



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



Quality Control for Rental Assistance Subsidies Determinations

Final Report

June 20, 2001

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Final Report

Quality Control for Rental Assistance Subsidies Determinations

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Foreword

Early in 2001 the Department of Housing and Urban Development (HUD) took an important step to improve the effectiveness of its rental housing assistance programs. Through the Rental Housing Integrity Improvements Program (RHIP), HUD worked to identify the best methods of reducing costly errors in the local administration of both the public housing and Section 8 programs. The Quality Control for Rental Assistance Subsidies Determinations study provided the impetus for much of this effort. The study found that substantial errors were being made in the income and rent determinations that set the amount HUD pays on behalf of families receiving public housing and Section 8 program assistance. Through miscalculation of income and other errors, overpayments of more than \$600 million were made, whereas rent underpayments totaled \$1.7 billion—nearly three times the amount of the overpayments.

The data collection for this study was done in mid-2000. On-site tenant interviews, file review, and independent third-party income verifications were conducted by an independent contractor for a nationally representative sample of families who receive public housing and Section 8 assistance. Using these data and adhering to all HUD requirements, the Department made income, rent, and subsidy determinations based on adherence to all HUD guidelines. These determinations were then compared to those made by local public housing and Section 8 project staff. This allowed the Department to identify the most serious errors, their costs, and their apparent causes, and formed the basis for many of the corrective actions that are now being developed. Successive Quality Control studies will provide periodic performance indicators and verify the effectiveness of HUD's corrective actions.

The Department acknowledges and thanks the many public and assisted housing project staff who participated in this study. Their contributions and those of HUD staff in identifying and correcting the major causes of subsidy determination errors will help the Department to achieve its goal of assuring that the correct amount of benefits go to eligible tenants, allowing it to serve as many low-income households as possible.

Alphonso Jackson
Deputy Secretary

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Quality Control For Rental Assistance Subsidies Determinations

Final Report Executive Summary

The Department of Housing and Urban Development (HUD) Quality Control for Rental Assistance Subsidies Determinations studies provide national estimates of the extent, severity, costs, and sources of rent errors for the Public Housing and Section 8 programs. The current study also examined whether rents charged for Section 8 tenant-based program units are reasonable in relation to rents in the private, unassisted market. Data for the current study were collected during May through August 2000.

For purposes of this study, “error” is defined as any rent calculation or eligibility determination that differs from what would have occurred if the PHA/owner had followed all HUD income certification and rent calculation requirements during the most recent income certification/ recertification. When appropriate, study findings are compared to findings from the previous study.

It is important to note that this study was primarily designed to measure the extent of administrative error by housing providers, not to measure how much additional tenant contributions could be realistically collected in a cost-efficient manner. The extent of the identified error is sensitive to a number of assumptions made in the study. Changes in the error threshold, for example, would affect the overall dollar error estimates. Perhaps more importantly, it is likely that some tenants with large rent increases resulting from corrected calculations would leave the program, reducing potential subsidy reductions; while those with decreases in their rents would be more likely to remain, increasing subsidy requirements. These corrections are desirable outcomes, but it is unclear what their net impact would be on subsidy costs. The most appropriate use of this study is as a tool for strengthening HUD’s procedures for ensuring administrative compliance with regulations. The improvements recommended will require more rather than fewer resources in the short-term. Significant reductions in error can only be expected after progress is made in providing the type of program simplifications and the additional instructions, forms, training, and monitoring discussed in the report. Some budgetary savings may be achieved at some future date if the recommendations of the study are adopted. However, the necessary changes will take two to four years to start to achieve measurable results, and the major benefit that these changes ensure is an improvement in the accuracy and equity of subsidy determinations.

METHODOLOGY

HUD Requirements and Study Standards. Using the *Code of Federal Regulations* and official HUD handbooks and notices, all HUD requirements relevant to the determination of rent were consolidated into a set of HUD requirements. Nationally recognized experts were involved in establishing and reviewing the standards used in this study.

The Sample. A nationally representative sample of 600 projects in the United States and Puerto Rico was selected for this study. These projects were selected from the universe of the three program types covered by the study:

- Public Housing
- PHA-administered Section 8 (Certificates, Vouchers, and Moderate Rehabilitation)

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- Owner-administered Section 8 (New Construction, Substantial Rehabilitation, Property Disposition, and Loan Management).

A random sample of four households was selected for most projects, but more tenants were selected from unusually large projects. The final study data set includes responses from 2,403 households.

The Data Collection Process. The data collection effort included creating and automating over 30 data collection instruments, contacting and interviewing PHA/owner staff, hiring and training over 60 data collectors, and selecting the tenant sample. Data collectors obtained data from tenant files, interviewed tenants using Computer Assisted Personal Interviewing (CAPI) software developed for this study, electronically transferred data to Macro headquarters on a daily basis for review, and requested third-party verifications related to income and expenses. The data collection process was facilitated by the use of built-in consistency and edit checks that prompted interviewers to probe inconsistent and anomalous responses.

A related but different data collection effort also occurred for a sub-sample of Section 8 Certificate and Voucher units with the objective of learning how rent reasonableness requirements were being implemented. Data on PHA rent reasonableness policies and practices were collected through project telephone interviews and on-site data collection. Rent comparability studies were then conducted for each unit by licensed appraisers to learn how program-approved rents compared with private market rents paid for comparable units.

Calculation of Rent Error. A quality control rent (QC Rent) was calculated for each household using the information reported by the household and verified. Rent error was determined by comparing the QC Rent to the actual tenant rent (the rent from the HUD Form 50058 or 50059). A discrepancy of \$5 or less between the actual and QC Rent was not counted as an error. This was done to eliminate minor calculation discrepancies that have little impact on program-wide subsidy errors.

MAJOR ERROR FINDINGS

Percent of Households With Rent Errors. The analysis of tenant files, tenant interview, and income verification data indicates that:

- 34 percent of all households paid at least \$5 less than they should (with an average error of \$95)
- 44 percent of all households paid the correct amount of rent within \$5 (32 percent paid exactly the right amount)
- 22 percent of all households paid at least \$5 more than they should (with an average error of \$56)

The percent of error varied by program type. The highest rate of underpayment of rent (42 percent) was found in the PHA-administered Section 8 programs. The lowest rate of overpayment (20 percent) was found in both the PHA-administered Section 8 and Public Housing programs. Underpayment of rent was found in 33 percent of Public Housing households and 27 percent of owner-administered Section 8 households. Overpayment of rent was found in 20 percent of Public Housing households and 25 percent of owner-administered Section 8 households. The chart that follows summarizes this information.

Rent Error by Program Type

Program	Rent Underpayment (Subsidy Overpayment)	Rent Overpayment (Subsidy Underpayment)
Public Housing	33%	20%
PHA-Administered Section 8	42%	20%
Owner-Administered Section 8	27%	25%
Total	34%	22%

Dollar Error Impact of Rent Errors. The error rate is calculated by dividing the sum of the dollar amount of gross rent error (i.e., differences in excess of \$5 between actual and QC rents) by the sum of the dollar amount of the QC rent. Major findings were:

- *Rent Underpayments of Approximately \$1.7 Billion Annually.* For tenants who paid less monthly rent than they should pay (34 percent), the average monthly underpayment was \$95. For purposes of generalization, total underpayment errors were spread across all households (including those with no error and overpayment error) to produce a program-wide average monthly underpayment error of \$32. Multiplying the \$32 by the approximately 4.3 million units represented by the study sample results in an overall annual underpayment dollar error of approximately \$1.7 billion per year.
- *Rent Overpayments of Approximately \$.6 Billion Annually.* For tenants who paid more monthly rent than they should pay (22 percent), the average monthly overpayment was \$56. When this error was spread across all households, it produced an average monthly overpayment of \$12. Multiplying the \$12 by the approximately 4.3 million assisted housing units represented by the study sample results in an overall annual overpayment dollar error of approximately \$634 million per year.
- *Net Overall Gross Rent Error of \$1.04 Billion Annually.* When combined, the average gross rent error per case is \$44 (\$32 + \$12). Overpayment and underpayment errors partly offset each other. The net average rent error is \$20 (\$32-\$12). HUD subsidies for Public Housing and Section 8 programs equal the allowed expense level or payment standard minus the tenant rent, which means that rent errors have a dollar-for-dollar correspondence with subsidy payment errors. The study found that the net subsidy cost of the under- and over-payments was approximately \$1.04 billion per year (\$1.669 billion - \$.634 billion).

Subsidy overpayment and underpayment dollars are presented in the chart below.

Subsidy Dollar Error

Type Dollar Error	Subsidy Overpayment	Subsidy Underpayment
Average Monthly Per Tenant Error for Households With Errors	\$95 (34%)	\$56 (22%)
Average Monthly Per Tenant Error Across All Households	\$32	\$12
Total Annual Program Errors	\$1.669 billion	\$634 million
Total Annual Errors – 95% Confidence Interval	\$1.42 - \$1.92 billion	\$483 million - \$785 million

Eligibility of Newly Certified Households. A separate analysis of newly certified households (9 percent of the sample) was conducted to determine if these households were eligible for HUD housing assistance. There was only one newly certified household in the sample who was not income-eligible based on the QC income determination. However, 16 percent of the newly certified households failed to document social security numbers (or certify non-assignment of a number) for one or more family members (at least six years of age), and 22 percent lacked the signed consent forms needed to authorize verification of income and assets (for each member of the household at least 18 years of age). In addition, 21 percent lacked the signed declaration forms accepted as proof of citizenship.

Overdue Recertifications. At the time of this study, HUD required that every household be recertified annually. Recertifications for 6 percent of the households were overdue. However, the majority of these households were overdue by less than 4 months.

Occupancy Standards. Eleven percent of all households occupied a unit that had more bedrooms than permitted under normal occupancy standards. Two percent had fewer than needed bedrooms. As found in the past study, most of the errors involved one-person households in two-bedroom units. This could not be explained by program rules. Excluding certificate and voucher units, which can legitimately have more bedrooms than needed if the landlord discounts the rent, did not change this relationship.

Rent Reasonableness. This component of the study examined the extent to which housing authorities have effectively implemented the HUD requirement that Section 8 voucher and certificate units may not have rents set in excess of those paid for comparable private market units. Major findings were:

- Almost all (98%) housing authorities have adopted some type of formal rent reasonableness policy, although the methods and documentation requirements vary significantly. The prospect of being penalized under the SEMAP system for not having such policies appears responsible for much of the recent activity associated with establishing or revising such policies.
- Most housing authorities implement the policies they have established—at least one rent reasonableness determination had been conducted for 89 percent of all units sampled.
- Analysis of how program rents compared with rents for comparable private market units showed that:

Relationship of Section 8 Rents to Market Rents

Relationship to Market Rents	Percent of Units	Dollar Difference Per Month
Units with rents 5% or more below comparable market rents	62%	-\$179
Units with rents within 5% of comparable market rents	16%	-\$3
Units with rents 5% or more above comparable market rents	22%	\$76
Program average	100%	-\$95

Units with rents 5 percent or more above market comparable rents appear likely to be the result of flawed rent reasonableness procedures. The large percentage of units with rents considerably below comparable private market rents appears due to a complex mix of factors: tenure discounts for long-standing tenants, the reluctance of many landlords to raise rents for extremely low-income tenants (especially elderly tenants), the sympathy of some landlords (especially small-scale landlords) for the affordability problems of program participants, and Section 8 program practices and rent adjustment constraints that have suppressed rent increases (often over a period of years).

SOURCES OF ERROR

Rent errors are often due to a mix of different errors. For purposes of this study, **administrative errors** (e.g., calculation errors, transcription errors, failure to recertify on time, and failure to verify information) are analyzed separately from specific **component errors** (income and expense items used to calculate rent). Component errors often result when project staff do not conduct a thorough tenant interview or do not verify the information obtained during the interview. However, component error may also occur when the tenant supplies incorrect information either intentionally or unintentionally.

Administrative Errors. The two most common administrative errors are calculation errors and failure to verify and make use of verified income and expense information. The HUD TRACS and MTCS data systems check the rent calculations on forms 50058 and 50059. For tenants for whom data are submitted (and corrected if required), these systems virtually eliminate rent determination calculation errors for the items included on the forms. However, not all cases are reported and some cases returned to program sponsors for correction are ignored. Calculation errors decreased significantly between 1992 and 2000, which is also the period when use of TRACS and MTCS increased significantly. It is worth noting that subsidy overpayment errors were higher for households for which TRACS/MTCS data had not been submitted. Improvement should continue as data for more and more households are submitted to these data systems.

Verification of income and expenses remains a problem. HUD requires that information provided by tenants be verified. Verification rates have generally improved since the last study. With the exception of other income¹ (which was only verified 63 percent of the time), income items were verified at least 82 percent of the time. Earned income, which is the rent component most often in error, was verified 82 percent of the time. However, a third (33 percent) of the verified amounts did not match the amount of earned income used on the 50058/50059 form to calculate rents. Earnings were not verified in 75 percent of the households with QC earned-income related rent errors. Failure to use verified income and expense amounts was also highly correlated with other sources of rent determination error.

Note that obtaining income verification is often difficult. Employers sometimes don't respond to requests for verification, even when repeated requests are made. However, some program sponsors do a much better job than others, and the QC study shows that it is reasonable to expect all program sponsors to have as high a success rate as the current high performers. The study also shows that there is significant room for improvement in using the verifications that are obtained, which are often collected consistent with procedures but then filed and never used.

¹ Other income includes sources of income other than earned income, social security or pensions, public assistance, or income from assets. Examples of other income are: unemployment, workers' compensation, child support, alimony, gifts and contributions, and income from rental property.

Component Errors. Incorrect income and deduction amounts were by far the most significant sources of error in determining rents. All but 8 percent of households with rent errors had an income or expense component error. Earned income (27 percent), pension income (14 percent), and medical expenses (15 percent) had the greatest error frequency. The following table shows the frequency of the most serious component errors and the average error for that component for households with the same type error. Errors are ordered by their impacts on program subsidy levels, which means that both the error cost per case as well as the frequency of that type error was considered.

Households in Error: Rent Components Responsible for the Largest Dollar Error

Rent Component	Number of Households	Percent of Households	Average Dollar Amount
Earned Income	647,000	26.9%	\$6,641
Other Income	289,000	12.0%	\$3,853
Pension, Etc. Income	326,000	13.6%	\$3,701
Asset Income	103,000	4.3%	\$3,450
Public Assistance	227,000	9.4%	\$2,816
Child Care Allowance	75,000	3.1%	\$2,333
Medical Allowance	360,000	15.0%	\$1,157
Dependent Allowance	112,000	4.7%	\$1,060
Disability Allowance	2,000	0.1%	\$600
Elderly/Disabled Allowance	85,000	3.5%	\$400
No Component Error	180,000	7.5%	0
Total	2,406,000	100%	\$3,472

No attempt was made to determine whether these errors were caused by project staff or the tenant. However, to respond to HUD's interest in understanding the cause of errors, the QC rent and rent error was recalculated without income and expense items identified during the household interview that were not present in the tenant file. The income and expense items identified during the household interview account for over half (\$916 million) of the annual underpayment dollar errors. In addition, not using income and expense items identified during the household interview increases the annual overpayment error dollars by \$91 million. The table below presents the percent of households in error and the total annual program dollar errors with and without income and expense items identified during the household interview.

	Percent of Households in Error		Total Annual Dollar Errors	
	Subsidy Overpayment	Subsidy Underpayment	Subsidy Overpayment	Subsidy Underpayment
Error Based on <i>All</i> Income and Expense Items Identified During the Study	34%	22%	\$1.669 billion	\$634 million
Error <i>Without</i> Income and Expense Items Identified during the Household Interview	24%	25%	\$.916 billion	\$725 million

This information indicates that a complete detailed interview will identify additional sources of income and expenses, and result in a more accurate rent calculation. However, even if a tenant interview is thoroughly conducted, tenants may not disclose all sources of income. This may be due to forgetfulness, language problems, misunderstanding the questions, or other difficulties. Research conducted by HUD's Office of Inspector General and its Real Estate Assessment Center (REAC), however, suggest that much of this non-disclosure is intentional. One effective way of detecting most unreported sources of income and assets is through income matching with State or Federal data systems.

HUD has established a system available to all program sponsors that provides information on Social Security benefits. It also matches TRACS/MTCS data with IRS and Social Security Administration data to determine if there are any significant discrepancies with the income and asset amounts reported on the HUD 50058/50059 data. Full-scale implementation of IRS matching has only recently been initiated and is complicated by legal, procedural, staffing, and data problems. However, it provides information which would otherwise be unavailable.

The last statistical income matching study completed by REAC was with tax year 1998 data. Depending on the type of subsidy received, it used a \$4,000 to \$8,000 income matching threshold to screen out differences which might be due to timing or definitional differences between how HUD and the IRS count income. It estimated that rent underpayments due to income misreporting exceeded \$.6 billion.

There is overlap in the QC and REAC error estimates, since the QC study found that thorough interviewing produced information on more earnings and assets than found by program sponsors. Also, program sponsor failure to use verified income amounts shows up as a discrepancy for both the QC and REAC studies. On the other hand, REAC had access to additional information and past OIG and REAC studies seem to suggest that most of the larger discrepancies they find are due to intentional misreporting. The extent of overlap between the REAC agreed-upon-procedure and the QC study estimates can only be determined by a future study that combines the two study approaches.

Error-Prone Modeling: Two types of error-prone modeling were conducted for this study. A path analysis was conducted to examine the relationship between *project* characteristics and practices and administrative errors such as incorrect calculation and erroneous transcription. This analysis identified the number of units in a project (smaller projects do better), staff training (because it leads to better verification), third-party verification, and the number of income/expenses as the characteristics and practices that have the most impact on rent error. An analytical approach known as Classification and Regression Tree (CART) was employed to identify which *tenant* characteristics had a substantial impact on QC Rent error. Among the key indicators identified during the analysis are: at least two sources of earned income, at least one source of public assistance income (for households with earned income), and at least one source of other income (given other conditions).

An analysis of the relationship between 50058/50059-detectible errors and QC errors was also conducted. There were no sufficiently strong predictive relationships found between QC errors and errors from the 50058/50059.

RECOMMENDATIONS

Policy Implications: This study was not designed to provide recommendations regarding basic program objectives and policies. However, the findings from this study suggest that some major procedural changes should be considered when establishing and revising policy.

- *Federal laws, regulations, and HUD requirements should be simplified to the extent possible.* The current statutory environment poses substantial obstacles to efficient, accurate income and rent calculations. It contains dozens of requirements which may all be well-intentioned and have potentially desirable impacts but which, taken as a whole, make the income and rent determination process incomprehensively complex. The current income and rent determination requirements are detailed, complex, sometimes ambiguous, and subject to relatively frequent legislative changes. While determining which income to count, which expenses to allow, and annualizing that information will always be somewhat complicated, overly complex policies which only apply to a portion of the population could be eliminated or simplified. Two examples of such policies follow:
 - *Disallowance of Earned Income from Public Housing Rent Determinations.* Legislation passed in 1998 related to employment incentives provides an example of the complexities associated with rent determinations. The legislation provides special rent treatment for families:
 - whose income increases as a result of employment of a member of the family who was previously unemployed for one or more years;
 - whose earned income increases during the participation of a family member in a family self-sufficiency or other job training program; or,
 - who is or was, within six months assisted under any State program for temporary assistance for needy families funded under part A of title IV of the Social Security Act and whose earned income increases.

Families that qualify under these provisions are not subject to rent increases related to increased income from the specified training or employment for a 12 month period. After that period, the rent may be increased but the increase may not be greater than 50 percent of the amount of the total rent increase that would be otherwise applicable.

In practice, low income tenants often have jobs with little security and move in and out of employment and training programs. Regulations needed to define the range of circumstances that occur and adequately document eligibility for this provision are necessarily long and somewhat complex. Keeping track of rent increase constraints imposes a significant added burden on PHAs and adds to rent determination errors. As with many provisions associated with rent and income determinations, there apparently was little thought given to striking a balance between a policy objective and administrative feasibility. A flat dollar or percentage income deduction for any training or earned income, for instance, would have provided a more direct and understandable incentive, and would have been easier for program sponsors to implement and for HUD to monitor.

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- *Medical Expenses.* Elderly and disabled families are eligible for a medical expense deduction which is intended to cover prospective medical costs. Determining the amount that a family anticipates spending on medical needs is a difficult thing to do. Elderly tenants often keep poor records, and there is limited reason to believe that the medical expenses claimed have a close relationship with actual expenses, which HHS data suggest are, on average, higher. Verifying medical expenses is a burdensome process for program sponsors. Calculating the medical expense allowance would be far less complicated if HUD would substitute a flat medical allowance for the inexact science of estimating future expenses. If some provision for exceptionally high expenses was considered essential, then the requirement could be that actual expenses could be claimed if in excess of some relatively high percentage of a family's income (e.g., 20 percent). This approach would be welcomed by the many elderly who resent the intrusion of housing staff into their very personal medical affairs (many verifications by their very nature reveal the type of clinics being visited, the practice of doctors being seen, and the names and dosages of prescriptions drugs being taken).

Expecting what are often relatively low-paid, minimally trained, high turn-over project staff to correctly implement unnecessarily complex rules is unrealistic. Some program sponsors do a remarkably good job, but expecting a generally high level of accuracy in rent and subsidy determinations may be unrealistic within the context of the current system. The legislative changes affecting tenant rent determinations made every one or two years usually affect a relatively small percentage of tenants, but are sufficient to substantially reduce incentives to design and implement comprehensive forms, procedures, and data systems that cover all aspects of income and rent determinations.

