant price differences implied no gender-related price differences for those products.

In addition, the model may have some endogeneity issues to the extent the product characteristics themselves are influenced by consumers' willingness to pay for some of those product features. To reduce the impact of any model misspecifications or heteroscedasticity, we used the robust (or Huber-White sandwich) estimator.⁵

We estimated the regression model above for each of the 10 products separately and for each of the two measures of price. We used Nielsen's in-store, retail price scanner data, which include information on total volume sold and dollar sales for items purchased at 228 retailers including grocery stores, drug stores, mass merchandisers (such as Target), dollar stores, club stores (such as Sam's Club), and convenience stores. The data capture 82 percent of all U.S. sales. Nielsen also projects sales for the remaining noncooperating retailers, and that information is included in this dataset. We excluded some very small brands that did not have enough units sold from our regression analysis in order to avoid outliers. These brands usually had less than 50,000 units sold over the entire year, and for some products they represented less than 1 percent of all units sold. We found that average retail prices paid were significantly higher for women's products than for men's in 5 out of 10 personal care products. In 2 categories, men's versions sold at a significantly higher price. One category had mixed results based on two price measures analyzed, and two others showed no significant gender price differences. A summary of our regression results is presented in table 5.

Table 5: Regression Results for Analysis of Selected Personal Care Products, 2016

	Underarm deodorants	Body deodorants	Shaving cream	Shaving gel	Disposable razors	Nondisposable razors	Razor blades	Designer perfume	Mass-market perfume	Mass-market body sprays
Number of observations	2014	64	193	435	1237	417	567	3945	2003	523
R-square^a	0.77 and 0.90	0.99 and 0.99	0.98 and 0.99	0.79 and 0.71	0.87 and 0.91	0.92 and 0.93	0.69 and 0.73	0.60 and 0.61	0.64 and 0.75	0.92 and 0.87

⁵Using this estimator helps to forgo model-based variance estimates in favor of the more model-agnostic "robust" variances, which give more accurate assessments of the sample-to-sample variability of the parameter estimates even when the model is mis-specified.

**Appendix I: Nielsen Retail Price Data Analysis
Methodology**

	Underarm deodorants	Body deodorants	Shaving cream	Shaving gel	Disposable razors	Nondis- posable razors	Razor blades	Designer perfume	Mass- market perfume	Mass- market body sprays
Co-efficient for “male” in item price regressions	-0.275* (0.120)	-0.77* (0.178)	-0.568* (0.096)	0.567* (0.146)	-0.031 (0.229)	2.04* (0.482)	0.303 (0.971)	-1.73** (1.02)	0.792 (0.798)	-0.503* (0.144)
Co-efficient for “male” in ounce or count price regressions	-0.081* (0.038)	-0.139* (0.029)	-0.029* (0.005)	0.071* (0.020)	-.004 (0.062)	1.44* (0.507)	-0.335* (0.146)	-2.678* (0.636)	0.326 (0.534)	-0.166* (.049)
Brands or owners	included	included	included	included	included	included	included	included	included	included
Promotional expenditure	included	included	included	included	included	included	included	included	included	included
Packaging general shape	included	included	included	included	included	included	included	included	included	included
Packaging delivery method	included	included	included	included	n/a	n/a	n/a	included	included	included
Size transfor- mation in regressions with: Item price	Square root (size)	(size + square(size))	Size	(size + square (size))	(size + square (size))	(size+ square (size))	Size	Size	Size	Log (size)
Size transfor- mation in regressions with: Ounce or count price	Log(size)	Log(size)	(size + square (size))	Log(size)	Log(size)	Log (size)	(size + square (size))	(size + square (size))	(size + square (size))	Log (size)
Attributes included (Form)	not included	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Attributes included (Claim)	not included	included	not included	not included	not included	n/a	n/a	n/a	n/a	n/a
Attributes included (Scent)	not included	not included	not included	not included	n/a	n/a	n/a	not included	not included	not includ ed
Attributes included (Color)	n/a	n/a	n/a	n/a	not included	not included	not included	n/a	n/a	n/a

