

What Have We Learned From Paired Testing in Housing Markets?

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Abstract

Fair housing audits or tests, which compare the way housing agents treat equally qualified homeseekers in different racial or ethnic groups, are an important tool both for enforcing fair housing laws and for studying discriminatory behavior in housing markets. This article explains the features of two types of housing audits: in-person paired audits and correspondence audits, which are usually conducted over the Internet. In addition, this article reviews evidence provided by audit studies about the extent of housing discrimination. The studies reviewed include four national studies in the United States based on in-person audits and many studies based on correspondence audits in the United States and in several European countries. This article also reviews audit-based evidence about the causes of discrimination in housing markets. Despite variation in methods, sample sizes, and locations, audit studies consistently find evidence of statistically significant discrimination against homeseekers who belong to a historically disadvantaged racial or ethnic group. The 2012 national audit study found, for example, that the share of audits in which a White homebuyer was shown more available houses than an equally qualified Black homebuyer was 9 percentage points higher than the share in which the Black homebuyer was shown more houses than his or her White counterpart. In the United States, housing discrimination against Black and Hispanic homeseekers appears to have declined in some types of agent behavior, such as whether the advertised unit is shown to a customer, but to have increased in others, such as steering Black and Hispanic homeseekers toward minority neighborhoods. This article also discusses the past use and continued importance of fair housing audits as a fair-housing-enforcement tool.

Introduction

In-person paired testing is a methodology explicitly designed to observe differential treatment of equally qualified homeseekers in different groups—that is, to observe discrimination. Testing is also called auditing; we use the two terms as synonyms. Paired testing in housing markets was first conducted in the 1950s by partnerships between scholars and community groups. This type of testing then gained prominence during the 1960s and 1970s as localities, states, and the federal government passed fair housing legislation, private fair housing groups refined testing methods for enforcement purposes, and scholars discovered that this method could be used to study discriminatory behavior. Building on this foundation, testing has yielded extensive information on the nature, extent, and causes of discrimination in housing; it has, by documenting discrimination, provided influential support for fair housing legislation, such as the 1988 Fair Housing Amendments Act (FHAA); and it has been used extensively as a fair housing enforcement tool by private fair housing groups and by governmental civil rights agencies. In addition, the recent development of testing methods using the Internet, usually called correspondence tests or correspondence audits, has resulted in a large number of studies of housing discrimination in many different countries.

This article begins with a detailed review of the testing method and of evidence about discrimination against African-American, Hispanic-American, and Asian-American homeseekers obtained from in-person paired testing in housing markets. This review is followed by an exploration of studies based on e-mail audits (some of which apply to other countries), an exploration of the link between paired testing and fair housing policy, and a brief review of the use of paired testing in some other markets. The focus is on the use of audits (tests) for research purposes.¹ The next section examines testing methodology by reviewing the basics of paired testing, discussing audits that do not involve face-to-face contact (called correspondence audits), explaining how testing results can be used to study the causes of discrimination, and describing key methodological issues in the four national housing audit studies. Results from paired-testing studies in the housing market are presented in the subsequent section. To be specific, this section explores the incidence of discrimination, trends in discrimination, results concerning racial and ethnic steering, and evidence about the causes of discrimination. Appendix A provides further evidence from smaller paired-testing studies and from correspondence audits. The final section addresses paired testing and public policy, focusing on the link between paired testing and fair housing policy, but also providing a brief review of paired-testing research in markets other than the housing market. Appendix B describes the origins of fair housing audits.

Testing Methodology

The testing method can be used both to measure the incidence of discrimination and to test hypotheses about discrimination's causes. This section explains the methodology of both in-person paired testing and correspondence audits, shows how these methods can be used to test hypotheses about the causes of discrimination, and introduces the four national in-person audit studies in the United States.

¹ See Smith (1994) and Schwemm (2014) for details of enforcement audits.

The Basics of In-Person Paired Testing

In-person paired-testing research involves six main steps. First, auditors are selected. Each auditor must be capable of playing the role of a typical homeseeker and not have unusual traits that might influence his or her treatment in the housing market relative to the auditor with whom he or she is paired.

Second, auditors are trained about the role they should play during an audit. In most cases, they are instructed to inquire about an advertised unit and then to ask for additional suggestions from the housing provider. In some audit studies, the audits are *blind*, in the sense that the auditors are told only that they are helping with a study about the marketing of housing and are not told that they have a partner or that the study is investigating discrimination. In the 1989 and 2000 Housing Discrimination Studies, however, the training was not blind in this sense. Auditors were told the purpose of the study and were trained to provide information as accurately as possible, and, to the extent possible, managers were given protocols to check on the accuracy of the information provided. In these studies, auditors in different racial or ethnic groups were trained together to ensure that they received the same training. Blind auditing is not appropriate in these studies because auditors can observe the group composition of the trainees; without an explanation for this composition, auditors might make their own guesses about the purpose of the study.²

Third, a sample of available housing units is randomly drawn, usually from the major local newspaper. In some audit studies, some neighborhoods are oversampled or the sample from the major newspaper is supplemented with other sources, such as community newspapers. Each sampled unit then becomes the basis for one audit.

Fourth, auditors are matched for each test with one member from a historically disadvantaged group.³ Paired testers are assigned income and other household traits that make them equally qualified for the sampled advertised unit about which they are inquiring.⁴ Even if the auditors are the same, the assigned income and household traits vary from one audit to the next to match the associated advertised unit. Teammates are assigned similar incomes and other traits for a given audit so that differences in these traits do not lead to differences in treatment. Because housing market transactions are relatively simple and because the people marketing housing do not usually

² The auditor training manual for HDS1989 began by saying, “Thank you for helping in this study of housing discrimination in the nation’s sales and rental housing markets. Your role as an ‘auditor’ is absolutely critical to the success of the study. Your activities will provide the raw material from which others will be able to make assessments about the nature and extent of practices of housing discrimination by members of the housing industry” (Urban Institute, 1991: Annex 4, p. 1). Ross and Turner (2005: 174) explained another reason for avoiding blind audits in the early national studies: “In 1989, many minority testers experienced blatant discriminatory treatment. For example, one African American tester saw the real estate agent visibly react as the tester got out of the car; the agent then jumped in his/her car and quickly drove off. Many testers returned from their visits upset and angry at the treatment they had received. In fact, tester training for the 2000 study explicitly prepared testers so that they would not overreact to such treatment and invalidate the test.”

³ In most cases, we refer to the “White” auditor and the “minority” auditor. An audit could, of course, also be conducted with men and women in teams, some of which consist of two White people. Three-person teams are sometimes used in some enforcement audits, but because of their added expense are rarely used to research (see appendix A).

⁴ In enforcement audits, the auditor from the disadvantaged group is usually given slightly better qualifications. In a research audit study, random assignment of income is sufficient to avoid bias, but in the national audit studies, the auditor from the disadvantaged group was always given a slightly higher income.

ask potential customers about very many traits, the qualifications of audit teammates are almost identical. It follows that differences in the way teammates are treated can be attributed to random factors or to discrimination. Because membership in a historically disadvantaged group cannot be randomly assigned, this approach cannot fully rule out the possibility that some unassigned trait influences treatment, thereby biasing estimates of discrimination up or down; however, good management makes this outcome unlikely. As discussed in the section “The Housing Discrimination Studies,” some audit studies have also collected information on auditors’ actual traits, such as their income and education, to see if these traits affect measures of discrimination.⁵

Fifth, audit teammates separately contact the housing agent associated with one of the selected advertisements and attempt to schedule a visit. The initial contacts are completed during a short period, but not so short as to be suspicious to the agent. In most studies, the order of the visits is randomized. The visit, if it occurs, then follows the script that the auditors learned in training, with inquiries about the advertised unit and similar units.⁶ Auditors are generally encouraged to learn about and visit as many units as possible, while not stating preferences (beyond an interest in the advertised unit and units similar to it) that would guide this process.

Sixth, and finally, after an audit is complete, each audit teammate is asked to record what he or she was told and how he or she was treated. These audit forms provide information on the number of houses or apartments shown to each auditor and also on many other aspects of housing agent behavior. Audit teammates have no contact with each other during an audit and they fill out their audit survey forms independently. Most audit studies then schedule debriefing sessions in which an audit manager reviews these forms with each auditor to ensure that all information on the forms is accurate.

Unlike alternative approaches that look for signals of discrimination in housing prices, housing quality, homeownership, and segregation patterns, in-person paired testing provides direct measures of discrimination by comparing the outcomes of equally qualified White and minority testers. Moreover, paired testing makes it possible to examine the multiple, complex forms that discrimination can take by observing many types of housing agent behavior. This methodology yields a powerful narrative concerning the way people in different groups are treated. This narrative adds credibility to findings of discrimination in research, policy, and court settings. In addition, the results of the paired testing can shed light on the causes of discrimination because they provide information on the circumstances in which discrimination occurs. This article returns to research on the causes of discrimination in the section “Testing Hypotheses About the Causes of Discrimination.”

One important feature of paired audits is that some of the unobservable factors are shared between audit teammates. This type of unobservable factor does not lead to bias in estimates of

⁵ Some disagreement among scholars remains about the importance of traits that are not matched in the audit design. Heckman and Siegelman (1993) argue that they could be an important source of bias (in an unknown direction), whereas Yinger (1993) argues that they are unlikely to be an important source of bias. Controlling for auditors’ actual traits in the HDS2000, one possible unobservable in previous studies, has little impact on the results but does not rule out the possibility of bias from other factors.

⁶ In the first national audit study (Wienk et al., 1979), the auditors asked about the type of unit and general location defined by the selected advertised unit but did not ask about the advertised unit specifically.

discrimination, but if not accounted for it does lead to an upward bias in standard errors. The studies discussed in the section “The Results of Paired-Testing Studies” provide a variety of ways to avoid this type of bias. This issue also arises in the following section on correspondence audits.

A New Development: Correspondence Audits

One disadvantage of paired testing is that it is expensive; a large management structure must be created and auditors must be hired, trained, sent into the field, and debriefed. To address this practical problem, scholars have developed an alternative method, called a correspondence audit, that is less expensive and more precise but addresses a narrower set of questions. This methodology is based on e-mail inquiries instead of visits and relies on names instead of personal contact to convey race or ethnicity.⁷ In addition, correspondence audits record the housing agent’s response to an e-mail instead of his or her in-person treatment of an auditor. The rapid growth in the use of the Internet for marketing housing has made this an appealing strategy.

Correspondence audits for research purposes have focused on rental housing, usually based on advertisements posted on a particular website, such as craigslist. Unlike in-person paired testing, correspondence audits can literally assign race or ethnicity randomly. The audit managers write several versions of an audit e-mail and then randomly select a version and a group membership for each inquiry. This randomization eliminates potential bias from unobserved differences between White and minority homeseekers. This sharper identification strategy comes at a cost, however, because correspondence audits can address only a relatively narrow set of questions concerning housing agents’ initial responses to an inquiry.

One distinction between in-person paired testing and correspondence audits is that correspondence audits do not have to rely on pairing; that is, a housing agent need not receive two e-mails, one each from a White homeseeker and a minority homeseeker. With a one-e-mail approach and random assignment of racial or ethnic identity, discrimination is the difference between the average treatment of e-mails with a White identity minus the average treatment of the e-mails with the identity of a racial or ethnic minority.⁸ This single-inquiry strategy lowers the possibility of detection, because housing agents do not receive two somewhat-similar inquiries in a relatively short time span. This strategy also raises the standard errors of discrimination estimates for a given sample size, because unobservable factors shared by teammates cannot be removed. Because correspondence audits are relatively cheap, however, the problem of high standard errors can be addressed by expanding the sample size.⁹

⁷ Some early correspondence audits used phone calls instead of e-mails. In this case, minority status is conveyed both through the auditor’s name and through his or her accent. This approach, like standard paired testing, cannot randomize group membership—at least not if a person’s accent is part of the study design.

⁸ In principle, in-person audits do not have to rely on pairing, either. Audit managers could randomly select the group membership for the single inquiry associated with each advertisement in the sample. This approach would lose the narrative power of a two-person audit, however, and it would require a much larger sample size. To the best of our knowledge, no in-person audit study has followed this strategy. Although this approach would preserve the lack of correlation between auditors and the circumstances they encounter, it would not eliminate the potential bias from a correlation between group membership and unobserved auditor traits that influence treatment in the housing market.

⁹ Another disadvantage of nonpaired audits is that they do not yield gross measures of discrimination (defined in the next section).

