

U.S. Department of Housing and Urban Development  
Office of Policy Development and Research

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# HOUSING DISCRIMINATION STUDY

## Synthesis



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## Synthesis

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Prepared for:  
U.S. Department of Housing and Urban  
Development

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The Urban Institute and  
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# The Housing Discrimination Study

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## Housing Discrimination Study Reports

### *Methodology and Data Documentation*

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### *Incidence and Severity of Unfavorable Treatment*

John Yinger

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### *Incidence of Discrimination and Variations in Discriminatory Behavior*

John Yinger

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### *Analyzing Racial and Ethnic Steering*

Margery Austin Turner, John G. Edwards, Maris Mikelsons

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### *Mapping Patterns of Steering for Five Metropolitan Areas*

Maris Mikelsons, Margery Austin Turner

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### *Replication of 1977 Study Measures with Current Data*

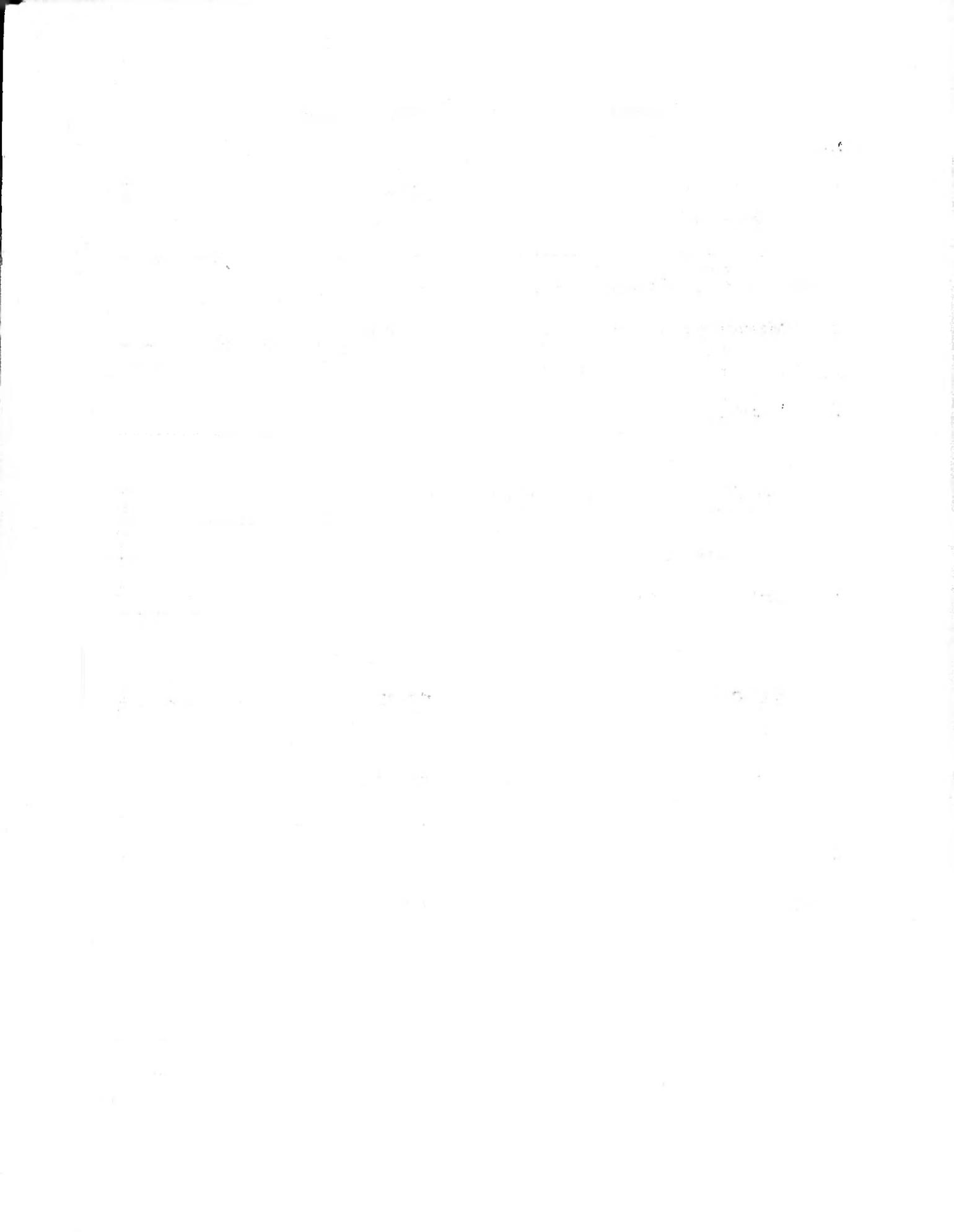
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### *Synthesis*

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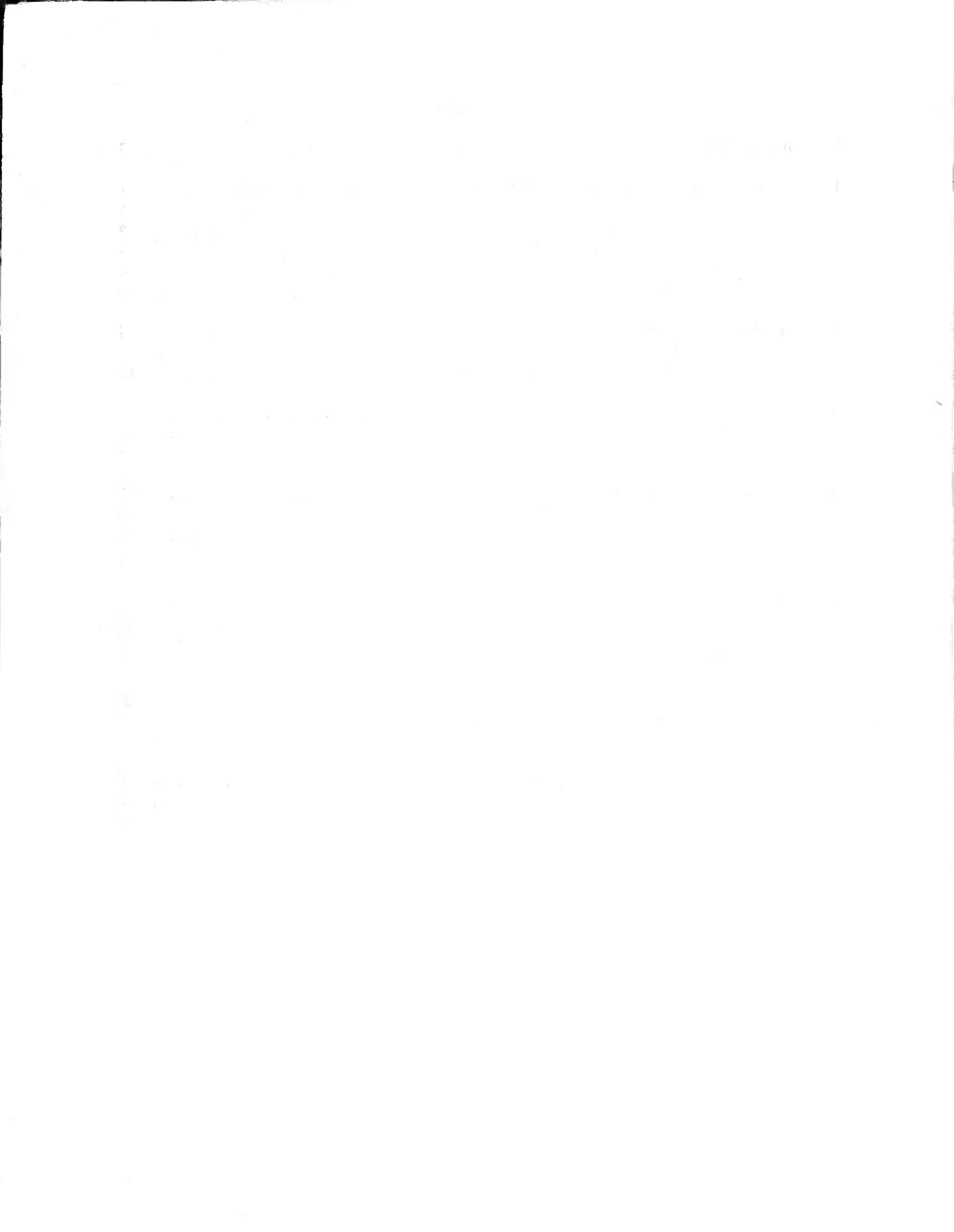
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## **Executive Summary**

This report summarizes the findings of the Housing Discrimination Study (HDS), a national fair housing audit study sponsored by the U.S. Department of Housing and Urban Development's Office of Policy Development and Research, and conducted by The Urban Institute and Syracuse University. Results are based on 3,800 fair housing audits (paired tests) conducted in 25 metropolitan areas during the late spring and early summer of 1989. The data gathering period for HDS coincided with initial implementation of the 1988 Fair Housing Act Amendments. Therefore, study results can be regarded as a benchmark against which the effects of the Amendments can be measured.

### **Background**

In 1977, HUD's Office of Policy Development and Research conducted the Housing Market Practices Survey (HMPS), the first national audit study of housing market discrimination. Pairs of auditors—one white and the other black—posed as otherwise identical homeseekers. They responded separately to advertisements randomly selected from the major newspapers of forty metropolitan areas, and recorded their treatment by real estate and rental agents.

The current Housing Discrimination Study (HDS) was designed to build on the experience of HMPS in order to achieve four key objectives:

- Provide a current national estimate of the level of discrimination against blacks in urban areas.
- Provide, for the first time, a comparable national estimate of the level of discrimination against Hispanics.
- Effectively measure racial and ethnic steering, whereby minorities may be shown or recommended housing units, but are "steered" away from majority neighborhoods.
- Advance the state-of-the-art in the methodology of systematic housing audits, providing researchers and fair housing enforcement agencies with more reliable tools for measuring patterns of discrimination.

All four of these goals have been successfully accomplished, and the results of data collection and analysis are summarized in this report.

### **Audit Methodology**

The Housing Discrimination Study implemented essentially the same audit methodology developed in the 1977 Housing Market Practices Survey (HMPS). Specifically:

- A sample of metropolitan areas was selected to yield nationally representative estimates of differential treatment for minority homeseekers in major urban areas.
- Advertisements were randomly selected from the major newspaper in each sampled metropolitan area.
- Teams of minority and majority auditors were sent to the sampled sales and rental agents to inquire about the availability of housing units.<sup>1</sup>
- Minority and majority auditors independently recorded their treatment by sales and rental agents on structured data collection forms.

The two studies differ, however, in several important respects. HDS researchers refined and modified HMPS procedures based on lessons learned from smaller audit studies conducted over the intervening years. The most significant change in audit procedures was that each HDS audit began with a request for a specific, advertised unit selected from the most recent Sunday newspaper. In HMPS, only one sample of advertisements was drawn in advance of the field work for each metropolitan area, and auditors did not explicitly ask for the advertised unit. By "anchoring" audits to specific advertised units, HDS ensured that the opening requests by both members of an audit team were identical.

In addition to this critical change in the audit methodology, HDS refined and expanded the HMPS data collection instruments. As a result of these changes, and because of the anchoring procedure, results of the two studies are not directly comparable and cannot be used to determine with precision how much the incidence of discrimination has changed since the late 1970s.

### Measurement Issues

In addition to differences between HDS and HMPS in audit procedures, the current study substantially refines the statistical techniques used to measure unfavorable treatment and discrimination. Unfavorable treatment of a minority auditor can occur for both systematic and random reasons. Discrimination is when rental or sales agents systematically treat minorities unfavorably. But the "true" systematic behavior of agents may be obscured by the effects of random events. In any given audit, random events may favor the majority auditor, or they may favor the minority. Thus, the share of audits in which unfavorable treatment of the minority is observed may be either lower or higher than the share of cases in which the actual systematic behavior of agents is discriminatory.

HMPS researchers attempted to remove the effect of random factors from their measures of differential treatment, in order to reflect the incidence of discrimination for systematic reasons. To do so, they subtracted the share of audits that were minority favored from the share that were majority favored, to yield a "net" measure that was intended to represent the incidence of discrimination against minorities.

Accurately untangling random and systematic factors is an extremely difficult undertaking, for which there is no simple solution. It is now clear, however, that the net measure featured in HMPS understates the incidence of discrimination. In particular, it

assumes that none of the minority favored outcomes occurred for systematic reasons. Therefore, HDS does not use net measures.

Instead, this report presents three distinct measures of unfavorable treatment and discrimination against minority homeseekers. The first is the **incidence** of unfavorable treatment of minorities -- the share of cases in which the minority partner received less favorable treatment than his majority partner. This measure does not distinguish random acts of differential treatment from systematic discrimination against minority homeseekers. Therefore, HDS researchers have utilized advanced statistical procedures to disentangle the random and systematic components of unfavorable treatment. These procedures yield best estimates of discrimination for systematic reasons. Finally, the third type of measure presented in this report is the **severity** of discrimination against minorities. For continuous treatment variables (such as the number of units available), this measure represents the difference between the average outcome for majority auditors and the average outcome for minority auditors.

It is important to understand that the HDS audits were designed to measure the extent to which blacks and Hispanics experience discrimination when they look for housing in urban areas throughout the country. HDS audits were not designed to assemble evidence of discrimination in individual cases. The question of when differential treatment warrants prosecution and the related question of whether sufficient evidence is available to prevail in court are extremely complex and can only be resolved on a case by case basis. These questions are entirely outside the scope of the HDS analysis and reports.

### Stages of Differential Treatment

The Housing Discrimination Study, like most other audit studies, focuses on the interaction between an agent and homeseeker from the time a homeseeker responds to an advertisement until the homeseeker commits to renting or purchasing the unit. This encounter consists of up to three basic stages, and at each of these stages, minority and majority homeseekers may receive differential treatment. It is important to note that not all forms of differential treatment in the housing market transaction are of equal seriousness. Nevertheless, all forms of unfavorable treatment reported here have the potential to impede an individual's efforts to obtain housing of his choice, by denying the availability of housing units, by withholding information or assistance in completing the housing transaction, or by steering minority and majority customers to different types of neighborhoods.

**Stage One—*Housing Availability.*** At the first stage, a homeseeker inquires about the availability of an advertised unit and about other comparable units.<sup>2</sup> Unfavorable treatment occurs when minority customers are denied information about the availability of some or all of the units that are available to comparable white Anglos. The most serious unfavorable treatment is complete denial of information about the availability of sale or rental units. For 8 percent of the sales audits for both blacks and Hispanics and for 12 percent (Hispanic) and 15 percent (black) of the rental audits, minorities inquiring about advertised units were denied the opportunity to meet sales or rental agents or were told that nothing was available, even though units were made available to comparable white Anglos.

A much larger share of minority auditors faced additional (if less restrictive) unfavorable treatment about information with respect to the overall availability of units. Below are the overall measures of unfavorable treatment on housing availability.