- *HUD should consider expanding support of the occupancy function and conducting an outreach campaign to PHAs and owners informing them of the Department's occupancy related-resources.* Specifically, HUD should develop or expand a nationwide, consistent, credible approach to providing guidance and support to PHAs and owners. As one example, the Department could offer a monthly-televised program highlighting a specific occupancy topic leaving at least half of the program time for call-in questions on any occupancy topic. HUD could then make the taped program available for Internet access to reach a larger audience (as the Department does now with many video programs.). Commonly, PHA managers and staff are unaware of the resources that HUD has to offer—especially those originating from headquarters. Even when HUD's customers are aware of some of the Department's direct assistance options, owners and PHA staff are still reluctant to use them. The PHA may be hesitant to call HUD staff for fear that their questions will bring a closer scrutiny of their operations. Some PHAs may have had past experiences with getting different answers to the same questions from different HUD staff, or may be aware that their HUD contact person has a different perspective than that expressed by another HUD staff to a neighboring PHA. For these and other reasons, it is important that the PHA/owner community know that there are HUD-approved resources that they can trust to provide consistent guidance and quick, reliable answers to questions.

Also, it is critical that there be a close link between the team that responds to field concerns and the staff responsible for writing HUD notices and guidance documents. The team responding to field questions and concerns knows what the problems are that face the field. These problems should be the subject of the guidance that comes from HUD.

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- *HUD should provide the PHA/owners with the forms, training, and other tools needed to determine rent correctly.* Rent calculation error could be reduced if HUD would provide structured forms for interviewing tenants, obtaining verification, and calculating rent. Ideally, these tools would be provided in the form of computer-assisted interview software that minimizes the number of questions that need to be asked. Such systems would ensure that tenants are asked about all income sources and expenses that affect their rent. Manuals and training materials explaining how to implement requirements correctly and calculate rent accurately should be provided.

Federal and local housing staff should be given an opportunity to work together to develop these tools and systems needed to reduce rent error. Many local PHA/owners have already developed forms, training materials, manuals, automated systems, and monitoring processes that have enabled them to provide accurate efficient service to the tenants they serve. HUD should learn from these PHA/owners and develop materials which will help those PHA/owners who for one reason or another have not been as successful.

- *PHA/owners should be held accountable for implementing HUD regulations and calculating rent accurately.* An on-site monitoring system should be developed that includes reviews at both the local and Federal level. PHA/owners with excessive errors should be required to develop corrective action plans and show improvement within specified time periods. Over the last several years, in its efforts to down-size staff and to use risk management concepts, HUD effectively stopped monitoring the occupancy function. Determining the correct amount of rent is critical to HUD management.

Monitoring can be conducted at a variety of different levels. We recommend that HUD require PHA/owners to perform quality control reviews on a percentage of income determinations and rent calculations. Agencies which have aggressively sought to improve performance of their programs, often including establishment of quality control review procedures, have had some significant successes. In addition, HUD Field Offices and/or other national level well-trained staff should conduct a re-review of a percentage of the cases reviewed at the local level to ensure that the quality control reviews are being conducted correctly. This type of oversight not only identifies errors, but prevents them. In addition, it demonstrates HUD's concern and focuses PHA/owner attention on tenant income and rent.

There is evidence that PHA/owners will respond to HUD directives if they are monitored and held accountable. The Section 8 SEMAP system, for instance, appears responsible for much of the recent burst of improvement in activity by public housing agencies to implement or improve the rent reasonableness determination requirement. MTCS reporting, which is part of the new PHA rating systems, has improved partly as a result of the potential penalty from low rating scores, and the higher reporting and associated calculation checks appear responsible for much of the reduction in rent and subsidy calculation errors for units passing the MTCS data system edits.

Recommendations for Modifying the Quality Control Process: The current quality control study methodology is based on the successes and failures of previous studies, and generally performed well. Some minor changes in the next study appear desirable. These include more letters and contact with HUD Field Office and project staff to keep them informed of the study's progress, hiring more back-up data collectors to be assigned to sites as needed, and automating additional components of the data collection process. It also may be desirable to include two possible sources of rent determination error that were not

addressed in the current study—determining if the correct utility allowance and the correct payment standard are used. Also, HUD may wish to consider if further research on Section 8 rent reasonableness is desirable.

There is one major change in the QC process that is also worth considering—integrating the QC study process with the HUD Real Estate Assessment Center’s (REAC) annual 1,000 case income matching effort. Combining efforts would involve use of a common sampling methodology and changing the timing of the QC data collection to maximize overlap with tax year reporting. At the end of the normal QC process all data would be made available to REAC for use in confidential income matching. This approach would permit normal QC reports to be produced, but also give REAC most of the information needed to develop consolidated estimates of subsidy errors for HUD’s major housing subsidy programs. If the QC study process obtained data for multiple points of time within a tax year, REAC would be able to measure the extent to which income matching discrepancies appeared due to tenant non-disclosure of income as opposed to some type of program sponsor error.

Recommendations Related to Rent Reasonableness: Making recommendations related to rent reasonableness is difficult because of the limited amount of information available. The rent reasonableness task was essentially an exploratory study. Very little was known about the rent reasonableness procedures followed by PHAs, or whether the rents approved by PHAs would fall within the acceptable guidelines set by HUD. In fact, the study found that the average monthly contract rent for Section 8 certificate and voucher units was \$95 less than the estimated rents for comparable unassisted units. While this is relatively good news for HUD, it was not the expected outcome, and leaves many questions unanswered. Follow-up rent reasonableness studies should include questions that explore why some tenant rents are less than comparable market rents, and if possible include a methodology for the field data collector to pursue follow-up questions related to the specific outcome of each case reviewed while still on site. Information obtained through this study can be used to design a more thorough data collection process that will include situations that were not anticipated for this study.

The finding from this study did, however, provide enough information to make some observations. First, the study reveals a “profile” of cases that are more likely to have “unreasonable” rents. These include units with longer tenure under the program, originally assisted under the certificate program, with a household headed by an elderly disabled member, located in an elevator apartment building, and a part of a relatively low-cost submarket.

Second, the study also shows that it is not enough to just complete a rent reasonableness determination. How the determination is done is important, and the determination must be timely. The study suggests that combined approaches to determining rent reasonableness work best. In other words, no single approach can ensure reasonable rents for all units. Although, in general, market based approaches work better than unit-to-unit approaches.

Study findings support some of the PHAs recommendations regarding standardization of the rent reasonableness requirement. HUD should take some reasonable steps to provide program resources and technical assistance for those agencies that need additional help developing systems and procedures for implementing an effective rent reasonableness process. Care needs to be taken not to require a particular structure. PHAs should be allowed to select the method or combination of methods for determining reasonable rents that works best for them.

**Quality Control for Rental Assistance
Subsidies Determinations**

Final Report

June 20, 2001

I. Introduction

A. Purpose of the Quality Control for Rental Assistance Subsidies Determinations Study

The purpose of this study is to provide national estimates of the extent, severity, costs, and sources of errors occurring in the certification and recertification² procedures used by Public Housing Agencies (PHAs) and owner-administered (owner) assisted housing programs. This study included a task to determine whether the rents charged for assisted units in the Section 8 tenant-based programs are reasonable in relation to rents in the private, unassisted market. To fulfill the purpose of this evaluation, HUD identified thirteen study objectives related to types of errors and cost issues; this report addresses each of these objectives. For purposes of this study, “error” is defined as any rent calculation or eligibility determination that differs from what would have occurred if the PHA/owner had followed all Department of Housing and Urban Development (HUD) income certification and rent calculation requirements during the most recent (re)certification. The analysis also identifies errors in assigning appropriate size units to households and certain procedural errors (i.e., situations in which PHAs/owners did not follow HUD procedures but no dollar error resulted).

B. Background of the Study

This project is the second in a series of studies designed to identify current HUD eligibility, income, and rent determination regulations; translate these regulations into survey instruments; develop an error detection system; and provide nationally representative estimates of error. The final report for the first study, conducted by ORC/Macro International Inc. (Macro) and KRA Corporation (KRA), was published in April 1996. Work on the current project began in October 1998. Tasks completed prior to data collection included designing the research and survey methodology, compiling HUD’s regulations for the programs included in the study (public housing, Section 8 tenant-based, and Section 8 project-based), obtaining approval from the Office of Management and Budget (OMB), automating the data collection process, and conducting a pretest of the study. Data were collected from a nationally representative sample of HUD-assisted housing projects and project residents during April through August 2000. Data were uploaded via the Internet, and analysis progressed as soon as the data were collected.

C. Organization of This Report

This report is organized as follows:

- Section I: Introduction
- Section II: Methodology
- Section III: Study Objectives
- Section IV: Findings
- Section V: Rent Reasonableness Determinations

²PHAs and owners of HUD-assisted housing are required to make an initial determination of eligibility (called a “certification”) and thereafter an annual recertification of each household’s rent (a “recertification”). In addition, interim recertifications are completed as needed. In this report, the term (re)certification refers to certifications, interim recertifications, and annual recertifications.

I. Introduction

- Section VI: Recommendations
- Appendices
 - A. Rent Calculations
 - B. Weighting Procedures
 - C. Sample Size for Analysis
 - D. Analysis Tables
 - E. List of Cases in Error
 - F. Consistency Errors
 - G. The Impact of Administrative Error and Component Error on Dollar Rent Error
 - H. The Impact of Tenant Characteristics on Rent Error
 - I. The Impact of Project Characteristics and Practices on Error

Definitions of key terms used throughout this report are found at the end of Section VI.

II. Methodology

A. HUD Requirements and Study Standards

Using the *Code of Federal Regulations* and official HUD handbooks and notices, all HUD requirements relevant to the determination of rent were consolidated into a set of HUD requirements. The requirements identified changes in Federal legislation that were expected to impact this study. These legislated changes were monitored and the requirements were revised as the new legislation became effective. The complete set of requirements was reviewed by an independent team of HUD policy experts to ensure that all requirements were included and correct.

These requirements were used to create a set of standards that identify errors in eligibility determination, rent calculation, and unit assignment for the housing programs included in the study. The standards converted the requirements into a uniform set of rules that could be followed when determining rent error. In general, the standards followed the requirements. However, there were some requirements for which standards had to be created to make it possible to collect data in a uniform manner. For a complete list of standards used in this study, see the *Data Collection Standards*.³

B. The Sample

The sampling design called for a nationally representative sample of 600 projects with four households randomly selected from each project. Projects were selected with probabilities proportional to size without replacement, but projects whose size exceeded the sampling interval were selected for eight, twelve, or more households in the project, and were counted as more than one project for purposes of determining the sample size. Therefore, because these large projects were selected multiple times, the study sample included 524 distinct projects in 54 geographic areas across the United States and Puerto Rico.

The sampling design required approximately equal allocations for three program types: Public Housing, PHA-administered Section 8 (Certificates, Vouchers, and Moderate Rehabilitation) and owner-administered Section 8 (New Construction, Substantial Rehabilitation, Property Disposition, and Loan Management). For additional information on the sampling procedures, see the *Sampling Report, Quality Control for Rental Assistance Subsidies Study*.⁴

A random sample of four households (plus ten potential “replacement” households, for use in the study if a sampled household did not meet the study requirements or was not available to be interviewed) was selected from most projects. However, as noted above, additional households were selected for some large projects. For example, the New York City Housing Authority Section 8 Certificate and Voucher program had a household sample size of 36. This procedure resulted in a tenant sample of 2,400 households. One household was excluded from the sample after data collection was completed because the household was not an assisted household. In four of the 524 projects one additional household was selected for the study because of an error in classification of project type. Rather than excluding households originally selected, these cases were added to the final data set. Therefore, the final data set includes responses from 2,403 households in the 524 projects.

³Macro unpublished report to HUD dated March 31, 1999.

⁴Macro unpublished report to HUD dated May 30, 1999.

II. Methodology

C. The Data Collection Process

This study used a multiple stage data collection effort to obtain all required information. Interviews were conducted with project staff prior to the on-site data collection. Field data collection included abstracting data from the household's file, interviewing the tenant, and requesting verification⁵ from third parties. Preparing for and conducting this data collection involved several major tasks. Each of these tasks is discussed briefly below.

Creating the Data Collection Instruments. Over 30 data collection forms were designed for this study. These forms were created to collect all the data needed to determine if 1) there were errors in the eligibility determination, 2) the household's rent was calculated correctly, and 3) units were correctly assigned according to the study standards. Each form was created by a survey research specialist and reviewed by a HUD policy expert. All data collection forms were approved by OMB.

Automating the Data Collection Process. Most of the forms created for this study were automated and incorporated into a data collection system designed for laptop computers. Data abstracted from the tenant files were entered directly into the system, and the tenant was interviewed using a CAPI (computer assisted personal interviewing) process. As sections of the instruments were completed, the system compared the data to expected responses or data previously entered, allowing the data collector to correct data entry errors while in the field. The system required that the data be collected in the correct order, and that all the appropriate skip patterns be followed. This automated process greatly reduced the time needed to edit, code, and clean the data after data collection was completed.

Contacting and Interviewing PHA/Owner Staff. PHA/owner contact names were obtained from HUD Field Office staff. Letters were sent to PHA/owner staff advising them of the study and requesting their participation.

A CAPI interview was conducted with the project staff person most knowledgeable about certification and recertification procedures. This interview served as a means for verifying the project type and size; obtaining information about local policies and procedures; and requesting a master list of assisted households (for sampling purposes) and project specific materials.

Hiring and Training Data Collectors. Over 60 data collectors were hired to complete the field data collection. Data collectors typically lived in the same general area as the projects selected for the study.

Two 9-day training sessions were held (half of the data collectors were trained at each session). This detailed training covered: project background, HUD programs and requirements, survey procedures, automated data collection, and administrative procedures.

Field Data Collection. Each data collector was assigned a group of projects. Data collection activities at each of these projects included: contacting the project, selecting the tenant sample,⁶ identifying the month for which data were collected, abstracting data from the tenant file, contacting the tenant,

⁵Verification is a process of obtaining information about income or expenses from a third party who can attest to the accuracy of the information provided by the household. HUD requires that most information provided by the household be verified by a third party or substantiated from documents (such as bank statements).

⁶ Many of the tenant samples were selected by Macro staff prior to on-site data collection; however, if the PHA/owner did not provide the list of households ahead of time, the data collector selected the sample on-site.

II. Methodology

interviewing the tenant, and completing the release forms requesting verification from third parties. Data were transferred to Macro electronically on a daily basis. Field data collection began in April, 2000 and ended in August, 2000.

D. Data Sources

Data for each sampled household came from the sources listed below. Abbreviated terms used in this report are shown for each of the data sources in parentheses following the form's official title.

- **HUD Form 50058/50059 (50058/50059)**—PHAs must complete a HUD Form 50058 for each household in public housing, moderate rehabilitation, certificate, and voucher programs at certification and recertification. A HUD Form 50059 is required for all other programs in the study; it must also be completed if an interim recertification is conducted. Data from these forms were entered directly into the HUD QC Automated Data Collection System (ADCS) on each data collector's laptop computer. As the data were entered, the system identified potential data entry errors (such as incorrect codes or numbers based on internal calculations and consistency checks) allowing the data collector to make the appropriate corrections immediately.
- **Documentation and Other Verification From PHA/Owner Files (D Forms)**—Macro collected information from the tenant files that supported and explained the information used by PHA/owners to determine eligibility and calculate tenant rent. The D Form module also collected information indicating whether the income, asset, or expense used by the PHA/owner was verified.
- **Household Interview Data (Household Questionnaire)**—An adult member of each household included in the sample (preferably the head of the household) was interviewed in person via CAPI. Questions primarily addressed family composition, and sources and amounts of income, assets, and applicable expenses. Data were collected for the same point in time as the (re)certification was conducted. See Section II, E.
- **Third-Party Verification Data (Release Forms)**—If there was no evidence that the PHA/owner verified the information used in calculating rent, or the verification obtained by the PHA/owner did not meet the requirements agreed upon by HUD and Macro for this study, the appropriate third-party source was sent a form requesting verification. Verification was also requested from third parties when the household interview identified a new source or different amount of income than that shown in the tenant's file. Release forms designed to collect verification of information for specific time periods were signed by the tenant during the household interview and then sent to the third party for completion and return to Macro.
- **Match with Social Security Administration Data.** The list of household members in the sample was matched with Social Security Administration files by HUD. It was expected that this match would provide benefit data for all household members receiving Social Security and SSI benefits. However, because of Social Security matching issues, benefit data was only received for approximately 55 percent of the household members who (according to QC data) were receiving SSA/SSI benefits. This benefit data was used in the final QC rent determination.

Only HUD-specified procedures were used in collecting tenant income, expense, and allowance data, and verification information from third-party sources. These procedures were followed so that the study would only identify errors that occurred because the PHA/owner did not follow HUD requirements.

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E. Time Periods

Data were collected for a particular point in time, referred to as the Quality Control Month (QCM). This month represents the date the most recent rent calculation was completed. That action may be a certification, annual recertification, or interim recertification. The QCM is the month in which the project manager (or other authorized housing project staff member) signed the 50058/50059 form, certifying that the information contained on the form was correct. If no signature was available on the 50058/50059 form, the data collector used other documentation in the tenant file to determine when the action was taken.

If the recertification was overdue (more than 12 months had passed since the last (re)certification), the respondent was asked about circumstances for the month in which the recertification would have occurred had housing project staff processed it on time. If the recertification was overdue by more than 12 months, the QCM was moved forward in 12-month intervals to a point in time within 12 months of the date on which the data were collected.

F. Constructing the Analysis Files

The study database initially contained information at both the household-member level and the household level, and income and expense information in hourly, weekly, monthly, or annual amounts. To calculate rent, Macro constructed an analysis file that aggregated all income and expense data to an annual amount at the household level. For some items, this calculation was relatively easy (e.g., when there were stable income items, such as Social Security); for others, the calculation was more complicated. Special attention was paid to households with multiple sources of earned income that started or stopped during the year covered by the (re)certification period (e.g. seasonal agricultural or holiday earnings) to assure that the income was annualized correctly.

The database initially consisted of five separate files that contained the information collected from the 50058 forms, the 50059 forms, the tenant file using the D form module, the household interview via the CAPI process, and the release forms. For the calculation of rent error, the final analysis file contained income and expense/allowance data aggregated at the household level in annual amounts; rent data were in monthly amounts. Separate files were created for the analysis of issues such as verification, internal 50058/50059 errors, and occupancy standards.

G. Rules for Matching Verification with Income and Expense Items

For purposes of this study, verification was considered acceptable if it was *in writing* from a *third party*. In addition, the verification had to be dated within 60 days before or 30 after the date the certification, annual recertification, or interim recertification was conducted. Note that if the most recent action was an interim recertification, verification of the items that changed must have been dated within 60 days before or 30 after the date the interim recertification was completed. Items that did not change must have been dated within 60 days before or 30 after the date the most recent annual recertification was completed. This rule reflects HUD's requirement that only items that change be verified during an interim recertification.

As each income or expense item was identified during the data collection process, it was assigned a unique identification code. This code (which links the member number, income or expense type, and a consecutive number) was used to match the specific item to the verification from the third party when it was received.

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H. HUD Rent Formulae

HUD specifies the formula for determining tenant rents for each of its programs. The formula for determining the Total Tenant Payment (TTP) is the same for all programs. The Total Tenant Payment is the greater of:

- 30 percent of a household's adjusted monthly income, which is one-twelfth of the total of all household members' earned and unearned income (other than those amounts specifically excluded by HUD or PHA policy), less allowances for elderly/disabled households and for household dependents, and deductions for disability, medical, and child care expenses.
- 10 percent of a household's gross monthly income with no allowances or expense deductions.
- The welfare rent in "as-paid" states. (Does not apply to Section 8 Vouchers with a (re)certification effective date prior to October 1, 1999.)
- The minimum rent (\$25 for owner-administered projects, or an amount established by the PHA, not to exceed \$50).

Although the TTP is defined the same for all programs, there are 11 different rent calculations used to calculate the actual amount of the household's rent (depending on the program type and the household's specific situation) for the programs included in this study. These 11 rent calculations include:

- Public Housing
- Section 8 Regular Certificates and Moderate Rehabilitation
- Section 8 Over-the-Fair-Market-Rent-Tenancy Option (OFTO)
- Section 8 Vouchers
- Section 8 Preservation Certificates
- Section 8 Preservation Vouchers
- Section 8 Project-Based (except Moderate Rehabilitation)
- Manufactured Home Space Rental for Section 8 Regular Certificates
- Manufactured Home Space Rental for Section 8 Vouchers - Pre-Merger
- Manufactured Home Space Rental for Section 8 Vouchers - Post-Merger
- Manufactured Home Space Rental for Section 8 Over-FMR-Tenancy Option (OFTO)

The household's rent was calculated after the data from all sources was collected. When calculating rent, a cap was placed on the maximum amount of rent the tenant was required to pay. For all Section 8 programs, this is the Gross Rent. In the Public Housing program, this is the Flat Rent or the Ceiling Rent.

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If the Flat Rent or the Ceiling Rent was not available, the Fair Market Rent for the appropriate county was used to cap the rent.

Additional rent calculations are also necessary for households that include ineligible non-citizens. Determining the correct rent for these households is a multi-part process including determining if the household is entitled to continuation of assistance, or temporary deferral of termination of assistance; and prorating the rent if appropriate. Two proration formulas were used—one for Public Housing and one for all Section 8 programs.

The formulas used for the specific rent calculations can be found in Appendix A. These are the formulae that PHAs/owners should use in determining tenant rent, and the formulae Macro used in determining if tenant rents were calculated correctly.

I. Calculation of Rent Error

The monthly rents Macro used in determining the national estimates of error are as follows:

- **Actual Rent:** The monthly rent indicated on the 50058/50059 forms. If this item was missing on the 50058/50059 form, the Actual Rent was calculated based on the other information on the 50058/50059 form.⁷
- **Quality Control (QC) Rent:** The monthly rent calculated by Macro using the information reported by the household and verified.⁸

Rent error was determined by comparing the QC Rent to the Actual Rent (i.e., the Actual Rent minus the QC Rent). A discrepancy of \$5 or less between the Actual and QC Rent was not considered to be an error. The \$5 window was used to allow for minor calculation and rounding errors, and to focus the analysis of the data on the major sources of error. For an exploratory analysis, a rent calculated solely on the information contained on the 50058/50059 forms was used to determine if errors could be identified using only information contained on the 50058/50059 forms.