Testing Hypotheses About the Causes of Discrimination

Many scholars have used audits to study the causes of discrimination. In the audit context, a hypothesis about a cause of discrimination is stated as a situation in which discrimination is more likely to occur. The hypothesis is then tested by determining whether discrimination is higher or more likely during audits in which that situation arises. Three main hypotheses have appeared in the literature: (1) the agent-prejudice hypothesis, (2) the customer-prejudice hypothesis, and (3) the statistical-discrimination hypothesis. These hypotheses, which are not mutually exclusive, are briefly described here; existing empirical tests of these hypotheses are discussed in the section “The Causes of Discrimination.”

The agent-prejudice hypothesis states that discrimination may occur because real estate agents have strong personal biases against minority homeseekers. Because agent prejudice is not directly observed, studies have tested this hypothesis using variables that are known to be associated with prejudice. These variables include the race, age, and gender of the agent and the gender or marital status of the auditor. Studies have found, for example, that White prejudice is higher among men than among women (Schuman, Steeh, and Bobo, 1985; Schuman et al., 1997) and increases with age (Schuman and Bobo, 1988), so the agent-prejudice hypothesis predicts that discrimination will be higher if the agent is male or older.

The customer-prejudice hypothesis states that agents may avoid renting to minority customers to protect their actual or potential business with prejudiced White customers.¹⁰ This hypothesis predicts that agents discriminate more against a minority customer if some of the customer’s characteristics are particularly likely to upset their prejudiced White customers and certain types of customers are more likely to be racially prejudiced. Such characteristics may include low educational level of White property owners (Schuman et al., 1997) and also a low household income and a large number of children of minority homeseekers (Schuman, Steeh, and Bobo, 1985). The customer-prejudice hypothesis also predicts more discrimination when the agent’s office is small, with a smaller client base; the office is in a White neighborhood; or the advertised unit is in a largely owner-occupied neighborhood.

The statistical-discrimination hypothesis states that discrimination occurs when agents treat people in different groups differently because they believe that group membership is correlated with unobserved characteristics that affect the profitability of their actions.¹¹ In the rental housing market, for example, a rental agent may use customers’ race or ethnicity as a signal about their preferences for housing type, neighbors, or both or about constraints that are related to the probability of a transaction. The statistical-discrimination hypothesis also predicts that discrimination against minority

¹⁰ Several scholars (Galster, 1990c, 1987; Yinger, 1986) have pointed out that this hypothesis breaks down when racial neighborhood transition from White to Black is imminent or under way. In this case, real estate brokers may be able to maximize turnover, and hence commissions, by selling to Black households.

¹¹ Several scholars have identified more specific hypotheses in this category. Galster (1990c, 1987) and Newberger (1989) argue that agents may or may not show houses to Black homeseekers in some neighborhoods because of “anticipated discrimination” against them by White homesellers or mortgage lenders. Galster (1990c) also argues that agents may discriminate on the basis of their beliefs about what customers in different groups prefer. Ondrich, Ross, and Yinger (2003) argue that agents may have stereotypes about the financial capabilities of people in certain groups that lead to intergroup differences in treatment despite the equal qualifications of audit teammates.

homeseekers will decrease with the minority population in a neighborhood if real estate agents believe that minority homeseekers prefer living where minority residents are concentrated. In addition, this hypothesis predicts that discrimination increases with the value of houses if real estate agents believe that minority individuals have a relatively high probability of financial difficulties.

The Housing Discrimination Studies

The largest paired-testing studies in the United States are the Housing Market Practices Survey (HMPS) in 1977 and the three Housing Discrimination Studies (HDS1989, HDS2000, and HDS2012) sponsored by the U.S. Department of Housing and Urban Development (HUD).¹² These studies were designed to yield statistically reliable national estimates of discrimination against certain racial and ethnic groups in urban housing markets. Exhibit 1 presents a few common features of the four studies (including race or ethnicity tested, scale, and locations where tests were conducted) along with some of their differences. In addition, several scholars have conducted smaller scale in-person audit studies, and numerous e-mail correspondence audits have been conducted during the past two decades.

Outcomes measured in paired-testing studies indicate the incidence and severity of unfavorable treatment that minority homeseekers experience. Unfavorable treatment may arise, for example, in the probability of being told the advertised units are available; the probability of making an appointment when inquiring about advertised units; the probability of at least one in-person visit to an available apartment; the number of apartments suggested or shown; the characteristics of apartments shown or inspected; and the terms and conditions of the lease, such as the rent, the security deposit, or the lease length.

Two types of discrimination measures have appeared in the literature: (1) gross measures and (2) net measures. Gross measures indicate the share of all audits in which the White auditor is favored over his or her minority teammate. Although gross measures are easily understandable, they may overstate the frequency of systematic discrimination because nondiscriminatory random events are responsible for some portion of observed treatment. A White auditor might appear to be favored, for example, because she went first and the apartment was rented before her minority teammate arrived. Net measures of discrimination are the proportion of audits in which the White auditor is favored minus the proportion of audits in which the minority auditor is favored. The net measure indicates the disadvantage minority homeseekers face in the housing market relative to White homeseekers. The net measure provides a lower bound estimate of systematic discrimination in favor of White homeseekers. To the extent that minority homeseekers are systematically favored over White homeseekers in some share of housing inquiries, such as inquiries concerning apartments in largely minority neighborhoods, the net measure will understate the incidence of discrimination against minority homeseekers. Although the audit design makes it possible to calculate reasonable net and gross measures based on sample proportions, more precise measures of discrimination can be obtained with more advanced statistical procedures (see Ondrich, Ross, and Yinger, 2003; Ondrich, Stricker, and Yinger, 1999, 1998; Page, 1995; Zhao, 2005).

¹² The HMPS, the first national audit study of housing market discrimination, was conducted by the National Committee Against Discrimination in Housing. The Urban Institute conducted the three Housing Discrimination Studies.

Exhibit 1

Comparison of National Paired-Testing Studies

Study	Race/Ethnicity Tested	Scale	Location	Features
HMPS1977	Black	3,264 tests	40 metropolitan areas	Individual real estate agents and apartment rental complexes were randomly selected from only one sample of newspaper advertisements for each metropolitan area. Auditors did not explicitly ask for the advertised unit. Black auditors always preceded White auditors in rental audits, but White auditors always preceded Black auditors in sales audits.
HDS1989	Black Hispanic	3,800 tests	25 metropolitan areas	Each audit began with a request for a specific, advertised unit randomly selected from the most recent Sunday newspaper (“anchoring” audit). It was the first study that measured racial and ethnic steering. For the purpose of steering analysis, auditors were instructed to ask about the availability of other homes similar in size and prices to the advertised unit. Order of initial call was randomized.
HDS2000	Black Hispanic Asian Native American	4,600 tests	23 metropolitan areas	Like HDS1989, the sample of housing units was randomly selected from the Sunday classified advertisements of major metropolitan newspapers. HDS2000 also used geographic oversampling and supplemental samples from secondary newspapers for areas that were underrepresented in the newspaper advertisements. In addition, it recorded some auditors’ actual characteristics, such as income and education. Testers made appointment calls for sales and rental tests, and the order of initial call was randomized. On sales tests, testers were not to mention the advertised home during this call and were also to refrain from providing their personal and financial information. Testers inquired about the availability of the advertised housing unit that prompted their visit and about similar units.
HDS2012	Black Hispanic Asian	8,047 tests	28 metropolitan areas	Testers attempted to make appointments for in-person visits by telephone or e-mail. Order of initial contact was randomized. On sales tests, testers were not to mention the advertised home during telephone conversation or e-mail. If making an appointment was successful, testers used the in-person visit to learn about available homes or apartments. Testers inquired to view the home that was advertised. If told about at least one available housing unit, testers sought to inspect homes or apartments.

HDS = Housing Discrimination Study, HMPS = Housing Market Practices Survey.

The Results of Paired-Testing Studies

This section first presents the findings from four nationwide paired-testing studies that began in the late 1970s and were sponsored by HUD. In addition, this section reviews the results of studies based

on the data from the four national studies and of other studies that conducted paired tests. It also reviews the evidence on trends in housing discrimination based on the four HUD-sponsored studies.

This section presents the results of sales and rental audit studies separately. The results for these two markets are not strictly comparable.¹³ Buying a house is a more complex procedure than renting an apartment, and less of the buying process can be examined than that of the renting process. The complexity of the sales market provides many opportunities for discriminatory treatment, not all of which can be examined. Moreover, real estate agents earn their incomes from commissions. Prospective Black buyers may receive systematically different treatment or service than White buyers—but may still receive service. Audit studies must therefore be careful to look for differences in the services provided, not just differences in whether service was provided at all. In addition, the results of audit studies should not be interpreted as comprehensive measures of discrimination but instead as measures of discrimination in key types of agent behavior. Moreover, the types of behavior that can be observed may not be the same in the sales and rental markets.

The Incidence of Discrimination

This section presents findings from HDS2012, which was conducted in 28 metropolitan areas to measure discrimination against minority home renters and buyers in 2012. Based on overall measures of differential treatment for renters, White renters experience more favorable treatment than equally qualified Black renters in 28.4 percent of inquiries compared with 19.6 percent in which Black renters are favored (Turner et al., 2013). White renters similarly experience more favorable treatment than equally qualified Hispanic renters in 28.9 percent of inquiries compared with 18.9 percent in which Hispanic renters are favored (Turner et al., 2013). In the sales tests, White homebuyers experience more favorable treatment than equally qualified Black homebuyers in 40.7 percent of inquiries compared with 30.9 percent in which Black homebuyers are favored (Turner et al., 2013).

Exhibit 2 presents the results (net measures) of HDS2012 for the eight types of auditor treatment that are similarly measured for both rental and sales tests. The top two panels present the rental and sales test results for Black homeseekers, and the bottom two panels present the rental and sales results for Hispanic homeseekers. The left panel presents the outcomes for which White testers were favored (defined as statistically significant net measures), and the right panel presents the outcomes for which no discrimination was detected or Black testers were favored. A few interesting patterns of housing discrimination emerge.

First, when comparing the results of rental tests with sales tests for Black homeseekers, it is clear that the magnitude of discrimination against Black homeseekers is higher in sales tests than in rental tests (for the outcomes a, b, c, and d). For instance, Black homeseekers are told about fewer available units (outcome a) than White homeseekers in 13.4 percent of inquiries in the sales tests compared with 9.0 percent of inquiries of the rental tests. Also, Black homeseekers are told about 0.5 fewer units available than White homeseekers (outcome b) in the sales tests compared with 0.2 fewer units in the rental tests. Finally, Black homeseekers are shown fewer units than White homeseekers (outcome c) in 9.3 percent of inquiries of the sales tests compared with 2.8 percent of inquiries of the rental

¹³ This point was clearly explained in Wienk et al. (1979: 175–176).

Exhibit 2

Results of HDS2012

		White Favored Against Black	Neither Favored or Black Favored
Rental	a. Told about more available units (9.0%*) b. Average number of units available per visit (0.20*) c. Shown more units (2.8%*) d. Average number of units shown (0.04*) e. Average rent (- \$4*)		f. Only one tester able to make appointment (0.4%) g. Only one tester told units available (0.9%) h. Level of agent helpfulness (- 0.03)
Sales	a. Told about more available units (13.4%*) b. Average number of units available per visit (0.50*) c. Shown more units (9.3%*) d. Average number of units shown (0.30*) f. Only one tester able to make appointment (2.4%*)		e. Average price (- \$4,012) g. Only one tester told units available (2.1%) h. Level of agent helpfulness (0.12)
		White Favored Against Hispanic	Neither Favored or Hispanic Favored
Rental	a. Told about more available units (12.8%*) c. Shown more units (6.0%*) d. Average number of units shown (0.07*) e. Average rent (- \$6*) g. Only one tester told units available (1.8%*)		b. Average number of units available per visit (- 0.22*) f. Only one tester able to make appointment (0.2%) h. Level of agent helpfulness (0.02)
Sales			a. Told about more available units (2.3%) b. Average number of units available per visit (0.28) c. Shown more units (2.0%) d. Average number of units shown (0.10) e. Average price (- \$5,621) f. Only one tester able to make appointment (0.4%) g. Only one tester told units available (- 0.2%) h. Level of agent helpfulness (0.08)

HDS = Housing Discrimination Study.

* Indicates statistical significance at the 90-, 95-, or 99-percent level.

Note: Net measures are presented in parentheses.

Source: Estimates are from exhibits IV-1 and IV-14 of Turner et al. (2013)

tests. In terms of the number of units shown (outcome d), Black homeseekers are shown 0.30 fewer units than White homeseekers in the sales tests compared with 0.04 fewer units in the rental tests.