The incidence of unfavorable treatment in housing availability is:

- 39 percent for black renters;
- 36 percent for Hispanic renters;
- 36 percent for black homebuyers; and
- 38 percent for Hispanic homebuyers;

Unfavorable treatment in housing availability might also take the form of differences in the type or condition of units, but HDS finds no evidence that minorities are systematically shown units that are inferior to those shown to white Anglos.

In addition to the incidence of unfavorable treatment, HDS measures the severity of unfavorable treatment for some outcome variables. For housing availability, the severity of unfavorable treatment reflects the magnitude of the difference between the number of units made available to minorities and the number available to their majority counterparts.

The severity of discrimination in housing availability is:

- 25 percent fewer units available to black renters;
- 11 percent fewer units available to Hispanic renters;
- 21 percent fewer units available to black homebuyers; and
- 22 percent fewer units available to Hispanic homebuyers.

**Stage Two—Contributions to Completing a Transaction.** As long as a customer is not denied access to housing altogether, agents may either facilitate or constrain access to housing opportunities through the level of "sales effort" invested in the transaction, the rental terms and conditions offered, or assistance provided to homebuyers in obtaining financing.

The gross incidence of unfavorable treatment in contributions to a transaction is:

- 45 percent for black renters;
- 42 percent for Hispanic renters;
- 46 percent for black homebuyers; and

- 47 percent for Hispanic homebuyers;

**Stage Three—Steering.** Regardless of what happens in the second stage of an HDS audit, both minority and majority homebuyers may experience racial or ethnic steering. Steering occurs when minority homeseekers are offered houses, but in systematically different neighborhoods than their white Anglo counterparts. Steering can only occur when an agent identifies houses that would be of interest to a customer. For this report, steering evidence is presented for cases in which both auditors were shown or recommended one or more houses.

When houses are shown or recommended, the probability of steering is 21 percent for both black and Hispanic homebuyers. In these cases, the houses shown or recommended to minority buyers are in neighborhoods that are lower percent white (by at least 5 percentage points), lower per capita income (by at least \$2,500), or lower median house value (by at least \$5,000). Although the incidence of steering is substantial, its severity is low. Overall, neighborhoods shown and recommended to whites average only 3 percentage points higher percent white than those shown and recommended to blacks. And neighborhoods shown and recommended to Anglos are only 1 percentage point higher percent Anglo than those shown and recommended to Hispanics.

A primary explanation for the low severity of steering is that there was little variation in the racial composition of the neighborhoods where HDS auditors were shown or recommended houses. Most houses shown or recommended to either minority or majority auditors were located in predominantly white Anglo neighborhoods. This pattern stems from the fact that the majority (75 percent) of the anchoring, advertised units were located in predominantly white Anglo neighborhoods. Few integrated and majority black or Hispanic neighborhoods were included in the HDS sample, because few houses in these neighborhoods were advertised in major metropolitan newspapers. Given the narrow range of variation in neighborhood characteristics, the severity of differences between neighborhoods was limited, even when steering occurred.

### **Overall Incidence of Unfavorable Treatment**

As minority homeseekers proceed through the stages of a housing transaction, they may encounter unfavorable treatment at one or more stages. It is possible that if unfavorable treatment occurs to a particular auditor at one stage it also occurs at other stages. Alternatively, some auditors may experience unfavorable treatment in housing availability but not in other stages, while others may receive equal treatment in availability but experience unfavorable treatment at other points in the encounter.

To determine the probability that unfavorable treatment will occur at some stage in the audit process, a composite index was constructed, combining outcomes on housing availability (stage 1), contributions to the transaction (stage 2), and—for homebuyers—steering (stage 3).

The gross overall incidence of unfavorable treatment is:

- 46 percent for black renters;

- 43 percent for Hispanic renters;
- 50 percent for black homebuyers; and
- 45 percent for Hispanic homebuyers.

## **Racial and Ethnic Discrimination**

The results outlined above reflect the incidence of unfavorable treatment experienced by black and Hispanic homeseekers. As discussed earlier, these unfavorable outcomes stem from the combination of systematic discrimination, and the effects of random factors, which favor the minority in some cases and the majority in others. One of the important innovations of the current Housing Discrimination Study (HDS) has been to extensively explore alternative methods for estimating the incidence of discrimination.

Using a statistical technique known as multinomial logit analysis, the independent contributions of many systematic factors to agents' choices can be separated from the effects of random events. This statistical estimation technique has been used in conjunction with the gross measures of differential treatment to arrive at best estimates of the incidence of discrimination against minority homeseekers.

In a fair housing audit, random events can either favor the majority or favor the minority. In other words, random circumstances might cause a minority auditor to be treated unfavorably even though the agent did not intend to discriminate; or random events might result in equal treatment even though an agent generally provides more favorable service to one or the other group of customers. As a result, it is possible for estimates of discrimination (systematic unfavorable treatment) to be either higher or lower than the "gross" measures of unfavorable treatment. In general, HDS estimates of discrimination for systematic reasons are at least as high, and sometimes higher than the gross measure of unfavorable treatment.

The most serious form of discrimination is complete denial of access to available units. The estimated probability of systematic denial of housing availability in the rental market is 11 percent for blacks and 7 percent for Hispanics. In the sales market, the probability of systematic denial is estimated at 6 percent for blacks and 5 percent for Hispanics.

Other forms of discrimination are much more prevalent. In fact, black and Hispanic homebuyers and black renters experience some form of discrimination in over half of their encounters with sales and rental agents, and Hispanic renters experience discrimination almost half the time.

The estimated overall incidence of discrimination is:

- 53 percent for black renters;
- 46 percent for Hispanic renters;

- 59 percent for black homebuyers; and
- 56 percent for Hispanic homebuyers.

## **In Conclusion**

The Housing Discrimination Study (like its predecessor, HMPS) is necessarily limited in its coverage of urban housing markets and of the experience of minority homeseekers. In both HMPS and HDS the sample of real estate and rental agents to be audited was drawn from newspaper advertisements, and the economic characteristics of audit teams were matched to the characteristics of the advertised units. However, not all housing units for sale or rent are advertised in major metropolitan newspapers, not all real estate and rental agents use this means to attract customers, and not all minority homeseekers use newspaper advertisements in their housing search.

Therefore, HDS results do not necessarily reflect the experience of the average black or Hispanic homeseeker, but rather of a black or Hispanic homeseeker qualified to rent or buy the average housing unit advertised in a major metropolitan newspaper. In other words, both HMPS and HDS capture the incidence of discrimination in a major segment of the metropolitan housing market—a segment that is accessible through the newspaper to every homeseeker, regardless of race or ethnicity—but they do not necessarily apply to the housing market as a whole.

The overall comparison of HDS and HMPS results presents a mixed picture, and provides no solid basis for concluding that the incidence of unfavorable treatment experienced by black homeseekers has either risen or declined since the late 1970s. Individual measures of unfavorable treatment on housing availability are lower in HDS than in HMPS, but these differences reflect—at least in part—the anchoring procedure employed in HDS, which was expected to yield more conservative estimates than the HMPS methodology. Moreover, the index of housing availability for the sales market yields virtually identical results for HMPS and HDS. Measures reflecting other forms of differential treatment in the rental market are just as high or higher in HDS than they were in HMPS.

Another important limitation of the results presented here is that they do not encompass all phases of the housing market transaction. HDS, like most audit studies, focuses on the initial encounter between a homeseeker and a rental or sales agent. Additional incidents of unfavorable treatment might also occur when a homebuyer applies for mortgage financing, or in the final negotiation of lease terms for a rental unit.

Despite these limitations, the Housing Discrimination Study provides the best available evidence regarding the current incidence and severity of housing market discrimination against black and Hispanic homeseekers in large urban areas of the United States. The study draws upon an accumulated body of experience with the fair housing audit methodology, and substantially advances the state-of-the-art in both data collection and analysis.



# 1. The Housing Discrimination Study: Background and Audit Methods

In 1977, the Department of Housing and Urban Development's Office of Policy Development and Research conducted the first national study of housing market discrimination. This Housing Market Practices Survey (HMPS) used the "audit" methodology to directly observe differential treatment of black and white homeseekers.<sup>3</sup> Specifically, pairs of auditors—one white and the other black—posed as otherwise identical homeseekers. They responded separately to advertisements randomly selected from the major newspapers of forty metropolitan areas and recorded their treatment on standardized forms. Because audit teammates were identically qualified as homebuyers or renters, systematic differences in treatment could be attributed to their race.

Since 1977, several smaller scale audit studies have been conducted in individual cities.<sup>4</sup> And HUD sponsored an audit study in Dallas to document the extent of discrimination against Hispanic households.<sup>5</sup>

In 1988, HUD's Office of Policy Development and Research initiated a second national audit study of housing market discrimination. This study—the Housing Discrimination Study—was conducted by The Urban Institute and the Metropolitan Studies Program at Syracuse University. For this study a total of 3,800 audits (paired tests) were completed in 25 metropolitan areas during the late spring and early summer of 1989. The data gathering period for HDS coincided with initial implementation of the 1988 Fair Housing Act Amendments. Therefore, study results can be regarded as a benchmark against which the effects of the Amendments can be measured in the future.

## Objectives

The current Housing Discrimination Study (HDS) was designed to achieve four key objectives. First, HDS provides a current national estimate of the level of unfavorable treatment experienced by blacks in urban areas. The second objective of HDS is to produce, for the first time, a comparable national estimate of the level of unfavorable treatment experienced by Hispanics. Although a few prior studies have investigated unfavorable treatment of Hispanics, these studies are limited to individual cities. Therefore, HDS makes a major new contribution by documenting the level and types of unfavorable treatment experienced by Hispanics nationwide.

The third major objective of HDS is to measure the incidence of racial and ethnic steering, whereby minorities may be shown or recommended housing units, but are "steered" away from predominantly white neighborhoods toward neighborhoods that are already integrated or predominantly black or Hispanic. Previous researchers have explored this issue. But HMPS researchers did not report results for racial steering,<sup>6</sup> and consequently, steering was not incorporated into the HMPS indices of the overall probability of discriminatory treatment. Overall HDS indices for the sales market do incorporate steering. Finally, HDS seeks to advance the state-of-the-art in the methodology of systematic housing audits, providing fair housing enforcement agencies and

organizations, as well as researchers, with more reliable tools for measuring patterns of discrimination against minority homeseekers in individual housing markets.

In the years since publication of HUD's pioneering Housing Market Practices Survey, fair housing audits have been widely used for complaint investigation and law enforcement as well as for research purposes. It is important to understand that the HDS audits were designed to measure the extent to which blacks and Hispanics experience discrimination when they look for housing in urban areas throughout the country. HDS audits were not designed to assemble complete evidence of discrimination in individual cases. The question of when differential treatment warrants prosecution and the related question of whether sufficient evidence is available to prevail in court are extremely complex and can only be resolved on a case by case basis. These questions are entirely outside the scope of the HDS analysis and reports.

### **Audit Methodology**

The Housing Discrimination Study has implemented essentially the same audit methodology developed in the 1977 Housing Market Practices Survey (HMPS). In both studies, a sample of metropolitan areas was selected to yield nationally representative estimates of differential treatment for minority homeseekers in major urban areas. The two studies did not employ identical sampling strategies, nor did they conduct audits in the same cities. Nevertheless, both sampling plans were designed to yield statistically reliable national estimates of differential treatment in urban housing markets.<sup>7</sup>

In each sampled metropolitan area, both studies randomly selected advertisements for rental and sales units from the major metropolitan newspaper.<sup>8</sup> Then pairs of minority and majority auditors were sent to the sampled sales and rental agents to inquire about the availability of housing. Audit teammates posed as otherwise identical homeseekers, with income and other household characteristics that were the same and that qualified both team members for the advertised housing unit. Finally, minority and majority auditors independently recorded their treatment by landlords and real estate agents on standardized data collection forms, which were subsequently coded and analyzed for differences in treatment.

The two studies also employed the same administrative procedures. Audits were mainly conducted by local fair housing organizations, which employed and trained local auditors. Regional supervisors, working under the direction of a central audit manager, monitored activities at the individual audit sites to ensure that audits were being conducted consistently and that results were being recorded objectively and exhaustively. Samples of advertisements were drawn centrally by research staff, and all audit reporting forms were reviewed for completeness and consistency at the local, regional, and central research office level.

Although HDS adopted the same basic methodology pioneered in HMPS, the two studies differ in several critical respects. HDS researchers refined and modified HMPS procedures based on lessons learned from smaller audit studies conducted over the intervening years. The most significant change in audit procedures was that each HDS audit began with a request for a specific, advertised unit selected from the most recent Sunday newspaper. In HMPS, only one sample of advertisements was drawn in advance

of the field work for each metropolitan area, and auditors did not explicitly ask for the advertised unit.

By "anchoring" audits to specific advertised units, HDS ensured that the opening requests by both members of an audit team were identical. In addition, since both teammates initially requested a unit that was advertised as available within the last week, HDS measures of differential treatment are less likely to be affected by the possibility that the advertised unit was no longer available by the time an audit occurred.

The "anchoring" procedure necessitated some further changes in the way in which audits proceeded and information was recorded and in the outcome measures reflecting differences in housing availability. Along with these modifications, HDS instruments reorganized or reworded some questions for greater clarity, and deleted questions that had not been productive in HMPS. As a result, several of the measures of differential treatment constructed in HMPS cannot be replicated using HDS data.<sup>9</sup> Finally, where HMPS paid auditors for each house or apartment they inspected, HDS simply required that auditors inspect as many units as possible and record the addresses of units recommended for future inspection.<sup>10</sup>

HDS further builds on HMPS by measuring differential treatment of Hispanics as well as blacks. Teams of Hispanics and Anglos, posing as otherwise comparable homeseekers, followed the same audit procedures as the black-white audit teams, and recorded their treatment on the same reporting forms.<sup>11</sup> Previous analysis indicated that the skin color and accent of Hispanics may affect the likelihood of experiencing unfavorable treatment. Therefore, both light- and dark-skinned Hispanics, with and without noticeable accents, were recruited as auditors for HDS, and these auditor characteristics were recorded for analysis purposes.<sup>12</sup>

### **Metropolitan Area Sample**

HDS audits were conducted in 25 metropolitan areas, representative of large urban areas with significant minority populations. Specifically, metropolitan areas were included in the universe for selection if they had central city populations greater than 100,000, and were more than 12 percent black or more than 7 percent Hispanic—the average share of blacks and Hispanics in the U.S. population overall, as of 1980.

This universe of 105 metropolitan areas consists of three categories:

- 23 areas that are both more than 12 percent black and more than 7 percent Hispanic, from which 8 sample areas were selected, and where both black-white and Hispanic-Anglo audits were conducted;
- 62 areas that are more than 12 percent black but less than 7 percent Hispanic, from which 12 sample areas were selected, and where only black-white audits were conducted; and
- 20 areas that are more than 7 percent Hispanic but less than 12 percent black, from which 5 sample areas were selected, and where only Hispanic-Anglo audits were conducted.