J. Quality Control Rent

Macro researchers calculated a QC Rent using the best source of information available. When determining which data to use in the QC rent calculation, every effort was made to use data that would have been available to the PHA/owner. Macro researchers used the verification that came from the project files whenever possible. If acceptable verification was not available from the tenant file (see Section II-G for a discussion of acceptable verification), verification was requested from an appropriate third party. If this verification was not returned by the third party and the tenant file did not include verification, income and expense information obtained from the household interview was used to calculate the QC Rent. The following special procedures were followed when appropriate:

- Income that started after the QCM was not counted when calculating the QC Rent.

⁷ Rent Roll data was not used as a substitute for Actual Rent because the previous study found that the rent roll sometimes included amounts to make up for previous unpaid rent, fines, or damages, etc.

⁸ Attempts were made to verify items that were not verified by PHA/owner staff; however, verification was not always obtained. See Sections II-K, and IV-A for further discussion regarding verification.

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- Income that ended after the QCM was counted for the full year unless it was clear that the PHA/owner knew that this income was going to end.
- Earned income bonuses with a frequency of once per year were not counted.
- Temporary Assistance to Needy Families (TANF) and Other Welfare were treated as the same source of income so that income listed as TANF on one form (e.g. the household questionnaire), and Other Welfare on another form (e.g. the Documentation forms) would not be counted twice.
- Welfare (TANF and Other Welfare) income, Child Support income, and Child Care expenses were treated at the household level instead of the member level so that the same source of income associated with one member (e.g. the head of household) on one form, but another member (e.g. a child) on another form would not be counted twice.
- Passbook rates (for determining the imputed income from assets) were taken from information provided by PHA/owner staff. If the rate was missing, the average rate for the geographic area was used.
- For new certifications, the low and very low income limits were taken from information provided by PHA/owner staff. If the limits were missing, the average for the program type was used.

K. HUD Requirements Affecting the Analysis

Several HUD requirements affected the data collection methodology and subsequent analysis. As noted in Section II-A above, relevant HUD requirements were incorporated in the study standards used to determine error. All data collection procedures and analysis were based on these study standards. Although most standards were easily implemented, several were more problematic. Those standards that complicated the data collection or analysis are discussed below.

Anticipated Income. The amount of rent a household will pay is based on *anticipated* household income and deductions for the 12 months following (re)certification. For households with a stable income, such as Social Security or steady employment, determining anticipated annual income for the next 12 months is fairly reliable. However, many assisted households have members who are seasonally employed or who move in and out of the household, changing the total household income. Additionally, certain expenses such as medical expenses (for elderly/disabled households) and child care costs may be very difficult to anticipate. Determining whether such income and expense amounts were figured correctly at the time of recertification is very difficult when data are collected after the changes occurred.

Every effort was made to treat questionable income or expenses the same as they were treated by PHA/owner staff. Several of the special procedures presented in Section II-J were created for this purpose.

Verification. HUD regulations require that the information supplied by residents at (re)certification be verified by third parties (e.g., employers, the Social Security Administration, banks, medical personnel). Data collectors obtained release forms from the households when evidence of verification was not present in the tenant's file and then requested verification from the appropriate third parties. However, some third parties did not respond, others returned information for incorrect time periods, and other problems were encountered in obtaining the correct verification. Follow-up requests for missing verification were not

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made in all cases due to study time constraints. In calculating the rents, codes were assigned indicating which rents were based on verified information and those for which the income/expense information was only partially or not verified.

Macro, in consultation with HUD, established a set of verification rules to determine whether an item was verified. The rules used to determine if verification was acceptable and to match each item used in the rent calculation to the verification are found in Section II-G. Information regarding the percent of verification obtained for different rent components is found in Table 1 (in the appendix) and Exhibit IV-1 in Section IV-A.

Recent Changes in Legislation. Several major changes in Federal HUD regulations went into effect in October 1999. While these changes were included in the standards prepared for this study, it was agreed that the study would not find a household in error simply because a project had not implemented a new regulation on the date required. Therefore, during the interview conducted with PHA/owners, staff were asked whether they had implemented these new rules. If the PHA/owner stated that they had implemented the new rule, households in that project were evaluated on the basis of the new requirement. Of course, if the most recent case action was prior to October 1999, the new rules were not applicable.

Training Programs and Income Exclusions. HUD regulations (and the study standards) allow for all or part of the income of certain household members to be excluded if those household members were enrolled in or completed a training program (as defined by HUD). To ensure that these rules were implemented correctly, questions concerning participation in training programs were added to the data collection systems. A HUD policy expert reviewed these data as well as the household's income and expenses to determine if any portion of the household's income should be excluded.

Less than 5 percent of the respondents reported they were currently enrolled in, or had completed, an employment training course. Most of these households were not eligible for a training income exclusion when calculating their rent. However, there were a few households (less than 1 percent) who benefitted from these regulations.

Ineligible Non-citizens. HUD regulations require that rent be prorated for households that include ineligible non-citizens (as well as citizens or eligible non-citizens) unless the household meets certain criteria that allow continuation of full assistance. Macro conducted a special review of all households that included ineligible non-citizens to ensure that the rent was calculated correctly. Less than 1 percent of the households in the study included an ineligible non-citizen.

III. Study Objectives and Analytic Methods

This section presents the thirteen study objectives and a brief description of the methodology used to meet those objectives.⁹

Objective 1: Identify the various types of errors and error rates and related variance estimates.

The types of errors and error rates detected in the 1996 report published by HUD are replicated in this analysis. These errors include percent of households paying correct and incorrect rent, dollar error amount, and dollar error rate. Variance estimates (standard errors) are provided for the 2000 data.

Errors were determined by recalculating the tenant rent based on verified QC information and subtracting the tenant rent indicated on the 50058/50059 forms (Actual Rent). A household is found to be in error if the difference between the QC Rent and the Actual Rent is greater than \$5. Simple percentages of the number of households paying the correct rent are reported, as well as the percent of households in error per program, the average gross dollars in error, and the percent of rent dollars in error.

Errors are categorized, as in the 1996 report, by the following types:

- Misreporting of income sources or amounts
- Calculation errors
- Transcription errors (the tenant file documentation does not match the 50058/50059 data)
- Incorrect use of allowances
- Failure to conduct a recertification in a timely manner

Misreporting is defined as a discrepancy between tenant-reported information and that supplied by third-party verification. This is primarily a tenant-caused error, but can be affected by how well the PHA/owner conducts the tenant interview. The other four types of error (calculation, transcription, incorrect use of allowances, and failure to conduct recertifications in a timely manner) are errors attributable to the PHA/owner.

Transcription errors and failure to conduct a recertification in a timely manner are procedural errors that may or may not result in a payment error. Misreporting of income sources or amounts, calculation errors, and incorrect use of allowances usually result in payment error.

Objective 2: Identify the dollar costs of the various types of errors.

Three different types of dollar error estimates were calculated, the first of which describes error in the amount of rent. The remaining two dollar error estimates describe error in the income and expense items used in calculating rent.

⁹See *Analysis Plan*, an unpublished Macro report to HUD, dated March 15, 1999, for a more detailed description of the methodology.

III. Study Objectives and Analytic Methods

- **Dollar Rent Error**—The difference between the *monthly* Actual Rent and the *monthly* QC Rent (i.e., Actual Rent minus QC Rent). Rent was considered in error if the monthly QC Rent and Actual Rent differed by more than five dollars. For households who were ineligible when initially certified, the QC Rent is the amount of rent in the absence of any subsidy; the dollar error is this amount minus the Actual Rent.¹⁰
- **Total Component Dollars in Error**—The absolute sum (i.e., the sum of the positive and negative amounts, ignoring the plus or minus signs) of all individual income and expense component errors. These errors are combined to provide an overall Total Dollars in Error and are presented as *annual* amounts. A dollar amount of rent overpayment and underpayment was calculated for each component with identified error; however, some of these errors were overlapping or offsetting. (For example, earned income may have been underreported while—perhaps because of a calculation error—Supplemental Security Income may have been overstated). The net difference could be zero, or a positive or negative number. This calculation disregards these offsets.
- **Largest Component Dollar Error**—The *annual* dollar amount of error for the income or expense components with the largest error. Income and expense components include the five sources of income (earned, pensions, public assistance, other income, and assets) and the five types of deductions (medical, child care, and disability assistance expenses, dependent allowance, and elderly/disabled allowance). If the component with the largest error is earned income, the largest dollar error would reflect the difference between the earned income used by the PHA/owner, and the earned income used in the QC Rent calculation.

The first measure of error, Dollar Rent Error, is used to estimate the National Rent Error Rate. Tenant overpayments and underpayments of rent are measured separately. They are also combined arithmetically to produce a Net Rent Error (Actual Rent minus QC Rent) and combined absolutely to produce a Gross Rent Error (the sum of under- and overpayments ignoring the plus and minus signs). The Dollar Rent Error rate is determined by dividing the sum of the dollar amount of Gross Rent Error by the sum of the QC Rents. Note that rent error is reported on a *monthly* basis.

The second, Total Component Dollars in Error, is useful in analyzing income and expense components in error. Note that the total dollars in error are *annual* figures.

The third measure, Largest Component Dollar Error, identifies the rent component contributing the most to the error in the household's rent. It is a useful diagnostic tool in identifying the major sources of error so that program improvements can be targeted to the areas contributing the most to error.

Objective 3: Estimate the national-level costs for total error and major error types.

This analysis includes determining the National Rent Error Rate, the numbers and proportions of households found to be in error, and the dollar amount of rent error and the proportion of total dollars found to be in error. Sample data were weighted to provide national estimates.

¹⁰As an operational matter, for public housing households, the underpayment due to ineligibility is defined as the Flat Rent (if it is available), the HUD-approved ceiling rent (if available), or the Section 8 Existing Fair Market Rent, minus the actual total tenant payment.

III. Study Objectives and Analytic Methods

Objective 4: Determine the relationship between errors detectable using the HUD 50058 and HUD 50059 forms and total errors.

This analysis determines whether the errors that can be identified using only information contained on the 50058/50059 forms were representative of the total errors. This analysis was conducted by first identifying errors based on data contained on the 50058/50059 form and then comparing these calculation errors and consistency errors with the rent errors identified by the QC process.

Objective 5: Determine whether error rates and error costs have statistically significant differences from program to program.

In addition to national estimates of the number of households and dollars of rent error, household and dollar error rates for projects operated by PHAs were compared to those operated by owners. Within each of these program administration types, Macro analysts looked at specific types of projects. The projects were categorized as follows:

- PHA-Administered Projects
 - Public Housing
 - Section 8 Certificate
 - Section 8 Voucher
 - Section 8 Moderate Rehabilitation
- Owner-Administered Projects
 - Section 8 New Construction and Substantial Rehabilitation
 - Section 8 Loan Management and Property Disposition

In addition to replicating the results from the 1996 report, analysis was conducted with error rate, rather than error costs, as the dependent variable. This determined whether error rates and error costs have statistically significant differences from program to program.

Objective 6: Determine the extent to which households are overhoused relative to HUD's occupancy standards.

This objective addresses whether households reside in units with the correct number of bedrooms. Generally acceptable HUD guidelines¹¹ specifying the appropriate size unit for assisted households are shown in Exhibit III-1 below.

¹¹ Local projects have discretion in determining unit size, and may determine unit size differently than shown.

III. Study Objectives and Analytic Methods

Exhibit III-1
PHA Section 8 Unit Size Standards

Number of Bedrooms	Number of Persons in Household	
	Minimum	Maximum
0	1	1
1	1	2
2	2	4
3	3	6
4	5	8
5	7	10

For most programs, the rules are not based solely on household size and allow discretion on the part of the project staff. All programs allow exceptions to these rules. In this analysis, Macro used the guidelines shown in the above table.

Objective 7: Determine the extent to which errors are concentrated in projects and programs.

Further descriptive analysis was conducted to determine the degree to which errors are concentrated in programs or whether they are randomly distributed. In addition, an analysis of variance was completed to determine if errors are concentrated in projects. Further analysis aimed at determining if errors are concentrated in projects was not conducted because of changes in the sampling methodology which increased the number of projects in the sample and decreased the number of units per project.

Objective 8: Identify the percentage of newly certified tenants who were incorrectly determined eligible for program admission.

Newly certified households were reviewed to determine whether they met the eligibility requirements. Five criteria are reviewed at initial certification that are not a part of the recertification process: definition of family, citizenship, verification of social security numbers, signing consent forms, and low and very low income limits. This study did not investigate definition of family because it is determined by the PHA or owner. Therefore, findings are provided on four of the five initial certification criteria. In addition, this study did not include suitability factors that PHA/owners may use in selecting tenants—factors such as tenancy histories, histories of drug use or criminal activity.

Objective 9: Estimate the total positive and negative errors in terms of HUD subsidies.

Proper payments are those in which the Actual Rent equals the QC Rent. Errors can be either overpayments (Actual Rent greater than QC Rent) or tenant underpayments (Actual Rent less than QC Rent). Overpayment error rates were calculated by dividing the total amount of overpayment by the total QC Rent; underpayment error rates were calculated similarly by dividing the total amount of underpayments by the total QC Rent.

III. Study Objectives and Analytic Methods

Objective 10: Determine the apparent cause of significant rent errors, either on a sample or a comprehensive basis, to provide HUD with information on whether the error was caused primarily by the tenant or by program sponsor staff.

As discussed under Objective 1, errors are categorized into five types: misreporting of income sources or amounts, calculation errors, transcription errors, incorrect use of allowances, and failure to conduct a recertification in a timely manner. Calculation errors, transcription errors, incorrect use of allowances, and failure to conduct recertifications in a timely manner are errors attributable to the PHA/owner. However, discrepancies between the information used by the project to calculate rent and what is obtained through the QC process cannot always be attributed to the tenant or the project. For this reason, we view discrepancies between information used by the PHA/owner to calculate rent and information used in the QC Rent calculation as sources of error, rather than ascribing cause to tenants or project staff.

This report defines source of error as the type of income, asset, expense, or allowance that caused (or contributed to) errors. Macro identified source errors using the 10 income and expense components found on the 50058/50059 forms for calculating rent. The five income components are employment income, Social Security and pensions, public assistance, other income, and asset income. The five expense/allowance components are elderly/disabled allowance, dependent allowance, medical expenses, child care expenses, and disability expenses. This report discusses both household and dollar error according to these categories.

Objective 11: Determine whether other tenant or project characteristics on which data are available are correlated with high or low error rates.

To respond to this objective we used error-prone modeling techniques to identify households with a high probability of being in error. Two separate equations were developed, one using household characteristics and the other using project characteristics as independent variables to predict level of household error.

Objective 12: Determine whether households for which 50058/50059 data had been submitted to HUD were more or less likely to have errors than those for which data had not been submitted.

The QC household sample was matched to the TRACS/MTCS data. Analysis was conducted to compare the average dollars in error for households included in TRACS/MTCS and those who were not. For those households found in TRACS/MTCS where the effective date of action also matched, analysis was completed on key data fields.

Objective 13: Determine the extent to which Section 8 Certificate rents are consistent with market rate rents for comparable units in comparable locations.

Meeting this objective involved three major tasks: examining the policies and procedures housing authorities adopted when implementing the rent reasonableness requirement, determining the extent to which housing authorities actually implement rent reasonableness policies and procedures, and assessing the comparability of rents charged under the Section 8 tenant-based assistance program to the private, unassisted market.

IV. Findings

Analyses were conducted using weighted data for the sample of 2,403 households. (Appendix B presents the procedure used in weighting the data.) There was insufficient information on five of these households to determine the amount of error or the source of error.¹² Appendix C shows the distribution of households available for each type of analysis, for both the sample and the weighted data.

When appropriate, data are presented by the three program types that served as the basis for the sampling design—Public Housing, PHA-administered Section 8 (Certificates, Vouchers, and Moderate Rehabilitation), and owner-administered Section 8 (New Construction, Substantial Rehabilitation, Property Disposition, and Loan Management).

Each of the major study findings, the reasons for the errors, and other background information concerning these errors are discussed below. In many of the exhibits throughout the report the data collected during the current study (referred to as the 2000 data) are compared to the data collected in a previous study. The data for this earlier study was collected in 1992; the analysis was completed in 1995. However, the final report for the earlier study, published by HUD in April 1996, is usually referred to by HUD as the 1996 report. Therefore, the exhibit headings and most references in the text refer to the data collected in 1992 as “1996”. Dollar figures for the 1996 report are given as both actual dollars (1992 dollars) and current dollars (2000 dollars). The Consumer Price Index (CPI) increased by 23 percent from summer 1992 to summer 2000. HUD estimates the change in median family income during that period to be 30 percent. The CPI is believed to be a more appropriate tenant income adjustment factor based on the information available. Therefore, an adjustment factor of 23 percent was used for the 1992 data.

This discussion is divided into seven parts: the errors in the rent amount based on the QC data (rent error), the errors in sources of income and expenses (component errors), the errors found using only project file data (administrative error), project analysis, error prone profiling, occupancy standards, and comparisons with MTCS/TRACS data. The first three parts present different types of error.

Rent error is error that results in an actual dollar error. A dollar error means the household paid too much rent (an overpayment) or the household paid less rent than it should have paid (an underpayment).

Component errors are the income and expense components used to calculate rent. The income components are employment income, Social Security and pensions, public assistance, other income, and asset income. The expense/allowance components are elderly/disabled allowance, dependent allowance, medical expenses, child care expenses, and disability expenses.

Administrative errors are errors that result from mistakes in procedure. They consist of:

- Consistency errors—errors in logical conformity between elements within the 50058 or 50059 form
- Calculation errors—arithmetic errors within subsections of the 50058 or 50059 form
- Transcription errors—errors in transferring information from documentation in the tenant file to the 50058 or 50059 form

¹² One of the households had no Actual Rent or Total Tenant Payment on the 50058/59 form. There were 4 households where the QC Rent could not be calculated because critical information was missing. PHA/owners were unable to provide this information when it was requested during follow-up telephone calls. Therefore, most tables are based on data for 2,398 households.

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- Failure to conduct a recertification in a timely manner
- Failure to verify information.

Component errors and administrative errors may or may not result in rent errors. Administrative errors tell us at what point in the process the error occurred, while the component errors tell us which income or expense caused the error.

Data supporting the discussion are presented in tables located in Appendix D. The chart at the beginning of Appendix D presents each of the objectives and the tables that include data responding to those objectives.

A. Rent Error

Overview. Rent errors¹³ were identified by subtracting the QC Rent from the Actual Rent. The QC Rent was calculated using third-party verification whenever possible. If third-party verification was not available, information from the Documentation forms or Household Questionnaire was used. The Actual Rent is the Tenant Rent from the 50058/50059 form. As noted above, a household was considered to be correct (proper payment) if the QC Rent and the Actual Rent matched within \$5. All exhibits included in this report (except IV-2) and all tables in Appendix D define households whose Actual and QC Rents matched within \$5 as proper payments, except for the supplemental tables (designated by the letter “S”), which are based on exact matches between these two rents.

A list of cases where the Actual and QC rent vary by more than \$100 is provided in Appendix E. This list provides the reader with examples of the different types of errors identified in this study.

Definitions of Rent Errors. Dollar error can be determined by comparing the rent the household should have paid to what it was paying, or by identifying the percent of the Federal subsidy that was paid in error. In this study, error was determined by the first method. The rent errors presented throughout this report were calculated in the following manner:

- **Dollar Rent Error** was calculated at the household level by subtracting the household’s QC Rent from the Actual Rent. Note that these are *monthly* rents. A negative number indicates an underpayment, meaning the household paid less than it should have paid, and that HUD’s contribution was higher than it should have been. A positive number indicates a household overpayment, meaning HUD’s contribution was less than it should have been.
- **Gross Rent Error** is the absolute value (i.e., the sum of the absolute value of positive and negative Rent Error) of the Dollar Rent Error for the sample as a whole or a specified group of households. The Gross Rent Error functions simply as a measure of the magnitude of the errors. The dollar amounts presented in the tables are Gross Rent Error values, unless otherwise indicated.
- **Net Rent Error** is the arithmetic value (i.e., the sum of the negative and positive values of over- and underpayments) of the rent error.
- **Error Rate** is calculated by dividing the sum of the Gross Rent Error by the sum of the QC Rent, for the entire sample or a specified group of households.

¹³ Rent error is based on Tenant Rent; not Total Tenant Payment. Tenant Rent is calculated using the formulas listed in Section II G. and provided in detail in Appendix A.

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Verification Used in Determining the QC Rent. As indicated above, a set of verification rules were established for this study (see Section II-G). If an income or expense component involved in the calculation of rent was not verified by the PHA/owner, an effort was made by Macro staff to verify it. However, even though the study spent considerable resources on this task, verification could not be obtained for all items.

Exhibit IV-1 presents the percentage of each rent component that was verified by either the PHA/owner or Macro. The first column presents the 1996 findings. The remaining two columns present the 2000 findings, first using the same verification requirements as used in the 1996 report (third party in writing, third-party verbal, or documentation); and second using the more stringent verification requirements for this study (third-party in writing).

Exhibit IV-1
Percent of Households Fully Verified by Either the PHA/Owner or Macro

Rent Component	Third-Party Verbal or In Writing, or Documentation	Third-Party Verbal or In Writing, or Documentation	Third-Party In Writing
	1996	2000	
Earned Income	62%	72%	62%
Pensions, etc.	72%	88%	78%
Public Assistance	73%	75%	66%
Other Income	46%	52%	48%
Asset Income	57%	57%	49%
Child Care Expense	51%	51%	47%
Disability Expense	1%	20%	20%
Medical Expense	41%	52%	40%

Source: Table 1, Appendix D

Tables 1a and 1b in Appendix D provide additional verification information by rent component. They present the number of households for which the income or expense component was not verified, partially verified, or fully verified. Table 1a includes items that were verified by third parties in writing or verbally, or with documentation. Table 1b provides data for items verified in writing by third parties (as required by the study).

Proper Payments. Exhibit IV-2 presents the percent of households with proper payments by program both for households where the Actual and QC Rents matched within \$5 and for households where the Actual and QC Rents matched exactly. At (re)certification, the rent was calculated correctly (within \$5) in more than a third of the households (44 percent), down 3 percent from 1996's total of 47 percent. About a third matched exactly for 2000 (32 percent), down 1 percent from 1996's 33 percent.