Second, in rental markets, Hispanic renters experience more discrimination than Black renters for four outcomes that exhibit discrimination (outcomes a, c, d, and e). For instance, Hispanic renters are told about fewer available units than are White renters (outcome a) in 12.8 percent of inquiries, whereas Black renters are told about fewer available units in 9.0 percent of inquiries. In addition, Hispanic renters are shown fewer units than equally qualified White renters (outcome c) in 6.0 percent of inquiries compared with 2.8 percent of Black renters' inquiries. On average, Hispanic renters are shown 0.07 fewer units than White renters (outcome d), but Black renters are shown 0.04 fewer units than White renters. Agents also quote slightly higher rents (\$6 per month on average) to Hispanic renters than White renters, and agents quote \$4 higher rents to Black renters than White renters. In contrast with the results of the rental tests, however, Hispanic homebuyers are as favored as White homebuyers, whereas White homebuyers are favored over Black homebuyers in five out of the eight outcomes.

Third, minority homeseekers are rarely denied appointments (outcome f), and when both White and minority testers meet with an agent in person, they are rarely told that no unit is available (outcome g). Compared with comparable White customers, however, Black homebuyers are slightly more likely to be denied an in-person appointment (in 2.4 percent of inquiries), and Hispanic renters are slightly more likely to be told that no homes or apartments are available (in 1.8 percent of inquiries). Overall levels of agent helpfulness to White and minority homeseekers are not significantly different.

In addition to HDS2012, several smaller scale audits have been conducted in individual cities in the United States and in European countries. These studies traditionally used in-person paired tests, but recent studies generally use e-mail correspondence tests. Most correspondence tests determine whether ethnically linked names influence the probability that the agent responds to an inquiry or allows the homeseeker to make an appointment.

Appendix A presents the summary results for other testing studies of housing.¹⁴ This appendix focuses on the studies involving more than 100 tests. Although the location, time period, and minority groups in these studies are quite varied, the studies consistently found that, for various outcomes, discrimination against racial and ethnic minority homeseekers is a common feature of housing markets in many countries. A number of studies also found discrimination against immigrants and people with low socioeconomic status.

Trends in Discrimination

Tracking discrimination over time can help determine how successful antidiscrimination interventions have been. This section presents the trends in rental and sales discrimination using the results of the four national studies. The four national studies provide a reasonable approximation to national trends in housing discrimination because they were conducted about 10 years apart using a similar methodology.¹⁵ Exhibits 3 and 4 summarize the findings of discriminatory treatment for Black and Hispanic homeseekers, based on types of behavior that are consistently measured in all four national studies.¹⁶ This section presents the results of rental tests and sales tests separately. The incidence of discrimination is drawn from the final reports of HMPS1977, HDS1989, HDS2000 and HDS2012.¹⁷ Two common outcomes presented for both rental and sales tests are (1) whether the agent told only the White tester that the advertised unit was available and (2) whether the agent showed the White tester more units. For sales tests, this section presents an additional

¹⁴ For a review of earlier audit literature, see Yinger (1987).

¹⁵ Because they used similar research methods, HDS1989 and HDS2000 provide particularly clear measures of changes in discrimination between 1989 and 2000. Comparisons across other national studies are less precise. To incorporate changes in housing search practices, for example, HDS2012 used e-mail inquiries to make appointments with housing agents. This issue was recognized by HUD: "Although tracking trends in the incidence of discrimination is also important, HUD placed higher priority on accurately capturing current market practices than on precisely measuring change over time" (HDS2012, Goals for the 2012 Housing Discrimination Study: 2). Moreover, HMPS1977, unlike all subsequent national studies, instructed auditors to ask about a type of house, not a specific house.

¹⁶ The outcomes presented in exhibits 3 and 4 that are similarly measured for the four national studies are different from the outcomes presented in exhibit 2.

¹⁷ The final reports of the four national studies are Wienk et al. (1979) for HMPS1977; Turner, Struyk, and Yinger (1991) for HDS1989; Turner et al. (2002) for HDS2000; and Turner et al. (2013) for HDS2012.

Exhibit 3

Results of National Rental Tests

Minority	Study	Advertised Unit Available		Inspected More Units	
		White Favored (%)	Net Measure (%)	White Favored (%)	Net Measure (%)
Black	HMPS1977	30	19*	27	6*
	HDS1989	19	7*	34	19*
	HDS2000	12	4*	23	7*
	HDS2012	5	0	18	3*
Hispanic	HDS1989	17	9*	27	10*
	HDS2000	12	7*	21	6*
	HDS2012	5	3*	21	8*
Asian	HDS2000	7	0	13	-5
	HDS2012	5	2	22	6*

HDS = Housing Discrimination Study, HMPS = Housing Market Practices Survey.
 * Indicates statistical significance for net measures at the 90-, 95-, or 99-percent level.
 Note: Gross estimates (percent White favored) are by definition statistically significant.
 Sources: Estimates of HMPS1977 are from table 2 of Wienk et al. (1979); estimates of HDS1989 and HDS2000 (except for the Asian minority group) are from exhibits 3-1 and 3-2 of Turner et al. (2002); Asian estimates of HDS2000 and estimates of HDS2012 are from exhibit V-1 of Turner et al. (2013)

Exhibit 4

Results of National Sales Tests

Minority	Study	Advertised Unit Available		Inspected More Units		Help With Financing Offered	
		White Favored (%)	Net Measure (%)	White Favored (%)	Net Measure (%)	White Favored (%)	Net Measure (%)
Black	HMPS1977	21	10*	38	10*	—	—
	HDS1989	10	4*	24	12*	21	5*
	HDS2000	16	1	43	12*	19	1
	HDS2012	13	-1	37	9*	19	2
	HDS1989	9	4*	27	13*	19	-1
Hispanic	HDS2000	12	-3	36	-2	22	12*
	HDS2012	13	0	34	1	16	1
Asian	HDS2000	16	1	46	14	29	15
	HDS2012	15	3	38	10*	19	8*

HDS = Housing Discrimination Study, HMPS = Housing Market Practices Survey.
 * Indicates statistical significance for net measures at the 90-, 95-, or 99-percent level.
 Note: Gross estimates (percent White favored) are by definition statistically significant.
 Sources: Estimates of HMPS1977 are from table 25 of Wienk et al. (1979); estimates of HDS1989 and HDS2000 (except for the Asian minority group) are from exhibits 3-11, 3-12, 3-14, 3-17, 3-18, and 3-20 of Turner et al. (2002); Asian estimates of HDS2000 and estimates of HDS2012 are from exhibit V-2 of Turner et al. (2013)

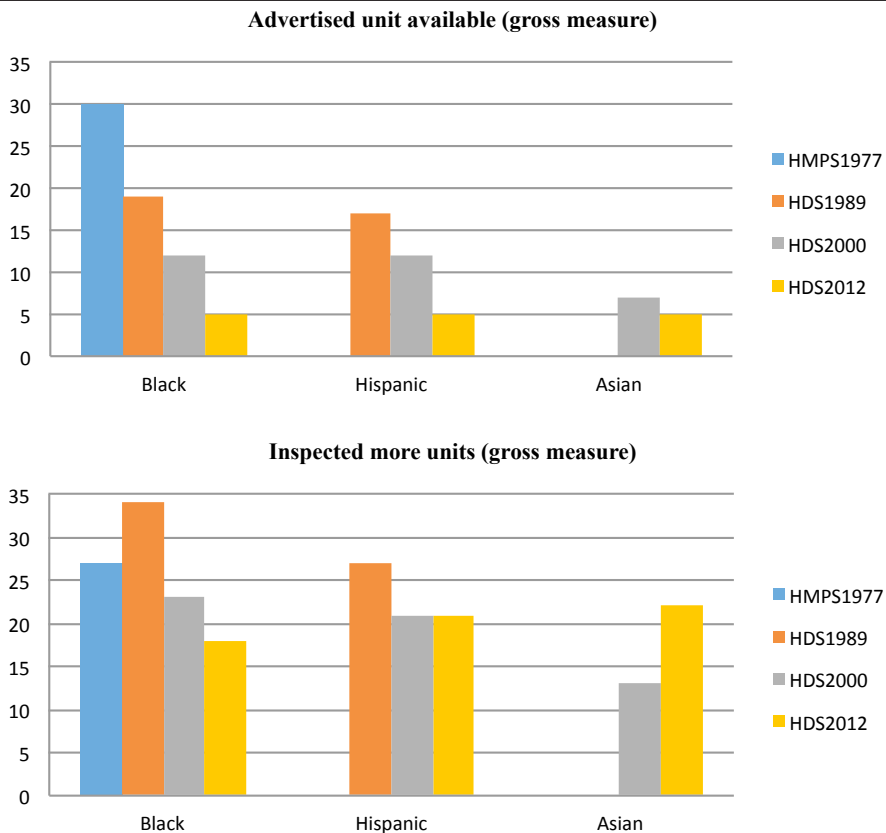
outcome—whether the real estate agent offered help with financing. To be more specific, this outcome indicates whether the agent had a general discussion with the homeseeker about the mortgage process or offered to provide a mortgage prequalification for a maximum loan amount. The net and gross measures consistently show that minority homeseekers receive less favorable treatments than White homeseekers in both the rental and sales housing markets (Turner, Struyk, and Yinger, 1991; Turner et al., 2013; Turner et al., 2002; Wienk et al., 1979).

Exhibits 3 and 4 show that, based on gross measures, racial or ethnic minority homeseekers had a 5- to 30-percent lower probability than White homeseekers of being told that the advertised unit was available. Moreover, minority homeseekers inspected fewer housing units than did their White teammates from 13 to 46 percent of the time. In sales tests, minority homebuyers had 16 to 29 percent lower probability of receiving financial help. The net measures indicate substantially lower levels of discrimination in both outcomes. Indeed, several of the results are not significantly different from zero. Nevertheless, the net measure indicates significant discrimination, as high as 19 percent, in several other cases. Exhibits 3 and 4 also show that the incidence of discrimination tends to be somewhat higher against African-American homeseekers¹⁸ than against Hispanic homeseekers. Moreover, gross measures of discrimination tend to be higher in sales tests than in rental tests, with the notable exception of the availability of the advertised unit in 1977.

Exhibits 5 and 6 present the trends in rental and sales discrimination, respectively, using gross measures. In general, housing discrimination on the outcomes in exhibits 3 and 4 has declined

Exhibit 5

Trends in Rental Discrimination

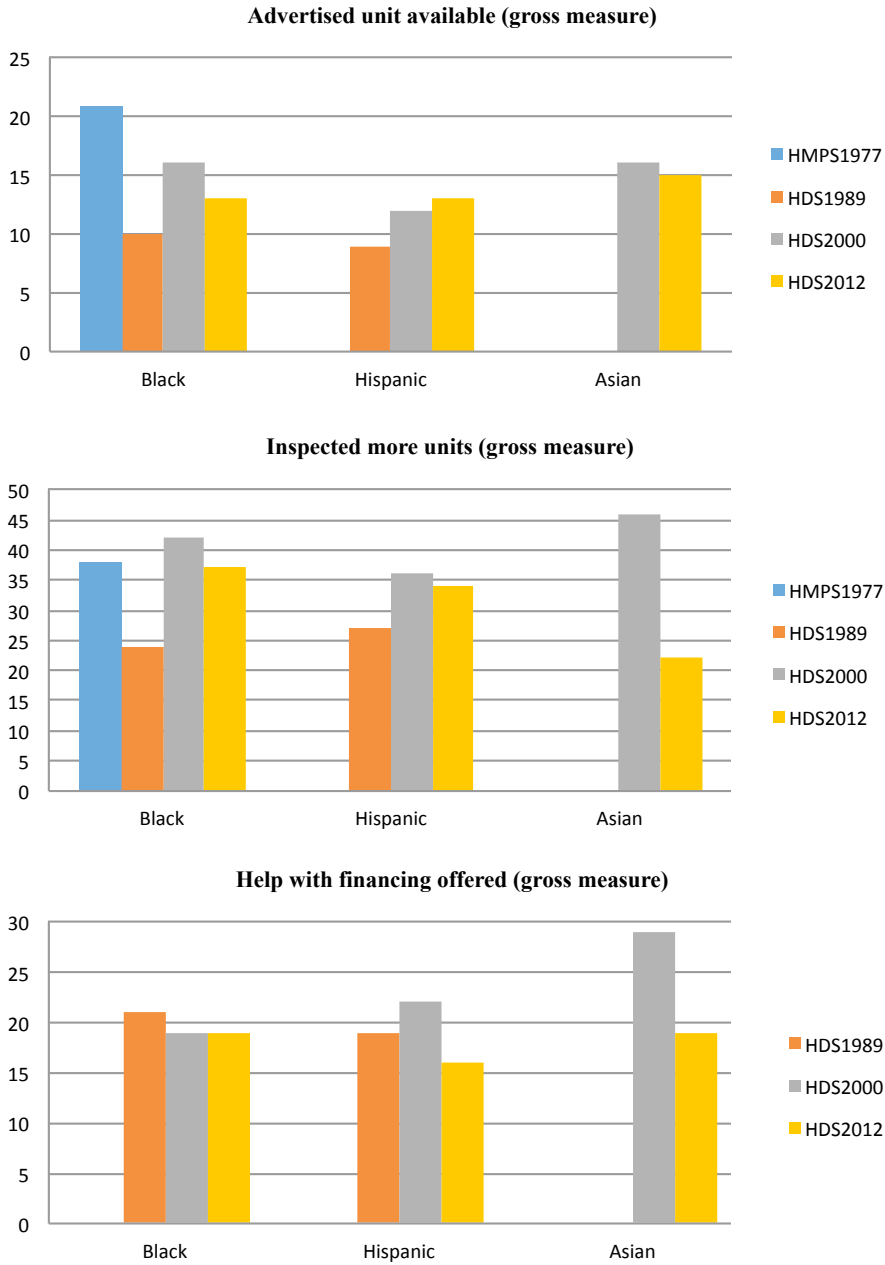


HDS = Housing Discrimination Study. HMPS = Housing Market Practices Survey.