Because of their importance as places of residence for the majority of America's black and Hispanic populations, five sites were selected with certainty for inclusion in the sample. In each of these metropolitan areas, additional audits were conducted to allow for city-specific analysis of discriminatory practices, and to support examination of differences between cities and suburbs in patterns of discrimination. These five in-depth sites include New York, Chicago, and Los Angeles, where both black-white and Hispanic-Anglo audits were conducted; Atlanta, where only black-white audits were conducted; and San Antonio, where only Hispanic-Anglo audits were conducted.

The remaining 20 audit sites were selected randomly from each of the three categories of metropolitan areas. Probabilities of selection were directly related to metropolitan area population, so that large areas—where a larger share of the nation's black and Hispanic populations live—were more likely to be included in the sample. Nevertheless, the sample includes small metropolitan areas such as Pueblo, Colorado and Macon-Warner-Robins, Georgia, along with many of the largest urban areas in the country. In addition, the sample is geographically diverse, representing all four Census regions and fourteen of the fifty states plus the District of Columbia.

National results presented in this report are based on values weighted to adjust for the sampling scheme. Specifically, because the probability of selection varied with a metropolitan area's size, the final HDS audit results are weighted such that observations from metropolitan areas that are under-represented in the sample count more heavily than observations from metropolitan areas that are over-represented in the sample.<sup>13</sup>

### Study Limitations

It is important to reiterate that in both HMPS and HDS the sample of real estate and rental agents to be audited was drawn from newspaper advertisements, and that the economic characteristics of audit teams were matched to the characteristics of the advertised units. Specifically, the income, assets, debt, and household size assigned to each audit team were matched to the cost and size of an advertised housing unit. However, not all housing units for sale or rent are advertised in major metropolitan newspapers, not all real estate and rental agents use this means to attract customers, and not all minority homeseekers use newspaper advertisements in their housing search.<sup>14</sup>

Therefore, results presented here do not necessarily reflect the experience of the average black or Hispanic homeseeker, but rather of a black or Hispanic homeseeker qualified to rent or buy the average housing unit advertised in a major metropolitan newspaper. In other words, both HMPS and HDS capture the incidence of discrimination in a major segment of the metropolitan housing market—a segment that is accessible through the newspaper to every homeseeker, regardless of race or ethnicity—but they do not necessarily apply to the housing market as a whole.

It is possible that the incidence of unfavorable treatment experienced by blacks and Hispanics in other segments of the market is either higher or lower than the incidence reported here. Some houses or neighborhoods may not be advertised in major metropolitan newspapers so that they are not available to minority homeseekers. If so, the HDS results

understate the incidence of unfavorable treatment experienced by minorities in urban housing markets. Alternatively, neighborhoods where minorities typically search for and find housing may be characterized by lower levels of unfavorable treatment and may be marketed through community newspapers or by other means. If this is the case, the market-wide incidence of discrimination might be lower than in the segment of the market that is advertised in major metropolitan newspapers.

Another important limitation of the results presented here is that they do not encompass all phases of the housing market transaction. HDS, like most audit studies, focuses on the initial encounter between a homeseeker and a rental or sales agent. Additional incidents of unfavorable treatment that cannot be observed by the HDS audits may occur when a homebuyer applies for mortgage financing, or in the final negotiation of lease terms for a rental unit.

Despite these limitations, the Housing Discrimination Study provides the best available evidence regarding the current incidence and severity of housing market discrimination against black and Hispanic homeseekers in large urban areas of the United States. The study draws upon an accumulated body of experience with the fair housing audit methodology, and substantially advances the state-of-the-art in both data collection and analysis.

## **Scope and Organization of the Report**

This report summarizes the key findings of the Housing Discrimination Study. It does not present every statistical result, nor does it provide methodological details. Instead, it synthesizes the methods and conclusions that are likely to be of interest to the majority of readers. Those interested in more analytic and methodological details should refer to the HDS technical reports that are listed at the front of this document. Throughout this summary report, specific references are made to the technical reports from which the key results presented here are drawn. Thus, readers with an interest in technical and methodological details can easily refer to the supporting HDS documents.

The next chapter summarizes key measurement issues in the statistical analysis of fair housing audit data, describes how unfavorable treatment and discrimination are measured, and reviews the three stages in a housing transaction at which differential treatment may occur. Chapters 3, 4, and 5 then present HDS results for the incidence of unfavorable treatment at each of these three stages—housing availability, contributions to completing a transaction, and steering. Chapter 6 presents results for the overall incidence of unfavorable treatment at any stage and compares HDS results to those of HMPS. Finally, Chapter 7 presents the most technically complex results of HDS, summarizing "best estimates" of systematic discrimination against black and Hispanic homeseekers.



## 2. Measuring Unfavorable Treatment and Discrimination

This chapter reviews key issues in the measurement and analysis of unfavorable treatment and discrimination based on housing audit data. Building upon past audit studies, the Housing Discrimination Study explicitly defines a series of stages at which unfavorable treatment can occur, and substantially refines existing techniques for measuring the likelihood that minority homeseekers will be treated less favorably than their majority counterparts.

### Measuring Differential Treatment and Discrimination

In addition to refining the fair housing audit methodology, HDS improves upon the statistical techniques used to measure unfavorable treatment and discrimination. This section outlines key measurement issues, explaining the approach adopted by HDS and how it differs from that of HMPS.

**Unfavorable Treatment.** Both HMPS and HDS begin by computing the incidence of unfavorable treatment—the share of cases in which a black or Hispanic auditor is treated less favorably than the white Anglo audit partner. To construct this measure, each audit is classified as "majority favored," "minority favored," or "no difference" for a particular variable. For example, one critical indicator of differential treatment is the number of housing units shown to the auditor. If the majority auditor is shown more units, the audit is classified as "majority favored." If the minority auditor is shown more units, the audit is classified as "minority favored." And if both auditors are shown the same number of units, the audit is classified as "no difference."

The share of audits in which the majority is favored represents the incidence—or probability—that minority homeseekers will experience less favorable treatment than comparable majority homeseekers when they search for housing by responding to advertisements in major metropolitan newspapers. This so-called "gross" measure of unfavorable treatment was included in HMPS tables, but it was not the primary measure analyzed.

**Role of Random Factors.** Unfavorable treatment of minority auditors can occur for both systematic and random reasons. Suppose an agent showed one house to a majority auditor but none to the minority partner, so that the audit has been classified as "majority favored" for this outcome variable. This unfavorable treatment of the minority might have occurred for systematic reasons: perhaps the agent is prejudiced and prefers not to do business with minorities, or perhaps the house is in a predominantly white neighborhood where the agent assumes minorities would rather not live, or perhaps the agent fears that if he brings minorities into the neighborhood, he will lose majority customers. Regardless of the motivation, unfavorable treatment for systematic reasons constitutes discrimination against minority homeseekers.

However, unfavorable treatment may also result from random factors. For example, the agent might have received information between the visit from the majority and minority auditors indicating that the house shown to the majority was no longer available. Or perhaps the agent felt ill or tired at the time of the minority auditor's visit. Any number

of random events might result in unfavorable treatment of a minority customer. Unfavorable treatment for random reasons should not be interpreted as discrimination.

From the perspective of a minority homeseeker, the distinction between discrimination and unfavorable treatment may not be an important one. These homeseekers simply want to know how often they are likely to encounter less favorable treatment than similar majority homeseekers. The principal focus of this report, therefore, is on the incidence of unfavorable treatment of black and Hispanic auditors. In other words, we report the "gross" incidence of differential treatment that minority homeseekers experience.

From the perspective of policy makers, however, the distinction between discrimination and random unfavorable treatment is crucial. Policy makers have little hope of influencing random events, but they can attempt to alter housing agents' incentives so as to discourage systematic efforts to treat minorities unfavorably—that is, discrimination. Therefore, this report supplements the basic "gross" measures of unfavorable treatment with "best estimates" of the incidence of systematic discriminatory practices.

**Measuring Discrimination.** Given the role of random events, the share of audits with "majority favored" outcomes may either over- or understate the incidence of discrimination. HMPS researchers recognized that differential treatment could result from either systematic or random events. In fact, they explicitly assumed that all of the minority favored audits reflected random differences in treatment. Moreover, they assumed that an equal proportion of majority favored outcomes resulted from random differences. Based on these assumptions, HMPS subtracted the share of audits that were minority favored from the share that were majority favored, to yield a "net" measure that was intended to represent the incidence of discrimination against minorities.

The disadvantage of the net measure is that it consistently underestimates the incidence of discrimination against minority homeseekers. In particular, the net measure assumes that all unfavorable treatment of the majority auditor is random, although it seems more plausible to assume that some of the unfavorable treatment of majority auditors is systematic. For this and other reasons, the net measure consistently understates the incidence of systematic efforts to treat majority and minority homeseekers differently. As a result, the HMPS net measure should be interpreted as a lower bound estimate of discrimination against minorities.<sup>15</sup>

One of the important innovations of the current Housing Discrimination Study has been to extensively explore alternative methods for estimating the incidence of discrimination. The challenge is to differentiate the systematic and random components of differential treatment. To do so, a formal model of agent choice has been developed and statistically estimated. Results of this model are presented in Chapter 7 of this report. In most cases, the simple "gross" incidence of unfavorable treatment turns out to be close to our "best estimate" of the incidence of discrimination. Therefore, we view the gross measures of the incidence of unfavorable treatment against minority homeseekers as good approximations of systematic discrimination.

**Severity of Discrimination.** Most analysis of differential treatment and discrimination focuses on the incidence (or probability) that minority homeseekers will encounter unfavorable treatment. However, HDS also presents measures of the severity of discrimination, which is defined as the magnitude of the difference in treatment between

minority and majority homeseekers. For example, if—on average—the majority auditor is told about three available housing units, while the minority teammate averages only one, then the severity of discrimination on this measure is two housing units (three minus one), or 67 percent (two divided by the majority average of three). Severity measures can be computed for any continuous treatment indicator, such as number of houses shown or recommended, or the percent minority population in the neighborhoods surrounding inspected units. Severity measures are not, however, computed for categorical treatment indicators, such as whether or not the advertised unit was available.

One advantage of analyzing the severity of discrimination is that the effects of random factors do not create the same problems of interpretation that arise in analysis of incidence measures. Random factors are, of course, still present, but they have a symmetrical impact on the continuous measure of treatment of both minority and majority auditors. Random factors will sometimes make the observed difference between minority and majority outcomes higher and sometimes make it lower, but over many audits, these effects (by the definition of randomness) will offset each other. Thus, when the average difference across audits is calculated, the effects of random factors will cancel out.

Because severity measures accurately reflect discrimination without requiring complex statistical procedures, they are presented in conjunction with the gross measures of differential treatment. Together, these measures provide easily understandable indicators of both the incidence and the magnitude of unfavorable treatment experienced by minority homeseekers. However, severity measures are not applicable for all outcome variables. To illustrate, one important indicator of differential treatment is whether both minority and majority teammates were told that the advertised unit was available. Differences in treatment in this respect cannot vary in magnitude—auditors are either treated differently or they are treated the same. Thus, only incidence measures are computed for variables of this type.

**Summary of HDS Measures.** To summarize, this report presents three distinct measures of unfavorable treatment and discrimination against minority homeseekers. The first is the **incidence** of unfavorable treatment of minorities. For each form of treatment analyzed, this measure reports the share of cases in which the minority partner received less favorable treatment than his majority partner. As discussed earlier, unfavorable treatment can occur for both systematic and random reasons, and there are usually some audits in which minorities receive more favorable treatment than their majority partners. Therefore, Appendix A provides detailed data tables showing majority favored, minority favored, and no difference outcomes for all the incidence measures presented in this report.

In a research audit study, there is no simple way to unambiguously distinguish random acts of differential treatment from systematic discrimination against minority homeseekers. Therefore, HDS researchers have utilized advanced statistical procedures to disentangle the random and systematic components of unfavorable treatment. These procedures yield **best estimates** of discrimination for systematic reasons.

Finally, the third type of measure presented in this report is the **severity** of discrimination against minorities. For continuous treatment variables (such as number of units available), this measure represents the difference between the average outcome for majority auditors and the average outcome for minority auditors. Cases in which both were treated equally, cases in which the majority was favored, and cases in which the

minority was favored are all included in the averages. Thus, the severity of discrimination reflects the overall magnitude of differences in outcomes for minority and majority auditors.

### **Stages in the Housing Transaction**

Unfavorable treatment can occur at any point in the process of housing search and acquisition — from the advertising of available units to the final negotiation of lease or purchase terms. Most audit research focuses on the initial encounter between a homeseeker and a rental or sales agent, analyzing the information provided about the availability of housing units. The 1977 HMPS also measured differences in the level of courtesy and supplementary services offered by agents, and attempted some preliminary work on the incidence of racial steering in the homeownership market.

Like earlier audit studies, the Housing Discrimination Study focuses on the interaction between an agent and homeseeker from the time at which a housing unit has been advertised until the homeseeker commits to renting or purchasing the unit. This encounter consists of up to three basic stages. These stages do not necessarily occur in sequence, although it is helpful to think of the audit as a sequence of stages. In the first stage, an agent may make units available to the homeseeker, or deny access to some or all units that are available. In the second stage, an agent may either constrain or facilitate completion of a transaction through the information and assistance provided to the customer. And finally, in the sales market, if an agent shows or recommends houses beyond the advertised unit, customers may be steered to different neighborhoods on the basis of their race or ethnicity.

It is important to note that not all forms of differential treatment in the housing market transaction are of equal seriousness. For example, if a minority homeseeker is told that no housing units are available (when, in fact, units are available to a comparable majority homeseeker), then his ability to obtain housing of his choice is clearly denied. If, on the other hand, the minority homeseeker is told about available housing units but is given less information about financing alternatives, he may be less severely affected. However, all forms of unfavorable treatment reported here have the potential to impede a minority's efforts to obtain housing of his choice, by denying the availability of housing units, by withholding information or assistance in completing the housing transaction, or by steering minority and majority customers to different types of neighborhoods.

**Stage One—*Housing Availability.*** At the first stage of an HDS audit, a homeseeker inquires about the availability of units advertised in the newspaper. If an agent refuses to meet with a homeseeker or denies that either the advertised unit or other similar units are available (even though they are made available to other customers), then the homeseeker has been completely denied access to housing. Even if units are made available, an agent may limit a minority homeseeker's access by showing or recommending fewer units than are shown to the comparable white Anglo customer.

Chapter 3 of this report focuses on the incidence and severity of discrimination in housing availability. How often are minorities denied access altogether, and how often are fewer units made available to them than to their white Anglo counterparts? When unfavorable treatment of this kind does occur, how severe is it?