**Appendix I: Nielsen Retail Price Data Analysis
Methodology**

	Underarm deodorants	Body deodorants	Shaving cream	Shaving gel	Disposable razors	Nondisposable razors	Razor blades	Designer perfume	Mass-market perfume	Mass-market body sprays
Attributes included (Razor blade type)	n/a	n/a	n/a	n/a	included	not included	not included	n/a	n/a	n/a
Attributes included (Razor head type)	n/a	n/a	n/a	n/a	included	included	n/a	n/a	n/a	n/a

Legend: √ = included; X = not included; n/a = data not available or relevant

* denotes significance at 5 percent or less. ** denotes significance at 10 percent.

Source: GAO analysis of Nielsen Company data. | GAO-18-500

Notes:

- Standard errors for the coefficients are in brackets.
- Body deodorants: We have under 100 observations for body deodorants and therefore the significance tests conducted may not have very high power.
- Shaving cream and shaving gel: Shaving cream data provided by Nielsen included both “creams” and “gels.” Upon examining the data, we observed that gels are typically more expensive than creams. Therefore, we decided to treat these as separate products for our regression analysis.
- Disposable razors: Our data show that consumers buy a larger quantity of more expensive razors targeted to men in general. For example, in the price category of \$20 and above, consumers mostly buy razors targeted to men. These higher-priced razors are usually the ones that include more razors in that product configuration. For this reason, we repeated our analysis only for products that had an average price of less than \$10 and the results remained qualitatively similar.
- Nondisposable razors: Looking at the distribution of buying behavior, it seemed that in the range of prices above \$12.50, consumers buy razors targeted to men. We therefore split our sample into average prices above \$12.50 and below \$12.50 to analyze the relative prices. For prices below \$12.50, it seemed there were no significant differences in prices even after we controlled for owners and packaging shape. Controlling for blade-type however made prices for razors targeted to women significantly lower. For prices above \$12.50 we do not have many observations to make reasonable comparisons.
- Fragrances: We chose to analyze products in the designer and mass-market segments separately as they are at very different price points and cannot be considered substitutes for each other. We also dropped the gift-pack segment as these may comprise different product and packaging details that we could not account for from our data. The other common segment between men and women is fragrance soap, which we chose not to analyze due to insignificant sales in the women’s segment. Fragrances are also further divided into several products such as body splash, fragrant soap, after-shave, eau de parfum, powder, etc. To keep our analysis meaningful and manageable, we decided to select only the few products that represented at least 5 percent of that segment in sales. Based on our analysis of types of products, price points, and common owners, we decided to group the fragrance products into three product categories: (1) designer perfumes = designer eau de toilette + designer eau de parfum + designer cologne; (2) mass-market perfumes = mass-market eau de toilette + mass-market eau de parfum + mass-market cologne; and (3) mass-market body spray = body spray + fragrance body spray.

^aThe first R-square value is from the item price regressions and the second one is from the per unit price regressions.

Appendix II: Collection of Online Prices for Selected Personal Care Products

We manually collected prices for 16 pairs of selected personal care products from the websites of four online retailers that also operated physical store locations.¹ We selected comparable pairs of similar men's and women's products that were differentiated by product attributes, such as scent or color, and were sold at most or all of the four retailers. The products were selected based on several comparability factors such as brand, product claims, and number of blades in a razor. For two 1-week time periods in January and March 2018, we collected prices manually between 1:00 p.m. and 7:00 p.m. (ET) over two 7-day time periods. We collected listed prices and did not adjust the prices for any promotions that were available, such as online coupons or buy-one-get-one-free offers.