¹⁸ This article uses *African-American* and *Black* as synonyms.

Exhibit 6

Trends in Sales Discrimination



HDS = Housing Discrimination Study, HMPS = Housing Market Practices Survey.

over time. In 1977, Black homeseekers were frequently denied access to advertised units that were available to equally qualified White homeseekers. For instance, one in three Black renters and one in every five Black homebuyers were told that there were no homes available in 1977 (Wienk et al., 1979). In 2012, however, minority renters or homebuyers who called to inquire about advertised homes or apartments were rarely denied appointments that their White counterparts were able to make (Turner et al., 2013). The decline in discrimination is more apparent in rental tests than sales tests and is larger for Black homeseekers than for Hispanic or Asian homeseekers. The decline also differs across outcomes. In both the rental and sales tests, for example, differential treatment in the number of inspected units has not declined very much. In the rental tests, discrimination against Asian homeseekers has increased for the same outcome. Moreover, for the financial-help-offered outcome, no clear evidence indicates that the discrimination has declined over time. Although the most blatant forms of housing discrimination (such as refusing to show the advertised unit) have declined since the first national audit study in 1977, housing opportunities for minority homeseekers are still limited in significant ways.

Racial and Ethnic Steering

Steering occurs when the characteristics of the neighborhoods in which a homeseeker is shown houses depend on the homeseeker's race or ethnicity. Black homeseekers, for example, may be steered away from affluent, predominantly White neighborhoods and instead offered housing in neighborhoods where the residents are largely Black, integrated, relatively poor, or a combination of the three, and White homeseekers may be steered away from neighborhoods where a significant number of Black families reside.¹⁹ This outcome could reflect the customer-prejudice hypothesis (if agents are trying to avoid upsetting their White customers) or the statistical-discrimination hypothesis (if agents are trying to please customers based on stereotypes about their preferences). Steering is difficult for individual homebuyers to detect. One central objective of HDS was to measure steering, which contributes to residential segregation. Because it is time consuming and expensive for auditors to visit a large number of houses, HDS auditors were instructed to obtain the addresses of as many houses as possible, by asking the agent to recommend houses that they might visit together at another time or that the auditor might drive by to determine their suitability (Turner, Mikelsons, and Edwards, 1990). Steering analysis compares the average characteristics of neighborhoods where houses were shown or recommended to minority and White auditors.²⁰

Exhibit 7 presents estimates of steering from the three HDS studies for houses recommended and houses inspected.²¹ Racial steering is defined to exist if, compared to the White auditor in the same audit, the minority auditor is recommended or shown houses in neighborhoods where the percentage of the population that is White is lower. As exhibit 7 illustrates, each HDS found evidence of steering. The gross estimates of steering in this exhibit range from 4 to 26 percent, and the net measures for both houses recommended and houses inspected are statistically significant for

¹⁹ The HDS2012 report used seven summary outcome measures: (1) differential denial of in-person meeting, (2) differential denial of available units, (3) differential number of units recommended, (4) differential number of units shown, (5) differences between testers in agent helpfulness, (6) differential rent or sales price, and (7) differential neighborhood racial/ethnic composition.

²⁰ Steering can be also analyzed at various geographical levels such as municipalities and school districts (see Galster and Godfrey, 2005).

²¹ See Galster (1990b) for a review of steering results from earlier small-scale tests.

Black homeseekers in 2000 and 2012. The net measure for houses inspected is also significant for Hispanic homeseekers in 2000. Exhibit 8 illustrates the trends in steering based on the incidence of steering in exhibit 7. This chart shows that the incidence of steering has become larger over time. These results indicate that steering plays a role in the overall pattern of unfavorable treatment in the housing market. Despite the clear evidence of steering, the HDS studies also found that the composition of neighborhoods recommended to minority homebuyers is similar to the composition of those recommended to equally qualified White buyers (Turner, Struyk, and Yinger, 1991; Turner, Ross, and Galster, 2002; Turner et al., 2013). This apparent contradiction arises because the differences in neighborhood ethnic composition between teammates are small in magnitude; most of the houses shown and recommended to both minority and majority homeseekers were located in predominantly White neighborhoods. Houses for sale in minority-integrated neighborhoods are underrepresented among advertisements in major metropolitan newspapers (Galster, Freiberg, and Houk, 1987; Newburger, 1995; Turner, 1992), and, consequently, these neighborhoods are underrepresented in the HDS sample. Thus, results of the HDS studies reflect the incidence of steering in only one segment of the market.

Several other studies also shed some light on steering. Using HDS2000 data, Ondrich, Ross, and Yinger (2003) found less discrimination in suburban integrated areas than in White areas. Using HDS1989 and HDS2000 data, Galster and Godfrey (2005) found that both Black and Hispanic customers have a significant chance of encountering steering in 2000, particularly in the form of negative comments about minority neighborhoods. According to Galster and Godfrey (2005), Black customers are more likely to encounter steering in 2000 than in 1989.

Exhibit 7

Steering Evidence From Housing Discrimination Studies

Minority	Study	Houses Recommended in Whiter Tracts		Houses Inspected in Whiter Tracts	
		White Favored (%)	Net Measure (%)	White Favored (%)	Net Measure (%)
Black	HDS1989	6	-6	4	-2
	HDS2000	16	4*	11	4*
	HDS2012	25	8*	21	5*
		Non-Hispanic White Favored (%)	Net Measure (%)	Non-Hispanic White Favored (%)	Net Measure (%)
Hispanic	HDS1989	12	4	7	2
	HDS2000	17	2	15	5*
	HDS2012	23	2	26	5

HDS = Housing Discrimination Study.

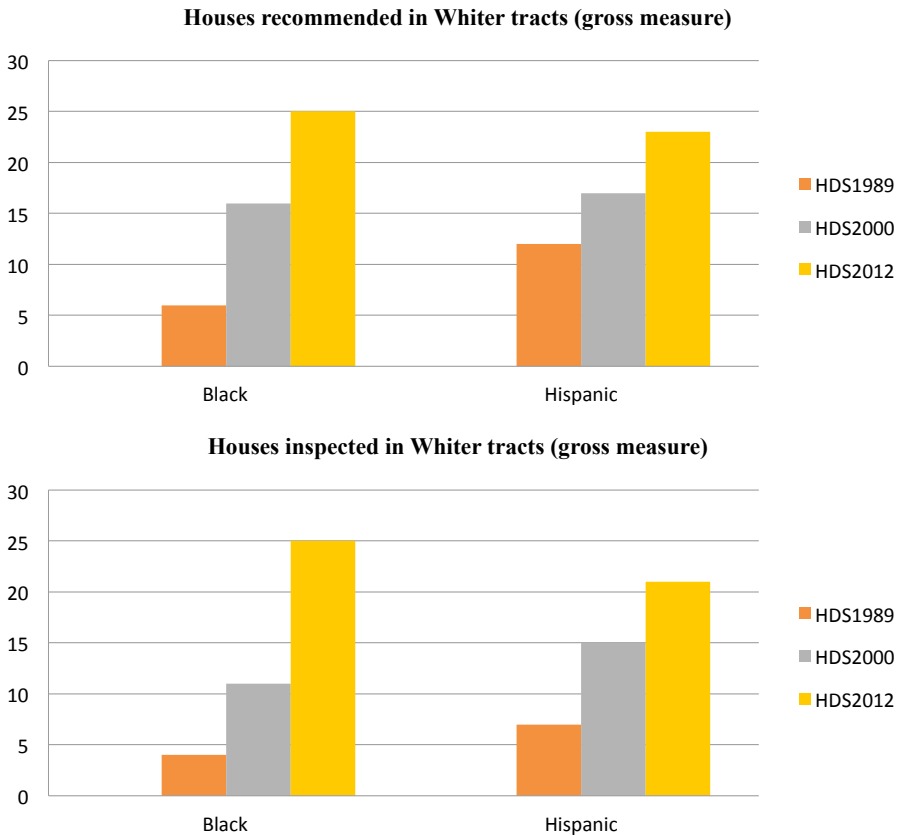
* Indicates statistical significance for net measures at the 90-, 95-, or 99-percent level.

Notes: The HDS1989 report on steering (Turner, Mikelsons, and Edwards, 1990) considered only a difference in percent White of more than 5 percentage points as discrimination, so the estimates are drawn from the HDS2000 report, which used the same measurement for its analysis of both HDS1989 and HDS2000. Gross estimates (percent White favored) are by definition statistically significant. Statistical significance of HDS1989 net measures is not available due to the lack of data.

Sources: Estimates of HDS1989 and HDS2000 are from exhibits 3-13 and 3-19 of Turner et al. (2002); estimates of HDS2012 are from exhibits IV-19 and IV-24 of Turner et al. (2013)

Exhibit 8

Trends in Steering



HDS = Housing Discrimination Study.

The Causes of Discrimination

Exhibit 9 summarizes how audit characteristics would affect discrimination based on the three hypotheses about the cause of discrimination discussed in the section “Testing Hypotheses About the Causes of Discrimination” and the findings of eight studies presented in the following paragraphs.²² The characteristics tested for each hypothesis are not always mutually exclusive, and different hypotheses may predict the opposite effect of the same characteristic on discrimination. In addition, several audit characteristics interact with other characteristics in a complex way, and some predictions of the agent-prejudice and customer-prejudice hypotheses cannot be separated. For instance, either housing agents or their White customers may have stronger prejudice against younger minority homeseekers than against older minority homeseekers (Choi, Ondrich, and Yinger, 2005).

²² See also table 3 of Zhao (2005) and exhibit 1 of Choi, Ondrich, and Yinger (2008).

Exhibit 9

Predictions and Findings of Discrimination by Causal Hypotheses

Characteristics	Agent-Prejudice Hypothesis	Customer-Prejudice Hypothesis	Statistical-Discrimination Hypothesis
Agent	Minority agent of the same race (-) (Choi, Ondrich, and Yinger, 2008, 2005; Zhao, 2005; Zhao, Ondrich, and Yinger, 2006) Age of agent (+) (Choi, Ondrich, and Yinger, 2005; Ondrich, Stricker, and Yinger, 1999) Male agent (+) (Choi, Ondrich, and Yinger, 2005)	Size of real estate agency (-) (Ondrich, Ross, and Yinger, 2003; Ondrich, Stricker, and Yinger, 1999, 1998) Use of multi real estate listing service (-) (Zhao, Ondrich, and Yinger, 2006)	Size of real estate agency (-) (Ondrich, Ross, and Yinger, 2003; Ondrich, Stricker, and Yinger, 1999, 1998)
Auditor	Age of auditor (-) (Ondrich, Stricker, and Yinger, 1999) Male auditor (+) (Choi, Ondrich, and Yinger, 2005; Zhao, Ondrich, and Yinger, 2006)	Age of auditor (-) (Ondrich, Stricker, and Yinger, 1999) Male auditor (+) (Choi, Ondrich, and Yinger, 2005; Zhao, Ondrich, and Yinger, 2006) Assigned marital status (-) (Ondrich, Ross, and Yinger, 2003) Assigned income (-) (Page, 1995; Zhao, 2005)	Assigned income (-) (Page, 1995; Zhao, 2005) Asked housing value (+) (Page, 1995)
Neighborhood		Percent owner-occupied house (+) (Ondrich, Stricker, and Yinger, 1999; Zhao, 2005) Percent White residents before tipping (+) (Ondrich, Ross, and Yinger, 2003; Ondrich, Stricker, and Yinger, 1999; Page, 1995; Zhao, Ondrich, and Yinger, 2006)	Percent White residents before tipping (+) (Ondrich, Ross, and Yinger, 2003; Ondrich, Stricker, and Yinger, 1999; Page, 1995; Zhao, Ondrich, and Yinger, 2006) Neighborhood housing value (+) (Choi, Ondrich, and Yinger, 2005; Ondrich, Ross, and Yinger, 2003; Zhao, 2005)

(+) Indicates that discrimination against a minority is positively correlated with the factor (for indicator variables, more discrimination if the factor is applicable).