**Stage Two—Contributions to Completing a Transaction.** Although a minority customer may not be denied access to housing altogether, agents may constrain a minority's access to housing opportunities by offering less favorable terms and conditions, investing a lower level of "sales effort" in the transaction, or—for homebuyers—providing less assistance in obtaining financing. Discrimination of this type does not directly deny housing availability, but it may make it substantially more difficult for a minority to take advantage of housing opportunities that are available. Chapter 4 presents HDS results regarding the incidence and forms of unfavorable treatment at stage two.

**Stage Three—Steering.** Regardless of what happens in the second stage of an HDS audit, households seeking to buy homes may find that their choices are constrained by racial or ethnic steering. Steering as defined in this study occurs when minority homeseekers are offered houses, but in systematically different types of neighborhoods than their white Anglo counterparts. Steering is often difficult for individual homeseekers to detect, because minorities may be shown a wide variety of houses that meet their specifications and have few opportunities to find out about the houses they are not shown. But if minorities are systematically steered toward less predominantly white Anglo neighborhoods (and vice versa for white Anglos) this form of differential treatment clearly limits housing and neighborhood choice, and may play a role in perpetuating patterns of residential segregation.

One of the primary objectives of the Housing Discrimination Study was to effectively measure the incidence and severity of steering. To ensure that steering was fully explored, HDS combined conventional statistical analysis of differences in neighborhood attributes with mapping analysis for the five in-depth audit sites. Mapping is a critical component of the analysis as a whole because steering is a spatial phenomenon; when steering occurs, the probability that a house will be made available to minorities or to white Anglos is determined by the location of that unit relative to the location of minority neighborhoods in the city. Complete results of the statistical and mapping analyses of steering are summarized in Chapter 5.



### 3. Housing Availability

Without complete information about available units, minority homeseekers cannot participate equally in the housing market. Despite two decades of fair housing enforcement, blacks and Hispanics are still denied information about available housing. As shown in Table 3.1, black renters face a 39 percent chance of being told about fewer units than comparable whites, while Hispanic renters are denied information about housing availability 36 percent of the time. For homebuyers, the incidence of unfavorable treatment in housing availability is 36 and 38 percent, respectively, for blacks and Hispanics.<sup>16</sup> The remainder of this chapter discusses the components of this overall housing availability index. Detailed data on majority favored and minority favored outcomes for all housing availability variables are provided in Appendix Table A-1.

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**Table 3.1**  
**Index of Unfavorable Treatment in**  
**Housing Availability**

	Rentals		Sales	
	Blacks	Hispanics	Blacks	Hispanics
Share of Audits with Unfavorable Treatment	39.0%	35.5%	35.7%	38.0%

Source: "Incidence and Severity of Unfavorable Treatment"

Note: Values reflect the gross incidence of unfavorable treatment, using weighted data. All reported estimates are statistically significant at a 95% confidence level.

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#### Incidence of Unfavorable Treatment

The most serious form of unfavorable treatment in the housing market transaction is the complete denial of any information about available units. In 8 percent of sales audits and 12 (for Hispanics) to 15 (for blacks) percent of rental audits, minorities inquiring about advertised units were denied the opportunity to meet with a real estate or rental agent or told that nothing was available, even though units were made available to comparable white Anglos (see Table 3.2).

Even when they are not excluded completely from real estate transactions, unfavorable treatment can occur if minorities are denied information about some of the housing units that are made available to comparable white Anglo homeseekers. Table 3.3 presents the incidence of unfavorable treatment for four primary measures of housing availability:

- Is the advertised unit available?
- Are other similar units available?

**Table 3.2**  
**Denying Access to Housing Availability**  
 (No Appointment or No Units Available)

	Rentals		Sales	
	Blacks	Hispanics	Blacks	Hispanics
Share of Audits with Unfavorable Treatment	15.1%	12.1%	7.6%	7.5%

Source: "Incidence and Severity of Unfavorable Treatment"

Note: Values reflect the gross incidence of unfavorable treatment, using weighted data. All reported estimates are statistically significant at a 95% confidence level.

**Table 3.3**  
**Unfavorable Treatment in Housing Availability**

	Rentals		Sales	
	Blacks	Hispanics	Blacks	Hispanics
Share of Audits with Unfavorable Treatment:				
Availability of the advertised unit	17.2%	15.5%	11.1%	9.5%
Availability of similar units	13.7	15.2	19.7	17.1
Number of units shown	31.7	26.9	31.1	31.3
Number of units recommended but not shown	22.3	18.5	26.2	32.5
Index of Unfavorable Treatment	39.0	35.5	35.7	38.0

Source: "Incidence and Severity of Unfavorable Treatment"

Note: All values reflect the gross incidence of unfavorable treatment, using weighted data. All reported estimates are statistically significant at a 95% confidence level.

- How many units are shown by the agent to the homeseeker?
- How many additional units are recommended by the agent for future inspection?

These four measures have been combined to yield an index of unfavorable treatment on housing availability. In constructing this index, unfavorable treatment on one or more of these primary measures is classified as unfavorable treatment in housing availability if it is not counteracted by favorable treatment on any other measure.

Unfavorable treatment in housing availability might also take the form of differences in the type or condition of units shown to minority and majority homeseekers. However, analysis of differences in both the interior and exterior condition of housing units inspected indicate that this is not the case. HDS provides no evidence that minority renters or homebuyers are systematically shown units that are inferior to those shown to comparable white Anglos.

**Rental Market.** In the rental market, blacks face a 17 percent chance and Hispanics face a 16 percent chance of being told that the advertised unit is no longer available, even though it is available to comparable white Anglo homeseekers (see Table 3.3). Moreover, blacks face a 14 percent chance and Hispanics face a 15 percent chance of being denied information about similar units that are available to their majority counterparts. As minority renters proceed farther into the housing market transaction, the probability of encountering unfavorable treatment rises. Blacks are shown fewer units than comparable whites 32 percent of the time, and are recommended fewer units 22 percent of the time. Hispanic renters face a 27 percent chance of being shown fewer units than comparable Anglos, and a 19 percent chance of having fewer units recommended. Altogether, the incidence of unfavorable treatment in housing availability is 39 percent for black renters and 36 percent for Hispanics.<sup>17</sup>

**Sales Market.** Minority homebuyers are less likely than renters to be told that the advertised unit is unavailable, but more likely to be told about fewer similar units and equally likely to be shown fewer units than comparable white Anglos. The probability of being denied access to the advertised unit is 11 percent for blacks and 10 percent for Hispanics. But when minority homebuyers ask about the availability of similar units, the incidence of unfavorable treatment rises to 20 percent for blacks and 17 percent for Hispanics. Blacks and Hispanics are even more likely to be shown fewer units than comparable white homeseekers (31 percent probability), and to have fewer units recommended (26 percent for blacks and 33 percent for Hispanics). The overall incidence of unfavorable treatment in housing availability is 36 percent and 38 percent for black and Hispanic homebuyers, respectively.

### Severity of Discrimination

For some types of differential treatment, it is useful to measure the severity, as well as the incidence, of discrimination. Specifically, how many more units on average are shown or recommended to white Anglos than to minorities? For continuous treatment variables, such as the number of units shown or recommended, the severity of discrimination is defined as the difference between the average values for majority and

minority auditors. All audits are included in these computations, those involving no difference in treatment along with those involving some difference.

**Table 3.4**  
**Severity of Discrimination in Housing Availability**

	Rentals		Sales	
	Blacks	Hispanics	Blacks	Hispanics
<b>Average difference in:</b>				
Units shown (Number)	18.0% (0.23)	7.6% (0.08)	18.7% (0.30)	13.0% (0.22)
Units recommended but not shown (Number)	48.3% (0.17)	24.5% (0.10)	25.8% (0.17)	45.0% (0.30)
Units recommended or shown (Number)	24.5% (0.40)	10.9% (0.18)	20.8% (0.48)	22.1% (0.52)

Source: "Incidence and Severity of Unfavorable Treatment"

Note: Values reflect the percentage difference between average numbers of units, shown or recommended to minority and majority auditors, expressed as a percentage of the number shown or recommended to the majority auditor using weighted data. All reported estimates are statistically significant at a 95% confidence level.

Table 3.4 presents three indicators of the severity of discrimination in housing availability, all of which are expressed both in absolute terms and as a percentage of the average number of units shown or recommended to white Anglos:

- difference in the number of units shown;
- difference in the number of additional units recommended for future inspection; and
- difference in the total number of units shown or recommended.

These results show that, on average, blacks and Hispanics are told about substantially fewer units than comparable white Anglos. Although the absolute values of differences are small (less than one unit), they reflect a substantial deviation in percentage terms between the treatment of minority homeseekers and that of white Anglos.

**Rental Market.** Specifically, among renters, blacks are shown 18 percent fewer units than comparable whites, and are recommended 48 percent fewer units. Taken together, blacks seeking rental housing are informed about the availability of 25 percent fewer units than comparable white homeseekers. The severity of discrimination is lower for Hispanic renters, who are shown 8 percent fewer units than their Anglo counterparts, and recommended 25 percent fewer. Altogether, the number of units recommended and

shown to Hispanic homebuyers is 11 percent lower than the number recommended and shown to comparable Anglos.

**Sales Market.** Minority homebuyers also face severe discrimination in housing availability. Blacks were shown 19 percent fewer units than their white counterparts, and 26 percent fewer units were recommended for future inspection. In total, blacks are shown or recommended 21 percent fewer houses than their white counterparts. Hispanic homebuyers inspected 13 percent fewer units than comparable Anglos, and 45 percent fewer units were recommended to Hispanics for future inspection. Altogether, Hispanics learned about 22 percent fewer units than comparable Anglos.

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## 4. Contributions to Completing the Housing Transaction

Denial of information about housing availability is the most potentially damaging form of unfavorable treatment, but the ability of minorities to complete a housing market transaction can also be either facilitated or inhibited by other forms of differential treatment. Black and Hispanic homeseekers experience unfavorable treatment in three key areas—terms and conditions for rental housing, financing assistance for homebuyers, and overall sales effort.<sup>18</sup>

These forms of unfavorable treatment may not completely deny minority access to housing opportunities, but they constrain the ability of black and Hispanic homebuyers to compete effectively in the housing market. A composite index is presented in Table 4.1, as well as the indices used to construct the composite. The composite index results of unfavorable treatment in these transaction areas—45 percent for black renters, 42 percent for Hispanic renters, 46 percent for black homebuyers, and 47 percent for Hispanic homebuyers—are higher than the housing availability index results presented in Table 3.3. The remainder of this chapter discusses the components of these summary indices. Detailed data on majority favored and minority favored outcomes for all transaction variables are provided in Appendix Table A-2.

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**Table 4.1**  
**Unfavorable Treatment in Completing**  
**the Housing Transaction**

Share of Audits with Unfavorable Treatment in:	Rentals		Sales	
	Blacks	Hispanics	Blacks	Hispanics
Sales Effort	41.1%	36.4%	30.5%	32.9%
Terms and Conditions	23.9	24.6	--	--
Financing Assistance	--	--	39.2	37.3
Composite Index of Unfavorable Treatment	44.5	42.1	45.9	46.7

Source: "Incidence and Severity of Unfavorable Treatment"

Note: All values reflect the gross incidence of unfavorable treatment, using weighted data. All reported estimates are statistically significant at a 95% confidence level.

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## **Rental Terms and Conditions**

An apartment seeker's opportunity to complete a transaction successfully is dependent upon the terms and conditions of rental housing, including rent levels, lease terms, security deposits, and fees. Both blacks and Hispanics face a 24 percent chance of being quoted less favorable terms than comparable white Anglos in one or more of these areas.

Five factors in particular were incorporated into the overall index of treatment with respect to terms and conditions (see Table 4.2):

- Rent level of the advertised unit.
- Does rent include extras other than utilities (such as parking, a pool, or laundry facilities)?
- Amount of security deposit.
- Are special incentives (such as a rent rebate after the first year or waiver of the security deposit) offered for signing a lease?
- Is an application fee required?

Black renters were quoted less favorable terms and conditions than their white partners in 24 percent of the audits. They were more likely to be told that an application fee would be charged, while their white counterparts were more likely to be offered special rental incentives or told about extra amenities included in rent. Moreover, white auditors were quoted a lower rent for the advertised unit than their black counterpart in 14 percent of the audits, and a lower security deposit in 13 percent.

Hispanics were also quoted less favorable rental terms and conditions than their Anglo counterparts 24 percent of time. Like blacks, Hispanics were more likely than their Anglo counterparts to be told that an application fee would be charged, and Anglos were more likely to be offered special rental incentives or amenities. Anglo auditors were also quoted a lower rent than their Hispanic counterparts in 10 percent of the audits and a lower security deposit in 14 percent.

## **Homebuyer Financing Assistance**

The HDS audits did not extend far into the process of obtaining financing for home purchase. However, the information and assistance provided by agents to minority and majority homebuyers were analyzed as part of HDS. Auditors were matched with regard to both assets and liabilities, and both members of an audit team provided agents with the same information about their financial circumstances, if and when they were asked. HDS results indicate that real estate agents provide substantially different information to minority and majority customers about potential sources of financing and are more likely to offer assistance to white Anglos in obtaining financing. As shown in Table 4.3 (page 19), the index of unfavorable treatment with respect to credit assistance is 39 percent for black homebuyers, and 37 percent for Hispanics.

**Table 4.2**  
**Incidence of Unfavorable Treatment in**  
**Terms and Conditions of Rental Housing**

Share of Audits with Unfavorable Treatment in:	Blacks	Hispanics
Application fee was required	10.3%	12.0%
Special rental incentives were available	10.3	12.6
Rent level of advertised unit	13.9	10.0
Rent includes extra amenities	13.6	13.9
Amount of security deposit	13.1	13.8
Index of Terms and Conditions	23.9	24.2

Source: "Incidence and Severity of Unfavorable Treatment"

Note: All values reflect the gross incidence of unfavorable treatment, using weighted data. All reported estimates are statistically significant at a 95% confidence level.

Four specific indicators reflect key areas of differential treatment, and are incorporated into the overall index of treatment with respect to financing assistance:

- Did the agent offer to help in obtaining financing?
- Did the agent tell the auditor he or she was not qualified for a mortgage?
- Did the agent say that conventional fixed rate financing was available?
- Did the agent say that adjustable rate financing was available?

Real estate agents provide substantially different information to blacks and Hispanics than to white Anglos about sources of financing and are much more likely to offer assistance to Anglos in obtaining financing (see Table 4.3). In more than 20 percent of the audits, an offer of help in obtaining financing was made to the white Anglo auditor only. In addition, white Anglo homebuyers are more likely to be told about conventional and adjustable rate mortgages than are comparable black and Hispanic homebuyers.

**Table 4.3**  
**Incidence of Unfavorable Treatment in**  
**Financing Assistance for Homebuyers**

	Blacks	Hispanics
<b>Share of Audits with Unfavorable Treatment:</b>		
Told fixed-rate conventional financing was available	32.7%	28.4%
Told adjustable-rate financing was available	23.1	18.8
Told auditor not qualified for financing	2.1	1.7
Assistance with financing volunteered	24.4	22.1
Index of Financing Assistance	39.1	37.3

Source: "Incidence and Severity of Unfavorable Treatment"

Note: All values reflect the gross incidence of unfavorable treatment, using weighted data. All reported estimates are statistically significant at a 95% confidence level.