Table 6 presents the results of our online price collection. These results have important limitations:

- The average prices shown are not generalizable to the broader universe of prices for these products sold at other times or by other online retailers.
- The data reflect prices advertised to consumers rather than the prices consumers actually paid.
- The data do not capture the volume of sales for each item for each retailer; in our analysis, we weighted all advertised prices equally across the retailers. As a result, differences we found within these advertised prices may not have translated into comparable differences in prices female and male consumers paid for these products online.
- The prices do not reflect any promotional discounts, volume discounts, or other discounts that may have been available to some or all consumers.

¹The retailers consisted of two large national drugstores and two national mass merchandisers.

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Table 6: Average Online Prices Collected for Selected Personal Care Products on Four Retailer Websites, 2018

Product	Average item price (dollars)				Average price per ounce or count (dollars)				Average product size (ounces or count)	
	January 2018		March 2018		January 2018		March 2018		January and March 2018	
	Men's	Women's	Men's	Women's	Men's	Women's	Men's	Women's	Men's	Women's
n/a										
Body Spray Pair 1	5.14	5.53	4.87	5.96	1.29	1.38	1.22	1.49	4.0	4.0
Body Spray Pair 2	4.98	7.49	4.87	6.08	1.25	0.94	1.22	0.94	4.0	7.2
Body Spray Pair 3	25.41	22.48	27.08	27.62	10.16	13.22	11.40	16.25	2.5	1.7
Deodorant Pair 1	5.45	5.79	5.23	5.84	2.02	2.23	1.94	2.25	2.7	2.6
Deodorant Pair 2	4.22	4.28	4.25	4.26	1.56	1.64	1.58	1.64	2.7	2.6
Deodorant Pair 3	5.45	5.45	5.17	5.31	2.42	2.42	2.30	2.36	2.3	2.3
Deodorant Spray Pair 1	5.48	5.32	5.28	5.32	1.37	1.33	1.32	1.33	4.0	4.0
Deodorant Spray Pair 2	6.28	6.28	6.08	6.15	1.65	1.65	1.60	1.62	3.8	3.8
Disposable Razors Pair 1	7.10	7.57	6.65	7.03	1.44	1.55	1.38	1.49	5.1	5.1
Disposable Razors Pair 2	4.17	3.84	5.08	3.88	0.42	0.36	0.51	0.36	10.0	10.9
Nondisposable Razors Pair 1	10.55	11.49	10.48	11.04	10.55	11.49	10.48	11.04	1.0	1.0
Nondisposable Razors Pair 2	9.64	10.12	9.93	11.41	9.64	10.12	9.93	11.41	1.0	1.0
Razor Blades Pair 1	9.43	13.85	11.48	12.90	2.36	2.96	2.87	2.69	4.0	5.0
Razor Blades Pair 2	19.05	21.19	14.99	21.23	3.64	4.06	3.31	4.13	5.1	5.3
Shaving Gel Pair 1	4.34	2.38	4.43	2.32	0.62	0.34	0.63	0.33	7.0	7.0
Shaving Gel Pair 2	3.24	3.21	3.24	3.24	0.46	0.46	0.46	0.46	7.0	7.0

Source: GAO analysis. | GAO-18-500

Note: We manually collected prices for 16 pairs of selected personal care products from websites of four online retailers. We selected comparable pairs of similar men's and women's products that were differentiated by product attributes, such as scent or color, and were commonly sold at most or all of the four retailers. The products were selected based on several comparability factors such as brand, product claims, and number of blades in a razor. The selected online retailers were retailers that also operated physical store locations. For two 1-week time periods in January and March 2018, we

**Appendix II: Collection of Online Prices for
Selected Personal Care Products**

collected prices manually between 1:00 p.m. and 7:00 p.m. (ET). We collected listed prices and did not adjust the prices for any promotions that were available, such as online coupons or buy-one-get-one-free offers. The data are presented for illustrative purposes only and are not generalizable to any other personal care products or retailer websites.