(-) Indicates that discrimination against a minority is negatively correlated with the factor (for indicator variables, less discrimination if the factor is applicable).

Note: The findings that support the predictions of each hypothesis are based on the advertised-unit-available/inspected, similar-unit-inspected, or the number-of-houses-shown outcomes of Black-White audits.

Based on those predictions, eight studies examined the causes of housing discrimination using HDS data (Choi, Ondrich, and Yinger, 2008, 2005; Ondrich, Ross, and Yinger, 2003; Ondrich, Stricker, and Yinger, 1999, 1998; Page, 1995; Zhao, 2005; Zhao, Ondrich, and Yinger, 2006).²³ Except for Ondrich, Ross, and Yinger (2003), these studies use an audit pair as the unit of analysis and use an audit fixed-effects model to control for the fact that audit teammates share values of unobservable variables (Yinger, 1986).²⁴ In addition, based on multivariate analysis, HDS2012 examined potential contributions of audit characteristics to differences in the number of housing units shown.²⁵

Several results of the eight studies support the agent-prejudice hypothesis. Unless otherwise indicated, this article focuses on the results of Black-White discrimination.²⁶ For the advertised-unit-inspected or similar-unit-inspected outcome, results show more discrimination by older agents (Choi, Ondrich, and Yinger, 2005; Ondrich, Stricker, and Yinger, 1999), less discrimination by female agents (Choi, Ondrich, and Yinger, 2005), and less discrimination against female auditors (Choi, Ondrich, and Yinger, 2005; Zhao, Ondrich, and Yinger, 2006; HDS2012) and older auditors (Ondrich, Stricker, and Yinger, 1999). Results concerning the effect of the agent's race on discrimination are inconsistent. Ondrich, Stricker, and Yinger (1999, 1998) found more discrimination against Black homeseekers when the agent is Black, whereas Zhao (2005), Choi, Ondrich, and Yinger (2008, 2005), Zhao, Ondrich, and Yinger (2006), and HDS2012 (only sales tests) found less discrimination when the agent is Black. In the sales market, however, Black agents are rare. According to HDS2012, testers met with a Black agent in only 5 percent of the sales tests.

The customer-prejudice hypothesis suggests that discrimination is likely to increase with the assigned income of auditors, the percent owner-occupied housing units in the neighborhood, and the share of White residents in the White-majority neighborhood. Some results support these predictions. For the advertised-unit-inspected outcome and the number-of-houses-shown outcome, Black homebuyers face less discrimination in the neighborhoods with a significant share of Black residents (Zhao, 2005) but more discrimination in the neighborhoods with a higher percentage of owner-occupied housing units (Ondrich, Stricker, and Yinger, 1999; Zhao, 2005). Page (1995) and Zhao (2005) found that Black homeseekers with higher incomes encounter less discrimination in the number of houses shown; however, the effect of having a white-collar job or higher education on discrimination is unclear. Ahmed, Andersson, and Hammarstedt (2010); Bosch, Carnero, and Farre (2010); and Carlsson and Eriksson (2014) found no effect of positive information on discrimination, but Baldini and Federici (2011) and Hanson and Hawley (2011) found that minority homeseekers receive more e-mail responses when they reveal positive information. Finally,

²³ Choi, Ondrich, and Yinger (2008, 2005) and Ondrich, Stricker, and Yinger (1999) examined discrimination in rental housing; Ondrich, Ross, and Yinger (2003), Ondrich, Stricker, and Yinger (1998), Zhao (2005), and Zhao, Ondrich, and Yinger (2006) examined discrimination in sales housing; and Page (1995) examined both.

²⁴ A significant advance of Ondrich, Ross, and Yinger (2003) is that, based on a random-effect multinomial logit model, they used a housing unit as a unit of analysis to avoid an endogeneity problem in explanatory variables that are influenced by agent choices. In addition, Choi, Ondrich, and Yinger (2005), Zhao (2005), and Zhao, Ondrich, and Yinger (2006), using HDS2000 data, accounted for auditors' actual characteristics to overcome potential bias from unmatched characteristics of audit pairs.

²⁵ These multivariate analyses are based on ordinary least squares regressions using "tests in which both teammates met with an agent" (HDS2012: 34). Because of this sample-selection strategy, the results of these analyses provide little insight into hypotheses about the causes of discrimination.

²⁶ Less consistent patterns emerge when comparing results across different minority groups.

Ondrich, Ross, and Yinger (2003) found that real estate agents discriminate more against higher income Black customers, and Carlsson and Eriksson (2013) found that racial discrimination is higher for ethnic minority homeseekers with a high-skill job than those with a low-skill job.

Some studies also found more discrimination against Black homeseekers in high-value neighborhoods (Choi, Ondrich, and Yinger, 2005; Ondrich, Ross, and Yinger, 2003). For the advertised-unit-inspected outcome in sales audits, Ondrich, Stricker, and Yinger (1999) found that discrimination decreases as the ratio of assigned auditor income to housing value increases. Several results related to *tipping*, defined as the rapid exit of White residents from a neighborhood once the minority composition of the neighborhood reaches a certain point, also support the customer-prejudice hypothesis. Page (1995) and Ondrich, Stricker, and Yinger (1999) found that discrimination increases as the percentage of minority representation approaches a neighborhood tipping point and decreases when the percentage exceeds the tipping point. Moreover, Ondrich, Ross, and Yinger (2003) found that discrimination is relatively high in central city integrated areas, which are the ones most likely to be threatened with tipping. Zhao, Ondrich, and Yinger (2006) also found that Black homebuyers are less likely to encounter discrimination in Hispanic neighborhoods.

The customer-prejudice hypothesis also predicts that larger real estate agencies, which are less dependent on a particular neighborhood for their business, are less likely to discriminate. Ondrich, Stricker, and Yinger (1998) found that discrimination is less likely in larger agencies for the advertised-unit-inspected outcome in rental audits, and Ondrich, Ross, and Yinger (2003) and Ondrich, Stricker, and Yinger (1999) found similar results in sales audits. By contrast, Choi, Ondrich, and Yinger (2008) and HDS2012 found the opposite result: larger agencies discriminate more against minority customers than do smaller agencies (for the advertised-unit-inspected, the number-of-units-inspected, or rental-incentive-provided outcomes). Finally, Zhao, Ondrich, and Yinger (2006) found that real estate agents who use the Internet, which allows them to steer Black customers away from prejudiced White neighborhoods, are less likely to discriminate in terms of the number of units recommended.

Ondrich, Ross, and Yinger (2003) found strong evidence for statistical discrimination. They found that agents' marketing efforts increase with asking price for White homeseekers but not for Black homeseekers, an implication that is consistent with the hypothesis that agents practice statistical discrimination based on a preconception about the ability of Black customers to purchase expensive homes. They also found that Black customers, but not White customers, are shown units that are cheaper than the advertised unit that is the basis for the audit. Ondrich, Ross, and Yinger (2003) and Zhao (2005) also found that real estate agents discriminate more in neighborhoods with higher house values, even controlling for the value of the houses being shown. In addition, Page (1995) found that Black homeseekers encounter more discrimination when inquiring about more expensive houses, and a similar finding appears in Choi, Ondrich, and Yinger (2005). Choi, Ondrich, and Yinger (2005) found a positive, significant coefficient for median house value in the number-of-units-inspected regression but concluded that this result is also consistent with the customer-prejudice hypothesis. Ondrich, Stricker, and Yinger (1998), however, found that discrimination is not significantly different when the advertised unit is in an integrated or a White neighborhood. Page (1995) and Ondrich, Ross, and Yinger (2003) found less discrimination in integrated areas than in White areas in the sales markets, which is consistent with the view that

agents try to maximize the chances of a successful match by making race-based assumptions about a customer's preference. Choi, Ondrich, and Yinger (2008), however, found no evidence to support the statistical-discrimination hypothesis in the Black-White audits.

Ewens, Tomlin, and Wang (2014) designed correspondence audits of rental housing to look for landlord prejudice and statistical discrimination. If landlord prejudice is at work, they argued, then discrimination should be lower in largely Black than in largely White neighborhoods. Their results do not support this prediction. They also argued that landlords practicing statistical discrimination will find explicit signals about the “quality” of an applicant from a particular racial or ethnic group to be more believable if they have more experience dealing with tenants from that group. If so, landlords will respond more favorably to positive information (such as an indication that the tenant is a nonsmoker or has a desirable job) about a Black applicant in a largely Black neighborhood than in a largely White neighborhood. Their empirical results support this prediction and, therefore, support the conclusion that some landlords practice statistical discrimination.

Finally, as Page (1995) recognized, Yinger (1995) shows that the level of discrimination depends on a broker's opportunities to discriminate, defined as his access to available housing units. With controls for the opportunity to discriminate (an agent's available units), Yinger (1995) found evidence that real estate brokers discriminate to protect their business with prejudiced White customers and on the basis of stereotypes about Black and Hispanic customers. These results indicate that the causes of discrimination in rental and sales housing are complex. The strongest results from Ondrich, Ross, and Yinger (2003) support statistical discrimination, but both the prejudice of agents and their responses to the prejudice of their White customers also appear to be at work in some cases.

Housing discrimination is a complex social phenomenon, and its causes may differ over time and place. Existing studies provide some evidence to support the hypotheses that agent and customer prejudice can lead to discrimination, but this type of evidence does not appear in most audit studies. These findings suggest that these hypotheses cannot fully explain the amount of discrimination observed in audit studies, although, to some degree, they may also reflect the limitations of the hypothesis tests that are possible with audit data. Two studies that appear to have relatively compelling methods, Ondrich, Ross, and Yinger (2003) and Ewens, Tomlin, and Wang (2014), both found strong evidence that housing discrimination is sometimes based on a housing provider's perceptions about the likelihood of a successful transaction with customers from different racial or ethnic groups, which is a form of statistical discrimination. These findings should be of great interest to policymakers. Because statistical discrimination arises as an illegal way for a housing provider to maximize profits based on stereotypes, enforcement agencies need to use audits and other methods to ensure that the costs of discrimination are higher than the benefits—at least for housing providers who might otherwise break the law.

Paired Testing and Public Policy

Studies that measure the incidence of discrimination and provide evidence about discrimination's causes obviously are relevant for fair housing policy. This section explores the links between paired testing and fair-housing-enforcement activities and also briefly surveys the use of the paired-testing method in markets other than housing.

Paired Testing and Fair Housing Enforcement

The audit methodology and fair housing enforcement have evolved together and are connected to each other in three important ways. The foundation of the first connection is a provision in the 1968 Fair Housing Act that gives private, nonprofit fair housing agencies legal standing to bring court cases against alleged discriminators. Fair housing audits were developed in the 1950s by partnerships between community groups and scholars who wanted to highlight the extent of discrimination (see appendix B). After local, state, and federal fair housing laws were implemented, starting in 1958 in New York City, however, community groups interested in combatting discrimination quickly figured out that audits could also be used for enforcement purposes.²⁷ An enforcement audit by a private agency typically begins with a complaint about a given housing provider. The agency then conducts one or more audits to determine whether the alleged discrimination exists. When the audits are carefully conducted and the legal requirements for a fair housing lawsuit are met, audit evidence, even from a single audit, can provide compelling evidence about the existence of discrimination and, if it exists, about the form it takes.²⁸ In recognition of the important role that private organizations played in combatting discrimination, Congress passed the Fair Housing Initiatives Program (FHIP) under the Housing and Community Development Act of 1987, which became effective in 1988. This program, which provides federal funding for the auditing and other activities of these agencies, became permanent in 1993.

As of 2011, 98 private nonprofit agencies were engaged in fair housing enforcement.²⁹ In 2006 alone, these agencies conducted more than 5,000 tests (Temkin, McCracken, and Liban, 2011). Since shortly after the Fair Housing Act was passed, these agencies have used tests to establish discrimination and to obtain settlements in hundreds of cases.³⁰ In almost all cases, fair housing organizations obtain injunctive relief that includes a change in behavior, policies, or both; training to prevent future discrimination; and monitoring to ensure compliance with the Fair Housing Act. Some examples follow.