As in other audit studies, HDS found that blacks and Hispanics were more frequently told about FHA and VA financing than were their white counterparts. The impact of this treatment on minority access to housing is not clear. FHA mortgages have different features from conventional mortgages, notably lower down payments and higher insurance costs.

### Sales Effort

Sales effort is a broad category encompassing a range of indicators that reflect the level of effort a rental or sales agent invests in a transaction with a customer. Agents can either work hard to sell or rent a unit—spending a significant amount of time with a customer, asking pertinent questions, and providing information—or they can go through the motions—identifying units without providing much information or encouragement. Lack of sales effort can be overcome by a determined homeseeker, but makes it more difficult for a minority customer to identify and obtain housing of his or her choice.

Four indicators reflect sales effort by rental agents:

- Did the agent ask about the homeseeker's income?
- Did the agent ask about reasons for moving?
- Did the agent invite the customer to call back?

- How long was the interview with the rental agent?

One additional indicator is used to reflect sales effort in the homeownership market:

- Did the agent call the customer back?

As Table 4.4 shows, rental agents made a greater effort to do business with majority customers than with minorities. The overall index of unfavorable treatment is 41 percent for blacks and 36 percent for Hispanics. They spent more time with white Anglo customers and were more likely to invite them to call back. In addition, white Anglos were more likely to be asked about their housing preferences and needs, while blacks and Hispanics were more likely to be asked about their qualifications.

**Table 4.4**  
**Incidence of Unfavorable Treatment in**  
**Sales Effort**

	Rentals		Sales	
	Blacks	Hispanics	Blacks	Hispanics
<b>Share of Audits with Unfavorable Treatment in:</b>				
Questions about income	4.7%	3.9%	21.1%	18.9%
Questions about reasons for need to move	9.2	8.7	21.7	18.4
Invitation to call back	30.5	28.5	25.9	30.4
Length of interview	49.8	50.9	54.7	56.1
Follow-up calls	--	--	18.5	16.4
Index of Sales Effort	41.1	36.4	30.5	32.9

Source: "Incidence and Severity of Unfavorable Treatment"

Note: All values reflect the gross incidence of unfavorable treatment, using weighted data. All reported estimates are statistically significant at a 95% confidence level.

In the sales market, real estate agents also appear to invest more effort in marketing to white customers than to comparable blacks and Hispanics. Overall, the index of unfavorable treatment was 31 percent for blacks and 33 percent for Hispanics. Agents are more likely to ask minority buyers about their qualifications and less likely to ask about their housing needs. Moreover, agents spent more time with majority customers than with comparable minorities in over half the sales audits. Finally, white Anglos were more likely than blacks or Hispanics to be invited to call back or to receive a follow-up call from the agent.

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## 5. Racial and Ethnic Steering

For homebuyers, differential treatment in the housing market may include racial or ethnic steering, a practice that has not been conclusively documented by previous research.<sup>19</sup> When steering occurs, minority homebuyers are shown or recommended houses—possibly as many as or more than comparable white Anglos. However, the houses shown to minorities are in neighborhoods with larger existing minority populations, or in less affluent neighborhoods than those shown to white Anglo homeseekers. Although steering is difficult for individual homeseekers to detect, it limits housing and neighborhood choice for both majority and minority homeseekers and may play a role in perpetuating patterns of residential segregation.

Previous analyses of housing market discrimination have included consideration of steering, but definitive methods for estimating the incidence and severity of steering have not been implemented at the national level. Therefore, one of the central objectives of HDS was to improve upon past efforts to measure steering, and to provide reliable national estimates of the extent to which racial and ethnic steering occur. Two complementary methodologies were employed for this purpose. First, a statistical analysis was conducted comparing the neighborhood characteristics of houses shown or recommended to minority and majority homebuyers. And second, data from the five in-depth audit sites (Chicago, New York, Los Angeles, San Antonio, and Atlanta) were used to map the locations of houses shown and recommended to minority and majority auditors in relation to minority and majority neighborhoods.<sup>20</sup>

Steering evidence is presented for audit cases in which agents identified addresses for both minority and majority homeseekers.<sup>21</sup> As Table 5.1 illustrates, when these conditions are met, the probability of steering is 21 percent for both blacks and Hispanics. In other words, among blacks and Hispanics who are shown or recommended houses, there is a one in five chance of being shown or recommended houses in neighborhoods that are higher percent minority or less affluent than those shown and recommend to comparable white Anglo homebuyers. Detailed data on majority and minority outcomes for all steering variables are provided in Appendix Table A-3.

---

**Table 5.1**  
**Index of Steering**

	Blacks	Hispanics
Share of audits (with houses shown or recommended) in which steering occurred	20.9%	21.3%

Source: "Analyzing Racial and Ethnic Steering"

Note: All values reflect the gross incidence of unfavorable treatment, using weighted data. All reported estimates are statistically significant at a 95% confidence level.

---

These results indicate that steering plays a role in the overall pattern of unfavorable treatment in the homeownership market. The size of differences in neighborhood characteristics is small, with most of the houses shown and recommended to both minorities and majorities located in predominantly white Anglo neighborhoods. The results did not provide evidence that minority homeseekers were steered to neighborhoods that were predominantly black or Hispanic; rather, they tended to be steered to less predominantly white neighborhoods than were comparable white homeseekers. However, the analysis revealed another striking pattern that more severely limits neighborhood choices for both majority and minority homeseekers. The sample of advertised units randomly drawn from major metropolitan newspapers contains few addresses in minority or integrated neighborhoods. The typical for-sale house advertised in a major newspaper is located in a predominantly white Anglo neighborhood, and when homeseekers inquire about the availability of units other than those advertised, most are shown or recommended addresses in predominantly white neighborhoods. Thus, both minority and majority homebuyers who start their housing search by selecting advertisements from metropolitan newspapers are likely to be exposed to only a limited range of neighborhood choices.

Houses for sale in minority integrated neighborhoods appear to be underrepresented among advertisements in major metropolitan newspapers, and consequently, these neighborhoods are underrepresented in the HDS sample. Thus, results presented here reflect the incidence of steering in only one segment of the market--the segment consisting largely of predominantly white neighborhoods. Homebuyers seeking housing in minority or integrated neighborhoods might experience different treatment.

### **Incidence of Steering**

As indicated earlier, not every encounter between a prospective homebuyer and a real estate agent progresses far enough for steering to occur. If no units are shown or recommended to one or both teammates, then the agent cannot, by definition, steer customers to different neighborhoods on the basis of race or ethnicity. Thus, the incidence of steering is contingent upon the availability of housing units shown or recommended to both minority and majority homebuyers. As discussed earlier (see Chapter 3), blacks and Hispanics are less likely than comparable white Anglos to be told about available units. But when they are shown or recommended houses, these houses are likely to be in neighborhoods that are higher percent minority, lower income, or lower values than those shown and recommended to comparable white Anglo homebuyers.<sup>22</sup>

Three key neighborhood characteristics were incorporated into an overall index of racial and ethnic steering:

- Average neighborhood percent white (or Anglo) across houses shown and recommended.
- Average neighborhood per capita income across houses shown and recommended.
- Average neighborhood house value across houses shown and recommended.

For a given audit, neighborhoods shown or recommended to the minority and majority auditors were classified as different if the percent white or Anglo differed by more than 5 percentage points, if per capita income differed by more than \$2,500, and if average house value differed by more than \$5,000. These thresholds were imposed to ensure that trivial differences in neighborhood attributes were not interpreted as racial and ethnic steering.

As illustrated by Table 5.2, the neighborhoods where houses are shown or recommended to minorities are likely to have a larger share of minority population, lower per capita incomes, and lower house values. Specifically, both black and Hispanic homebuyers were shown or recommended neighborhoods that are lower percent white Anglo in 12 percent of the audits, neighborhoods with lower per capita income in 11 percent of the audits, and neighborhoods with lower house values in 17 percent of the audits.

---

**Table 5.2**  
**Incidence of Steering**

	Blacks	Hispanics
<b>Share of audits (with houses shown or recommended) with steering:</b>		
Neighborhood percent minority	11.8%	12.4%
Neighborhood per capita income	10.6	10.8
Neighborhood median house value	17.2	16.8
Index of Steering	20.9	21.3

Source: "Analyzing Racial and Ethnic Steering"

Note: All values reflect the gross incidence of unfavorable treatment, using weighted data. All reported estimates are statistically significant at a 95% confidence level.

---

The overall index of steering is higher than the incidence of differential treatment on any of these three component indicators. Specifically, both blacks and Hispanics face a 21 percent probability of being shown or recommended neighborhoods that are either less affluent, lower value, or higher percent minority than those shown to their white Anglo counterparts.

Not surprisingly, the incidence of differential treatment observed varies with the definition of threshold differences in neighborhood characteristics. Table 5.3 presents the share of audits with small, moderate, and large differences in neighborhood attributes. To illustrate, a "small" difference in neighborhood percent white is defined as less than a five percentage point differential, a "moderate" difference is between five and ten percentage points, and a "large" difference is greater than ten percentage points. Comparable ranges have been defined for the other neighborhood attributes as well, as indicated in the exhibit.

Most of the differential treatment that does occur is of relatively low degree. Because most of the units advertised, shown, and recommended to HDS auditors were in predominantly white, middle-class neighborhoods, few homeseekers encountered large differences in treatment. Nevertheless, blacks were steered to substantially less white neighborhoods in 8 percent of the audits, to substantially lower income neighborhoods in 5 percent of the audits, and to substantially lower value neighborhoods in 12 percent of the audits. Hispanics were steered to substantially less Anglo neighborhoods in 8 percent of the audits, to substantially lower income neighborhoods in 4 percent of the audits, and to substantially lower value neighborhoods in 10 percent of the audits.

---

**Table 5.3**  
**Incidence and Degree of Steering**

	Blacks	Hispanics
<b>Share of audits (with houses shown or recommended) with neighborhood differences:</b>		
<b>Percent minority</b>		
small difference (<5%)	18.7%	22.3%
moderate difference (5-10%)	4.1	4.6
large difference (>10%)	7.6	7.9
<b>Per capita income</b>		
small difference (<\$2,500)	18.2	24.3
moderate difference (\$2,500-5,000)	5.5	7.0
large difference (>\$5,000)	5.1	3.8
<b>Median house value</b>		
small difference (<\$5,000)	14.8	18.6
moderate difference (\$5,000-10,000)	5.6	7.1
large difference (>\$10,000)	11.7	9.7

Source: "Analyzing Racial and Ethnic Steering"

---

### Severity of Steering

Although the incidence of racial and ethnic steering is significant, the severity is quite modest. The severity of differences in neighborhood characteristics is computed as the difference between the average value across houses shown and recommended to white Anglos and the average value across those shown and recommended to blacks or Hispanics. Table 5.4 presents differences in the average percent majority population for houses shown

and recommended to minority and majority homebuyers. Average differences in per capita income and average house value are not displayed because they are not consistently significant. On average, the neighborhoods where blacks were shown and recommended houses were only 3 percentage points higher percent black, than those shown and recommended to their white counterparts. Differences in percent Hispanic for neighborhoods shown and recommended to Hispanics and Anglos averaged only 1 percentage point. Severity of differences in neighborhood characteristics is computed by averaging across all eligible audits, including those with differences above and below threshold values. This explains why average differences can be less than the threshold even though a significant share of cases have differences greater than threshold values.

---

**Table 5.4**  
**Severity of Neighborhood Differences**

	Blacks	Hispanics
Difference in percent minority population	-2.8%	-0.83%

Source: "Analyzing Racial and Ethnic Steering"

Note: Values reflect the average difference in neighborhood percent black or Hispanic for houses shown or recommended to minority and majority homebuyers.

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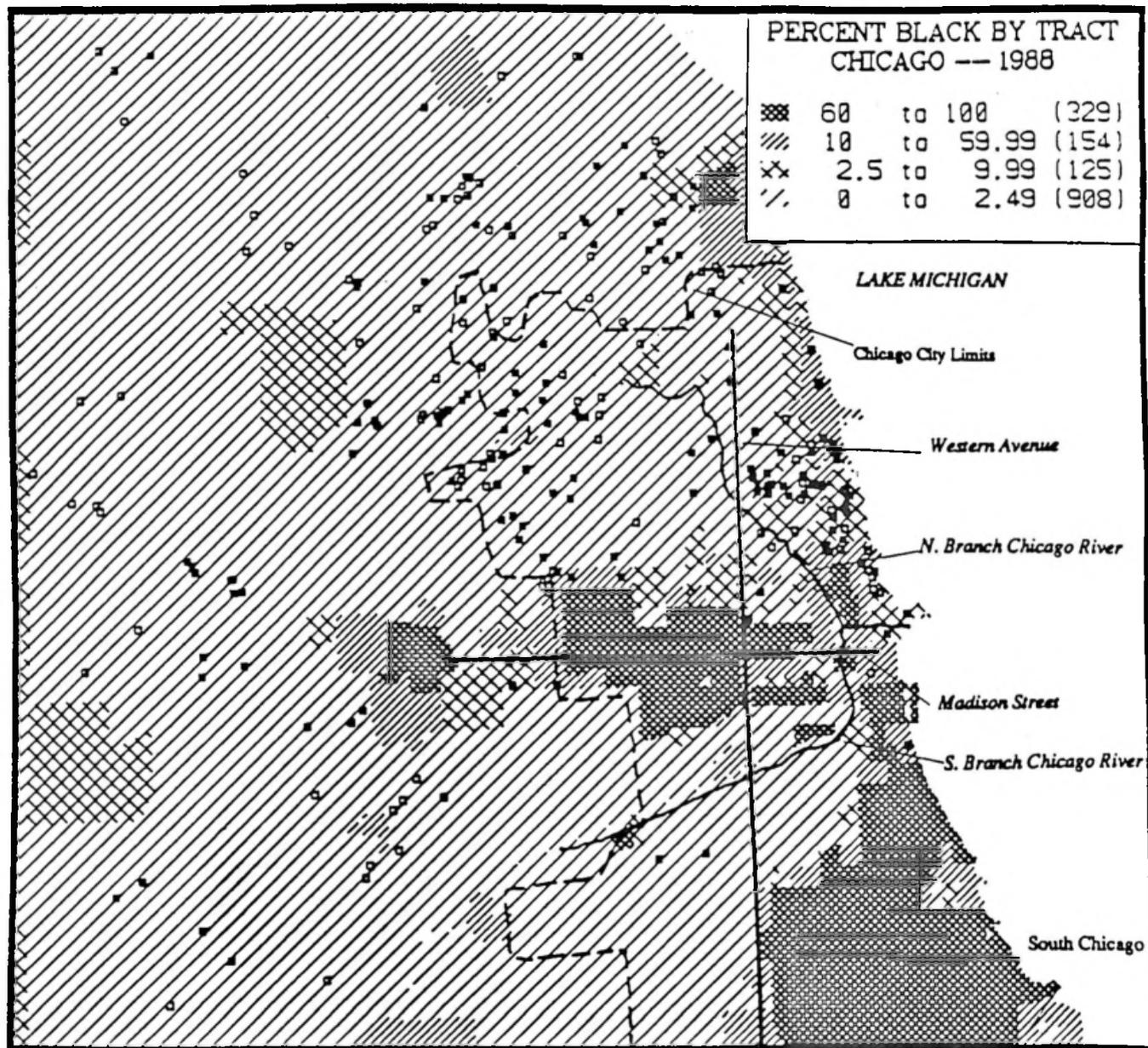
Thus, racial and ethnic steering are not uncommon in the HDS sample, but their severity is low. The neighborhoods shown or recommended to minority homebuyers are less likely to be exclusively white than the neighborhoods shown or recommended to comparable whites. However, as discussed further below, most neighborhoods shown or recommended to both minority and majority customers are predominantly white and Anglo—less than 10 percent black or Hispanic.