Appendix III: Objectives, Scope, and Methodology

This report examines (1) how prices compared for selected categories of consumer goods that are differentiated for men and women, and potential reasons for any significant price differences; (2) what is known about the extent to which men and women may pay different prices in, or experience different levels of access to, markets for credit and goods and services that are not differentiated based on gender; (3) the extent to which federal agencies have identified and taken steps to address any concerns about gender-related price differences; and (4) state and local government efforts to address concerns about gender-related price differences.

To compare prices for selected goods that are differentiated for men and women, we purchased and analyzed Nielsen Company (Nielsen) data on retail prices paid for 10 personal care product categories for calendar year 2016.¹ The product categories included underarm deodorants, body deodorants (typically sold as a spray), disposable razors, nondisposable razors, razor blades, shaving creams, shaving gels, and three categories of fragrances. We selected these categories of personal care products because they are commonly purchased consumer goods that were categorized by gender in the Nielsen data. The women's and men's versions of personal care products we selected are generally more similar in terms of the form, size, and packaging in comparison to certain other consumer product categories that are also differentiated by gender, such as clothing. We used regression models to analyze data on retail prices paid for the 10 categories of personal care products differentiated for women and men. To assess the reliability of the Nielsen data, we reviewed relevant documentation and conducted interviews with Nielsen representatives to review steps they took to collect and ensure the

¹In addition to the retail price paid, the data we purchased from Nielsen include data fields for product brand, package size, package design, product scent, and product color, among other product characteristics. Nielsen collected these retail price data from over 200 national retailers, including grocery stores, pharmacies, mass merchandizers, and club stores. Together these retailers encompass 82 percent of all U.S. sales for 2016. The prices were collected from participating retailers when an item was scanned at the cash register during check out.

reliability of the data. In addition, we electronically tested data fields for missing values, outliers, and obvious errors. We determined that these data were sufficiently reliable for our purposes. For more details on the methodology for, and limitations of, our analysis of these retail price data, see appendix I.

We also manually collected listed prices for 16 pairs of selected personal care products from four different retailer websites over two 7-day periods in January and March 2018. For each pair, we selected comparable men's and women's products that were differentiated by product attributes, such as scent or color, and were commonly sold across retailers. For more details on our online price data collection and the limitations associated with interpreting the results, see appendix II.

To examine what is known about the extent to which men and women may be offered different prices or access for the same goods or services, we reviewed academic literature identified through a literature search covering the last 25 years. To identify existing studies from peer-reviewed journals, we conducted searches using subject and keyword searches of various databases, such as EconLit, Scopus, ProQuest, and Social SciSearch. We also used a snowball search technique—meaning we reviewed relevant academic literature cited in our selected studies—to identify additional studies. We performed these searches and identified articles from December 2016 to April 2018. From these searches, we identified 21 studies that appeared in peer-reviewed journals or research institutions' publications from 1995 through 2016 and were relevant to gender-related price differences for the same products. We reviewed and assessed each study's evaluation methodology based on generally accepted social science standards. See the bibliography at the end of this report for a list of the 21 studies.

We then summarized the research findings. A GAO economist read and assessed each study, using the same data collection instrument. The assessment focused on information such as the types of disparities examined, the research design and data sources used, and methods of data analysis. The assessment also focused on the quality of the data used in the studies as reported by the researchers and any limitations of data sources for the purposes for which they were used. A second GAO economist reviewed each completed data collection instrument to verify the accuracy of the information included. As a result, the 21 studies that we selected for our review met our criteria for methodological quality. We found the studies we reviewed to be reliable for purposes of determining what is known about price differences for the same products. However,

these studies have important limitations, such as using nonrepresentative data samples, and the results are not generalizable.