IV. Findings

**Exhibit IV-2
Percent of Households with Proper Payments**

Administration Type	Percent of Households Within \$5		Percent of Households Matched Exactly	
	1996	2000	1996	2000
Public Housing	46%	47%	32%	34%
PHA-Administered Section 8	47%	38%	36%	30%
Total PHA-Administered	47%	42%	34%	32%
Section 236	59%	n/a	53%	n/a
Owner-Administered w/o Section 236	47%	48%	31%	32%
Total without Section 236	47%	44%	33%	32%

Source: Table 3, Appendix D

Households with QC Rent Error. Exhibit IV-3 presents the percent of households in error, the average dollar amount in error, and error rate by program. The exhibit indicates that 56 percent of the households include a rent error greater than \$5. As can be seen, this is up from 53 percent in 1996. The average gross dollars in error, calculated by dividing the sum of the dollar amount of gross error (i.e., the sum of the absolute values of under- and overpayments) by the total number of households is \$45 in 2000 and \$36 in current 1992 dollars. The gross dollar error rate, calculated by dividing the sum of the dollar amount of Gross Rent Error by the sum of the dollar amount of the QC Rent, is 24 percent.

**Exhibit IV-3
Percent of Households with Error, Average Dollars in Error, and Dollar Error Rate
for Households with Error Greater Than or Less Than \$5**

Administration Type	Percent of Households with Error		Average Gross Dollars in Error			Gross Dollar Error Rate	
	1996	2000	1996		2000	1996	2000
			Actual \$	Current \$			
Public Housing	54%	53%	\$30	\$37	\$41	18%	20%
PHA-Administered Section 8	53%	62%	\$29	\$35	\$59	17%	31%
Total PHA-Administered	53%	58%	\$30	\$37	\$51	17%	26%
Section 236	41%	n/a	\$29	\$35	n/a	1%	n/a
Owner-Administered w/o 236	53%	52%	\$28	\$34	\$32	17%	18%
Total without Section 236	53%	56%	\$29	\$36	\$45	17%	24%

Source: Table 2 and 3, Appendix D

It is important to note that this study was primarily designed to measure the extent of administrative error by housing providers, not to measure how much additional tenant contributions could be realistically collected in a cost-efficient manner. The extent of the identified error is sensitive to a number of assumptions made in the study. Changes in the error threshold, for example, would affect the overall dollar error estimates. Perhaps more importantly, it is likely that some tenants with large rent increases resulting from corrected calculations would leave the program, reducing potential subsidy reductions; while those with decreases in their rents would be more likely to remain, increasing subsidy requirements. These corrections are desirable outcomes, but it is unclear what their net impact would be on subsidy costs. The most appropriate use of this study is as a tool for strengthening HUD's procedures for ensuring administrative compliance with regulations. The improvements recommended will require more rather than fewer resources in the short-term. Significant reductions in error can only be expected after

IV. Findings

progress is made in providing the type of rule simplifications, and additional instructions, forms, training, and monitoring discussed in the report. While it is likely that budgetary savings can be achieved at some future date if the recommendations of the study are adopted, the necessary changes will take two to four years to start to achieve measurable results.

Underpayment and Overpayment Households. Exhibit IV-4a and 4b present the percent of households and average dollar amount of error for all households, when errors of \$5 or less are not counted. Exhibit IV-4a presents the error for underpayment households. Exhibit IV-4b presents the error for overpayment households. Thirty-four percent of all households paid more than \$5 less than they should have in 2000, compared with 27 percent in 1996. For these households, the average monthly payment was \$95 and \$73 (in 2000 dollars), respectively, less than it should be. While 26 percent of all households in 1996 paid more than \$5 more than they should have, that figure declined to 22 percent for 2000. The average monthly overpayment was \$56 in 2000, down from \$61 in 1996. The underpayment and overpayment average dollar figures for 2000 are \$95 and \$56, respectively.

Exhibit IV-4a
Underpayment Households
Percent of Households and Average Monthly Dollar Amount of Error

Administration Type	Percent of Households in Error		Average Dollar Amount of Error					
			For Underpayment Households (with errors < \$5)			For All Households		
	1996	2000	1996		2000	1996		2000
			Actual \$	Current \$		Actual \$	Current \$	
Public Housing	28%	33%	\$66	\$81	\$84	\$18	\$23	\$28
PHA-Administered Section 8	28%	42%	\$55	\$67	\$109	\$15	\$19	\$46
Total PHA-Administered	28%	38%	\$61	\$75	\$100	\$17	\$21	\$38
Section 236	22%	n/a	\$97	\$119	n/a	\$21	\$26	n/a
Owner-Administered w/o 236	26%	27%	\$55	\$68	\$81	\$14	\$18	\$22
Total without Section 236	27%	34%	\$59	\$73	\$95	\$16	\$20	\$32

Source: Table 3 and 4, Appendix D

Exhibit IV-4b
Overpayment Households
Percent of Households and Average Monthly Dollar Amount of Error

Administration Type	Percent of Households in Error		Average Dollar Amount of Error					
			For Overpayment Households (with errors > \$5)			For All Households		
	1996	2000	1996		2000	1996		2000
			Actual \$	Current \$		Actual \$	Current \$	
Public Housing	26%	20%	\$46	\$56	\$63	\$12	\$15	\$13
PHA-Administered Section 8	14%	20%	\$54	\$66	\$67	\$13	\$16	\$13
Total PHA-Administered	25%	20%	\$49	\$60	\$65	\$12	\$15	\$13
Section 236	19%	n/a	\$40	\$49	n/a	\$7	\$9	n/a
Owner-Administered w/o 236	27%	25%	\$50	\$61	\$41	\$14	\$17	\$11
Total without Section 236	26%	22%	\$49	\$61	\$56	\$13	\$16	\$12

Source: Table 3 and 4, Appendix D

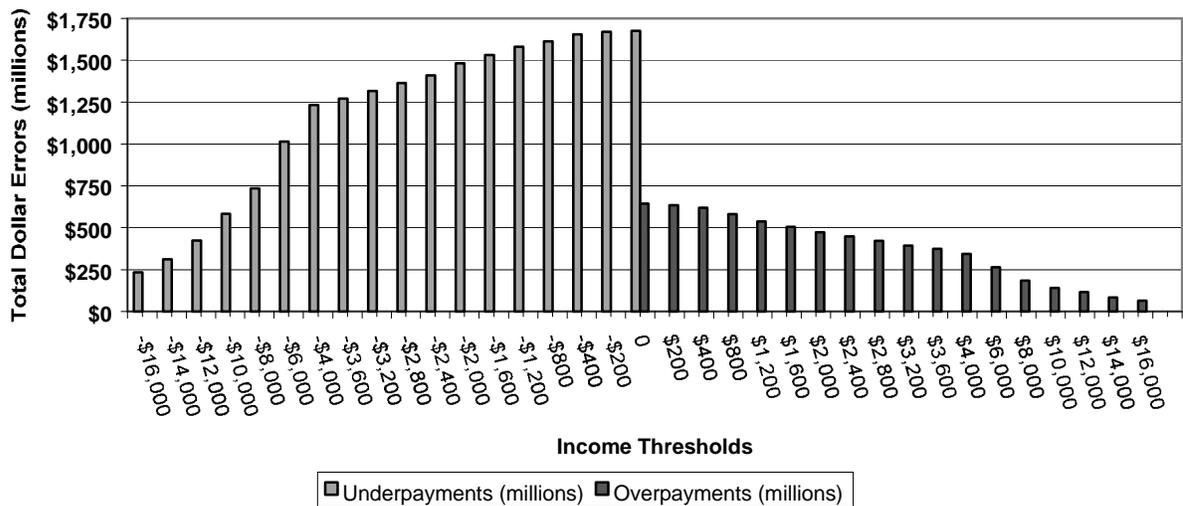
IV. Findings

Figure IV-1 presents the percent of underpayments, proper payments, and overpayments by program type. Programs were grouped into three categories—Public Housing, PHA-administered Section 8, and owner-administered Section 8. Note that PHA-administered Section 8 programs have significantly more underpayment error than the other programs.

Figure IV-1 [Figure not available electrically]

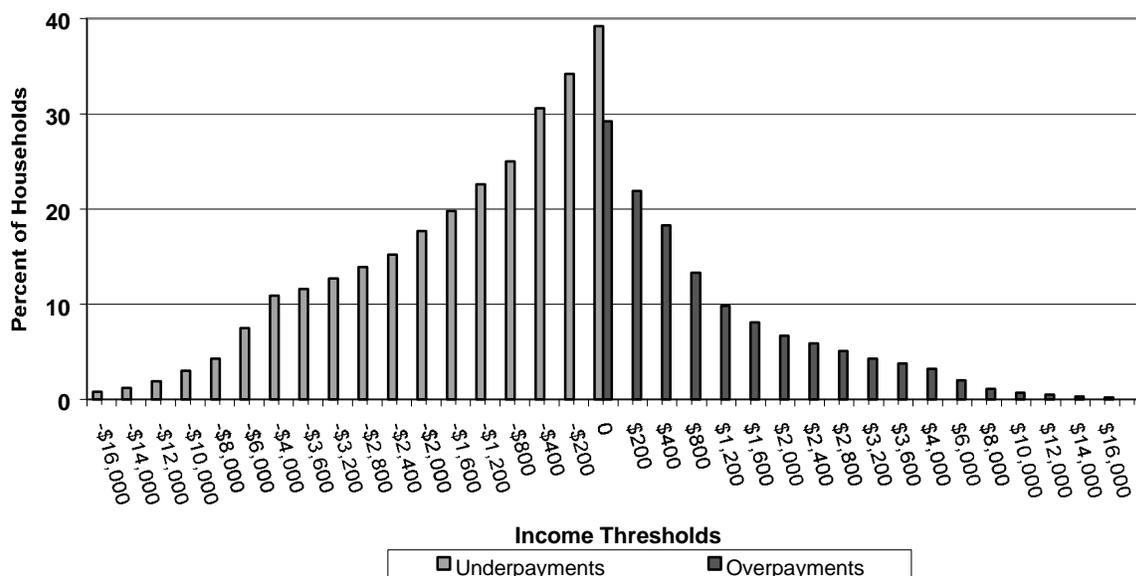
As indicated above, a household was considered to be correct (proper payment) if the Actual Rent and the QC Rent matched within \$5. In response to concerns that the threshold (the difference between the Actual Rent and the QC rent) for matching data should have been larger, *dollar rent error* was determined using varying income thresholds. The graph provided in Figure IV-2 presents these findings for all households. Similar graphs for each program type—public housing, PHA-administered Section 8, and owner-administered Section 8 can be found at the end of Appendix D. Thresholds are presented in income equivalents so they are more comparable to the REAC annual income match findings. For example, a rent error of \$5 is equal to \$200 in income (assuming the tenant rent equals 30 percent of adjusted annual income). Figure IV-3 provides the percent of *households in error* by these same income thresholds.

Figure IV-2
Effect of Varying Income Thresholds on Total Dollar Error



IV. Findings

Figure IV-3
Effect of Varying Income Thresholds on Percent of Households in Error



Gross and Net Dollars in Error. Exhibit IV-5 presents the gross and net average dollars in error and their associated standard error.¹⁴ To obtain the Gross and Net Rent Error, the dollar amount of overpayments is added to the dollar amount of underpayments, first using the absolute values for gross error, and then the arithmetic values for the net error. The net error measures the dollar cost of the errors and is -\$20 (indicating a tenant underpayment) for 2000; the average gross dollar error is \$45 for 2000 and represents the dollars associated with the errors (the magnitude of the errors).

Exhibit IV-5
Gross and Net Dollar Rent Error (Monthly) for All Households

Administration Type	Gross Rent Error				Net Rent Error			
	Average Dollars in Error		Standard Error		Average Dollars in Error		Standard Error	
	1996		2000	2000	1996		2000	2000
	Actual \$	Current \$			Actual \$	Current \$		
Public Housing	\$30	\$37	\$41	\$4.39	-\$6	-\$8	-\$15	\$3.68
PHA-Administered Section 8	\$29	\$35	\$59	\$3.67	-\$2	-\$3	-\$32	\$5.06
Total PHA-Administered	\$30	\$37	\$51	\$3.13	-\$5	-\$6	-\$25	\$3.52
Section 236	\$29	\$35	n/a	n/a	-14	-\$17	n/a	n/a
Owner-Administered w/o 236	\$28	\$34	\$32	\$3.80	-\$1	-\$1	-\$11	\$3.67
Total without Section 236	\$29	\$36	\$45	\$2.72	-\$3	-\$4	-\$20	\$2.75

Source: Table 5, Appendix D

¹⁴ Standard Errors for the 1996 report are not provided because they are not comparable with the 2000 data.

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Error Rates by Program. An analysis was conducted to determine the differences in error rates by programs. A summary of these error rates is shown in Exhibit IV-6. These include Gross Error Rate, which is the sum dollar amount of gross error divided by the sum dollar amount of QC Rent, and the Net Error Rate, which is the sum dollar amount of net error divided again by the sum dollar amount of QC Rent. The Error Rate for both Gross Error and Net Error is much greater for PHA- administered Section 8 programs than for either Public Housing or owner-administered programs.

Exhibit IV-6
Gross and Net Dollar Error Rates (Monthly) for All Households

Administration Type	Error Rates			
	Gross Error Rate	Standard Error	Net Error Rate	Standard Error
Public Housing	20%	2.3%	-7 %	1.9%
PHA-Administered Section 8	31%	2.2%	-17%	2.2%
Total PHA-Administered	26%	1.7%	-12%	1.7%
Section 236	n/a	n/a	n/a	n/a
Owner-Administered w/o Section 236	18%	1.9%	-6 %	1.9%
Total	24%	1.4%	-11%	1.3%

Source: Table 5, Appendix D

An analysis of variance (ANOVA) was completed for program administration type. Although there is a great deal of variation in gross errors within each group, there was a statistically significant difference between the means of the PHA-administered and owner-administered programs, producing a definite program effect. When we separate the PHA-administered Section 8 program from Public Housing we see that PHA-administered Section 8 households have a much higher average gross dollar error rate.

Certifications/Recertifications. The sample households included both certifications (i.e., newly admitted households) and recertifications. Certifications were analyzed to determine if these households were eligible for HUD housing assistance. A separate analysis was also conducted for overdue recertifications. Figure IV-4 presents the breakdown of cases by case type—certifications, recertifications, and overdue recertifications.

[Figure IV-4 not available electronically]

Exhibit IV-7 shows the breakdown of the percent of certifications, recertifications not overdue, and recertifications overdue, by program type. The exhibit indicates in 2000 that 9 percent of the households were certifications and 6 percent of the households were overdue recertifications. These findings indicate a decrease in the percentage of certifications from 1996 (from 14 percent to 9 percent) and an increase in the percentage of overdue certifications (from 2 percent to 6 percent).

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Exhibit IV-7
Certifications and Recertifications by Administration Type

Administration Type	Certifications		Non Overdue Recertifications		Overdue Recertifications		Total
	1996	2000	1996	2000	1996	2000	
Public Housing	13%	8%	83%	85%	4%	7%	100%
PHA-Administered Section 8	14%	10%	85%	85%	2%	5%	100%
Total PHA-Administered	14%	9%	83%	85%	3%	6%	100%
Section 236	23%	n/a	71%	n/a	6%	n/a	100%
Owner-Administered w/o Section 236	14%	9%	86%	86%	<1%	5%	100%
Total without Section 236	14%	9%	84%	85%	2%	6%	100%

Source: Table 6, Appendix D

Certifications. Exhibit IV-8 presents a summary of the findings related to eligibility criteria. The analysis of newly certified households found a significant percentage of households that did not meet all the certification criteria and thus may have been certified in error. The criteria reviewed included citizenship, social security number, signing the appropriate consent form, and qualifying as low income or very low income households. However, only those households that did not meet the appropriate low or very low income limit were definitely not eligible for assistance. The total gross income of 99 percent of the households (according to the QC Rent calculation) fell within the appropriate low or very low income limit.

Exhibit IV-8
Percent of Newly Certified Households Meeting Certification Criteria

Certification Criteria	Percent of Households		
	Met Criterion	Did Not Meet Criterion	Unable to Determine Whether Tenant Met Criterion*
Citizenship	79%	21%	0
Social Security Number	84%	16%	0
Consent Form	71%	23%	6%
Low and Very Low Income	99.5%	<1%	0
Meets All Eligibility Criteria	53%	47%	0

Exhibit 8a provides the percent of newly certified households meeting the certification criteria by program type.

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Exhibit IV-8a
Percent of Newly Certified Households
Meeting Certification Criteria by Program Type

Certification Criteria	Percent of Households Meeting the Criteria		
	Public Housing	PHA-Administered Section 8	Owner-Administered Section 8
Citizenship	75%	81%	81%
Social Security Number	84%	85%	84%
Consent Form	65%	76%	73%
Low and Very Low Income	100%	99%	100%
Meets All Eligibility Criteria	46%	59%	54%

A household met the citizenship or social security number criteria if there was evidence in the tenant file that the citizenship or social security number was verified. The data indicate that a citizenship code (indicating whether each household member was a citizen, eligible noncitizen or ineligible noncitizen) and a social security number was available (from either the tenant file or the household interview) for each household member. However, 21 percent of the households had at least one household member for whom there was no verification of citizenship. To meet the citizenship verification requirement, the file must have contained (for each household member) a signed declaration of U.S. citizenship or eligible immigration status; proof of age documentation; an INS card; or INS system verification of citizenship status, or documentation that the member was in process for verification or an INS hearing.

Sixteen percent of the households had at least one member age six or over for whom there was no verification of their social security number. To meet the social security number verification requirements the file must have contained (for each household member six years of age or older) a copy of the social security card, or statement from the Social Security Administration verifying the social security number or a certification indicating the member does not have a social security number.

In 71 percent of the households there was a signed consent form, dated within 15 months of the QCM (the date for which data was collected), for all members age 18 or over. Twenty-two percent of the households included at least one household member (age 18 or over) for whom a consent form (dated within 15 months of the QCM) was not in the file. For the remaining 7 percent of the households, we were unable to determine whether the household met the criteria because of missing information.

Note that not meeting the social security number, citizenship, and consent form criteria may not mean the household was not eligible for assistance; rather, the project did not follow the HUD requirements in documenting the information.

Underpayments and Overpayments for Certifications, Recertifications, and Overdue Recertifications. Exhibit IV-9 presents a summary of the households with overpayments and underpayments by the type of case—certification, non-overdue recertification, and overdue certification. The Average Dollar Amounts are based on the sum of the dollar amounts for payment errors (either underpayment or overpayment) for the type of household (certification, overdue recertification, or non-overdue recertification) divided by the number of households with that payment type (for whom a QC Rent could be calculated). For example, the sum of the dollar amounts for new certifications with monthly underpayments (\$10,927) was divided by the total number of certifications in the sample for whom QC Rent could be calculated (382,000). The result is an underpayment average dollar amount of \$29.

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The data indicate that the amount of dollar error in new certifications in 2000 is less than the amount for recertifications. However, there is essentially no difference in the dollar error for overdue and non-overdue recertifications. This is different than the findings in the 1996 report which show a significant difference between the error in the overdue and non-overdue recertifications. We believe the reason why the 2000 data does not show a difference in the average dollar amount between the overdue and non-overdue recertifications is that 70 percent of the overdue recertifications were overdue by three months or less.

Exhibit IV-9
Average Monthly Underpayment and Overpayment Dollar Amount
Averaged Across All Households

Household Type	Underpayment Average Dollar Amount			Overpayment Average Dollar Amount		
	1996		2000	1996		2000
	Actual \$	Current \$		Actual \$	Current \$	
Certifications	\$15	\$18	\$29	\$11	\$14	\$9
Non-overdue Recertifications	\$16	\$20	\$33	\$13	\$16	\$13
Overdue Recertifications	\$30	\$37	\$35	\$25	\$31	\$12
Total	\$16	\$20	\$32	\$13	\$16	\$12

Source: Table 7, Appendix D

Subsidies. The actual cost of errors to HUD is expressed in terms of subsidy payments. HUD subsidies for assisted housing programs equal the allowed expense level or payment standard minus the total tenant payment or tenant share. The subsidy is correct if the Actual Rent equals the QC Rent (within \$5). A negative subsidy error occurs when the tenant pays too much rent (QC Rent < Actual Rent). A positive subsidy error occurs when the tenant pays too little rent (QC Rent > Actual Rent). These subsidy errors by program type are summarized in Exhibit IV-10a and 10b, below. The subsidy errors by certification status are summarized in Exhibit IV-11.