In other words, even when steering does occur, the differences in neighborhood characteristics are not large because of the limited range of neighborhoods included in the audit sample. This conclusion is supported by Map 5.1 for the Chicago area, which confirms there are no marked differences in the spatial distribution of houses shown and recommended to blacks and whites. In other words, the small differences reflected by statistical measures are not obscuring important boundary or distance effects that would be apparent through mapping.

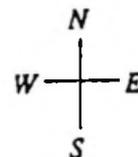
### Neighborhood Characteristics of Audited Addresses

The low severity of racial and ethnic steering stems from the fact that the majority of houses shown and recommended to HDS auditors are in predominantly white Anglo neighborhoods. Recall that the HDS "window" on U.S. housing markets was a random sample of advertisements drawn from the major metropolitan newspapers of the twenty-five

# MAP 5.1 ADDRESSES SHOWN AND RECOMMENDED TO BLACKS AND WHITES, EXCLUDING ADVERTISED UNIT



- White Addresses
- \* Black addresses
- Black and white addresses coincide



audit sites. As Table 5.5 shows, this sample proved to contain remarkably few addresses in minority or integrated neighborhoods. Not only were most of the advertised units located in predominantly white Anglo neighborhoods, but agents marketing these units showed and recommended few other units in integrated or minority areas.

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**Table 5.5**  
**Neighborhood Racial or Ethnic Composition**  
**for Addresses Shown and Recommended**

	Advertised Units	Other Units Shown	Other Units Recommended
<b>Black-White Audits</b>			
Less than 2.5% Black	54.6%	52.9%	44.9%
2.5 - 10% Black	26.5	28.5	26.3
10 - 60% Black	15.8	17.1	27.4
More than 60% Black	3.0	1.5	1.4
<b>Hispanic-Anglo Audits</b>			
Less than 10% Hispanic	52.3	64.7	45.2
10 - 20% Hispanic	18.5	17.7	21.5
20 - 60% Hispanic	26.3	16.0	31.8
More than 60% Hispanic	2.9	1.6	1.5

Source: "Analyzing Racial and Ethnic Steering"

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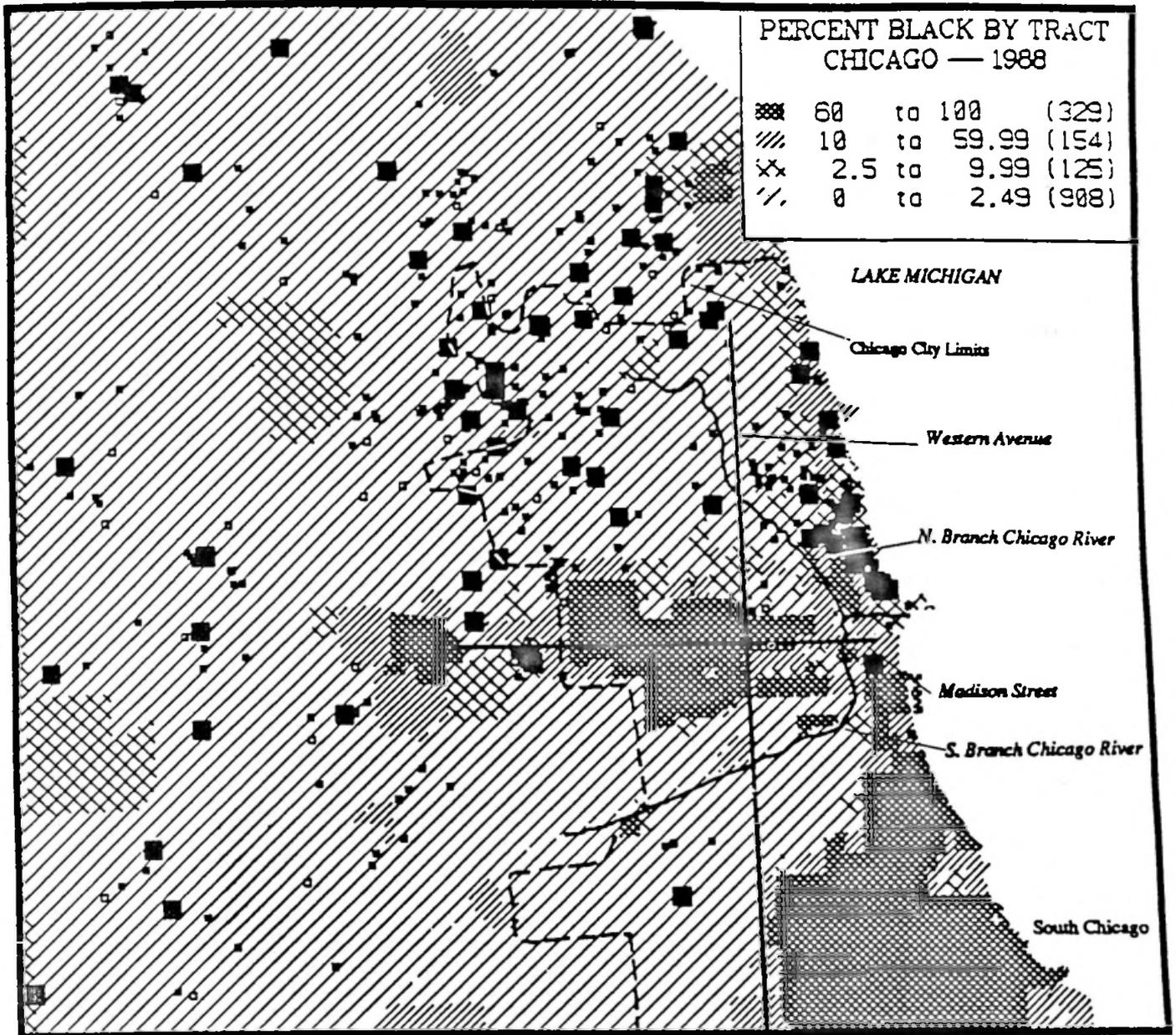
Houses advertised, shown, and recommended are in predominantly white, Anglo neighborhoods. Houses that were actually shown are in the neighborhoods with the highest percent majority population, while houses recommended but not shown are distributed across a wider range of neighborhood characteristics. Not surprisingly, the agents' offices are also in predominantly white, Anglo neighborhoods. Agents whose offices are in more racially or ethnically mixed neighborhoods are more likely to advertise, show, or recommend houses in more diverse neighborhoods. However, most minority and integrated neighborhoods appear unlikely to have houses advertised, shown, or recommended, as illustrated for Chicago in Map 5.2.

Even after controlling for neighborhood affluence and the size of the owner-occupied housing stock, minority neighborhoods are less likely to have houses advertised, shown, or recommended than predominantly white Anglo neighborhoods. To isolate the role of neighborhood racial composition, a multivariate equation was estimated, expressing the probability that a neighborhood has any houses in the HDS sample (addresses advertised, shown, or recommended) as a function of neighborhood characteristics.<sup>23</sup> This analysis shows that neighborhoods are more likely to have houses advertised, shown, or recommended if per capita income is higher, the housing stock is newer, median house values are higher, and the size of the owner-occupied stock is larger. After controlling for these market factors, however, the share of neighborhood population that is black or Hispanic has a direct **negative** effect on the probability that houses will be advertised,

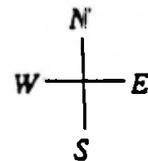
recommended, or shown. In other words, neighborhoods that are higher percent black or Hispanic are less likely to be advertised, recommended, or shown, all other things being equal.

# MAP 5.2

## SALES MARKET ACTIVITY IN CHICAGO BY NEIGHBORHOOD RACIAL COMPOSITION



- Agents' office
- Advertised unit
- \* All houses shown and recommended





## 6. The Overall Incidence of Unfavorable Treatment

This chapter combines the results presented in the previous three chapters to provide a composite index of the incidence of unfavorable treatment experienced by black and Hispanic homeseekers. Results from the Housing Discrimination Study are then compared to those of the Housing Market Practices Survey.

### Composite Indices of Unfavorable Treatment

Table 6.1 summarizes the incidence of unfavorable treatment at each stage in the audit process, and provides a composite index that combines all three stages. Audits are classified as majority favored on the composite index if the majority auditor was favored on one or more of the component indices and the minority was favored on none. Audits in which the majority was favored on one (or more) component and minority was favored on another are classified as "no difference."

**Table 6.1**  
**Composite Index of Unfavorable Treatment**

	Rentals		Sales	
	Blacks	Hispanics	Blacks	Hispanics
<b>Share of Audits with Unfavorable Treatment in:</b>				
Stage 1 housing availability	39.0%	35.5%	35.7%	38.0%
Stage 2 contributions to transaction	44.5	42.1	45.9	46.7
Stage 3 steering	--	--	20.9	21.3
<b>Overall Index of Unfavorable Treatment</b>	<b>45.7</b>	<b>42.7</b>	<b>50.4</b>	<b>44.6</b>

Source: "Incidence and Severity of Unfavorable Treatment"

Note: All values reflect the gross incidence of unfavorable treatment, using weighted data. All reported estimates are statistically significant at a 95% confidence level.

Overall, the likelihood of experiencing unfavorable treatment in the rental market is 46 percent for blacks and 43 percent for Hispanics, while the composite index of unfavorable treatment experienced by homebuyers is 50 percent for blacks and 45 percent for Hispanics. These results are strikingly consistent across both tenure and ethnic groups. Unfavorable treatment in the rental market is less than five percentage points lower than in home sales, and Hispanics are less than five percentage points less likely to experience unfavorable treatment than blacks.

Among renters, the index of unfavorable treatment in stage two (contributions to the housing transaction) is higher than in stage one (housing availability). However, most blacks and Hispanics who experience unfavorable treatment in housing availability also experience it in stage two as well, so that the composite index of unfavorable treatment is only about seven percentage points higher than the index of unfavorable treatment in housing availability. In other words, most minority renters who experience unfavorable treatment in contributions to a transaction also experience unfavorable treatment in housing availability, reflecting a serious pattern of discrimination.

The same pattern applies for minority homebuyers. For both blacks and Hispanics, the index of unfavorable treatment at stage two is about ten percentage points higher than the index for housing availability. However, most of those who experienced unfavorable treatment at the first stage also experienced unfavorable treatment at the second. Thus, the composite index of unfavorable treatment across stages one and two is eight (for blacks) to twelve (for Hispanics) percentage points higher than the index of unfavorable treatment in housing availability.

Finally, incorporating steering has a relatively small impact on the composite index of unfavorable treatment for either black or Hispanic homebuyers. For both groups, almost all of those who experienced steering also experienced unfavorable treatment at another stage. Thus, unfavorable treatment at different stages of a housing transaction often occurs in combination, putting blacks and Hispanics at a serious disadvantage in their efforts to obtain housing of their choice.

### **Comparing HDS and HMPS Results**

In conjunction with the new measures of unfavorable treatment developed as part of HDS, the original HMPS measures have been replicated to the greatest extent possible, so that HDS findings for black renters and homebuyers can be directly compared with those of HMPS.<sup>24</sup> This section compares the original HMPS results to results obtained by constructing measures as similar as possible using HDS data. Note that these "replication" measures are different from the basic HDS measures presented elsewhere in this report.

Many of the individual variables reported in HMPS can be reproduced using the data recorded on the HDS audit forms, but some cannot. More generally, one would expect HDS to produce lower estimates of discrimination on the basic housing availability measures, because of the anchoring procedure. Specifically, it is probably more difficult for a landlord or real estate agent to deny the availability of a specific unit advertised in the most recent Sunday newspaper than to respond negatively to a general inquiry about the availability of units. Therefore, the share of cases in which blacks are told that units

are unavailable is expected be lower in HDS than in HMPS, but there is no way of predicting how much lower.

Thus, HDS data cannot be used to exactly replicate HMPS measures of discrimination against black homeseekers, and the two studies cannot be used to determine with precision how the incidence of discrimination has changed over the intervening decade. Nevertheless, by comparing HMPS results to the closest possible measures constructed from HDS data, and by interpreting these comparisons with caution, we can ascertain whether discrimination has increased or decreased dramatically.

HMPS researchers constructed a wide range of measures of the level of racial discrimination in rental and sales markets. These individual variables were grouped in six broad categories:

Rentals	Sales
<ul style="list-style-type: none"><li>• housing availability</li><li>• courtesy</li><li>• terms and conditions</li><li>• information requested</li><li>• information volunteered</li></ul>	<ul style="list-style-type: none"><li>• housing availability</li><li>• courtesy</li><li>• information requested</li><li>• service</li></ul>

Within each broad category, differences in treatment were reported for individual variables and for indices constructed from selected individual variables.

Many of the individual variables that comprised HMPS' broad treatment categories can be reproduced using the data recorded on the HDS audit forms, while some cannot. No variables in the courtesy and service treatment categories can be replicated, because these items were dropped from the HDS reporting forms. Specifically, it was determined during the design stage of HDS that HMPS findings on differences in courtesy and service had not been sufficiently serious or policy relevant for inclusion in HDS.

For rental audits, HDS data can be used to replicate four of five individual variables in the housing availability category, but not the index for this category. All variables and indices of terms and conditions, information requested, and information volunteered categories have been replicated. For sales audits, HDS data are available to replicate four of six individual treatment variables and the index for housing availability, as well as eight of eleven treatment variables in the information requested category. Because of three missing indicators, the index for sales information requested cannot be replicated.

Table 6.2 summarizes HMPS and HDS results for key variables and indices that can be replicated. The "gross" incidence of unfavorable treatment experienced by black renters and homebuyers is reported for both studies. Appendix Table A-4 provides detailed data on white favored, black favored, and no difference outcomes for all the variables reported here.