To examine the federal role in overseeing gender-related price differences, we reviewed relevant federal statutes and agency guidance, and interviewed officials from the Federal Trade Commission (FTC), Bureau of Consumer Financial Protection (BCFP), the Department of Housing and Urban Development (HUD), and the Department of Justice (DOJ). To help identify the extent of concerns about gender-related price differences, we interviewed representatives from eight consumer groups, three industry associations, and four academic experts. Additionally, we reviewed a sample of consumer complaints from databases managed by BCFP, FTC, and HUD (Consumer Complaint Database, Consumer Sentinel Network, and Enforcement Management System, respectively). Complaints were submitted by consumers across the United States about various financial products, housing grievances, and other consumer protection concerns.

To identify our universe of gender-related consumer complaints in BCFP and FTC databases, we used the following search terms that targeted sex or gender discrimination: discriminat, unfair, treat, decept, abus, female, woman, women, man, men, male, gender, sex, female, woman, women, man, men, male, gender, and sex. HUD's consumer complaint database is categorized by protected class (e.g., race, sex, national origin), so we did not need to use search terms to identify gender-related complaints.

For the years 2012 through 2017, we identified 6,117 BCFP consumer complaint narratives; 10,472 FTC consumer complaints narratives; and 5,421 HUD consumer complaint narratives that were relevant to our scope. We then drew a stratified random probability sample of 100 gender-related consumer complaints from each database. To determine which complaints in our samples were about price differences related to gender or sex, two team members read through each complaint narrative and coded whether or not the complainant's narrative indicated that they felt that they paid or were charged more because of their gender or sex. A third team member conducted a final review of the results, and made a final determination in cases where there were differences in the first two team member's assessments.

With this probability sample, each member of the study population had a nonzero probability of being included, and that probability could be computed for any member. We followed a probability procedure based on random selections and our sample is only one of a large number of

samples that we might have drawn. Since each sample could have provided different estimates, we express our confidence in the precision of our particular sample's results as a 95 percent confidence interval (with a margin of error of 5.9 percent). This is the interval that would contain the actual population value for 95 percent of the samples we could have drawn. We assessed the reliability of these data by reviewing documentation and interviewing agency officials about the databases used to collect these complaints. We determined that these data were sufficiently reliable for our purposes of identifying complaints of gender-related price differences.

To explore state and local efforts to address concerns about gender-related price differences, we conducted a literature search and identified three state or local laws or ordinances that specifically address gender-related price differences: California, Miami-Dade County, Florida, and New York City, New York. We reviewed these laws and ordinances and interviewed officials from these jurisdictions to discuss motivations for, oversight of, and the impact of these laws.

We conducted this performance audit from October 2016 to August 2018 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 IV: Descriptive Statistics of Nielsen Retail Price Data

For each of 10 personal care product categories we analyzed, we compared the overall average prices for women's products and men's products using two measures of average price: average item price and average price per ounce or count. While the second price measure adjusts the average price for quantity of product, these comparisons did not take into account the effect on price of differences in product brand, packaging, and other characteristics.

As shown in table 7, adjusting the average item price to account for differences in product quantity (ounces or count) significantly affected the size and magnitude of gender price differences for several product categories.¹ This is because men's products in the dataset were frequently larger in size or count compared with women's products in the same category. For example, women's disposable razors sold for 11 percent less than those targeted to men when we compared average item prices. However, when we compared average price per count of razors, women's disposable razors sold for 19 percent more on average than men's. This is because women's disposable razors had on average about one fewer razor per package. In 5 out of 10 product categories, women's versions of the product on average sold for a higher price per ounce or count than men's and these differences were statistically significant at the 95 percent confidence level for 4 products and at the 90 percent level for one product.

¹However, comparing average price per ounce or count does not capture quantity discounts that may be associated with larger quantities or counts of products. We account for this in our regression models for analyzing comparative prices.