- In 2013 and 2014, based on complaints, the Fair Housing Justice Center (FHJC) conducted audits in rental housing in the Woodlawn neighborhood of the Bronx (J.J.A Holding Corporation). The FHJC and three African-American testers alleged that J.J.A Holdings engaged in racially discriminatory rental practices: Among other things, an agent told African-American testers that no apartments were available while showing apartments to White testers on the same day. In 2015, J.J.A Holdings agreed to change rental practices and pay the plaintiffs \$200,000 for damages and attorneys' fees (Gorman, 2015).
- In 2013, Latino homeseekers did not receive a rental application from apartment managers of Bailey Properties in Arkansas (or did so after significant delay), whereas prospective White

²⁷ Private fair housing groups also learned to use audits to shed light on the nature and extent of discrimination in their service area. Galster (1990a) reviewed 71 audit studies that private fair housing groups conducted in the 1980s.

²⁸ The typical prima facie elements for establishing a fair housing case are (1) the plaintiff was eligible for the unit available, (2) the plaintiff was denied the unit or the housing provider refused to negotiate, (3) the plaintiff is a member of a legally protected category of persons, and (4) the housing opportunity remained available (*Smith v. Anchor Building Corp.* 8th Circuit 1976. 536 F2d 231).

²⁹ FHIP also provides some funds for fair lending enforcement activities by these agencies.

³⁰ See Freiberg (1993), Fudge (2014), Schwemm (2014, 1992), and Yinger (1995).

renters promptly received documents. The Arkansas Fair Housing Commission confirmed the discrimination against Hispanic renters based on six correspondence audits conducted by the National Fair Housing Alliance (NFHA, 2014).

- In 2009, an African-American couple was told no units were available at Geneva Terrace in La Crosse, Wisconsin, but their White friend who called the rental office later was told that units were available. The couple called the office again in 15 minutes but was again told that no units were available. This refusal to rent to Black homeseekers was confirmed in two audits by Metropolitan Milwaukee Fair Housing Council. The couple received \$47,500 in damages, and the owners of Geneva Terrace were required to complete fair housing training (HUD, 2014).

The second connection between audits and fair housing enforcement is that the results of research audits and enforcement audits have provided powerful evidence in support of continued or expanded fair housing enforcement. Most importantly, perhaps, the audit results from HMPS were highlighted in congressional testimony about the FHAA, which greatly expanded the federal government's powers to enforce fair housing laws.

Testimony by HUD's general council,³¹ for example, began by citing the HMPS results but also explained that "HUD staff extrapolated from those findings to conclude that about 2 million instances of housing discrimination occurred every year. Experts in statistical methodology may quibble over that extrapolation, but even if the estimate is wrong by half, it is nonetheless staggering and, to put it mildly, deeply disconcerting." Testimony before the same subcommittee by the director of the Kentucky Commission on Human Rights³² cited not only the HMPS results for his state but also results from audits conducted by his agency in 1977 and 1985. In addition, several articles in professional journals cited evidence from HMPS in building a case for passage of the FHAA (James and Crow, 1986; Rice, 1984).³³ This influence of research audits on enforcement policies is well summarized in the article by Freiberg (1993: 230), which states that, "Data showing widespread patterns of unlawful housing discrimination [from HMPS1977 and HDS1989] understandably evoke a response from well-meaning policymakers for more vigorous enforcement of fair housing laws."

The HMPS results also appear to have been influential in the 1987 passage of FHIP and in the 1984 passage of the Fair Housing Assistance Program (FHAP), which is discussed in the following paragraphs. See, for example, the testimony on FHIP by HUD's general council,³⁴ which includes the quotation in the previous paragraph from his FHAA testimony. This hearing concerned

³¹ Knapp, John J. 1986b. Statement. In *Hearing Before the Subcommittee on Civil and Constitutional Rights of the Committee on the Judiciary, House of Representatives, Ninety-Ninth Congress, Second Session, on H.R. 4119, Fair Housing Amendments Act*, Serial No. 120, July 17. Washington, DC: U.S. Government Printing Office: 73–99.

³² Martin, Galen. 1986b. Statement. In *Hearing Before the Subcommittee on Housing and Urban Affairs of the Committee on Banking, Housing, and Urban Affairs, United States Senate, Ninety-Ninth Congress, Second Session, on Proposed Guidelines for Fair Housing Testing Includes in Section 602 of S. 2507*, July 18. Washington, DC: U.S. Government Printing Office: 122–172.

³³ The James and Crow article (1986) was also incorporated into the record of the congressional hearings on FHAA in 1986.

³⁴ Knapp, John J. 1986a. Statement. In *Hearing Before the Subcommittee on Housing and Urban Affairs of the Committee on Banking, Housing, and Urban Affairs, United States Senate, Ninety-Ninth Congress, Second Session, on Proposed Guidelines for Fair Housing Testing Included in Section 602 of S. 2507*, June 18. Washington, DC: U.S. Government Printing Office: 2–10.

amendments to restrict testing with FHIP funds. At that hearing, Martin³⁵ explicitly argued that testing by private fair housing groups in Kentucky had been very effective and that there was a “need for funding especially for private fair housing groups... without the restriction of the amendments.”

In more recent years, many of the scholarly publications presenting results from HDS or other audit studies conclude by citing the need for continued enforcement of fair housing laws, including actions by HUD and the U.S. Department of Justice (DOJ), and continued funding for FHIP and FHAP. See, for example, Galster and Godfrey (2005), Ross and Turner (2005), Yinger (1995), and Zhao, Ondrich, and Yinger (2006).³⁶

The third audit-enforcement connection is that, shortly after the passage of fair housing laws, audits became a standard tool in the efforts of governmental fair housing enforcement agencies at all levels of government. Audits provide compelling evidence about discriminatory behavior, and a well-publicized audit program may encourage housing providers to be more careful to meet their obligations under the Fair Housing Act.³⁷ Although HUD and DOJ did not conduct their own enforcement audits for many years after the passage of the Fair Housing Act, DOJ relied on audits conducted by private fair housing groups as early as 1972 (Lee, 1999; Schwemm, 1992). Moreover, the Comptroller General of the United States (CGUS) reported in 1978 that “HUD does use testing data developed by local fair housing organization” (CGUS, 1978: 26). At the state and local levels, FHAP provides funding to governmental fair housing agencies with antidiscrimination legislation that is substantially equivalent to federal law. Some of this funding is used to contract with private nonprofit fair housing organizations to carry out audits. At the federal level, FHAA in 1988 expanded the enforcement powers of DOJ and HUD, and explicitly gave HUD the power to investigate cases of possible discrimination using audits and other techniques, with or without a complaint from a homeseeker.

DOJ started the Fair Housing Testing Program in 1992. Based on its experience with this program, DOJ has come to the conclusion that “testing can be a valuable tool to investigate housing market practices and to document illegal housing discrimination” (DOJ, 2014). Since it started its testing program, DOJ has filed 98 pattern and practice testing cases with evidence directly generated from the Fair Housing Testing Program (DOJ, 2014). The vast majority of testing cases filed to date are based on testing evidence that involved allegations of agents misrepresenting the availability of rental units or offering different terms and conditions based on race, national origin, familial status, or a combination of the three. From the 96 resolved cases, DOJ has recovered more than \$12.9 million, including more than \$2.3 million in civil penalties and more than \$10.5 million in other damages (DOJ, 2014). Most of these cases also call for changes in the defendants’ behavior to prevent discrimination in the future. For example—

- In response to a complaint that a corporate owner and leasing agent discriminated based on race, in 2013, DOJ conducted a series of three tests at Baldwin Commons in Pittsburgh,

³⁵ Martin, Galen. 1986a. Statement. In *Hearing Before the Subcommittee on Housing and Urban Affairs of the Committee on Banking, Housing, and Urban Affairs, United States Senate, Ninety-Ninth Congress, Second Session, on Proposed Guidelines for Fair Housing Testing Included in Section 602 of S. 2507*, June 18. Washington, DC: U.S. Government Printing Office: 17–27.

³⁶ Many of these scholars also point out that audits could increase the effectiveness of fair housing enforcement efforts by helping enforcement officials identify the circumstances under which discrimination is most likely to occur.

³⁷ Ross and Galster (2007) provide some preliminary evidence that an active fair housing enforcement program deters housing providers from engaging in discrimination.

Pennsylvania. The tests found that White testers were shown apartments and were offered the opportunity to rent them but Black testers were told that the same apartments were unavailable. The court entered a consent decree in *United States v. S-2 Properties, Inc.* (2014), and the defendants will pay a civil penalty to the United States of \$15,000, develop and maintain nondiscrimination housing policies, and attend fair housing training (DOJ, 2014).

- Based on the complaint that these defendants discriminated against Black customers, paired tests were conducted by DOJ. These tests found that Somali testers were told to make appointments to see apartments, whereas White testers were shown apartments when they walked in. The consent decree in *United States v. Highland Management Group, Inc.* (2013) contains injunctive relief and civil penalties of \$30,000 (DOJ, 2014).

Despite the powers given to it by FHAA, HUD does not frequently conduct fair housing audits itself. Instead, HUD has undertaken enforcement actions in partnership with organizations that conduct audits. In 2012, for example, HUD brought a case against Peachtree Apartments in Clanton, Alabama, on the grounds that the owners discriminated against tenants based on national origin. The Central Alabama Fair Housing Center conducted audits and found that Peachtree Apartments required prospective Hispanic tenants to provide documentation of their immigration status while not asking the same of non-Hispanic individuals. As a result of HUD's actions, the owner of these apartments voluntarily entered into a settlement agreement that requires nondiscriminatory admission policies, a plan to market housing opportunities to populations with limited English proficiency, and the provision of translation services and fair housing training to its employees and contractors (HUD, 2012).

Overall, therefore, audits have become a crucial tool in the fair housing enforcement system, and audit results have provided support for improvements in and continued support for this system. Although the evidence reviewed in this article indicates that some key forms of housing discrimination have declined over time, this evidence also indicates that a significant amount of housing discrimination remains and that a few forms of discrimination have actually increased. Adjustments in the nature or location of audits may be called for, such as an increase in the use of correspondence audits for enforcement purposes. It is clear, however, that housing discrimination has by no means gone away and that fair housing audits for both research and enforcement will be needed in the future.

Paired Testing in Other Markets

Audits are sufficiently advanced to conduct national-level tests in the areas of housing sales and rentals. In-person audits, in which individuals are matched for all relevant characteristics other than the one that is expected to lead to discrimination (for example, race or ethnicity), have also been used in several other markets, including entry-level hiring, inquiries about home mortgages, house insurance, car sales, and selected areas of public accommodations such as taxi service.³⁸ The first in-person and correspondence audits to measure hiring discrimination were conducted in Britain (Daniel, 1968; Jowell and Prescott-Clarke, 1970). In the United States, the Urban Institute conducted the first in-person audits of hiring discrimination against Hispanic men applying for entry-level jobs in Chicago and San Diego in 1989 (Cross et al., 1989). Several in-person and correspondence tests of hiring discrimination against minority groups have also been conducted in the

³⁸ See Pager (2007) and Pager and Shepherd (2008) for a review of the literature.

United States and European countries since then (Bendick, Jackson, and Reinoso, 1994; Bendick et al., 1991; Bertrand and Mullainathan, 2004; Bursell, 2007; Carlsson and Rooth, 2012, 2007; Goldberg, Mourinho, and Kulke, 1995; Kaas and Manger, 2011; Nunley et al., 2014; Pager, 2003; Pager, Western, and Bonikowski, 2009; Turner, Fix, and Struyk, 1991; Wood et al., 2009).³⁹ In addition, audits have been used to examine discrimination in automobile sales (Ayres, 1991; Ayres and Siegelman, 1995), taxicab service (Ridley, Bayton, and Outtz, 1989), home mortgage inquiries (Galster, 1993; Turner and Skidmore, 1999), homeowners' insurance (Wissoker, Zimmermann, and Galster, 1998), and the provision of medical care (Schulman et al., 1999).

Audits have also been used to study discrimination in shopping (Gneezy and List, 2004; Gneezy, List, and Price, 2012; List, 2004; Zussman, 2013) and beverage service (Perry, 2005). The economic costs of discrimination in these everyday commercial transactions are undoubtedly smaller than the costs of discrimination in employment or housing, but these costs, in the form of higher prices, additional waiting time or hassle, or psychological issues, may be significant. Correspondence audits were recently used for studying certain types of commercial transactions over the Internet (Doleac and Stein, 2013; Nunley, Owens, and Howard, 2011). The possibilities for the use of this method to study discrimination have certainly not been exhausted.