As anticipated, HDS yields lower estimates of the incidence of unfavorable treatment for the basic HMPS measure of unit availability in both the rental and sales markets. This measure reflects the share of cases in which the black auditor was told that

**Table 6.2**  
**Replication of HMPS Treatment**  
**Measures Using HDS Data**

	Rentals		Sales	
	HDS	HMPS	HDS	HMPS
<b>Share of Audits with Unfavorable Treatment of Black for:</b>				
Unit Availability	14	30	8	21
Numbers of Units Shown and Recommended	35	42	42	54
Housing Availability Index	—	—	42	39
Rental Terms and Conditions Index	27	13	—	—
<b>Share of Audits with Information Requested of, or Volunteered to, White Only</b>				
Information Requested Index	29	13	—	—
Rental Information Volunteered Index	40	32	—	—

Source: "Replication of 1977 Study Measures with Current Data"

Note: All values reflect the gross incidence of unfavorable treatment, using weighted data. All reported estimates are statistically significant at a 95% confidence level.

the requested unit (the advertised unit or one like it) was not available, while such a unit was available to the white auditor. Because HDS auditors referred explicitly to a unit that had been advertised in the most recent Sunday newspaper, lower levels of differential treatment were expected for this variable, although there is no way to know how much of the difference between HMPS and HDS results is attributable to this methodological difference.

For the total number of units shown and recommended, replication analysis using HDS data yielded lower measures than HMPS. Specifically, in the rental market, whites were shown or recommended more units than their black partners in 35 percent of the HDS audits, compared to 42 percent in HMPS. In the sales market, whites were shown or recommended more units than their black partners in 42 percent of the HDS audits, compared to 54 percent of the HMPS audits.

Although HDS yields lower levels of white favored treatment in the sales market for unit availability and total number of units, results for the index of housing availability in the sales market are essentially the same for the two studies.<sup>25</sup> Overall, black homebuyers experienced less favorable treatment on housing availability in 42 percent of the HDS sales audits, compared to 39 percent of the HMPS sales audits.

The HMPS index of housing availability for the rental market could not be replicated using HDS data. HDS data were available, however, to replicate the HMPS index for rental terms and conditions.<sup>26</sup> Black renters experienced less favorable treatment than their white counterparts in 27 percent of the HDS audits, compared to 13 percent of the HMPS audits.

The two remaining comparisons reported in Table 6.2 reconstruct HMPS treatment indices for rental terms and conditions, information requested by agents from renters, and information volunteered by agents to renters. Parallel HMPS indices for the sales market could not be replicated using HDS data. HMPS did not classify treatment on these variables as "white favored" or "black favored," but simply indicated whether information was requested of the white auditor only, and whether information was volunteered to the white auditor only. It is difficult to determine whether information requested and volunteered is favorable or unfavorable. However, it is clear that differential treatment on these indices is considerably higher in HDS than in HMPS. Whites were asked to provide more information than their black counterparts in 29 percent of the HDS audits, compared to 13 percent of the HMPS audits. And more information was volunteered to the white auditors in 40 percent of the HDS audits, compared to 32 percent of the HMPS audits.

The overall comparison of HDS and HMPS results presents a mixed picture, and provides no solid basis for concluding that the incidence of unfavorable treatment experienced by black homeseekers has either risen or declined since the late 1970s. Individual measures of unfavorable treatment on housing availability measures are lower in HDS than in HMPS, but these differences reflect--at least in part--the anchoring procedure employed in HDS, which was expected to yield more conservative estimates than the HMPS methodology. Moreover, the index of housing availability for the sales market yields virtually identical results for HMPS and HDS. Measures reflecting other forms of differential treatment in the rental market are just as high or higher in HDS than they were in HMPS.



## 7. Estimates of Discrimination in Urban Housing Markets

The results presented in Chapters 3 through 6 reflect the incidence of unfavorable treatment experienced by black and Hispanic homeseekers. These unfavorable outcomes stem from the combination of systematic discrimination and the effects of random factors, which favor the minority in some cases and the majority in others. One of the important innovations of the current Housing Discrimination Study (HDS) has been to extensively explore alternative methods for eliminating the random component in order to estimate the incidence of discrimination.

The challenge is to differentiate the systematic and random components of differential treatment. To do so, a formal model of agent choice has been developed and statistically estimated. This model can then be applied not only to estimate the incidence of discrimination, but also to explore sources of variation in both the incidence and severity of discrimination.<sup>27</sup>

### Incidence of Discrimination

As discussed in Chapter 2, unfavorable treatment of minority auditors can occur for both systematic and random reasons. Unfavorable treatment that is systematic (or intentional) constitutes discrimination, regardless of the motivation. In order to estimate the incidence of discrimination from audit data reflecting unfavorable treatment, it is necessary to distinguish between systematic and random factors.

In any housing market encounter, a real estate or rental agent has several alternatives from which to choose (favor the majority, favor the minority, treat both the same). The utility (or satisfaction) that an agent receives from a given choice is influenced by some systematic factors and some random factors. Using a statistical technique known as multinomial logit, data from a large number of audits can be used to estimate the contribution of systematic factors and the residual contribution of random factors to the probability of differential treatment. In other words, this technique can statistically "sort out" the independent contributions of systematic factors such as agent race, age, and sex; auditor age, sex, and income; neighborhood characteristics; and time of day. If every systematic factor could be identified, then the residual error from this estimation (everything not explained systematically) would accurately reflect the contribution of truly random factors. Then, by excluding this random error term, the incidence of discrimination could be estimated.

Unfortunately, it is impossible to measure every systematic factor that might conceivably cause a real estate or sales agent to treat minority and majority customers differently. Therefore, the residual error term inevitably includes the effects of some unmeasured systematic factors along with the effects of truly random factors. Consequently, when the incidence of discrimination is estimated, the contributions of some systematic factors are left out, leading to either an under- or overestimate of discrimination.

Thus, both the gross incidence measure of unfavorable treatment of minorities and the logit estimate of systematic unfavorable treatment are imperfect approximations of discrimination. For the gross measure to be correct, one would have to assume that

random factors have no effect on observed outcomes. For the logit measure to be correct, one would have to assume that random factors account for all variation in observed outcomes that cannot be explained by a limited set of systematic factors. These two alternative assumptions clearly bracket the truth. Therefore, it is reasonable to conclude that the true incidence of discrimination falls between the gross measure and the logit measure (either of which may be higher). We have adopted the mid-point between these two bounds as our best estimate of discrimination.

There are, however, some cases in which this approach for estimating the incidence of discrimination does not work. When the incidence of discrimination is low, the multinomial logit estimation technique breaks down for statistical reasons. Moreover, in these circumstances the random component is likely to be large, so that the gross measure of unfavorable treatment of minorities may overstate discrimination. Therefore, for some treatment indicators the best available estimate of discrimination is the net measure (majority favored minus minority favored), which is always a lower bound estimate of discrimination.

Table 7.1 presents our best estimates of discrimination against black and Hispanic homeseekers for each of the three basic stages in the audit encounter. In general, HDS best estimates of discrimination are at least as high, and sometimes higher than the gross

**Table 7.1**  
**Incidence of Discrimination Against Blacks and Hispanics**  
(Best Estimates)

Probability of discrimination on:	Rentals		Sales	
	Blacks	Hispanics	Blacks	Hispanics
Denial of access to any unit	11%	7%	6%	5%
Availability of advertised unit	5	8	5	4
Number of units shown and recommended	43	35	41	45
Availability Index	45	31	34	42
Contributions to completing a transaction	51	48	51	53
Overall Index	53	46	59	56

Source: "Incidence of Discrimination and Variations in Discriminatory Behavior"

Note: All values reflect best estimates of the incidence of attempts to favor the majority homeseeker for systematic reasons.

measure of unfavorable treatment. This means that random factors appear to be just as likely (if not more likely) to work in favor of majority auditor as to work in favor of the minority.

The estimated probability that agents systematically deny minorities access to any units is relatively low -- generally below 10 percent. Specifically, denial of the availability of any units in the rental market is estimated at 11 percent for blacks and 7 percent for Hispanics. In the sales market, denial of availability is estimated at 6 percent for blacks and 5 percent for Hispanics.

Thus, black and Hispanic homeseeker are quite unlikely to be systematically denied access to advertised housing units. However, the estimated probability of some form of discrimination on housing availability is substantially higher. Blacks and Hispanics are systematically denied information about units shown or recommended to comparable white Anglo homeseekers in at least one out of three encounters with real estate agents, and the overall index of discrimination on housing availability ranges from 31 percent (for Hispanic renters) to 45 percent (for black renters). More specifically, the estimated incidence of discrimination on the number of units shown or recommended was 43 percent for black renters, 35 percent for Hispanic renters, 41 percent for black homebuyers, and 45 percent for Hispanic homebuyers. The overall index of discrimination in housing availability is 45 percent for black renters, 31 percent for Hispanic renters, 34 percent for black homebuyers, and 42 percent for Hispanic homebuyers.

The incidence of discrimination with respect to other contributions to the housing transaction generally exceeds 50 percent. In other words, blacks and Hispanics experience systematic discrimination in terms and conditions, financing assistance, and general sales effort in about half of their encounters with real estate agents. Specifically, the incidence of discrimination of this kind is estimated at 51 percent for black renters, 48 percent for Hispanic renters, 51 percent for black homebuyers, and 53 percent for Hispanic homebuyers.

Overall, black and Hispanic homebuyers as well as black renters experience some form of discrimination more than half the times they visit a rental or sales agent in response to an advertisement in a major metropolitan newspaper, and Hispanic renters experience discrimination almost half the time. Specifically, discrimination against blacks is estimated at 53 percent in the rental market and 59 percent in the sales market. Discrimination against Hispanics is estimated at 46 percent in the rental market and 56 percent in the sales market.

### **Variations in the Incidence and Severity of Discrimination**

Not all minority homeseekers face the same probability of encountering discrimination. Both the incidence and the severity of discrimination may vary for a number of reasons. Patterns of discriminatory behavior may vary with characteristics of the homeseeker, the housing agent, or the neighborhood. Therefore, we tested a wide range of hypotheses about the circumstances in which discrimination may be most likely to occur.

Few agent, auditor, or neighborhood attributes appear to play any consistent role in explaining variation in discrimination. One possible reason for the lack of more dramatic differences in patterns of discriminatory treatment is that most of the agents and neighborhoods encompassed by the Housing Discrimination Study were white and Anglo. For both rental and sales markets, most of the advertised units that anchored the HDS audits were located in predominantly white Anglo neighborhoods, as were the offices of the agents responsible for marketing these units. Thus, there is not enough variation in the racial or ethnic characteristics of audited agents, or in the racial or ethnic composition of neighborhoods to distinguish the impacts on discrimination of agent and neighborhood attributes.

The incidence of discrimination does not vary significantly with most household characteristics.<sup>28</sup> Only two important patterns emerge. First, discrimination in some types of agent behavior is lower for higher priced housing units—and, hence, for higher income homeseekers.<sup>29</sup> In the sales market, the overall index of discriminatory treatment is highest for low-cost housing. And in the rental market, discrimination on housing availability is higher for low-rent units.

Most blacks and Hispanics seeking to buy or rent housing have incomes below those of the average white Anglo homeseeker. Measures of the incidence and severity of discrimination presented in this report apply to the average advertised housing unit—not to the average minority homeseeker. Since some forms of discrimination are more likely for lower priced units, the HDS estimates probably understate the incidence of discrimination against the average minority homeseeker. The extent of this understatement does not appear to be large, however.

In addition to income level (or house price), the skin color of Hispanic homeseekers appears to be related to variations in discriminatory treatment. Dark-skinned Hispanics encounter more discrimination on housing availability in the sales market. This differential treatment does not appear for other stages of the housing transaction, however, and it does not occur in the rental market.

## ENDNOTES

1. Note that, in the rental market, landlords may advertise and interview homeseekers themselves, they may assign a building manager to perform this function, or they may contract with a rental agent. HDS auditors contacted the individual or agency that was identified in the sampled advertisement.
2. Specifically, auditors asked whether the advertised unit was available, and (whether or not it was) asked for information about other, similar units that might be available. Auditors were instructed to obtain addresses for all available units, even if they were not inspected by the agent and auditor. Thus, available units include units actually inspected and other recommended units.
3. Wienk, R. et al. Measuring Discrimination in American Housing Markets: The Housing Market Practices Survey. Washington, D.C.: U.S. Department of Housing and Urban Development. 1979.
4. Galster, G. "Summary of Racial Testing Studies." Wooster, Ohio: College of Wooster. 1989.
5. Hakken, J. "Discrimination Against Chicanos in the Dallas Rental Housing Market: An Experimental Extension of the Housing Market Practices Survey." Washington, D.C.: U.S. Department of Housing and Urban Development. 1979.
6. Steering analysis was conducted using HMPS data, although the results were not incorporated into the final HMPS report. See, for example, J. Simonson and R. Wienk (1984), "Racial Discrimination in Housing Sales: An Empirical Test of Alternative Models of Broker Behavior;" also see H. Newburger (1989), "Discrimination by a Profit-Maximizing Real Estate Broker in Response to White Prejudice", Journal of Urban Economics. vol 26, pages 1-19.
7. National estimates from both studies are subject to sampling error. Therefore, even if both studies implemented identical audit procedures, it may not be possible to determine whether small differences in results between the two studies reflected real changes in discriminatory behavior or merely the effects of sampling error.
8. HDS included condominiums among the for sale units eligible for inclusion in the sample, because condominiums have become such a significant part of the market in some metropolitan areas. HMPS did not include condominiums.
9. For details, see A. Elmi and M. Mikelsons. "Replication of 1977 Study Measures Using Current Data." Washington, D.C.: U.S. Department of Housing and Urban Development. 1991.
10. Another minor difference between the two studies was the assignment of tester order. In HMPS, the minority auditor always visited the agent first to ensure that unfavorable treatment was not recorded in circumstances when a unit had been sold or rented by the time the second auditor arrived. In HDS, order was randomly assigned so

that differences in treatment from this source are just as likely to favor the minority as to favor the majority.

11. Throughout this report, the following terminology has been adopted. For audits focusing on differential treatment of blacks, the majority group is referred to as whites. For audits focusing on differential treatment of Hispanics, the majority group is referred to as Anglos. In some instances in which the discussion focuses generally on differential treatment of both blacks and Hispanics, the majority group is referred to as white Anglos.

12. It is important to note that no audits were conducted in which blacks were paired with Hispanics, or in which a white Anglo, a black, and an Hispanic auditor all visited the same agent with the same housing request. Therefore, HDS does not directly measure differential treatment of blacks relative to Hispanics.

13. The HDS sampling methodology was designed to detect differences in treatment of 11 percent or more at a significance level of 5 percent and a power level of 95 percent. For details, see "Methodology and Data Documentation." Washington, D.C.: U.S. Department of Housing and Urban Development. 1991.

14. In fact, little is known about strategies used by minority and majority homeseekers in their housing search, about the share and characteristics of the housing market covered by newspaper advertisements, or about differences in discrimination across different segments of the market.