Appendix IV: Descriptive Statistics of Nielsen
Retail Price Data

Table 7: Comparison of Average Retail Prices Paid in 2016 for Men’s and Women’s Products for 10 Selected Personal Care Product Categories

Product	Average item price ^a (dollars)			Average price per ounce or count ^b (dollars)		
	Products targeted to women (w)	Products targeted to men (m)	Difference (percent) (w-m) / m	Products targeted to women (w)	Products targeted to men (m)	Difference (percent) (w-m) / m
Underarm deodorants	4.14	3.98	4	1.70	1.22	39*
Body deodorants	2.59	5.72	-55*	1.63	1.18	38*
Shaving cream	2.80	1.95	44*	0.37	0.27	37
Shaving gel	2.90	3.35	-13	0.41	0.48	-15*
Disposable razors	5.02	5.64	-11	1.34	1.13	19
Nondisposable razors	9.66	10.95	-12**	2.87	4.34	-34**
Razor blades	17.63	18.49	-5	3.77	3.26	16
Designer perfume	24.91	27.32	-9*	21.62	18.63	16*
Mass-market perfume	11.59	11.28	3	8.04	6.48	24**
Mass-market body spray	2.68	4.33	-38*	1.21	0.97	25*

Legend: * = statistically significant at the 95 percent level (p-value < 0.05); ** = statistically significant at the 90 percent level (p-value < 0.1)

Source: GAO analysis of Nielsen Company data. | GAO-18-500

Note: We selected these categories of personal care products because they are commonly-purchased consumer goods that were categorized by gender in the Nielsen Company’s data. Our analysis is limited to the set of personal care products that we analyzed. Our findings are not generalizable or applicable to other consumer goods.

^aThe average item price is the total dollar sales for a product category divided by the total number of items sold for that category.

^bThe average price per ounce or count is the item price divided by the quantity of product and weighted by the proportional share of items sold, where quantity depicts the number of ounces, as in the case of fragrances or the count of blades in razor blade packs.

Information about sales and relative sizes of different products targeted to men and women are presented in table 8 below.

Appendix IV: Descriptive Statistics of Nielsen
Retail Price Data

Table 8: Total Sales and Units Sold for Selected Personal Care Products, 2016

Product	Total sales (dollars in millions)		Units sold (millions)		Ounces or count sold (millions)		Average size (ounces or count)	
	Men's	Women's	Men's	Women's	Men's	Women's	Men's	Women's
Underarm deodorants	1,474	930	370	225	1,362	632	4.21	3.72
Body deodorants	15	10	1.7	5.5	9.2	10.5	7.13	4.26
Shaving cream	80	64	41	23	366	185	9.10	8.71
Shaving gel	195	115	58	40	443	322	9.63	11.38
Disposable razors	639	498	113	99	815	523	7.13	6.12
Nondisposable razors	308	214	28	22	158	113	5.44	5.82
Razor blades	803	333	44	19	276	107	7.25	5.72
Designer perfume	142	138	5	6	10	8	2.42	1.98
Mass-market perfume	73	88	6.5	7.6	19	18	2.71	2.14
Mass-market body spray	62	57	14	21	74	74	8.18	8.03

Source: GAO analysis of Nielsen Company data. | GAO-18-500

Note: We selected these categories of personal care products because they are commonly-purchased consumer goods that were categorized by gender in the Nielsen Company's data. Our analysis is limited to the set of personal care products that we analyzed. Our findings are not generalizable or applicable to other consumer goods. The average item price is the total dollar sales for a product category divided by the total number of items sold for that category. The average price per ounce or count is the item price divided by the quantity of product and weighted by the item's proportional share of total volume sales, where quantity depicts the number of ounces as in the case of fragrances or the count of blades in razor blade packs.

Appendix V: Selected Federal Agency Consumer Complaint Processes

This appendix provides additional details about the consumer complaint processes at the Bureau of Consumer Financial Protection (BCFP), Federal Trade Commission (FTC), and Department of Housing and Urban Development (HUD). Consumers with a complaint about unfair treatment related to gender could submit a complaint to one of these agencies. BCFP and FTC monitor consumer complaints related to violations under the Equal Credit Opportunity Act, while HUD and the Department of Justice (DOJ) investigate housing discrimination complaints under the Fair Housing Act. These complaints could be about price differences because of gender.¹

¹Depending on the scope and magnitude, complaints may be referred to DOJ if they indicate a potential pattern or practice of illegal discrimination. According to DOJ officials, from 2012 through 2016, the Civil Rights Division investigated 69 lending matters, including matters referred to DOJ by the financial regulators, of which 15 involved gender-related price differences.