Conclusion

This article reviews the results of audit studies in housing markets. The audit methodology has been widely used in the United States and many European countries to measure the incidence of discrimination in housing markets. The number of audits conducted and the types of behavior examined vary significantly across the studies that we have reviewed. Some early studies conducted fewer than 100 tests in a single city, for example, whereas the 2012 Housing Discrimination Study conducted more than 8,000 tests in 28 metropolitan areas. With the rapid growth in the use of the Internet for marketing housing, many recent audit studies have used e-mail correspondence. This approach has been widely used, for example, to study housing discrimination in European countries when immigration has introduced new ethnic divisions. Despite their variation in methodology and social context, housing audit studies consistently find that racial and ethnic minority homeseekers experience unfavorable treatment compared with racial and ethnic majority homeseekers. In terms of trends, the four national audit studies in the United States found that housing discrimination had declined over time in some important types of agent behavior, such as making an advertised apartment available to a customer. Discrimination against Black and Hispanic homeseekers has not declined very much in some other types of agent behavior, however, and the steering of Black homeseekers away from White neighborhoods appears to have increased over time.

Paired audits offer a uniquely effective tool for directly observing differential treatment of equally qualified homeseekers. Because of their narrative power, these audits provide compelling evidence about discrimination for educating the public, for influencing fair housing policy, and for providing evidence in court. Nevertheless, audits also have some limitations. First, in-person audits are expensive and difficult to manage. Second, audits also observe only the marketing phase of a transaction and may miss discrimination that occurs in housing advertisements or after price negotiations begin,

³⁹ See Riach and Rich (2002) and Rich (2014) for comprehensive reviews of audit studies.

in the search for a mortgage, or, in rental markets, when the terms of the lease are specified. Third, audit studies are based on a sample of advertisements, usually from major metropolitan newspapers or ad-listing websites. These advertisements may not correspond to the actual housing experience of minority groups, who may use other means of identifying available housing or who may not be qualified for a share of this advertised housing. The discrimination actually experienced by minority homeseekers could therefore be higher or lower than the discrimination measured by an audit study. Evidence from HDS2000 addressed these issues by conducting some audits based on posted advertisements and by oversampling advertisements in neighborhoods with a high minority concentration. These steps did not lead to significant changes in measures of discrimination (see Turner et al., 2002).⁴⁰

Despite these limitations, in-person paired testing is still a valuable tool for scholars and public officials who want to shed light on discrimination. Such testing is a proven method that can observe discrimination in many types of behavior involved in a housing market transaction. Even in the Internet age, important components of any such transaction involve face-to-face contact and the resulting possibility of discrimination. Of course, changes in housing markets have also opened the door to correspondence audits, which are less expensive and more precise, but which cannot examine nearly as many types of behavior. Further investigation into the best circumstances for using each of these methods would certainly be warranted.

Another possibility for future research is to combine audits with other types of data and research methods. Linking audit results with survey evidence on prejudice and discrimination could be quite valuable, for example. This type of linkage would make it possible to ask a variety of new questions about discrimination: Does variation across locations in perceived discrimination correspond with variation in discrimination measured with audits? Do audit-based measures of discrimination against a minority group increase in neighborhoods where surveys find White people with relatively high levels of prejudice against that group? A related possibility is to administer surveys to the landlords or real estate brokers involved in an audit study. This step would make it possible to ask whether landlords or housing agents with relatively high prejudice are more likely to be the ones that exhibited discriminatory behavior during the audit study.

Discrimination in housing markets has certainly evolved over the years, and discrimination in some types of housing agent behavior has declined. Nevertheless, paired testing has shown that significant discrimination remains in several important types of agent behavior. Gross measures indicate continuing discrimination in the number of units shown to a customer and offers to help a customer find financing, for example, and net measures signal ongoing discrimination in the number of apartments inspected and in racial steering. As long as this type of behavior continues to occur, paired testing and the new methods that are its descendants will be valuable tools both for scholars who want to measure discrimination and understand its causes and for fair housing enforcement officials who want to protect the housing rights of minority households.

⁴⁰ It is also possible to adjust discrimination measures so that they correspond to the actual income distribution of the minority group under study. Yinger (1995) found that this type of calculation has little impact on the results of HDS1989. Some other research suggests, however, that less discrimination occurs when testers reveal that they have a more professional job (Baldini and Federici, 2011; Ewens, Tomlin, and Wang, 2014; Hanson and Hawley, 2011). This possibility might be more common in actual searches than in audit studies. Minority homeseekers also might avoid housing agents who are known to discriminate. This type of behavior imposes a cost on these households, of course, but it also might lower measured discrimination. For further discussion of this issue, see Ross and Yinger (2006).

Appendix A. Results of Housing Discrimination Audit Studies

Exhibit A-1

Results of Housing Discrimination Audit Studies (1 of 6)

Authors	Data/Methodology ^a	Scale	Other Factors Considered With Race/Ethnicity and Gender	Location, Period, and Market Examined	Main Findings
Ahmed, Andersson, and Hammarstedt (2010)	E-mail correspondence tests Probit model	1,032 units (not paired: one e-mail per unit)	Information on employment, education, marital status, age, smoking behavior, and rent payment issues	Sweden 2008 Rental tests	Arabic males have 15 to 23 percentage points and 17 to 20 percentage points lower probability of receiving a call back and being invited to further contacts than do Swedish males. Providing additional information about themselves increases the probability of receiving a call back, being invited to further contacts, and being invited to showing by 12 to 19 percent for both Swedish and Arabic males. Increasing the amount of information in the application will not reduce discrimination in the housing market.
Ahmed and Hammarstedt (2008)	E-mail correspondence tests Probit model	500 units (500 x 3 = 1,500 e-mails)		Sweden 2007 Rental tests	Arabic males have 21 to 26 and 7 percentage points lower probability of being invited to further contacts and being invited to a showing than do Swedish males, respectively. Swedish males are almost 13 percentage points less likely to be invited to a flat showing than are Swedish females.
Andersson, Jakobsson, and Kotsadam (2012)	E-mail correspondence tests Probit model	950 units (not paired: one e-mail per unit)	Socioeconomic status using occupation	Norway 2009–2010 Rental tests	Arabic renters have 13 percentage points lower probability of receiving a positive response compared with Norwegian renters. For all ethnicities, the probability of receiving a positive response is lower by about 7 percentage points for males than females and by 7 percentage points for warehouse workers than economists.

Exhibit A-1

Results of Housing Discrimination Audit Studies (2 of 6)

Authors	Data/Methodology ^a	Scale	Other Factors Considered With Race/Ethnicity and Gender	Location, Period, and Market Examined	Main Findings
Baldini and Federici (2011)	E-mail correspondence tests Probit model	3,676 units (not paired: one e-mail per unit)	Socioeconomic status using information on occupation and marital status	Italy 2010 Rental tests	Arabic renters have 22 percentage points lower probability of receiving a positive response than native Italian renters. East European renters have 16 percentage points lower probability. The magnitude of discrimination is greater for men (24 percentage points) than for women (15 percentage points). Providing information reduces discrimination for foreign names, especially for males.
Bosch, Carnero, and Farre (2010)	E-mail correspondence tests Probit, linear probability, and unit fixed-effects models Telephone correspondence tests	1,809 units (4,709 e-mails: 2 to 4 e-mails per unit) 201 units (201 x 2 = 402 calls)	Socioeconomic status using occupation	Spain 2009 Rental tests Spain 2008 Rental tests	Moroccan immigrants are 13 to 18 percentage points less likely to receive a response than are native Spanish renters. Discrimination is much higher for Moroccan males (22 percentage points) than for Moroccan females (10 percentage points). Revealing positive information about occupation increases the contacts by about 6 to 8 percentage points. Positive information reduces discrimination only for males. Moroccan renters have around a 10-percentage point lower response rate, and Moroccan males are substantially more discriminated than Moroccan females (15 versus 7 percentage points). Discrimination against Hispanic renters is of a similar magnitude.
Bovenkerk et al. (1979)	In-person tests	135 units (135 x 3 = 405 visits)		France 1976 Rental tests	Black renters experience net discrimination of 31.9 percent compared with native French renters, but there was no discrimination against Portuguese renters.

Exhibit A-1

Results of Housing Discrimination Audit Studies (3 of 6)

Authors	Data/Methodology^a	Scale	Other Factors Considered With Race/Ethnicity and Gender	Location, Period, and Market Examined	Main Findings
Carlsson and Ericksson (2013)	E-mail correspondence tests Linear probability model	5,143 units (not paired: one e-mail per unit)	Socioeconomic status using occupation	United Kingdom 2011–2012 Shared housing (for example, roommate and housemate)	Ethnic minority home-seekers have 13 percentage points lower probability of being invited to an apartment showing than native British (White) renters. Ethnic minority home-seekers with high-skill jobs face 10 percentage points more discrimination than ethnic minority home-seekers with low-skill jobs. Discrimination against ethnic minority home-seekers is highest among Arabic home-seekers (compared with Eastern European, Indian, and African home-seekers).
Carlsson and Ericksson (2014)	E-mail correspondence tests Linear probability model	5,827 units (not paired: one e-mail per unit)	Employment status, age, and socioeconomic status using occupation	Sweden 2010–2011 Rental tests	Arabic males and females have 11 and 7 percentage points lower probability of being invited to an apartment showing than do Swedish males. Unemployed applicants are more discriminated than employed applicants, but including employment status does not change the magnitude of ethnic discrimination. The study finds no evidence of age discrimination.
Carpusor and Loges (2006)	E-mail correspondence tests	1,115 units (not paired: one e-mail per unit)		Los Angeles, California 2003 Rental tests	African-American and Arabic renters receive 33 percentage points and 23 percentage points lower positive e-mail responses (being told that the unit was available) than White renters, respectively.
Ewens, Tomlin, and Wang (2014)	E-mail correspondence tests	14,237 units (not paired: one e-mail per unit)		34 U.S. cities Late 2000s (year not specified) Rental tests (one bedroom, studio only)	African-American renters have 8 to 9 percentage points lower positive responses (being told that the unit is available) than White renters. Revealing positive information about the socioeconomic status (using information on nonsmoking behavior, a respectable occupation, and credit rating) increases the positive response rate, but it does not narrow the racial gap in the response rate.

Exhibit A-1

Results of Housing Discrimination Audit Studies (4 of 6)

Authors	Data/Methodology ^a	Scale	Other Factors Considered With Race/Ethnicity and Gender	Location, Period, and Market Examined	Main Findings
Feins and Bratt (1983)	In-person tests	156 rental and 118 sales tests		Boston, Massachusetts (seven neighborhoods) 1981 Rental and sales tests Steering	African-American homebuyers have 27 percent [37 percent] and 15 percent [21 percent] lower probability of being told, when asked if an advertised unit was available in rental and sales markets. The study finds no strong significant differences in the racial composition of neighborhoods in which White and African-American auditors were shown houses. This steering result was based on the association of the housing characteristics and auditors' race.
Hanson and Hawley (2011)	E-mail correspondence tests Probit model	4,728 tests (4,728 x 2 = 9,456 e-mails)	Socioeconomic status using the prose quality of e-mails	10 U.S. cities 2009 Rental tests	African-American renters are treated less favorably than White renters by landlords. Landlords reply faster, reply with an e-mail that is longer to inquiries made, make formal greetings, and use polite language when replying to e-mail inquiries from a White homebuyer.
Hanson and Santas (2014)	E-mail correspondence tests	3,072 tests (3,072 x 2 = 6,144 e-mails)	Socioeconomic status using the prose quality of e-mails	21 large U.S. metropolitan areas 2011 Rental tests	Assimilated Hispanic-American renters experience little discrimination, but recent Hispanic immigrants receive 2.9 percent lower response rates than White renters. When e-mail prose quality of the immigrants is low, discrimination doubles to 5.8 percent for nonresponse outcomes, and the incidence of discrimination is 6.9 percent for positive-response outcomes.
Hogan and Berry (2011)	E-mail correspondence tests Fixed-effects logit model	1,124 tests (1,124 x 5 = 5,620 e-mails)		Toronto, Canada 2007 Rental tests	Arabic homebuyers face discrimination in 12 percent of experiments. The level of discrimination is modest but significant for Asian men (7 percent), Black homebuyers (5 percent), and Arabic women (5 percent). "Opportunity denying" discrimination (exclusion through nonresponse) was 10 times as common as "opportunity diminishing" discrimination (for example, additional rental conditions).