Exhibit IV-10a
Negative Subsidy Households (Under-subsidies)
Percent of Households and Average Monthly Dollar Amount of Error

Administration Type	Percent of Households in Error		Average Dollar Amount					
			For Negative Subsidy Households (with errors > \$5)			For All Households		
	1996	2000	1996		2000	1996		2000
			Actual \$	Current \$		Actual \$	Current \$	
Public Housing	26%	20%	\$46	\$56	\$63	\$12	\$15	\$13
PHA-Administered Section 8	14%	20%	\$54	\$66	\$67	\$13	\$16	\$13
Total PHA-Administered	25%	20%	\$49	\$60	\$65	\$12	\$15	\$13
Section 236	19%	n/a	\$40	\$49	n/a	\$7	\$9	n/a
Owner-Administered w/o 236	27%	25%	\$50	\$61	\$41	\$14	\$17	\$11
Total without Section 236	26%	22%	\$49	\$61	\$56	\$13	\$16	\$12

Source: Tables 3 and 4, Appendix D

IV. Findings

Exhibit IV-10b
Positive Subsidy Households (Over-subsidies)
Percent of Households and Average Monthly Dollar Amount of Error

Administration Type	Percent of Households in Error		Average Dollar Amount					
			For Positive Subsidy Households (with errors < \$5)			For All Households		
	1996	2000	1996		2000	1996		2000
			Actual \$	Current \$		Actual \$	Current \$	
Public Housing	28%	33%	\$66	\$81	\$84	\$18	\$23	\$28
PHA-Administered Section 8	28%	42%	\$55	\$67	\$109	\$15	\$19	\$46
Total PHA-Administered	28%	38%	\$61	\$75	\$100	\$17	\$21	\$38
Section 236	22%	n/a	\$97	\$119	n/a	\$21	\$26	n/a
Owner-Administered w/o 236	26%	27%	\$55	\$68	\$ 81	\$14	\$18	\$22
Total without Section 236	27%	34%	\$59	\$75	\$95	\$16	\$20	\$32

Source: Tables 3 and 4, Appendix D

Exhibit IV-11
Average Monthly Dollar Amounts of Error for Negative (Under-) and Positive (Over-) Subsidies
Averaged Across All Households

Household Type	Negative Subsidy Average Dollar Amount of Error			Positive Subsidy Average Dollar Amount of Error		
	1996		2000	1996		2000
	Actual \$	Current \$		Actual \$	Current \$	
Certifications	\$11	\$14	\$ 9	\$15	\$18	\$29
Non-overdue Recertifications	\$13	\$16	\$13	\$16	\$20	\$33
Overdue Recertifications	\$25	\$31	\$12	\$30	\$37	\$35
Total	\$13	\$16	\$12	\$16	\$20	\$32

Source: Table 7, Appendix D

B. Sources of Error

In addition to identifying the number of households in error and the associated dollars in error, analysis was conducted to determine which income and expense components contributed the most to error. It should be noted that the component dollar amounts are *annual* income and expense dollars, rather than the monthly figures used to present rent error data. In addition, the sum of the component errors is greater than net rent errors because of off-setting errors. For example, the household presented below has earned income and child care costs with errors in both components. The total component error is \$600 (\$400 + \$200); however, the adjusted net income error (the amount used to determine the household's rent) is only \$200.

IV. Findings

<u>Component</u>	<u>File Data</u>	<u>QC Data</u>	<u>Dollar Error</u>
Earned Income	\$2,200	\$2,600	\$400
Child Care	\$ 400	\$ 600	\$200
Adjusted Net Income	\$1,800	\$2,000	\$200

Exhibit IV-12 presents each income and expense component included in the rent calculation and the percent of households where this component contributed the most to the gross error. The exhibit indicates that earned income caused the largest dollar error in the highest percentage of households (27 percent). Pension income was in error 14 percent of the time and medical expenses was in error 15 percent of the time. The average dollar amount associated with earned income is \$6,641, substantially higher than the average dollar amount associated with pension income and medical expenses where the average dollar amount was \$3,701 and \$1,157 respectively.

Exhibit IV-12
Rent Components Responsible for the Largest Dollar Error
For Households with Rent Error (listed by amount of dollar error)

Rent Component	Percent of Households in Error		Average Dollar Amount		
	1996	2000	1996		2000
Earned Income	20%	27%	\$4,896	\$6,022	\$6,641
Other Income	14%	12%	\$2,865	\$3,624	\$3,853
Pensions	15%	14%	\$3,653	\$4,493	\$3,701
Asset Income	5%	4 %	\$1,864	\$2,293	\$3,450
Public Assistance	12%	9 %	\$2,831	\$3,482	\$2,816
Child Care Expenses	3%	3 %	\$2,058	\$2,531	\$2,333
Medical Expenses	22%	15 %	\$1,957	\$2,407	\$1,157
Dependent Allowance	4%	5 %	\$ 618	\$ 760	\$1,060
Disability Expenses	<1%	<1%	\$ 483	\$ 594	\$ 600
Elderly/Disabled Allowance	2%	4 %	\$ 400	\$ 492	\$ 400
No Rent Component Error	4%	8 %	0	0	0

Source: Table 8, Appendix D

Note that for some households the rent error is not caused by one of the ten components listed; rather it is caused by other arithmetic errors or by using the wrong rent calculation formula. The number of households in this category increased from 4 percent in 1996 to 8 percent in 2000, possibly because some of the rent calculations (for certificates and vouchers) have become more complicated. The percent of households in error stayed the same or increased for most rent components, with the highest increase for earned income (a 7 percent increase). However, there was a 7 percent decrease in the percent of households where the medical expense component was in error.

IV. Findings

Total and Largest Component Dollar Error. Exhibit IV-13 presents the dollar amounts associated with the total dollars in error (the sum of the absolute value of the errors in all rent components) and the largest dollars in error (the largest error for each household attributable to a specific source), by program type. Both the average amount of the total dollars in error and the average amount of the largest dollar error are greater for PHA-administered projects than for owner-administered projects, a finding unchanged from 1996 to 2000.

Exhibit IV-13
Total and Largest Component Dollars in Error
For Households with Rent Error

Administration Type	Average Total Dollars in Error			Average Largest Dollars in Error		
	1996		2000	1996		2000
	Actual \$	Current \$		Actual \$	Current \$	
Public Housing	\$4,605	\$5,664	\$4,837	\$3,222	\$3,963	\$3,723
PHA-Administered Section 8	\$4,080	\$5,019	\$5,070	\$2,780	\$3,419	\$3,860
Total PHA-Administered	\$4,364	\$5,368	\$4,975	\$3,018	\$3,712	\$3,803
Section 236	\$5,239	\$6,444	n/a	\$2,315	\$2,848	n/a
Owner-Administered w/o Sec.236	\$2,703	\$3,325	\$3,351	\$2,556	\$3,144	\$2,709
Total without Section 236	\$3,789	\$4,660	\$4,484	\$2,775	\$3,414	\$3,472

Source: Table 9, Appendix D

QC Rent Components by Payment Type and Administration Type. Exhibit IV-14 provides the percentage of the total number of households with (and without) component error by component type and payment type. For example, 14 percent of all households with underpayment rent error had earned income errors; 3 percent of all households with proper rents had earned income errors; and 6 percent of all households with overpayment rent error had earned income errors. It also provides this information for PHA- and owner-administered households. This exhibit reflects component errors in proper payment households when the component dollar error is \$5 or less. The exhibit indicates that earned income is the rent component that has the highest percent of error (20 percent), followed by pension income (17 percent) and medical expense (16 percent).

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Exhibit IV-14
Component Error by Payment Type for All Households

Component	Underpayment			Proper Payment			Overpayment		
	PHA	Owner	Total	PHA	Owner	Total	PHA	Owner	Total
Earned Income	17%	8%	14%	4%	1%	3%	7%	4%	6%
Pension Income	11%	10%	11%	8%	12%	9%	5%	10%	6%
Public Assistance Income	8%	4%	7%	2%	2%	2%	3%	2%	3%
Other Income	11%	5%	9%	4%	2%	3%	3%	2%	3%
Asset Income	4%	8%	5%	3%	8%	4%	2%	8%	4%
Dependent Allowance	6%	2%	5%	2%	<1%	1%	4%	1%	3%
Elderly Household Allowance	4%	3%	3%	2%	<1%	2%	2%	2%	2%
Child Care Allowance	3%	2%	3%	1%	0%	<1%	3%	1%	2%
Disability Assistance Expense	0%	<1%	0%	0%	0%	0%	<1%	<1%	<1%
Medical Expense	6%	13%	8%	5%	12%	7%	5%	14%	8%
No Rent Component Error	3%	1%	2%	24%	26%	25%	2%	2%	2%

Source: Table 10, Appendix D

Exhibit IV-15 presents the standard errors for the total number of households with (and without) component error by component type and payment type.

Exhibit IV-15
Percent of Households and Standard Error by Rent Component and Payment Type

Component	Underpayment		Proper Payment		Overpayment	
	Percent of Total Households	Standard Error	Percent of Total Households	Standard Error	Percent of Total Households	Standard Error
Earned Income	14.0%	1.1%	2.9%	.4%	6.2%	.7%
Pension Income	10.7%	.8%	8.8%	.9%	6.2%	.6%
Public Assistance	6.9%	1.0%	2.1%	.3%	2.6%	.3%
Other Income	8.7%	.9%	3.1%	.5%	3.0%	.4%
Asset Income	5.1%	.6%	4.3%	.6%	4.3%	.7%
Dependent Allowance	4.5%	.7%	1.2%	.3%	2.8%	.5%
Elderly/Disabled Allowance	3.4%	.6%	1.5%	.4%	2.3%	.3%
Child Care Expenses	2.6%	.4%	.4%	.1%	2.1%	.3%
Disability Expenses	.0%	.0%	0	0	.1%	.1%
Medical Expenses	8.0%	.7%	7.4%	.9%	8.1%	.9%
No Rent Component Error	2.2%	.3%	24.5%	1.6%	2.0%	.4%

Source: Table 16, Appendix D

IV. Findings

Allowances. Analysis was conducted of both elderly/disabled and dependent allowances¹⁵ to determine whether these allowances were being applied correctly. These findings are summarized in Exhibit IV-16.

**Exhibit IV-16
Elderly/Disabled Allowances and Dependent Allowances**

	Elderly Allowance			Dependent Allowance		
	Non-Elderly/ Disabled Households	Elderly/ Disabled Households	All Households	Households Without Dependents	Households With Dependents	All Households
No Allowance	97%	n/a	44%	99%	n/a	52%
Incorrect Allowance	3%	10%	7%	1%	17%	9%
Correct Allowance	n/a	90%	49%	n/a	83%	40%

Source: Table 11, Appendix D

The exhibit presents the percent of elderly/disabled and nonelderly/disabled households for which an elderly/disabled allowance was correctly or incorrectly applied. Elderly/disabled allowances were incorrectly used in 7 percent of the households in 2000. Ten percent of the elderly/disabled households received an incorrect allowance, while three percent of non-elderly/disabled households received an allowance.

The exhibit also presents the percent of households with and without dependents for which a dependent allowance was correctly or incorrectly applied. The dependent allowances were incorrect in 9 percent of the households. In 1 percent of the households, a dependent allowance was given to a household that did not have dependents. For the remainder of the households in error (17 percent), either a dependent allowance was not given when it should have been or the wrong allowance amount was given.

A review of the data for the households with dependent allowance errors indicates that errors in dependent allowances are made by PHA/owners for the following reasons:

- The tenant revealed more family members to our data collectors than were shown in the tenant file (some newborns, but mostly older children or adults).
- The PHA/owner did not recognize adult full-time students, who were not the head, spouse, or co-head of the household, as being eligible for a dependent allowance.
- The PHA/owner was confused about whether a full-time student, youth, or a disabled adult should be treated as a co-head or as another adult.
- The PHA/owner continued to count a child who turned 18 as a dependent.
- The PHA/owner only applied a single \$480 dependent allowance regardless of the number of dependents.

¹⁵ Households with an elderly or disabled head or spouse are entitled to one \$400 allowance (i.e., deduction from gross annual income) in calculating rent. Households are entitled to a \$480 allowance for each dependent (defined as children under 18, full-time students, and disabled members other than the head or spouse).

IV. Findings

- The PHA/owner made mathematical errors or typographical errors.

Individual cases with elderly/disabled allowance errors were also reviewed to better understand the nature of the errors. We found that PHA/owners do a very good job of giving the elderly/disabled allowance when the head of the household (or spouse) is elderly. Elderly status is clear cut based on the date of birth. However, more errors are made for households with a head or spouse who is disabled for whom the rules and documentation requirements are more complex. The elderly/disabled allowances in the QC rent calculation for households with a disabled head or spouse were based on the tenant's statement. This may have resulted in tenants who said they were disabled who were not, as well as tenants who said they were not disabled who were. If we assume the tenant answered correctly (which we did), then the PHA/owner either did not ask the household whether the head or spouse was disabled, or the PHA/owner did not obtain verification of the disability.

C. Errors Detected Using Information Obtained From Project Files

The QC rent and rent error was recalculated using only income and expense items identified in the tenant file. That is, without income and expense items identified during the household interview. The income and expense items identified during the household interview account for over half (\$916 million) of the annual underpayment dollar errors. In addition, not using income and expense items identified during the household interview increases the annual overpayment error dollars by \$91 million. The table below presents the percent of households in error and the total annual program dollar errors with and without income and expense items identified during the household interview.

Exhibit IV-17
Households in Error and Dollar Error Using Only Project File Information

	Percent of Households in Error		Total Annual Dollar Errors	
	Subsidy Overpayment	Subsidy Underpayment	Subsidy Overpayment	Subsidy Underpayment
Error Based on <i>All</i> Income and Expense Items Identified During the Study	34%	22%	\$1.669 billion	\$634 million
Error <i>Without</i> Income and Expense Items Identified during the Household Interview	24%	25%	\$.916 billion	\$725 million

Analysis of the errors on the 50058/50059 form was conducted to determine whether the errors that can be identified using only the information on the 50058/50059 are representative of the total errors in the program. These analyses included the identification of calculation error and consistency error.

Calculation error was determined by using the information recorded on the 50058/50059 form (i.e., income amounts, expenses, and allowances) to calculate the rent amount. This calculation did not take into account whether dollar amounts were verified or whether the recertification was conducted on time. It simply determined whether, using the information on the 50058/50059 form, a correct rent was calculated. This analysis identified errors because of mistakes in arithmetic or in the incorrect use of a formula. Items that were not completed but should have been were considered incorrect. This analysis did not include identifying households where items were recorded in the wrong place on the 50058/50059 forms, although improper use of a field on the 50058/50059 forms can result in a calculation error. *Table*

IV. Findings

12 in Appendix D presents the number of households with 50058/50059 forms that contained calculation errors by the rent component contributing to the error.

Consistency errors were identified by determining whether there was logical conformity between elements within the 50058 or 50059 form. For instance, transaction type and assistance status must correspond. Elderly status information should be consistent with information provided about the age of the head of the household or spouse. The number of dependents should not exceed the number of household members. *Table 13* in Appendix D presents the number of households that contain consistency errors on the 50058/50059 forms. Rather than list each individual item that might have a consistency error, these data are summarized according to the subsections of the forms. Appendix F provides the data items by subsection that were included in this analysis.

Exhibit IV-18 presents the percent of households with calculation and consistency errors in different sections of the 50058 and 50059 forms. It is important to emphasize that the 50058 is formatted differently and in some sections provides more line items of information than the 50059. Therefore, the number and types of calculation and consistency errors on the forms are different, and the findings from the two forms should not be compared. However, the large number of calculation errors (particularly on the 50058 forms) is potentially a contributing factor to QC error, even though a calculation or consistency error does not necessarily lead to a rent error. The PHA/owner may make an error when completing one section of the form, and still calculate the rent correctly.

Exhibit IV-18
Percentage of Households with Calculation and Consistency Errors

50058/50059 Item	Percent of Households					
	Calculation Errors			Consistency Errors		
	50058	50059	Total	50058	50059	Total
General Information	n/a	n/a	n/a	20%	6%	16%
Household Composition	32%	20%	28%	19%	13%	17%
Net Family Assets and Income	25%	15%	50%	14%	4%	11%
Allowances and Adjusted Income	82%	28%	65%	8%	3%	6%
Family Rent and Subsidy Information	47%	17%	37%	11%	2%	8%

Source: Table 12 and 13, Appendix D

Comparison of 50058/50059 Errors to QC Error. A comparison was made between the errors in the calculation of rent on the 50058/50059 forms and errors identified through the QC Rent calculation. The purpose of this comparison was to determine if the errors identified using only the 50058/50059 data could predict the rent error that would be found in a quality control review. When using only the 50058/50059 data to calculate the Actual Rent, errors were found in 14 percent of the households in 2000, a significant improvement from 1996's figure of 21 percent. The QC error calculation found error in 56 percent of the households in 2000, up from 1996's 53 percent. The households were compared to determine if the same households were similarly identified as correct or incorrect. Forty-three percent of the households were identified as correct and 12 percent were identified as incorrect by both calculations; the remaining 45 percent were identified differently by the two calculations. This emphasizes that data from the 50058/50059 forms alone cannot accurately identify rent error. Exhibit IV-19 summarizes these findings for 1996 and 2000.

IV. Findings

Exhibit IV-19
50058/59 Rent Calculation Error Compared to QC Rent Error

Rent Calculation	Percent of Households Correct		Percent of ouseholds Incorrect	
	1996	2000	1996	2000
Using Information on the 50058/50059 Form	79%	86%	21%	14%
According to the QC Rent Calculation	47%	44%	53%	56%
Both 50058/50059 Calculation and QC Rent Calculation	39%	43%	14%	12%

Verification errors were identified by determining whether an item was verified by the project and, if it was, whether the correct information was transferred to the 50058/50059 form. An error occurs when the verified amount obtained by the project is not recorded properly on the 50058/50059 forms (and, presumably, not used in the rent calculation). When determining whether the amount of the income or expense provided in the verification matched the amount used on the 50058/50059 form, a variance of \$100 was allowed to accommodate potential rounding errors when annualizing data.

Table 14 in Appendix D presents the number of households where verification was not obtained, where it was obtained but the verified amount did not match the amount used on the 50058/50059, and where verification was obtained and the verified amount did match the 50058/50059. *Table 14a* includes items that were verified by third parties in writing or verbally, or with documentation. *Table 14b* provides data for items verified in writing by third parties (as required by the study). The data from the first table is used to compare the 2000 data to the 1996 report because the 1996 report does not reflect the more stringent verification requirement.

Exhibit IV-20 summarizes the findings in *Table 14*. In general, the PHA/owner is obtaining more verification and making better use of the verification. The percentage of items that were verified increased for all rent components except for medical expenses (which only shows a slight reduction). The percentage of time the verification matched the 50058/50059 data also increased for all rent components. However, the number of households where verification was obtained and used by the PHA/owner varies greatly depending on the rent component. For example, earned income, one of the main sources of error, was verified 82 percent of the time in 2000, compared to 63 percent in 1996. However, the correct amount of earned income was only used 55 percent of the time. Other income was fully verified 63 percent of the time, but only matched the 50058/50059 data 42 percent of the time. Medical expenses continued to be verified three-quarters of the time, but in 2000 the amount of households where the verification matched the 50058/50059 data increased from 37 percent in 1996 to 52 percent.

IV. Findings

Exhibit IV-20
Verification of 50058/50059 Rent Components

Rent Component	No Project Verification		Item Verified by Project		Verification Matched 50058/59 within \$100	
	1996	2000	1996	2000		2000
Earned Income	37%	18%	63%	82%	34%	55%
Pensions	28%	13%	72%	87%	45%	71%
Public Assistance	22%	16%	78%	84%	52%	67%
Other Income	46%	37%	54%	63%	34%	42%
Asset Income	16%	12%	84%	88%	70%	75%
Child Care Expense	32%	27%	68%	73%	47%	53%
Disability Expense	100%	63%	0	37%	0	26%
Medical Expense	21%	28%	79%	72%	37%	52%

Source: Table 14a, Appendix D

Exhibit IV-20a provides case file verification information by program type. It provides both the percent of households where the rent component was verified, as well as the percent of the verification for each rent component found in the tenant file that matched the data on the 50058/50059 form within \$100.

Exhibit IV-20a
Verification of 50058/50059 Rent Components by Program Type

Rent Component	Public Housing		PHA-Administered Section 8		Owner-Administered Section 8	
	Verified	Matched*	Verified	Matched*	Verified	Matched*
Earned Income	83%	53%	80%	53%	86%	64%
Pensions	81%	65%	86%	73%	91%	74%
Public Assistance	83%	64%	86%	69%	82%	66%
Other Income	60%	35%	68%	50%	56%	32%
Asset Income	85%	66%	96%	82%	87%	75%
Child Care Expense	64%	42%	74%	53%	79%	65%
Disability Expense	17%	17%	58%	58%	--	--
Medical Expense	79%	56%	60%	42%	73%	54%

* Matched within \$100

Source: Table 14a, Appendix D

Tenant File Verification Compared to QC Error. Households with error identified through the QC process were examined to determine if failure to verify sources of income and expenses was a contributor to error. Exhibit IV-21 presents the percentage of households with QC error for which verification was missing in the tenant file. Each error is presented by rent component. The data indicates that missing verification does have a major impact on error. Verification was missing for about 60 percent or more of all households with QC error for each rent component.

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**Exhibit IV-21
QC Error Households With Missing Verification**

Rent Component	50058				50059			
	Households with QC Error		Households with QC Errors and Missing Verification		Households with QC Error		Households with QC Errors and Missing Verification	
	1996	2000	1996	2000	1996	2000	1996	2000
Earned Income	15%	24%	80%	74%	14%	12%	77%	77%
Pensions	23%	16%	91%	76%	17%	19%	89%	59%
Public Assistance	22%	11%	71%	71%	10%	5%	81%	75%
Other Income	15%	14%	55%	82%	11%	7%	51%	88%
Asset Income	6%	6%	72%	83%	7%	16%	80%	81%
Child Care Expense	4%	6%	46%	81%	3%	3%	45%	75%
Handicapped Expense	1%	1%	100%	100%	<1%	1%	NA	77%
Medical Expense	19%	12%	70%	95%	28%	25%	75%	86%
No Component Error	30%	49%	n/a	n/a	35%	53%	n/a	n/a

Summary of 50058/50059 Errors. Exhibit IV-22 provides a summary of the errors identified from the 50058/50059 forms. These include consistency errors (see page 36), calculation errors, and overdue recertifications. The exhibit presents the percent of households in error, the average dollar error, and the standard errors for both households with recalculated 50058/50059 error (error determined using only the 50058/50059 form), and households with QC Rent error. This information is provided for households with error, and households without error for each error type. In addition, an unduplicated count of 50058/50059 error is provided. The exhibit indicates that individual types of 50058/50059 errors can not predict QC Rent Error. However, 50058/50059s with any type of error (consistency, calculation or overdue recertifications) can predict QC Rent Error in 58 percent of the households.