15. For a complete explanation of why net measures consistently understate discrimination, see J. Yinger. "Incidence and Severity of Unfavorable Treatment." Washington, D.C.: U.S. Department of Housing and Urban Development. 1991.

16. Results in Chapter 3 are drawn from J. Yinger. "Incidence and Severity of Unfavorable Treatment." Washington, D.C.: U.S. Department of Housing and Urban Development. 1991. All results reported in this chapter are statistically significant at a 95 percent confidence level.

17. An alternative version of every index has been computed, in which cases are only classified as "no difference" if both auditors are favored on the same number of items. Thus, an audit would be classified as "majority favored" if the majority was favored on more items than the minority. This alternative index does not produce significantly different results than the more conservative index presented in this report.

18. Analysts also tested for differential treatment with respect to sales terms and conditions, but there was no evidence of systematically unfavorable treatment in this area. Results in Chapter 4 are drawn from J. Yinger. "Incidence and Severity of Unfavorable Treatment." Washington, D.C.: U.S. Department of Housing and Urban Development. 1991. All results reported in this chapter are statistically significant at a 95 percent confidence level.

19. Steering may also occur in the rental market. However, it is more likely to be based on the racial or ethnic composition of an apartment project than on the racial or ethnic composition of the surrounding neighborhood. Steering in the rental market was not analyzed as part of HDS, both because the underlying theory is undeveloped, and also because data on the racial composition of audited apartment projects were not available.

20. Results in Chapter 5 are drawn from M. Turner, M. Mikelsons, and J. Edwards. "Analyzing Steering Racial and Ethnic Steering." Washington, D.C.: U.S. Department of Housing and Urban Development. 1991. All results reported in this chapter are statistically significant at a 95 percent confidence level.
21. An even stricter definition of conditions in which steering might occur calls for an agent to show or recommend units **beyond the advertised unit** to both teammates. However, this definition excludes potential circumstances in which one auditor is shown only the advertised unit while the other is "steered" to additional addresses in neighborhoods with different characteristics. See M. Turner et al. "Analyzing Racial and Ethnic Steering." Washington, D.C.: U.S. Department of Housing and Urban Development. 1991.
22. Differences in other neighborhood characteristics were also analyzed. For details on these differences and on the source of updated Census tract characteristics, see M. Turner, M. Mikelsons, J. Edwards. "Analyzing Racial and Ethnic Steering." Washington, D.C.: U.S. Department of Housing and Urban Development. 1991.
23. Estimated coefficients are reported in M. Turner, M. Mikelsons, J. Edwards. "Analyzing Racial and Ethnic Steering." Washington, D.C.: U.S. Department of Housing and Urban Development. 1991.
24. For complete details on the replication of HMPS measures, see A. Elmi and M. Mikelsons. "Replication of 1977 Study Measures Using Current Data." Washington, D.C.: U.S. Department of Housing and Urban Development. 1991.
25. In addition to unit availability and number of units shown or recommended, the HMPS sales availability index includes: 1) whether the multiple listing directory was offered; and 2) the number of houses auditors were invited to inspect.
26. This index includes: 1) average rent for volunteered and inspected units; 2) lease requirements; 3) security deposit amount; 4) whether an application fee was required; and 5) length of credit check.
27. Results in Chapter 7 are drawn from J. Yinger. "Incidence of Discrimination and Variations in Discriminatory Behavior." Washington, D.C.: U.S. Department of Housing and Urban Development. 1991.
28. Details of the multivariate analysis used to measure variations in discrimination for differences in auditor characteristics are presented in J. Yinger. "Incidence of Discrimination and Variations in Discriminatory Behavior." Washington, D.C.: U.S. Department of Housing and Urban Development. 1991.
29. Auditor incomes were assigned such that each auditor was qualified to buy or rent the advertised unit that "anchored" the audit. Thus, there is a one-to-one correspondence between house prices or rents and auditor incomes.



**Appendix A:**  
**Supplemental Data Tables**



**Table A-1**  
**Differential Treatment for Housing Availability**  
**Majority Favored, Minority Favored, No Difference**

**Black-White Rental Audits**

	Number	% White Favored	% Black Favored	% No Difference
No appointment or no units available	801	15.1	4.5	80.4
Availability of advertised unit	745	17.2	11.7	71.0
Availability of similar units	801	13.7	11.3	75.0
Number of units shown	801	31.7	14.6	53.7
Number of units recommended	801	22.3	11.2	66.5
Index of Unfavorable Treatment	801	39.0	19.7	41.3

**Black-White Sales Audits**

	Number	% White Favored	% Black Favored	% No Difference
No appointment or no units available	1081	7.6	1.2	91.2
Availability of advertised unit	1076	11.1	5.6	83.3
Availability of similar units	1081	19.7	10.7	69.6
Number of units shown	1081	31.1	16.7	52.2
Number of units recommended	1081	26.2	16.0	57.8
Index of Unfavorable Treatment	1081	35.7	17.7	46.7

**Hispanic-Anglo Rental Audits**

	Number	% Anglo Favored	% Hispanic Favored	% No Difference
No appointment or no units available	787	12.1	5.6	82.3
Availability of advertised unit	741	15.5	7.1	77.4
Availability of similar units	787	15.2	13.5	71.3
Number of units shown	787	26.9	18.9	54.2
Number of units recommended	787	18.5	13.2	68.3
Index of Unfavorable Treatment	787	35.5	24.3	40.2

Table A-1 (Continued)

Hispanic-Anglo Sales Audits

	Number	% White Favored	% Hispanic Favored	% No Difference
No appointment or no units available	1076	7.5	3.0	89.5
Availability of advertised unit	1076	9.5	5.3	85.1
Availability of similar units	1076	17.1	10.8	72.1
Number of units shown	1076	31.3	18.7	50.0
Number of units recommended	1076	32.5	18.0	49.5
Index of Unfavorable Treatment	1076	38.0	19.9	42.1

**Table A-2**  
**Differential Treatment for Contributions to Transaction**  
**Majority Favored, Minority Favored, No Difference**

**Black-White Rental Audits**

	Number	% White Favored	% Black Favored	% No Difference
Application fee required	372	10.3	7.7	82.0
Special incentives	801	10.3	4.9	84.8
Rent of advertised unit	297	13.9	2.6	83.5
Amenities in rent	566	13.6	9.4	77.0
Amount of security deposit	428	13.1	13.0	73.9
Index of Terms and Conditions	801	23.9	16.0	60.1
Questions about income	801	4.7	3.5	91.8
Questions about reasons for move	801	9.2	6.6	84.2
Invitation to call back	801	30.6	14.8	54.7
Length of interview	801	49.8	39.7	10.5
Index of Sales Effort	801	41.1	23.6	35.3
Composite Index of Contributions to Transaction	801	44.5	24.9	30.6

**Black-White Sales Audits**

	Number	% White Favored	% Black Favored	% No Difference
Conventional financing	1081	32.7	11.1	56.2
Adjustable rate financing	1081	23.1	6.8	70.1
Not qualified	1081	2.1	0.2	97.7
Assistance with financing	1081	24.4	13.3	62.3
Index of Financing Assistance	1081	39.1	18.0	42.9
Questions about income	1081	21.1	13.0	65.9
Questions about reasons for move	1081	21.7	15.2	63.1
Invitation to call back	1081	25.9	22.6	51.5
Follow-up calls	1081	18.5	10.7	70.8
Length of interview	1033	54.7	39.9	5.4
Index of Sales Effort	1081	30.5	19.5	50.0
Composite Index of Contributions to Transaction	1081	45.9	23.9	30.2

Table A-2 (Continued)

**Hispanic-Anglo Rental Audits**

	Number	% Anglo Favored	% Hispanic Favored	% No Difference
Application fee required	341	12.0	10.6	77.3
Special incentives	787	12.6	7.5	79.9
Rent of advertised unit	297	10.0	1.4	88.6
Amenities in rent	595	13.9	8.3	77.9
Amount of security deposit	421	13.8	13.9	72.3
Index of Terms and Conditions	787	24.6	15.7	59.6
Questions about income	787	3.9	2.5	93.6
Questions about reasons for move	787	8.7	4.8	86.5
Invitation to call back	787	28.5	20.0	51.5
Length of interview	787	50.9	40.0	9.1
Index of Sales Effort	787	36.4	26.0	37.6
Composite Index of Contributions to Transaction	787	42.1	25.4	32.5

**Hispanic-Anglo Sales Audits**

	Number	% Anglo Favored	% Hispanic Favored	% No Difference
Conventional financing	1076	28.4	12.4	59.3
Adjustable rate financing	1076	18.8	7.0	74.2
Not qualified	1076	1.7	1.7	96.6
Assistance with financing	1076	22.1	18.1	59.9
Index of Financing Assistance	1076	37.3	23.0	39.7
Questions about income	1076	18.9	16.9	64.1
Questions about reasons for move	1076	18.4	14.8	66.8
Invitation to call back	1076	30.4	19.0	50.6
Follow-up calls	1076	16.4	10.9	72.7
Length of interview	1008	56.1	38.9	5.1
Index of Sales Effort	1076	32.9	19.9	47.2
Composite Index of Contributions to Transaction	1076	46.7	25.9	27.5

**Table A-3**  
**Differential Treatment for Steering**  
**Majority Higher, Minority Higher, No Difference**

**Black-White Sales Audits**

	Number	% White Higher	% Black Higher	% No Difference
Percent black	828	11.8	5.6	82.7
Per capita income	828	10.6	6.9	82.5
Median house value	828	17.2	12.1	70.7
Index of Steering	828	20.9	11.6	67.5

**Hispanic-Anglo Sales Audits**

	Number	% Anglo Higher	% Hispanic Higher	% No Difference
Percent Hispanic	847	12.4	7.6	80.0
Per capita income	847	10.8	7.3	81.9
Median house value	847	16.8	15.5	67.7
Index of Steering	847	21.3	16.7	62.1

**Table A-4**  
**Differential Treatment for Housing Availability**  
**Majority Favored, Minority Favored, No Difference**

**HDS Rental Audits:**

	Number	% White Favored	% Black Favored	% No Difference
Unit availability	769	18.5	8.3	73.3
Number of units shown & recommended	801	41.4	17.9	40.7
Rental Terms & Conditions Index	717	27.0	25.1	47.9
Information Requested Index	801	30.8	20.7	48.5
Information Volunteered Index	789	39.7	26.5	33.8

**HDS Sales Audits:**

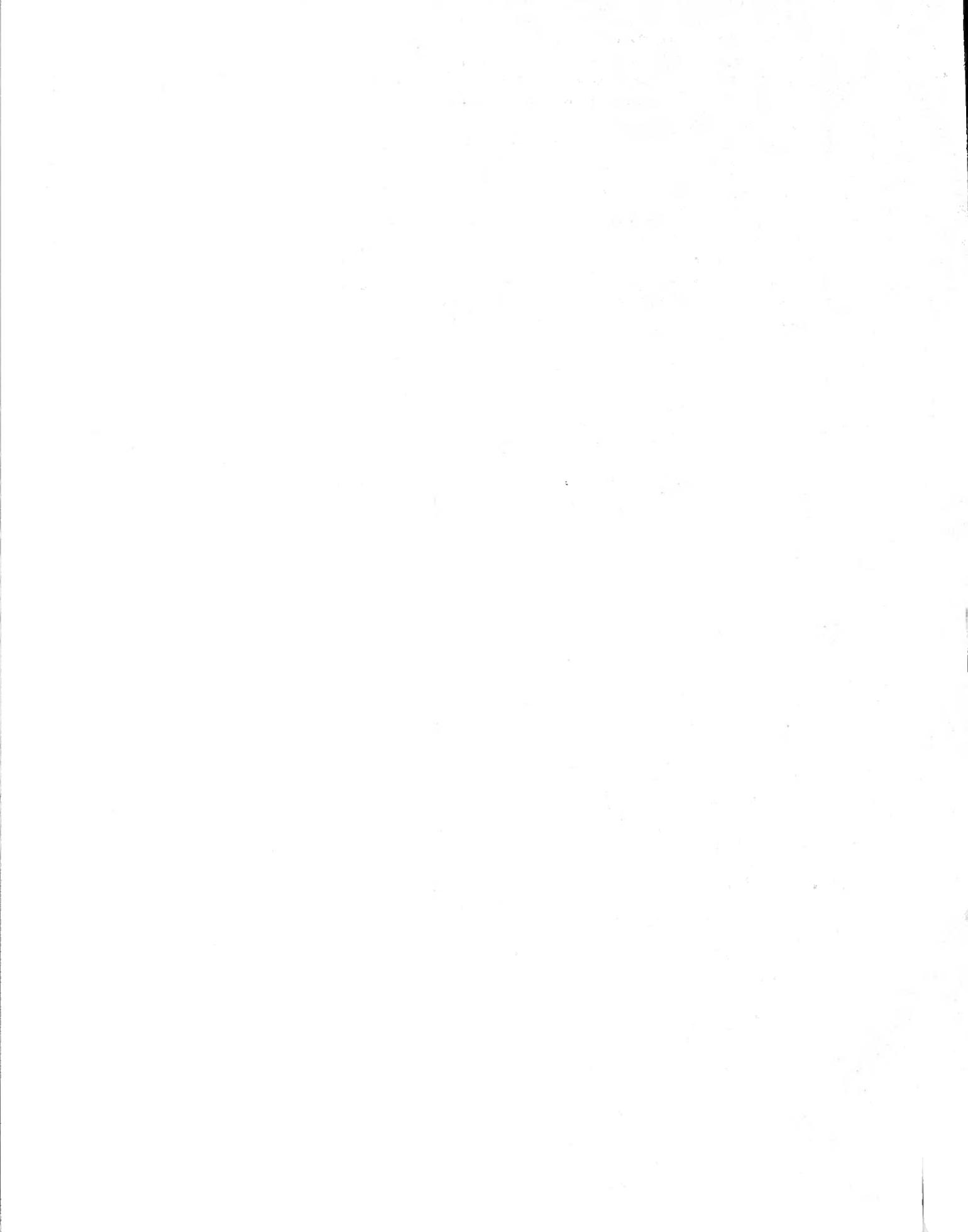
	Number	% White Favored	% Black Favored	% No Difference
Unit availability	1051	11.5	7.1	81.3
Number of units shown & recommended	1081	41.6	21.6	36.8
Availability Index	1081	41.2	24.2	34.6

**HMPS Rental Audits**

	Number	% White Favored	% Black Favored	% No Difference
Unit availability	1515	30	11	60
Number of units shown & recommended	1219	42	18	40
Rental Terms & Conditions Index	1345	13	15	73
Information Requested Index	1586	13	19	68
Information Volunteered Index	1586	32	28	40

**HMPS Sales Audits**

	Number	% White Favored	% Black Favored	% No Difference
Unit availability	1525	21	11	68
Number of units shown & recommended	1640	54	24	22
Availability Index	1641	39	24	37





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