Exhibit A-1

Results of Housing Discrimination Audit Studies (5 of 6)

Authors	Data/Methodology ^a	Scale	Other Factors Considered With Race/Ethnicity and Gender	Location, Period, and Market Examined	Main Findings
James, Cummings, and Tynan (1984)	In-person tests	253 tests		Denver, Colorado 1982 Rental and sales tests Steering	African-American and Hispanic homebuyers have 1 to 11 percentage points higher probability of being told that either advertised or others similar houses are not available than White homebuyers (using net measures). Discrimination against minority homebuyers was higher in rental markets than sales markets. Minority homebuyers were offered less assistance with financing arrangements. In general, Hispanic homebuyers experienced higher discrimination than African-American homebuyers. Discrimination in sales tests was evident in White neighborhoods, and discrimination against minority renters was evident in minority neighborhoods.
Massey and Lundy (2001)	Telephone correspondence tests Logit and OLS models	79 units (79 x 6 = 474 calls)	Socioeconomic status using racially distinctive English (with racially neutral names)	Philadelphia, Pennsylvania 1999 Rental tests	African-American renters with high social class have 1 to 5 percentage points lower probability of being told that a unit is available than do White renters. The gap for African-American renters with low social class is 21 to 23 percentage points. Males have 4 to 10 percentage points higher probability of being told that a unit is available than do females, and African-American renters with low social class have 16 to 22 percentage points lower probability than do African-American renters with high social class.
McIntosh and Smith (1974)	In-person tests	178 tests (137 sales; 41 rental)		United Kingdom (five regions) 1967 and 1973 Rental and sales tests	Much lower levels of net discrimination against ethnic minority home seekers (West Indian, Indian, Pakistani, and Greek individuals) were found in 1973 than in 1967.

Exhibit A-1

Results of Housing Discrimination Audit Studies (6 of 6)

Authors	Data/Methodology ^a	Scale	Other Factors Considered With Race/Ethnicity and Gender	Location, Period, and Market Examined	Main Findings
Pearce (1979)	In-person tests	97 tests		Detroit, Michigan 1974–1975 Sales tests Steering	African-American homeseekers have 44 percent [46 percent] lower probability of being shown houses by real estate agents. African-American homeseekers were shown houses in slightly higher percent Black census tracts and in communities with lower house values than were White homeseekers.
Purnell, Idsardi, and Baugh (1999)	Telephone correspondence tests	989 calls		San Francisco Bay Area, California 1997 Rental tests	African-American renters have 8 to 41 percentage points lower rates of having a confirmed appointment to view an apartment in the White-majority areas but 3 to 22 percentage points higher rate of having an appointment in Black-majority areas. Mexican-American renters have 7 to 17 percentage points lower rates of making an appointment than do African-American renters in all the areas.
Roychoudhury and Goodman (1992)	In-person tests Ordered probit model	568 tests		Detroit, Michigan 1980–1990 Rental tests	For each additional apartment available to an agent, the probability of discrimination against an African-American auditor increases by 0.50 for the number of units withheld and by 0.58 for the number of units inspected.
Roychoudhury and Goodman (1996)	In-person tests Ordered probit and bivariate probit model	319 tests		Detroit, Michigan 1980–1990 Sales tests Steering	Discrimination against African-American homebuyers was substantially less frequent among African-American housing agents and more frequent among older agents. An audit-by-audit comparison suggests that a considerable number of White homeseekers were steered toward predominantly White and more affluent neighborhoods.

OLS = ordinary least squares.

^a Methodology indicates any statistical analysis other than computing gross and net measures or the differences-in-means tests.

Note: Gross measures are presented in brackets.

Appendix B. The Origins of Fair Housing Audits

Fair housing audits have been developed over the years by scholars, private fair housing groups, and governmental enforcement officials—often in partnerships.

An extensive library and Internet search by the authors indicates that the first published reference to fair housing audits appeared in the *New York Times* in 1956 (Rowland, 1956). This article describes audits conducted by the Committee on Civil Rights in East Manhattan (CCRM) in 1953 and 1954. These audits are also discussed in Frost (1958) and McEntire (1960).⁴¹ This study “was supervised by a group of social scientists associated with the sponsoring Committee [CCRM]” (McEntire, 1960: 240n).⁴² According to Frost (1958: 69), “CCRM was not seeking to duplicate the work of established organizations in the field of civil rights. Rather, it hoped to give to a varied group of individuals a more intensive experience as well as an opportunity to work cooperatively in producing changes. The technique selected for achieving this was that of the community audit.”

In the CCRM audits, a Black person or a Black couple “would visit the office of a designated real estate broker and inquire about the availability of apartments of a specified type. After the minority tester left, the control tester (white) would proceed to the same office with an identical set of apartment specifications... [D]iscriminatory practice was to be the difference in treatment accorded the two testers” (Frost, 1958: 71). Testers were selected and trained, and “in November [1953] and March [1954] a total of 27 firms were visited and tested” (Frost, 1958: 72). In 22 of the 27 cases, discrimination against African-American renters was found. In addition, the CCRM conducted 17 more tests in May 1954 based on advertisements in the Sunday *New York Times*. Discrimination was found in 10 of the tests.

McEntire (1960: 239) also reports on an audit study in Los Angeles in 1955, which appears to be the first fair housing audit study of the sales market. In this study, “a white couple, representing themselves as possible house buyers, called on twelve real estate brokers doing business in a new residential area of 12,000 homes, chiefly FHA- and VA-financed. The couple was followed after a brief interval by a Negro, also purporting to be looking for a house to buy.” Discrimination was found in every case. The report on this study was co-authored by James H. Kirk, a professor at Loyola University of Los Angeles.⁴³

⁴¹ These housing audits built on CCRM’s experience with restaurant audits, which were conducted as far back as 1950. These restaurant audits, like many of the housing audits that followed, involved a partnership between scholars and CCRM. According to Selltiz (1955), these scholars included Kenneth Clark (City College of New York), Dan Dodson (New York University), Herbert Hyman (Columbia University), Patricia Kendall (Columbia University), Sophia M. Robison (New York School of Social Work, now the Columbia University School of Social Work), and Claire Selltiz (New York University). Jou (2014) provides a detailed history of the restaurant audits.

⁴² Although many scholars are listed in the preface to McEntire (1960), the particular social scientists who contributed to this audit study are not identified. It seems likely that Claire Selltiz was involved, because she was both a “technical consultant” to the CCRM restaurant audits (Selltiz, 1955: 19) and was listed in McEntire (1960: xi) as someone who prepared “Research memoranda on sociopsychological aspects of housing and minority groups.”

⁴³ The affiliation of the co-author, Lane D. Spane, is not indicated. This study appears to be one in “a series of related studies prepared by cooperating social scientists and other experts” upon which McEntire (1960: x) is “largely based.”

The authors' research indicates that the first use of enforcement testing by a private fair housing group was in Brooklyn, New York, in 1960 (Purnell, 2013). The first legislation in the country banning discrimination in private housing became effective in New York City in 1958, and the New York branch of the Congress of Racial Equality (CORE) decided to help enforce this act by conducting tests and, if necessary, giving the results to the relevant enforcement agency: the New York City Commission on Intergroup Relations. The first documented case of this strategy occurred in August 1960, when the New York CORE helped a Black family who was told that a Brooklyn apartment they wanted was no longer available. During the next 5 days, White testers were told over the phone that the apartment was still available, but testers who identified themselves as Black were told that it had been rented. When the apartment was subsequently advertised in the *New York Times*, the Black family was told once again that the apartment was no longer available, whereas a White tester who visited the rental agent's office was told that he could rent the apartment. These techniques were then picked up by the Brooklyn branch of CORE. According to Purnell (2013), "Over the next year and a half, the chapter's housing activists also improved on this basic model... and helped scores of African Americans move into apartments and homes in mostly white areas of Brooklyn."

The first documented case of enforcement tests by private fair housing groups that were not linked to complaints comes from Chicago in the mid-1960s. The Coordinating Council of Community Organizations (CCCO) was formed in Chicago in April 1962; its first focus was on school segregation in the city (Cohen and Taylor, 2000). Chicago passed a fair housing ordinance in 1963, and at some point CCCO initiated a testing program. This program came to light in 1966 when Martin Luther King, Jr., and the Southern Christian Leadership Conference joined with the CCCO to initiate the Chicago Freedom Movement. As part of its efforts to combat discrimination, "The Freedom Movement had been sending testers into Gage Park," one of the White neighborhoods in Chicago, and by the time this organization began a series of marches in White neighborhoods in July 1966, it "had already documented 121 cases of racial discrimination" (Cohen and Taylor, 2000: 392). An all-night vigil was held "at F.H. Halvorsen Realty in Gage Park... because, according to recent testing, it repeatedly discriminated against black applicants" (Cohen and Taylor, 2000: 392).

In August 1966, Chicago Mayor Richard Daley invited the participants in the Freedom Movement to a housing summit. "The movement also embarked... on a pre-summit campaign of real estate-agent testing. As expected, blacks were lied to about the availability of housing in white neighborhoods and turned away" (Cohen and Taylor, 2000: 400). Moreover, this testing program "collected enough evidence to file seventy-four discrimination complaints against sixteen real estate brokers. Equally important, the testing gave them fresh evidence going into the summit that the problem of housing discrimination was real, and that the city's Fair Housing Ordinance of 1963 was not being enforced" (Cohen and Taylor, 2000: 400).

The passage of the Fair Housing Act and the U.S. Supreme Court's resurrection of the Civil Rights Act of 1866, both of which occurred in 1968, greatly expanded the opportunity for audits to be used as an enforcement tool. Most importantly, FHA gave private fair housing groups the standing to sue alleged discriminators. As a result, the use of audits by private fair housing groups quickly spread. The first testing-based case to appear in federal court relied on evidence from tests conducted in 1968 in Brown County, Ohio (Schwemm, 1992). As pointed out by Yinger

(1995: 20), “how-to manuals for conducting audits were widely available” by the early 1970s. See, for example, Kovar (1974), Leadership Council for Metropolitan Open Communities (1975), or Murphy (1972). An assessment of the early use of audits by private fair housing groups is provided by Freiberg (1993). Governmental civil rights enforcement agencies eventually also started using audits, and they became a crucial tool in fair housing cases (Schwemm, 1992). In 1982, the U.S. Supreme Court upheld the use of audits as a fair housing enforcement tool.⁴⁴

Scholars also recognized the power of audits to uncover discriminatory behavior, and more audit studies began to appear as early as the 1960s. Housing audits were conducted in Great Britain, for example, starting in 1967 (see Daniel, 1968, and McIntosh and Smith, 1974).⁴⁵ In the United States, a study published in 1971 (Johnson, Porter, and Mateljan, 1971) used audits to examine discrimination against Black and Mexican-American homeseekers in a Southern California city. Another 1971 audit study, which examined the behavior of real estate brokers and landlords in Akron, Ohio, was “devised by the author [a professor at Kent State University] as part of the ongoing research program of the Fair Housing Contact Service of Akron, a voluntary open housing group” (Saltman, 1975: 41).⁴⁶ A study conducted in Detroit in 1974 and 1975 used audits to examine racial steering by real estate brokers (Pearce, 1979).⁴⁷ In 1977, scholars at the U.S. Department of Housing and Urban Development (HUD) directed the first nationwide audit study (Wienk et al., 1979).⁴⁸

The federal government did not develop its own testing programs for many years after the passage of the Fair Housing Act. Indeed, as late as 1978, the Comptroller General of the United States (CGUS) observed that “HUD officials . . . are reluctant to use testing because some people view it as harassment. Some officials also question its legality, but we were told by HUD’s General Counsel that testing is legal” (CGUS, 1978: 26). Despite this reluctance to conduct testing, however, the CGUS (1978: 26) also reported that “HUD does use testing data developed by local fair housing organizations.” Moreover, according to Lee (1999: 48n, endnote 21), “In the early years of its enforcement efforts, the [Justice] Department often relied upon testing evidence provided to it by local fair housing groups.” To be specific, “the first reported case in which tester evidence was used in a suit brought by the Attorney General” involved tests conducted in March 1970 (Schwemm, 1992: 40).

Although the audit technique is used for both enforcement and research purposes, the requirements for these two applications are not exactly the same. Over time, private fair housing groups and governmental agencies refined the use of this tool for enforcement purposes and scholars developed new measures of discrimination, new statistical procedures, and ways to use audit results for testing hypotheses about discriminatory behavior. Moreover, many scholars based their research on data from audits originally designed for enforcement purposes. These developments are reviewed in the text of this article.

⁴⁴ *Havens Realty Corp. v. Coleman*, 455 U.S. 363, 373 (1982).

⁴⁵ Moreover, our research indicates that the first appearance of correspondence audits was in a study of racial discrimination in employment in Britain (Jowell and Prescott-Clarke, 1970).

⁴⁶ Dr. Saltman was one of the founders of the Fair Housing Contact Service in 1965. See Walbeck (1974).

⁴⁷ At the time this study was published, Dr. Pearce was a professor at the University of Illinois at Chicago Circle.

⁴⁸ HUD’s partner for this study was the National Committee against Discrimination in Housing, which carried out the audits. See Wienk et al. (1979).

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