Exhibit IV-22
50058/50059 Procedural Error: Percent of Households, Average Dollars in Error

Error Type Based on 50058/59 Recalculation	Households with Recalculated 50058/9 Error				Households with QC Rent Error			
	Percent of Households in Error	Standard Error of Percent	Average Dollar Error	Standard Error of Mean	Percent of Households in Error	Standard Error of Percent	Average Dollar Error	Standard Error of Mean
Households with Consistency Error	53%	5.31%	\$ 98	\$21.67	37%	3.27%	\$88	\$ 4.93
Households without Consistency Error	47%	5.31%	\$ 58	\$ 5.57	63%	3.27%	\$75	\$ 4.24
Households with Allowance Calculation Error	10%	3.45%	\$146	\$49.40	15%	2.22%	\$86	\$ 7.95
Households without Allowance Calculation Error	90%	3.45%	\$ 71	\$ 9.41	85%	2.22%	\$79	\$ 3.67
Households with Income Calculation Error	4%	1.46%	\$ 62	\$30.66	6%	1.32%	\$93	\$11.25
Households without Income Calculation Error	96%	1.46%	\$ 79	\$14.14	94%	1.32%	\$79	\$ 3.45
Households with Other Calculation Error	27%	3.61%	\$113	\$25.72	30%	1.82%	\$94	\$ 5.55
Households without Other Calculation Error	73%	3.61%	\$ 66	\$ 9.55	70%	1.82%	\$74	\$ 3.68
Overdue Recertifications	5%	1.68%	\$ 66	\$13.91	6%	.75%	\$78	\$12.95
On-time Recertifications	85%	3.12%	\$ 84	\$15.81	86%	1.00%	\$80	\$ 3.62
Certifications	10%	2.47%	\$ 39	\$ 9.95	8%	.77%	\$74	\$ 8.70
Unduplicated Count, Any Type of 50058/50059 Error	66%	4.60%	\$ 93	\$19.30	58%	2.86%	\$85	\$ 3.99
Unduplicated Count, No 50058/50059 Error	34%	4.60%	\$ 50	\$ 4.82	42%	2.86%	\$73	\$ 4.31
Total Households	100%		\$ 79		100%		\$79	

IV. Findings

Summary of Administrative Errors. As outlined in the study objectives earlier, administrative errors are primarily errors in procedures and include calculation errors, transcription errors, failure to recertify on time, as well as failure to apply allowances appropriately. Exhibit IV-23 provides the Gross Rent Error and Net Rent Error for households with each type of administrative procedural error.

Exhibit IV-23
Administrative Error: Percent of Households, Average Dollars in Error
For All Households with 50058/50059 Recalculated Rent

Error Type	Gross Rent Error			Net Rent Error		
	Households in Error	Average Dollars in Error	Standard Error of Mean	Households in Error	Average Dollars in Error	Standard Error of Mean
Transcription Errors	50%	\$12	\$ 2.87	50%	-\$ 6	\$ 3.09
Calculation Errors-Allowances	8%	\$26	\$13.37	8%	-\$17	\$13.99
Calculation Errors-Income	3%	\$10	\$ 4.69	3%	\$ 2	\$ 5.02
Calculation Errors- Other	23%	\$18	\$ 6.04	23%	-\$ 8	\$ 6.34
Overdue Recertifications	6%	\$9	\$ 3.53	6%	\$ 4	\$ 2.84
Any Administrative Errors	64%	\$12	\$ 2.70	64%	-\$ 5	\$ 2.88

In addition, regression analyses using administrative errors combined with income components as independent variables was completed to examine to what degree these errors affect the QC Dollar Rent Error. The model identified several variables with strong correlations to Dollar Rent Error. These include all forms of income, especially earned income. The overall insight of the underpayment model is not the type of administrative error that affects the level of dollar error, but that income components cause that error. A more detailed discussion of this analysis is found in Appendix G.

D. Project Analysis

An analysis of variance (ANOVA) was conducted to determine whether Gross Rent Errors were concentrated in projects. If gross error occurred at the project level we would expect some projects to have errors for most of its tenants, while other projects would be error-free. On the other hand, if errors were not concentrated at the project level, there would be a random distribution of errors across all households.

The ANOVA was conducted to determine if there was a systematic project effect. The complex study design made the use of standard ANOVA methods problematic. To make sure that projects not appear significant when the effect was artifactual, we conducted an analysis of variance followed by 20 simulations where the error measures were randomly assigned to tenants. None of the twenty simulations accounted for a larger percent of the variance (.22) than the actual ANOVA (.26). This indicated that there was some concentration of error among projects, but that it was quite small. It was significant enough to justify a project path analysis (discussed below), while still indicating the need to conduct tenant-level analyses as well.

Project Characteristics and Practices. Two analytical approaches were used to determine how project characteristics and practices were related to errors. First, a path analysis was conducted to examine direct and indirect pathways leading from project characteristics and practices to administrative errors such as incorrect calculation and erroneous transcription. Second, logistic regression was used to examine how project characteristics and practices were related to significant rent errors, i.e., those with absolute values

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exceeding five dollars. Two logistic regression models were created. The first identifies project characteristics and practices that predict rent error. The second adds tenant characteristics to project characteristics and practices to find factors that predict rent errors.

The path model indicates that project characteristics and practices both have an impact on administrative errors. The project characteristics and practices that have the most impact on error are: the number of units in the project, training (because it leads to better verification), third-party verification, and the number of sources of income/expenses. The logistic regression analysis also shows that the number of sources of income/expenses contributes to error. This analysis also indicates that elderly/disabled projects have less error and obtaining third-party verification reduces error.

When tenant characteristics are added to the logistic regression model, more specific predictors of error are identified. These include: sources of earned income, other income, and medical expenses. A more detailed discussion of this analysis is found in Appendix I.

F. Error Prone Profiling

The incidence of rent error may be related to tenant characteristics, project characteristics, or both. An analytical approach known as Classification and Regression Tree (CART) was employed to break down characteristics and relate them to the significant rent errors, i.e., those with absolute values greater than five dollars. This analysis seeks to discover which *tenant* characteristics had a substantial impact on rent error. In particular, this analysis was designed to develop profiles of tenant characteristics that lead to error.

The CART analysis identified four key tenant characteristics which had a substantial impact on QC Rent error. The four key indicators identified during the analysis are: at least two sources of earned income, at least one source of public assistance income (for households who also have earned income), at least one source of other income (given other conditions), and at least three sources of pension income (given other conditions).

One clear observation about the final model is that having more than one source of earned income in the household is the single strongest predictor of rent error. A more detailed discussion of this analysis is found in Appendix H.

Models focusing on *project* contributions to rent error were also employed. Two analytic approaches were used to determine how project characteristics and practices were related to errors. First, a path analysis was conducted to examine direct and indirect pathways leading from project characteristics and practices to administrative errors such as incorrect calculation and erroneous transcription. Second, logistic regression was used to examine how project characteristics and practices were related to significant rent errors, i.e., those with absolute values exceeding five dollars.

The path analysis, which focuses on the project as the unit of analysis, indicates that project characteristics and practices both have an impact on administrative errors. Some of the more interesting conclusions are: projects with more units show more 50058/50059 calculation errors, workshop training is helpful because it leads to better verification, third-party verification leads to a reduction in errors, more sources of income/expenses leads to more documentation-related errors.

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Two logistic regression models, which focus on the household as the unit of analysis, were completed. The first predicted rent errors from project characteristics and practices. This analysis supported the findings of the path analysis—obtaining verification from third parties, being an elderly/disabled project, and the number of sources of income/expenses were all directly related to administrative error. The second logistic regression model predicted rent errors from tenant characteristics and project characteristics/practices. This analysis found that sources of earned income, other income, and medical expenses all have a significant impact on rent error. Overall, the results of the four models (i.e., path model, CART, and the first and second logistic regression models) are quite consistent. A more detailed discussion of this analysis is found in Appendix I.

F. Occupancy Standards

Exhibit IV-24 presents a summary of the analysis conducted to determine whether households are assigned units with the correct number of bedrooms. It shows the percent of households, by number of bedrooms, that were residing in units with the correct number of bedrooms according to the guidelines used in the study. It also shows the percent of households in units with too many and too few bedrooms by administration type. Note that the guidelines used in this study are generally acceptable HUD guidelines. However, the Section 8 Certificate and Voucher programs sometimes allow households to rent units with fewer or more bedrooms than specified in the guidelines. In addition, all programs allow exceptions to the rules established by HUD.

Exhibit IV-24
Percent of Households in Units with the Correct Number of Bedrooms
(According to Study Guidelines)

Number of Bedrooms	PHA Administered				Owner Administered		Total	
	Public Housing		Section 8		1996	2000	1996	2000
	1996*	2000	1996	2000				
0	n/a	100%	97%	100%	97%	97%	92%	99%
1	n/a	99%	99%	99%	100%	100%	99%	99%
2	n/a	72%	76%	82%	86%	76%	85%	78%
3	n/a	83%	85%	85%	87%	83%	89%	84%
4	n/a	67%	67%	63%	83%	69%	75%	66%
5	n/a	40%	25%	n/a	n/a	n/a	19%	39%
All Units	n/a	84%	87%	86%	93%	92%	91%	87%

Source: Table 15 * 1996 data for PHA-administered public housing households is not available.

The data indicate that 13 percent of all households in 2000 occupied a unit with too many or too few bedrooms, according to the guidelines used for this study. This number is up slightly from 1996, where 9 percent of all households occupied a unit with an incorrect number of bedrooms. Approximately 15 percent of all PHA-administered households were over- or underhoused. For owner-administered households, 8 percent were incorrectly housed in 2000, slightly up from 7 percent in 1996.

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Exhibits IV-24a and IV-24b display the percent of households that met these guidelines for each bedroom size. The shaded cells indicate the percent of households that fall outside study guidelines. These exhibits present 1996 and 2000 data respectively.

Exhibit IV-24a
Percent of All Households
by Number of Bedrooms and Number of Household Members

Number of Bedrooms	1996 Number of Household Members								
	1	2	3	4	5	6	7	8	9
0	92%	6%	2%						
1	90%	9%	1%	<1%					
2	11%	46%	29%	10%	2%	<1%	<1%		
3	2%	7%	27%	35%	18%	10%	1%	<1%	<1%
4	2%	4%	2%	17%	22%	21%	24%	5%	2%
5	13%	6%	12%		13%	25%	12%	19%	

Exhibit IV-24b
Percent of All Households by
Number of Bedrooms and Number of Household Members

Number of Bedrooms	2000 Number of Household Members										
	1	2	3	4	5	6	7	8	9	10	17
0	99%	1%									
1	89%	10%	<1%	<1%							
2	20%	41%	26%	11%	2%	<1%	<1%			<1%	
3	4%	10%	30%	32%	16%	6%	2%	1%			
4		7%	8%	18%	25%	25%	12%	4%	2%		
5			10%	13%	15%	13%	9%			30%	10%
6		75%	25%								
8				100%							

Source: Table 15, Appendix D

A supplementary analysis of two-person households in two-bedroom units indicates that 64 percent of two-bedroom units with two persons include a child under 18, while 18 percent include another adult in addition to the head of household. In elderly/disabled households, 30 percent of the two bedroom units with two persons included the head and spouse (or co-head); 31 percent included the head and a youth under 18; and 30 percent included the head and another adult.

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Exhibit IV-24c presents the percent of households in *project-based programs* (Public Housing and all owner-administered projects) that met these guidelines for each bedroom size. The shaded cells indicate the percent of households that fall outside study guidelines. This is 2000 data; similar data for 1996 is not available.

Exhibit IV-24c
Percent of Project-Based Households by
Number of Bedrooms and Number of Household Members

Number of Bedrooms	2000 Number of Household Members										
	1	2	3	4	5	6	7	8	9	10	17
0	99%	2%									
1	92%	8%	<1%	<1%							
2	24%	43%	22%	8%	2%	<1%	<1%				
3	4%	11%	28%	35%	13%	7%	1%	<1%		<1%	
4		11%	4%	16%	22%	24%	15%	6%	3%		
5			10%	14%	15%	10%	9%			31%	10%
6		75%	25%								

G. Comparison With TRACS/MTCS Data

The households included in this study were matched against the TRACS/MTCS data files, using the social security number of the head of the household. Active MTCS records were found for 90 percent of the households in PHA-administered projects. Active TRACS records were found for 68 percent of the households in owner-administered projects. (This percentage increases to 75 if designated inactive records which appear to have been miscategorized are included.)

Analysis was conducted to compare the average dollars in error for households that matched TRACS/MTCS with those that did not. Exhibits IV-25 provides the percent of households in each of the three program types present and absent in TRACS/MTCS, and the average dollars in error for each program type. The average dollars in error for households not in TRACS/MTCS was higher for all three groups. Exhibit IV-26 presents the percent of households and average dollars in error for households found/not found in TRACS/MTCS by payment type. While the percent of households with over and underpayments is about the same for households present and absent from TRACS/MTCS, the average underpayment dollars in error was higher for those households that were not found in the TRACS/MTCS data file.

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Exhibit IV-25
Average Dollars in Error by Program and TRACS/MTCS Data

Administration Type	TRACS/MTCS PRESENT		TRACS/MTCS ABSENT	
	Percent of All Households in Error	Average Dollars in Error	Percent of All Households in Error	Average Dollars in Error
PHA-administered				
Public Housing	88%	\$38	12%	\$58
Section 8	92%	\$59	8%	\$67
Owner-administered				
Section 8	68%	\$28	32%	\$40
TOTAL	83%	\$44	17%	\$49

Source: Table 17, Appendix D

Exhibit IV-26
Average Dollars in Error by Payment Type and TRACS/MTCS Data

Payment Type	TRACS/MTCS PRESENT		TRACS/MTCS ABSENT	
	Percent of Households in TRACS/MTCS	Average Dollars in Error	Percent of Households Not in TRACS/MTCS	Average Dollars in Error
Overpayment	21%	\$56	25%	\$ 57
Underpayment	35%	\$92	32%	\$110
Proper Payment	44%	n/a	43%	n/a
Total	100%	\$44	100%	\$49

Source: Table 18, Appendix D

Additional analysis was conducted to identify the number of households where the effective date of action on the 50058/50059 used in the study matched the effective date of action in the TRACS/MTCS file. Sixty-two percent of the TRACS households and 55 percent of the MTCS households that matched on Social Security number also matched on effective date. This was fewer cases than expected. However, we believe this occurred because of the time that passed between data collection and analysis. During that period, subsequent actions would have required that project staff update the information in the TRACS/MTCS data files. Therefore, the most recent action in the TRACS/MTCS files would no longer be the same as the most recent action at the time of the study data collection.

For those households that matched on effective date of action, further analysis was conducted to determine if certain key variables matched. For owner-administered households (TRACS cases) these variables included gross income, net income, tenant rent, and total tenant payment(TTP). For PHA-administered households (MTCS cases) the key variables were gross income, net income, and total tenant payment (TTP).

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These key variables matched for the majority of all households. Ninety-four percent of the PHA-administered households, and 91 percent of the owner-administered households matched on all the key variables. The discussion below provides additional information on the specific variables reviewed. However, there were several households where more than one variable did not match.

Only 2 percent of the TRACS and MTCS households failed to match on gross income. A slightly higher percentage of TRACS (5 percent) and MTCS (3 percent) of households failed to match on net income. Four percent of TRACS households and 5 percent of MTCS households failed to match on Total Tenant Payment and 8 percent of TRACS households failed to match on Tenant Rent (tenant rent data was not available for MTCS households). This information is summarized in Exhibit IV-27.

Exhibit IV-27
Percentage of Matched and Non-Matched Dollar Amounts for Key Variables
Matching Variables from the 50058/50059 Form and MTCS/TRACS Data Files

Match Status	Gross Income		Net Income		Total Tenant Payment		Tenant Rent
	TRACS	MTCS	TRACS	MTCS	TRACS	MTCS	TRACS
No Match	2.4% (8)	2% (16)	4.5%(15)	3.2% (25)	4.3% (14)	5.4% (42)	8% (27)
Match	97.6% (329)	94% (734)	95.5% (321)	92.8% (724)	95.8% (323)	87.2% (681)	92% (310)
Subtotal	100% (337)	96% (750)	99.7% (336)	749	100% (337)	92.6% (723)	100% (337)
Missing	-	4% (31)	.3% (1)	4% (32)	-	7.4% (58)	-
Total	100% (337)	100% (781)	100% (337)	100% (781)	100% (337)	100% (781)	100% (337)

The discrepancies in gross income, net income, and total tenant payment were not concentrated in any particular owner-administered projects. However, there were four projects with more than two cases (there were usually only four cases selected per project) where the tenant rent on the 50059 did not match with TRACS data. For PHA-administered projects discrepancies in gross income and net income were not concentrated in any particular projects. However, the majority of households that did not match on TTP were from the same projects. These particular projects are projects that do not use the standard 50058 form.

There are several households in Exhibit IV-27 reported as missing for the MTCS match with the 50058 form information. In virtually all cases, the missing refers to a blank on the 50058. Of the 58 households where TTP is missing, 20 are also missing gross income and net income. When the specific projects involved were examined, it was discovered that 50058 forms with multiple missing items are usually projects that do not use the standard 50058 form.

The households which included variables where the 50058/50059 data did not match the TRACS/MTCS data were reviewed to determine if these household's rent was calculated in error. Exhibit IV-28 displays the cases with discrepancies in gross income, net income, total tenant payment, and tenant rent, and the percentages that also have rent errors. As can be seen the percentages of no matches with gross errors all are very similar between TRACS and MTCS and across gross income and net income. For total tenant payment, TRACS is higher at 86 percent than MTCS at 74 percent, but since the numbers are so small the difference may be simply by chance.

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Exhibit IV-28
Percentage of Gross Dollar Rent Errors for Cases Where Key Variables Did Not Match

	Item That Did Not Match						
	Gross Income		Net Income		Total Tenant Payment		Tenant Rent
	TRACS	MTCS	TRACS	MTCS	TRACS	MTCS	TRACS
Rent Error	80% (8)	88% (14)	88% (15)	88% (22)	86%(12)	74% (31)	81% (22)
No Rent Error	20% (2)	12% (2)	12% (2)	12% (3)	14% (2)	26% (11)	19% (5)
Total	100% (10)	100% (16)	100% (17)	100% (25)	100% (14)	100% (42)	100% (27)

Analysis was also conducted to determine if the households which included variables where the 50058/50059 data did not match the TRACS/MTCS data also included consistency, transcription or calculation errors within the 50058/50059. Exhibit IV-29 presents these households by type of error. Transcription error in TRACS households was the single largest type of error, ranging from 75 percent for gross income and 87 percent for net income to 79 percent for TTP and 81 percent for tenant rent. MTCS households did not display a single type of error in the key variables that failed to match on dollar amounts, but the number of households with transcription and consistency errors was high.

Exhibit IV-29
Percentage of Administrative Errors for Cases Where Key Variables Did Not Match

	Item That Did Not Match						
	Gross Income		Net Income		Total Tenant Payment		Tenant Rent
	TRACS	MTCS	TRACS	MTCS	TRACS	MTCS	TRACS
Consistency Error	25% (2)	44% (7)	27% (4)	56% (14)	21% (3)	64% (27)	19% (5)
Allowance Calculation Error	13% (1)	25% (4)	33% (5)	40% (10)	36% (5)	21%(9)	22% (6)
Income Calculation Error	-	12% (2)	7% (1)	12% (3)	-	19%(8)	-
Other Calculation Error	13% (1)	44% (7)	33% (5)	44%(11)	29% (4)	36%(15)	19% (5)
Transcription Error	75% (6)	63% (10)	87% (13)	76%(19)	79% (11)	60%(25)	81% (22)

V. Rent Reasonableness Determinations

The rent reasonableness task examined the rent determinations that housing authorities make for dwellings leased in the Section 8 tenant-based program. HUD regulations require that housing authorities ensure that rents charged for assisted units are reasonable in comparison to the rent paid for comparable unassisted units in the private market.

Adequate rent reasonableness determinations are essential for the prudent economic operation of the Section 8 program. Permitting rents in the Section 8 program to be higher than those paid by other families for comparable, unassisted units drives up program costs and increases the amount that assisted families must pay. Additionally, unmonitored Section 8 rents could drive up rents for all renters in some neighborhoods.

Faulty or inadequate rent reasonableness determinations can be very costly in terms of the level of subsidies required to operate the Section 8 program. In the short term, unreasonably high rents increase individual subsidies, thereby limiting the number of households that the program can serve. In the longer term, increased per unit costs can drive up overall program spending. Recently, HUD decided to increase the Fair Market Rent (FMR) to the 50th percentile for some locations that are experiencing very tight rental markets. The housing authorities in these targeted areas must be especially vigilant in applying rent reasonableness determinations to keep program costs down.

A failure to accurately determine rent reasonableness also may increase the amount that assisted families pay for rent. When Section 8 rents exceed those for comparable unassisted units, tenants' payments are unreasonably high. In addition, unrestricted Section 8 rents may have a detrimental effect on a neighborhood's entire rental housing market. Higher Section 8 rents may put upward pressure on all rents in the neighborhood.

Despite its importance to the overall functioning of the program, rent reasonableness requirements have been called "the hardest job that Section 8 administrators have to carry out and one of the least well defined."¹⁶ HUD regulations provide basic standards that housing authorities must apply in determining rent reasonableness. The regulations also specify when housing authorities must determine rent reasonableness and how to conduct unit comparability. Furthermore, because of its importance, rent reasonableness is a major factor in the Section 8 Management Assessment Program (SEMAP). However, little information is available about how housing authorities comply with HUD's regulations or the extent to which Section 8 rents are, in fact, consistent with market rents for comparable units. This study addresses these questions and provides information that HUD can use to give more guidance to local agencies on implementing the requirement.

This task has three specific objectives:

- To examine the policies and procedures housing authorities adopt in their implementation of the rent reasonableness requirement.
- To determine the extent to which housing authorities actually implement rent reasonableness policies and procedures.

¹⁶ See Turner, M., S. Popkin, and M. Cunningham, *Section 8 Mobility and Neighborhood Health: Emerging Issues and Policy Challenges*, Urban Institute, April 2000.

V. Rent Reasonableness Determinations

- And, to assess the reasonableness of rents charged under the Section 8 tenant-based assistance program in comparison to rents in the private, unassisted market.

A. Methodology

The rent reasonableness task involved a multifaceted data collection strategy, which was designed and carried out by a team consisting of ORC/Macro and its subcontractors KRA Corporation and CountryWide Inspections. The task involved three main steps.