**Appendix V: Selected Federal Agency
Consumer Complaint Processes**

Table 9: Summary of Agencies' Efforts to Collect Consumer Complaints

	Bureau of Consumer Financial Protection (BCFP)	Federal Trade Commission (FTC)	Department of Housing and Urban Development (HUD)
How agencies collect or receive complaints	<ul style="list-style-type: none"> • Consumers can submit their complaint through an online complaint form to the Consumer Complaint Database on BCFP's website. • Phone • Mail or fax • Other financial regulators 	<ul style="list-style-type: none"> • Consumers can submit their complaint through an online complaint form to the Consumer Sentinel Network on FTC's website. • Phone • Mail • FTC also imports complaints from other federal agencies (e.g., BCFP) • State level agencies (e.g., State attorneys general) • Other entities, such as the Council of Better Business Bureaus, consumer groups, and certain companies (e.g., Publishers Clearing House) 	<ul style="list-style-type: none"> • Consumers can submit their complaint through an online complaint form to the HUD Enforcement Management System on HUD's website. • Phone • Mail • HUD Regional offices • Partner organizations
How complaints are handled	<ul style="list-style-type: none"> • Complaints are reviewed to determine if the complaint can be sent to a company for response or should be referred to another regulator. Complaints are categorized by consumer-selected product and sub-product. • Complaints sent to companies for response are published in the publicly available Consumer Complaint Database after the company has responded, or after the company has had the complaint for 15 calendar days, whichever comes first. 	<ul style="list-style-type: none"> • Complaints are sorted into three broad categories: Fraud, Identity Theft, and Other Consumer Protection Problems. • Complaints marked as "other" are categorized by FTC staff. • All complaints are made available to members of the Consumer Sentinel Network, which include 2,300 law enforcement members across the country who use the data to investigate targets, identify witnesses, and spot trends. 	<ul style="list-style-type: none"> • Complainants are interviewed to collect facts about alleged discrimination by HUD staff to determine if HUD has jurisdiction over the complaint. • If HUD has the authority to investigate, it will file the complaint and begin an investigation of the alleged discrimination.

**Appendix V: Selected Federal Agency
Consumer Complaint Processes**

	Bureau of Consumer Financial Protection (BCFP)	Federal Trade Commission (FTC)	Department of Housing and Urban Development (HUD)
How complaints are responded to and monitored	<ul style="list-style-type: none"> BCFP monitors complaints and company responses to identify trends. 	<ul style="list-style-type: none"> FTC makes the complaints available to law enforcement partners across the country. However, FTC does not intervene in individual disputes between consumers and merchants. FTC monitors its complaint database to identify emerging consumer concern trends. 	<ul style="list-style-type: none"> HUD offers conciliation between the parties in cases of violations. If resolution is not reached, and HUD determines there is reasonable cause to believe a violation has occurred, the parties may elect to have the matter heard in U.S. District Court or at HUD. HUD monitors the complaint database to identify trends.

Source: GAO analysis of BCFP, FTC, and HUD consumer complaint processes. | GAO-18-500

Appendix VI: GAO Contact and Staff Acknowledgments

GAO Contact

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Staff Acknowledgments

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Appendix VII: Bibliography

We reviewed literature to identify what is known about the extent to which female and male consumers may face different prices or access in markets for credit and goods and services that are not differentiated based on gender. This bibliography contains citations for the 20 studies and articles that we reviewed that compared prices or access for female and male consumers in markets where the product is not differentiated by gender (mortgages, small business credit, auto purchases, and auto repairs).

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