First, KRA Corporation conducted a telephone interview with representatives from a nationwide sample of housing authorities. This interview solicited information about the housing authorities' policies and procedures for implementing the rent reasonableness requirement.

Second, ORC/Macro field staff collected information on a sample of Section 8 certificate and voucher households at each PHA. This effort, which was integrated with the data collection for the main quality control study, provided details about the length and terms of each household's tenure in their current unit. It also examined the most recent rent reasonableness determination for each unit, if any had been conducted, and provided information on each unit related to the criteria that HUD requires housing authorities to consider in determining rent reasonableness. This information was compiled through a review of PHA files and via in-person interviews with assisted households.

Finally, staff with CountryWide Inspections surveyed three comparable, unassisted units for a Section 8 certificate and voucher sub-sample.

The universe for the rent reasonableness task consists of a subset of the universe for the main quality control study—that is, 1,555,544 households assisted under the Section 8 tenant-based assistance program in the continental United States, Hawaii, and Puerto Rico. Exhibit V-1 indicates the characteristics, size, and purpose of each of the nested samples used in the study to represent the universe.

**Exhibit V-1
Study Samples**

Sample	Size	Description
Primary Sampling Units	54	Geographic clusters from which subsequent samples were drawn.
Project Sample	130	A sample of Section 8 certificate and voucher projects from the primary sampling units.
Housing Authority Sample	107	The unduplicated number of housing authorities represented by the project sample.
Household Sample	752	A sample of households using a Section 8 certificate or voucher under sampled projects.
Comparability Sample	396	A sub-sample of Section 8 certificate and voucher households that excludes Section 8 units located in properties with project-based subsidies; units that consist of an owner-occupied manufactured home on a rented pad; and units located in an independent group residence, congregate housing, or shared housing.
Sample of Comparables	1188	A sample of unassisted units selected for each of the units in the study's comparability sample.

V. Rent Reasonableness Determinations

B. Housing Authority Procedures

The task's first objective is to examine the policies and procedures that housing authorities use in their implementation of the rent reasonableness requirement. HUD regulations provide overall parameters that housing authorities are expected to meet; however, little is known about how housing authorities translate these general requirements into practice. The study aims to fill this gap.

This part of the task relies exclusively on the findings from a telephone survey conducted with staff at 105 housing authorities located throughout the United States and Puerto Rico. It should be noted that these findings are not statistically representative of all housing authorities because the sample for the rent reasonableness task was selected to represent Section 8 certificate and voucher tenants (or units), not housing authorities. Having said that, the housing authorities surveyed for this research include a diverse mix of agencies in terms of their location, type of housing market, and the number of certificates and vouchers under contract.

The task examined several aspects of the policies and procedures housing authorities use in implementing the rent reasonableness requirement. In general we found that:

- Almost all housing authorities have some type of formal rent reasonableness procedures in place. Only 2 out of 105 housing authorities reported that they do not have specific procedures for assessing rent reasonableness.
- A majority (86 out of 105) of housing authorities determine rent reasonableness by comparing the rent for a Section 8 unit to the rent for one or more comparable units. Most other agencies determine reasonableness by using data on average market rents. Some agencies use a combination of both methods.
- A majority (87 out of 105) of housing authorities rely on agency staff to compile information on private, unassisted housing for rent reasonableness determinations, even though respondents identified this responsibility as the most time consuming and most difficult facet of the entire requirement.
- Most housing authorities incorporate the criteria that HUD specifies for use in determining the reasonableness of Section 8 rents. Many now do so by using a point system, which assigns a score to each unit according to each of HUD's criteria.
- Almost all housing authorities document the outcome of the rent reasonableness determination in their case files. Only 5 out of 105 housing authorities indicated that they do not require tenant file documentation.
- Almost all (99 out of 105) housing authorities say they conduct rent reasonableness determinations at lease-up, and a majority (57 out of 105) also say they do so prior to a rent increase. The task did not specifically examine PHA policies for determining rent reasonableness when the FMR is decreased by 5 percent or more—the third trigger mandated by HUD. However, a sizable minority (44 out of 105) of agencies reports that they conduct rent reasonableness determinations at annual recertification, even though this goes beyond HUD's basic requirements.
- Almost all housing authorities give the personnel responsible for determining rent reasonableness some degree of discretion in carrying out the determination and ultimately in deciding what is a “reasonable” rent. This means that units are not unnecessarily excluded from the program if, for example, there is valid reason for a Section 8 unit to have a rent higher than its comparables. It also

V. Rent Reasonableness Determinations

means that a PHA's success in ensuring that Section 8 rents are reasonable will depend on *how* formal rent reasonableness policies and procedures are implemented.

- Finally, a majority (83 out of 105) of all housing authorities report they had either recently updated their rent reasonableness procedures or plan to do so soon. Changes to the rent reasonableness procedures appear to have been spurred by the implementation of SEMAP, greater scrutiny from HUD auditors, and the housing authorities' own interest in improving the efficiency and accuracy of their rent reasonableness determinations.

These and related findings are discussed in greater detail below.

Comparing Section 8 Rents to Private, Unassisted Housing

To comply with the rent reasonableness requirement, housing authorities must determine that Section 8 rents are reasonable in comparison to rents for similar housing in the private, unassisted market. A PHA's overall approach to the requirement can be defined by the method it uses to determine the rent for private, unassisted housing. This decision drives many other aspects of a PHA's rent reasonableness procedures, including everything from the kind of data that must be collected to the ultimate definition of what constitutes a "reasonable" rent. What do housing authorities use as a point of comparison of Section 8 rents?

The study reveals that, with some exceptions, housing authorities use two main approaches when conducting rent reasonableness determinations—a unit-to-unit comparison or a unit-to-market comparison.

A unit-to-unit comparison is akin to a standard real estate appraisal technique in which the rent for a Section 8 unit is compared to the rent for one or more private, unassisted units selected as comparables. As shown in Exhibit V-2, the survey indicated that 86 out of 105 housing authorities use the unit-to-unit comparison method at least part of the time. By contrast, a unit-to-market comparison requires housing authorities to use data on private, unassisted rents to estimate the "market" rent for different unit categories. A Section 8 rent is then compared to the average market rent or rent range for similar units. According to the survey, approximately 1 in 5 housing authorities (23 out of 105) use this type of rent reasonableness method at least part of the time. Although it is possible to broadly group housing authorities' rent reasonableness procedures into these two categories, this characterization fails to capture the full diversity in approaches that housing authorities pursue.

Exhibit V-2
Process Used To Determine If Rent Is Reasonable

Rent Reasonableness Method	Number of PHAs	Percent
Unit-to-Unit Comparison	80	76%
Unit-to-Market Comparison	17	16%
Combination of Unit-to-Unit and	6	6%
Professional Judgement	2	2%
Total	105	100%

Source: Derived from the Project Staff Survey

Two of the housing authorities surveyed for this research indicated that they do not use either of these methods. Instead, these housing authorities base their assessment of rent reasonableness solely on the market knowledge and professional judgment of their own personnel, without conducting a formal comparison of Section 8 and private, unassisted housing.

V. Rent Reasonableness Determinations

The survey also revealed considerable diversity among the housing authorities that do use the unit-to-unit or unit-to-market approaches to rent reasonableness. To begin with, several of the surveyed housing authorities do not use one approach—they use both. Six of the surveyed housing authorities use a combination of the two approaches.

Two of the authorities that use both unit-to-unit and unit-to-market approaches also use a method that does not fit either category. At these authorities, which operate in the same community with heavily regulated rents, rent reasonableness is sometimes determined according to local rent regulations. Here, a proposed Section 8 rent is compared to the previous rent for the same unit with allowances made for annual and vacancy increases as well as increases resulting from allowable improvements to the unit. This approach, which assumes that rents determined according to local regulations are by definition reasonable, is used as the primary method for determining rent reasonableness at one agency and as an alternate approach at the other.

Even among those housing authorities that only use a unit-to-unit or only use a unit-to-market approach for determining rent reasonableness, there are several agencies that have more than one way of applying the single approach. This type of variability sometimes occurs because the particular method used to determine comparability is driven by the availability of data on unassisted housing from particular data sources. It also occurs because many authorities' procedures have been in flux over recent years, and they have continued to support multiple approaches to the rent reasonableness requirement as procedural changes have been implemented.

Finally, it should be noted that although only two housing authorities rely solely on the professional judgment of their own staff to determine rent reasonableness, most if not all housing authorities do this to a lesser or greater extent. That is, even when a PHA pursues a formal unit-to-unit or unit-to-market approach to the requirement, there usually are a number of points at which staff can assert their own discretion over the determination of "reasonable" rent. This and other aspects of the complexity involved in determining rent reasonableness are explored further below.

Compiling Information on Unassisted Housing

A PHA's overall approach to rent reasonableness—whether unit-to-unit, unit-to-market, or a hybrid—determines the *kind* of information that it needs to compile on unassisted housing. But there are many other choices housing authorities have to make in deciding *how* to compile information for rent reasonableness determinations, including decisions about who should collect the data, what data sources should be employed, and how the data should be maintained for day-to-day use, if at all.

These choices are important for two main reasons. First, compiling information on private, unassisted housing is, according to the housing authorities themselves, the most time-consuming and costly aspect of the entire requirement, and frequently the most difficult. Second, the quality of data on private, unassisted housing is critical to the overall effectiveness of a PHA's procedures. No matter what a PHA's rent reasonableness procedures otherwise consist of, they cannot accurately assess the reasonableness of Section 8 rents if the PHA's information on private, unassisted housing is not accurate.

The study reveals that despite the time and effort required to compile information on private, unassisted housing, most agencies choose to assign this responsibility to one or more of their regular staff as opposed to relying on an outside contractor. Among the housing authorities surveyed for this research, 87 out of 105 use agency staff to gather information on unassisted units. Approximately 1 out of every 10 authorities hire a contractor to collect these data (or 11 out of 105); 5 agencies report using data collected by another group such as a local government agency. A majority of housing authorities decide, therefore, that it is most cost effective and/or administratively efficient to conduct this function in-house.

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Housing authorities that opt to use in-house staff to compile information on private, unassisted housing do so using a wide variety of data sources. Broadly speaking, however, the data sources fall into two main categories.

The most frequently used method to compile information on unassisted units is through direct contact with landlords or property managers. Several housing authorities undertake formal, random surveys of area rental housing, although this type of data collection is more likely to be undertaken with the assistance of an outside contractor. More common is for agencies to employ their own staff who are in the community inspecting Section 8 units to simultaneously collect data on unassisted housing. Inspectors might compile such information, for example, on unassisted units in the same properties where Section 8 units are located, or simply by following up on “For Rent” signs they come across in the course of their daily business. Several housing authorities also require landlords that participate in the Section 8 program to provide information on other unassisted units that they own for rent reasonableness determinations. Finally, some housing authorities use data on units that leave the Section 8 program as comparables, following-up as necessary with landlords to keep information on units up to date.

Housing authorities also find data on unassisted rental units from secondary sources such as local newspapers, apartment guides, real estate agents, multiple listing services, and the Internet. Secondary data sources can be advantageous because they avert the need for direct contact with landlords, which many housing authorities identify as a particularly time consuming and, if landlords are not cooperative, difficult task. However, the information that can be gleaned from such sources is seldom as detailed as the data that can be compiled through direct contact with landlords or rental agents. Newspaper listings, for example, might provide information on unit location, size, amenities, and utilities, but they are unlikely to provide information on other criteria that HUD requires housing authorities to consider in determining rent reasonableness, such as unit age and quality. Moreover, with the exception of multiple listing services, secondary data sources usually only report how much a landlord would like to rent a unit for, which may not be the same as the rent that the market ultimately supports. For these reasons, it is not uncommon for housing authorities to use secondary data sources as an alternative when satisfactory data are not available directly from landlords, or as a preliminary data source supplemented, as necessary, by direct follow-up with landlords to compile more detailed information. As Exhibit V-3 indicates, 57 out of 87 housing authorities that compile their own data on unassisted units use a combination of these two methods.

Exhibit V-3
Sources Housing Authorities Use to Locate Data On Comparable Units

Type of Data Source	Number of PHAs	Percent*
Only Direct From Landlord	18	21%
Only Secondary Source	12	14%
Combination of Both Sources	57	66%
Total	87	100%

Source: Derived from the Project Staff Survey

* Percentages do not sum to 100 due to rounding.

Once data are collected, housing authorities typically prepare for their rent reasonableness determinations by producing a reference file on unassisted rental units that can be used to compare against Section 8 units. This file takes the form of either a “database” of unassisted rental units (for unit-to-unit comparisons) or a schedule of rents (for unit-to-market comparisons). However, some housing authorities that make unit-to-unit comparisons also collect information on unassisted units on an as-needed basis. In other words, they will collect information on comparables if warranted for a particular rent reasonableness determination. For a small minority of housing authorities (3 out of 86 that use a unit-to-

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unit approach), this is the only way that they compile information on comparables; hence they do not maintain a database on unassisted housing.

The survey revealed that almost half of all housing authorities maintain a database of comparables or schedule of rents in an electronic format (47 out of 105). Several housing authorities do this using commercial software that they also use to administer other aspects of the Section 8 program. In other instances, housing authorities (or their contractors) design and build their own searchable database on comparable or market rents for the sole purpose of the rent reasonableness requirement.

It should be noted that it is equally common for housing authorities to maintain information for the rent reasonableness requirement in a paper format (50 out of 105). Some housing authorities continue to rely on a paper format because the quantity and complexity of their data on market rents or comparable units does not warrant an electronic system. However, in other instances, the fact that rent reasonableness data are in a paper format reflects that the systems, and even the data themselves, have not been updated in many years. Furthermore, in some instances the format of the database on unassisted housing raises questions about the extent to which a “database” of comparables can be effectively searched according to HUD-specified criteria. At one PHA, for example, the information on unassisted housing is kept in a “comparables box,” literally a box filled with cuttings of newspaper and other secondary source listings on comparable units. PHA procedures for incorporating HUD’s comparability criteria are described next, below.

Incorporating HUD’s Comparability Criteria

HUD requires housing authorities to consider nine factors in determining that Section 8 rents are reasonable—location, unit type, size, age, quality, amenities, owner-paid utilities, maintenance, and housing services. However, HUD provides little guidance on how housing authorities should incorporate these factors into their decision-making process.

The study revealed that nearly all housing authorities incorporate most of HUD’s comparability factors into rent reasonableness assessments, although they do so in a number of different ways. One way for housing authorities to incorporate HUD’s factors is to use these criteria when selecting comparable units (for unit-to-unit comparisons) or in defining unit categories (for unit-to-market comparisons). As shown by the top panel of Exhibit V-4, unit location, size, amenities, and type are the only criteria used by a majority of housing authorities to select comparable units or define unit categories. However, the survey did indicate that 21 housing authorities include all nine of HUD’s criteria in their rent reasonableness procedures, often by using a point system that accounts quantitatively for each factor.

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**Exhibit V-4
Incorporation of HUD's Comparability Criteria**

Criteria	Number of PHAs	Percent (n=105)
Criteria Used to Select Comparables and Define Unit Categories		
Location	85	81%
Size	81	77%
Amenities	65	62%
Unit Type	65	62%
Owner-Paid Utilities	50	47%
Age	45	43%
Quality	35	33%
Housing Services	33	31%
Maintenance	31	29%
Criteria Used to Adjust Rents for Comparison Purposes		
Amenities	25	24%
Owner-Paid Utilities	16	15%
Location	13	12%
Size	11	10%
Quality	11	10%
Age	6	6%
Unit Type	4	4%
Housing Services	4	4%
Maintenance	4	4%

Source: Derived from the Project Staff Survey

Housing authorities that do not consider HUD's criteria in selecting comparables (or defining market categories) may incorporate HUD's criteria in calculating adjusted rents that are used for comparison purposes. For example, a PHA that uses a unit-to-unit approach might adjust rents for differences in owner-paid utilities before making a rent reasonableness determination to ensure that comparability is based on a comparison of gross rents. As indicated by the bottom panel of Exhibit V-4, housing authorities most often make this type of adjustment to account for differences between the Section 8 unit and comparable units (or unit category) in terms of amenities.

Finally, even if housing authorities do not incorporate HUD's criteria at either the selection stage or in determining an adjusted rent for comparison purposes, they may do so in making the final determination of rent comparability. Housing authorities indicated that, without any formal mechanism in place, the staff that are responsible for ultimately determining rent reasonableness will, at their own discretion, account for any unusual unit characteristics. The issue of how housing authorities define "reasonable" rent is discussed further below.

The study also examined how housing authorities operationalize HUD's factors. For example, a majority of housing authorities consider unit location in identifying comparable units or unit types, but what criteria are actually used to establish that a Section 8 unit and a private, unassisted unit are in a similar location?

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The study shows that, of all the HUD criteria, housing authorities vary most in how they define unit location. Some housing authorities, for instance, control for location by requiring that comparable units be within a certain radius of the subject unit. Another method is to match a Section 8 unit and comparable units by zip code or census tract. Qualitative approaches such as accessibility to public services (such as public transportation) or neighborhood amenities (such as shopping) are also used to gauge location. Housing authorities vary much less in how they operationalize the other HUD criteria for the selection of comparable units. For example:

- Unit type—units may be categorized as single-family, townhouse, garden-style apartment, and so on
- Size—units may be classified by number of bedrooms or square feet
- Age—units may be classified by age (in years) or year built
- Quality—units may be categorized by the rating produced through the Housing Quality Standards inspection
- Amenities—units may be classified according to their in-unit amenities such as kitchen appliances, and site amenities such as swimming pools or playgrounds
- Maintenance and housing services—units may be classified according to the provision of on-site management or maintenance services.

Operationalizing HUD's criteria is, according to the surveyed housing authorities, one of the more problematic aspects of the rent reasonableness requirement. Several housing authorities bemoaned the fact that HUD gives little guidance on what kinds of definitions are acceptable for each of the criteria. There does, however, appear to be a widespread acknowledgment of the importance of developing procedures that incorporate all of HUD's criteria. The use of a point system, in which different aspects of a unit are rated and given a score, has been a solution for many housing authorities.

Determining Rent Reasonableness

Although a PHA's overall approach to rent reasonableness, its methods for collecting data on unassisted housing, and its incorporation of HUD's criteria all have a bearing on the quality of its comparability assessments, the outcome of its rent reasonableness procedures may ultimately depend more on when determinations are made and how a "reasonable" rent is defined.

HUD requires that housing authorities conduct rent reasonableness determinations at lease-up, whenever there is an increase in rent, if there is a 5 percent decline in the Fair Market Rent, and if required to do so by HUD. Accordingly, agencies should assess rent comparability at any point at which there is a possibility for the Section 8 rent to deviate from the rent for similar, unassisted housing. The survey indicated that housing authorities for the most part have procedures that comply with HUD's requirements. Almost all housing authorities conduct rent reasonableness determinations at lease-up (99 out of 105), and a majority also do so when there is a rent increase (57 out of 105). The study did not specifically examine PHA policies for determining rent reasonableness when the FMR is decreased by 5 percent or more. However, a sizable minority of agencies (44 out of 105) reports that they conduct rent reasonableness determinations at annual recertification, even though this goes beyond HUD's basic requirements.

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The operational definition of what constitutes a reasonable rent is another fundamental characteristic of a PHA's approach to the requirement. No matter how elaborate are a PHA's procedures to control for differences between Section 8 units and comparable, unassisted housing, the rent reasonableness determination ultimately comes down to a simple question. How do PHAs determine that the contract rent is reasonable?

The housing authorities surveyed for this research indicate that there are three main approaches to determining what is a reasonable rent. These different approaches can be described in terms of the extent to which the individual PHA staff that assess rent reasonableness can exert their own discretion in making a determination.

At one end of the spectrum there are housing authorities that give full discretion to the staff making the comparability assessment. This category includes the two housing authorities surveyed for this research that have no formal procedures in place for determining rent reasonableness, relying instead entirely on professional judgement. However, this group also includes housing authorities that do have formal procedures in place. The study revealed that many agencies that use formal rent reasonableness procedures do so in name only. At these housing authorities rent reasonableness procedures ensure compliance with the HUD requirement, but the comparability of a Section 8 rent effectively is based on a staff person's experience with the program and familiarity with the community. For example, at one small rural PHA that administers less than 100 Section 8 units, rent reasonableness determinations are conducted (for regulatory purposes) using an electronic database of comparable units. However, the database of comparables includes less than 30 units. And, in practice, if a landlord requests a rent that the PHA staff believes is "unreasonable," this is communicated directly to the landlord before any rent reasonableness paperwork is filled out.

At the other end of the spectrum are housing authorities with procedures that formally define what can be considered a reasonable rent, with no (or very minimal) discretion given to staff responsible for making the determination. At one large urban PHA, for example, the rent for the Section 8 unit must be less than the average rent for the selected comparables, with no exceptions.

In the middle is a category that incorporates the vast majority of housing authorities at which the ultimate definition of reasonable rent is determined at least in part at the discretion of the staff person making the determination. The extent to which PHA personnel can exert their discretion varies considerably across these agencies. At some authorities, for example, there are formal guidelines in place that require a specific justification for any variance from an allowable rent. At others there are looser "rules of thumb" that generally apply in determining what is a reasonable rent. What unifies this group of authorities is that the ultimate decision on how to define reasonableness rests with the person making the determination.

It is worth noting that when the entire rent reasonableness process is considered, almost every PHA permits some degree of staff discretion. In fact, if a unit-to-unit approach is used, it may be easier for PHA personnel to exert discretion in the identification of comparable units than in the final determination of reasonableness. For example, while it is true that the PHA cited above only certifies a rent as reasonable if it is less than the average rent for comparable units, this formal requirement fails to capture other points of discretion in the agency's procedures. If there is a significant rent range among the comparable units selected from the agency's standing rent reasonableness database, then the responsible staff member can request a secondary survey of comparable units in the Section 8 unit's neighborhood. Furthermore, like several other authorities surveyed for this research, the agency will allow the landlord to provide comparables that justify the proposed Section 8 rent.

There are, therefore, several points at which housing authorities can and do exert discretion in determining rent reasonableness. This means that units are not unnecessarily excluded from the program if, for example, there is valid reason for a Section 8 unit to have a rent higher than its comparables. But it also means that PHA personnel may back into a determination through their interpretation of what

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constitutes a “reasonable” rent or by their selection of comparables that will support a proposed rent. A PHA’s success in ensuring that Section 8 rents are reasonable depends not only on the formal rent reasonableness policies and procedures the agency has in place, but on the rigor with which such policies and procedures are implemented.

Documenting Rent Reasonableness

Although it will not have a direct impact on the comparability of Section 8 rents, documentation is the most important component of a PHA’s procedures in terms of being able to demonstrate compliance with the requirement.

The study examined how housing authorities demonstrate that they test for rent reasonableness and found that virtually all housing authorities (100 out of 105) use some type of standard form to document their rent reasonableness determinations. These forms typically document the Section 8 unit’s address and information (rent, gross rent, number of bedrooms, unit type, etc.) as well as a specified number of comparable units and their information. The forms frequently also document whether or not the Section 8 unit rent is certified as reasonable, with the signature of the PHA staff person attesting to this determination.

With the use of electronic databases to maintain information of unassisted housing, it is quite common for rent reasonableness documents to be computer-generated. However, all of the housing authorities that use such systems indicated that they also keep a hard copy of the rent reasonableness documents in every case file.

Changes in Rent Reasonableness Procedures

The final noteworthy aspect regarding housing authorities’ procedures for determining rent reasonableness is the clear shift that is underway in how housing authorities go about meeting the requirement.

The survey indicated that almost 8 out of every 10 housing authorities (83 out of 105) have either updated their procedures over the last 2 years or are currently planning changes to their procedures. Only 22 of the surveyed housing authorities did not report any changes over the same period, and even among this group several housing authorities reported that they had made changes shortly before the period in question.

What is driving so many housing authorities to change their procedures for determining rent reasonableness? On the surface, most housing authorities cite concerns about the accuracy of their determinations and the efficiency with which they can make determinations as the reasons for updating their procedures. However, it is clear from the respondents’ own comments that the changes are in large measure being driven by SEMAP as well as specific HUD audit findings related to rent reasonableness. With additional scrutiny from HUD, it is becoming more important for authorities to have a system in place that is at once defensible from a programmatic standpoint and, due to the extra demands of complying fully with the requirement, more efficient.

The types of solutions that are being implemented reflect these driving factors. For example, many housing authorities have implemented new procedures that will for the first time explicitly account for all of the comparability criteria required by HUD. Such procedures include some variants of a points system. Many agencies also have pursued a technical solution by purchasing commercial software that will support rent reasonableness determinations. Such software typically includes a database shell into which housing authorities can enter information on unassisted units, a module for comparing the proposed

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Section 8 rent with rents for comparable unassisted units or unit categories, and a module for generating documents to certify that the rent is reasonable. These systems usually incorporate all of HUD's comparability criteria, with the added benefit of promising greater efficiencies.

In the context of these changes, it is significant that many housing authorities expressed concern about the lack of detailed guidance from HUD as to what kinds of solutions will satisfy the rent reasonableness factor under SEMAP. Section E revisits this issue and others related to the housing authorities' recommendations for changes to the requirement.

C. Housing Authority Practice

The previous section shows that housing authorities almost universally have formal guidelines in place for determining rent reasonableness. This section examines the extent to which the housing authorities actually apply these policies and procedures.

PHA staff may face considerable hurdles and disincentives in implementing rent reasonableness. This is especially likely, perhaps, if personnel lack adequate training on the requirement, if they are not held accountable for the accuracy of rent determinations, or if they are under pressure to accept units for the Section 8 program due to owner reticence or tight rental market conditions. In practice, therefore, housing authorities may view the rent reasonableness requirement more as a regulatory hurdle than as a tool for ensuring the equity and efficiency of the Section 8 program.

The study investigated two broad questions related to PHA implementation of the rent reasonableness requirement. First, are housing authorities actually conducting rent reasonableness determinations? And, second, are they doing so according to their own procedures and as required by HUD? These questions are answered below using information gathered through the project staff survey and abstracted from case files for a nationally representative sample of Section 8 certificate and voucher units.

Incidence of Rent Reasonableness Determinations

The study uses a simple benchmark to measure the incidence of rent reasonableness determinations—whether or not a PHA has conducted at least one rent reasonableness determination on the unit currently occupied by a Section 8 household, as demonstrated by case file documentation.

This is, in fact, a minimal standard. Housing authorities are required to conduct a rent reasonableness determination at lease-up, every time the owner of Section 8 unit requests an increase in rent, if there is a 5 percent decline in the published Fair Market Rent, and if directed to do so by HUD. Housing authorities also have the discretion to assess rent reasonableness at other times and, as discussed in Section B above, many opt to do so at annual recertification regardless of other circumstances. It is not uncommon, therefore, for housing authorities to conduct more than one rent reasonableness determination for a single unit. The study did not attempt to determine how many rent reasonableness determinations had been made for a particular unit, only whether or not *any* determination had been made.

As Exhibit V-5 indicates, an estimated 89 percent of Section 8 certificate and voucher units meet the standard applied here, or approximately 1.39 million out of the total 1.56 million units nationwide. This rate is relatively high; however, it does not meet the 98 percent target established by the SEMAP Final Rule.

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Exhibit V-5
Incidence of Rent Reasonableness Determinations

Status	Number of Units	Percent
At least one determination documented	1,391,636	89%
No determination documented	136,011	9%
Status not determinable	29,898	2%
Total*	1,557,544	100%

Source: Derived from Project Staff Survey and Review of Housing Authority Files

* Total does not equal sum due to rounding.

The study found that an estimated 9 percent of Section 8 certificate and voucher units do not have any documentation of a rent reasonableness determination. It should be noted, however, that the absence of documentation for a rent reasonableness determination does not necessarily indicate that no determination was made. Instead, the absence of documentation may indicate that PHA staff failed to document a rent reasonableness assessment appropriately.

The status of the remaining 2 percent of cases was undeterminable because the PHA's procedures do not require documentation (or because we were unable to ascertain whether the PHA's procedures require documentation).

Implementation of Determinations

While the study reveals a relatively high incidence of rent reasonableness determinations, it also shows there are numerous irregularities in the implementation and documentation of the determinations. Taken alone, none of these anomalies involve a majority of all tenant-based Section 8 units. Nor do they necessarily indicate a failure to meet HUD's requirements. However, taken together, they underscore the flexibility that housing authorities exert in carrying out reasonableness determinations and the possibility that current procedures are not effectively guarding against excessive rents.

The timeliness of a rent reasonableness determination is clearly important in ensuring the reasonableness of Section 8 rents in comparison to rents for unassisted, comparable housing, especially in volatile housing markets. The more time that has elapsed since the most recent rent reasonableness determination, the less likely it is that the "reasonable" Section 8 rent will be truly comparable with similar unassisted units. In particular, out-of-date assessments may pose a problem if a Section 8 unit is located in a neighborhood that sees a decline in rents or if the rent for a Section 8 unit subsequently increases without a review for reasonableness.

The study reveals that in a majority of the units where a rent reasonableness determination was made, the most recent determination was made after lease-up (57 percent). Furthermore, as shown by the top panel on Exhibit V-6, in two-thirds (66 percent) of the units the most recent rent reasonableness determination was made within the last year. For some units, however, the time elapsed since the most recent rent reasonableness determination is much longer, with 13 percent not having a determination made for more than 2 years. The maximum time that had elapsed since the most recent rent reasonableness determination was 14 years.

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**Exhibit V-6
Time Elapsed Since Most Recent Rent Reasonableness Determination**

Time Period	Number of Units	Percent
All Housing Authorities		
Less than 1 year	913,152	66%
1 to 2 years	161,779	12%
More than 2 years	184,965	13%
Insufficient information	131,740	10%
Total*	1,391,636	100%
Authorities that Conduct Determinations at Annual Recertification		
Less than 1 year	490,184	77%
1 to 2 years	62,400	10%
More than 2 years	31,476	5%
Insufficient information	50,310	8%
Total*	634,370	100%

Source: Derived from Project Staff Survey and Review of Housing Authority Files.

*Excludes cases with no documented rent reasonableness determination.

Forty-three percent of the housing authorities surveyed for this research (see Section B) reported that they conduct rent reasonableness determinations as part of the regular, annual recertification process. This local policy, which goes beyond HUD's minimum requirements, may guard against the possibility of Section 8 rents not keeping pace (either up or down) with comparable, unassisted housing. But, do housing authorities actually implement this policy? Exhibit VIII-6 also presents information on the time elapsed since the most recent rent reasonableness determination at housing authorities that reported they conducted determinations every year. As indicated, the share of units that have had a rent reasonableness determination in the last year (77 percent) is greater for this group of housing authorities than among the full sample. However, there is still a significant minority of units (15 percent) for which the local, annual standard was not met. Furthermore, the figures in the bottom panel on Exhibit VIII-6 do not include an estimated 36,000 units at such housing authorities for which there was no documented rent reasonableness determination at all.

Rent reasonableness determinations may not occur exactly according to the schedule called for under locally developed PHA procedures, but do they occur when they are supposed to under HUD's regulations? In particular, do they occur when there is a rent increase? Exhibit V-7 explores the timing of the most recent rent reasonableness determination relative to the most recent rent increase.

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Exhibit V-7
Timing of Most Recent Rent Reasonableness Determination
Relative to Most Recent Rent Increase

Rent Reasonableness Determination:	Number of Units	Percent
More than 4 months before increase date	165,055	20%
Up to 4 months before increase date	491,026	58%
After increase date:		
Determination at Annual Recertification	45,10	5%
No Determination at Annual Recertification	87,005	10%
Insufficient information	58,108	7%
Total*	846,299	100%

Source: Derived from Review of Housing Authority Files

*Excludes cases with no rent increase since lease-up or no documented rent reasonableness determination.

For 58 percent of these units, the most recent rent reasonableness determination occurred in the same month as the rent increase or up to four months before the rent increase took effect. Some housing authorities begin the annual review process 120 days prior to the anniversary date. Therefore, any test that occurs up to four months prior to the effective date of a rent increase probably meets HUD's requirement that a comparability assessment be conducted prior to an increase in rent.

For approximately one third of all units, though, the timing of the most recent rent reasonableness determination does not appear to meet HUD's requirement. As Exhibit VIII-7 indicates, one in every five units (20 percent) last had a rent reasonableness determination more than 4 months before the rent increase. For these units, the rent reasonableness determination probably dates from a prior rent increase or from lease-up. For another 10 percent of units, the most recent rent reasonableness determination occurred after the most recent rent increase took effect, and therefore after the point at which a determination could be expected to effectively guard against unreasonable rent.

For an additional 5 percent of units, the most recent rent reasonableness determination also occurred *after* the most recent rent increase. However, these units are managed by agencies that conduct a rent reasonableness determination at every annual recertification, so the most recent determination likely occurred in the absence of a rent increase.

An examination of other aspects of the rent reasonableness determinations for the sampled units reveals additional procedural anomalies that, like the irregularities in timing, occur for a minority of units. For example, the study found that rent reasonableness documentation for many units is not filled out completely, not filled out according to PHA policy, or otherwise in error. In some instances, the documentation for rent reasonableness is not filled out at all. Because of the lack of conformity in the forms used to document rent reasonableness, the type of documentation irregularities that occur varies considerably. Exhibit V-8 highlights the incidence of two specific types of anomalies that occur across different housing authorities—namely, disparities between the number of comparables required by the PHA and the number of comparables documented in the case file, and the absence of signatures certifying to the comparability of the subject Section 8 unit's rent.

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**Exhibit V-8
Documentation Anomalies**

	Number of Units	Percent
Number of Comparables:		
More than expected	44,199	6%
Same as expected	480,936	60%
Less than expected	273,890	34%
Total*	799,025	100%
Documentation Signatures:		
Signed	930,728	94%
Not Signed	64,132	6%
Total**	994,860	100%
Variance Between Documented Reasonable Rent and Contract Rent		
Reasonable rent > contract rent	47,006	7%
Reasonable rent = contract rent	534,726	79%
Reasonable rent < contract rent	95,535	14%
Total***	677,266	100%

Source: Derived from Project Staff Survey and Review of Housing Authority Files.

*Excludes cases at housing authorities that do not use a unit-to-unit rent reasonable determination approach, cases with no documented rent reasonableness determination, and cases for which there was insufficient information to make a comparison.

** Only includes cases where photocopied documentation indicated that PHA signature was required.

***Only includes data with photocopied rent reasonableness form indicating reasonable rent.

The compilation of information on comparables is one of the critical components in conducting a unit-to-unit determination of rent reasonableness. The unit-to-unit method, which is used by a majority of the housing authorities surveyed for this research, is premised on an assumption that a carefully selected sample of similar unassisted units can provide a valid benchmark for determining rent comparability. Housing authorities that use this method were asked to report the minimum number of comparables that they require in conducting a unit-to-unit assessment of rent reasonableness. As Exhibit VIII-8 indicates, the documentation for a majority of the rent reasonableness determinations conducted by these housing authorities had the same number of comparables as stated in their policy (60 percent), or more than expected (6 percent). However, housing authorities failed to use the number of comparable units required by their own procedures in about a third (34 percent) of the cases for which there was enough information to make an assessment. Because the samples used to determine comparability in a unit-to-unit approach are usually small, the failure to document the number of comparables stipulated in PHA policy raises a question about the validity of the housing authorities' assessment results.

Another documentation anomaly that occurs across different housing authorities relates to the final certification of a "reasonable" rent. At many housing authorities, the documentation for rent reasonableness consists of worksheets used to record information on the Section 8 unit and unassisted housing plus a separate sheet or statement that the responsible staff person must sign to indicate that the proposed rent is in fact reasonable. The study shows that the staff person's certification is missing in approximately 6 percent of the cases where such a certification is required. The extent of this type of oversight simply may reflect the short-cuts that PHA staff take in a time-pressured work environment more than any substantive shortfall in the comparability of the subject Section 8 rents. On the other hand, it does indicate that housing authorities overlook an important control point in the rent reasonableness process, as prescribed by their own procedures.

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The final facet of the rent reasonableness process examined here pertains to the variance between the reasonable rent as documented by the public housing authorities and the actual contract rent for Section 8 certificate and voucher units. A comparison of the documented reasonable rent and the contract rent for the sampled units shows that the contract rent is less than or equal to the reasonable rent in 86 percent of all cases for which sufficient information was available—see the bottom panel on Exhibit VIII-8. In other words, the certified “reasonable” rent is, as required by HUD, the same as or greater than the current contract rent.

The contract rent for Section 8 units is *greater* than the documented “reasonable” rent in 14 percent of the cases. This may occur when the reasonable rent documented in the case file is derived from comparable units that differ significantly from the Section 8 unit—for example, if 4-bedroom units are used to determine the reasonable rent for a 5-bedroom Section 8 unit. However, the Section 8 rent also will exceed the documented reasonable rent if, as described above, housing authorities fail to assess rent reasonableness every time there is a rent increase. In other words, the actual Section 8 contract rent may start out the same as the documented reasonable rent, but the two rents will start to deviate if there are subsequent rent increases that are not subject to a rent reasonableness determination. If rents for comparable unassisted housing do not keep pace with the rent for the Section 8 unit, then Section 8 contract rent will be “unreasonable.”

In approximately 7 percent of the cases the contract rent for the Section 8 unit is *less* than the amount of rent approved as a reasonable rent through the rent reasonableness determination. Clearly it is advantageous for both the PHA and the assisted household to pay less in contract rent. After all, a rent is only “unreasonable” if it exceeds the rent for similar, unassisted housing. But this difference between the approved and executed contract rent begs a question about the housing authorities’ rent reasonableness procedures. Why would a landlord request a contract rent that is less than the amount the PHA itself has determined to be a “reasonable” rent? Section D discusses some of the reasons why contract rent may be less than the documented “reasonable” rent in reviewing the findings of the study’s comparability assessment.

None of these anomalies is significant enough to conclude that the contract rents for Section 8 units are unreasonable—there could be a valid reason for every type of anomaly. At a minimum, though, the pervasiveness of such anomalies underscores that housing authorities allow considerable flexibility in implementing the rent reasonableness requirement. They also show that even when housing authorities conduct rent reasonableness determinations, they may do so without strictly conforming to the requirements laid out by HUD or their own procedures.

D. Rent Comparability

The task’s final objective is to assess the outcome of local PHA procedures and practice. Regardless of how housing authorities comply with the rent reasonableness requirement, are the rents charged for Section 8 certificate and voucher units, in fact, reasonable in comparison to rents in the private, unassisted market?

The study examined the comparability of rents for a subset of the full sample of Section 8 certificate and voucher households. For policy and methodological reasons, the study attempted to exclude three types of units from the reasonableness assessment: units located in properties with project-based subsidies (for example, under the HOME Investment Partnerships Program) that could result in below-market contract rents; units that consist of an owner-occupied manufactured home on a rented space or pad; and units located in an independent group residence, congregate housing, or shared housing. Excluding these unit categories produced a universe for the reasonableness assessment of an estimated 1,451,208 units, or 93 percent of all Section 8 certificate and voucher units included in the main quality control study.

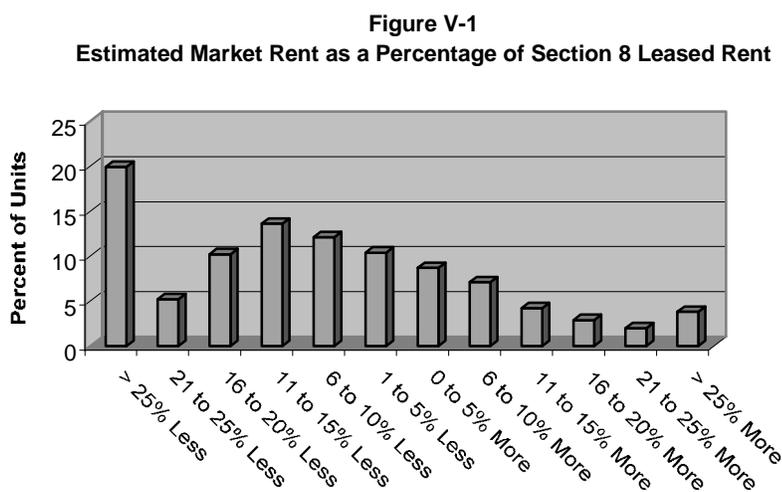
V. Rent Reasonableness Determinations

Data collection and analysis for the comparability assessment involved several steps. ORC/Macro field data collectors compiled information on the key characteristics of the sampled units from PHA files and through in-person household interviews. Real estate inspectors then conducted a survey of the neighborhoods in which the Section 8 units are located, and selected and collected data on three comparable units for each sampled Section 8 unit. The data on the comparable units was used to estimate the market rent for each Section 8 unit, using standard real estate appraisal techniques.¹⁷ This estimate was then used to determine the extent to which the Section 8 rents deviate from the market rent for comparable units.

Summary of the Findings. The results of this analysis indicate that a majority of Section 8 units have a contract rent that is less than the estimated market rent for similar, unassisted units. In fact, the study found that more than 7 out of every 10 (71 percent) Section 8 units have a contract rent that does not exceed estimated market rent.

While these 71 percent of Section 8 units can be assumed, by definition, to have a “reasonable” contract rent, it does not necessarily follow that the balance of the units have “unreasonable” rents. The study did not attempt to define how much a Section 8 rent can exceed estimated market rent before it is unreasonable, due to the pitfalls inherent in setting a nominal standard for rent reasonableness. Instead, the study examined the degree to which Section 8 rents exceeded reasonableness thresholds.

Figure V-1 presents the percent of units by the difference in Section 8 and estimated market rents in 5 percent intervals.



¹⁷ A standard real estate appraisal determines the rent (or sales price) that the market will bear for a particular housing unit by comparing that unit to a small sample of similar units in the same or similar location. Differences between the subject unit and comparables are accounted for by adjusting the rent (or sales price) for the comparable units. In administering the comparability assessment for this study, every attempt was made to match sample Section 8 units and comparable, unassisted units on several key characteristics: unit type, number of bedrooms, square footage, location, construction type, and age. To derive an estimated market rent, a dollar adjustment was then added to each comparable's contract rent based on the extent to which the comparable unit differed from the Section 8 unit on these and other characteristics, including: interior and exterior condition, owner-provided appliances and amenities, parking, owner-provided services, and access to neighborhood services. Estimated market rent is the average (mean) of the adjusted rents for each Section 8 unit's three comparables. The adjustments employed for this analysis varied by region based on a market assessment conducted by CountryWide Inspections, the inspection subcontractor. In addition to the characteristics itemized above, rents were adjusted to account for differences between the Section 8 and comparable units in owner-paid utilities. Utility adjustments were made using each PHA's utility allowance schedule.

V. Rent Reasonableness Determinations

Section 8 Rents in Excess of Market Rents. Exhibit V-9 shows the comparability of Section 8 rents using two types of reasonableness thresholds. The exhibit's top panel shows the extent to which Section 8 rents exceed market rent using thresholds defined by the percent difference between the Section 8 and estimated market rents. As the exhibit indicates, less than one-third (29 percent) of all Section 8 units in the comparability study universe have rents that exceed estimated market rent—or 415,934 units nationwide. For about a third of these units (or 9 percent of all units), the monthly rent variance is 5 percent or less of the estimated market rent. Approximately one out of every 25 units (or 4 percent of all units) has a rent that exceeds estimated market rent for similar, unassisted housing by more than 25 percent.

Exhibit V-9
Share of Section 8 Units Exceeding Alternative Reasonableness Thresholds

Section 8 Rent Exceeds Estimated Market Rent By:	Number of Units	Percent
Percent Difference		
0-5%	125,944	9%
6 -10%	103,452	7%
11-15%	60,412	4%
16-25%	70,605	5%
More than 25%	55,521	4%
Total	415,934	29%
Dollar Difference		
\$0-\$25	114,853	8%
\$26-\$50	104,529	7%
\$51-\$75	67,193	5%
\$76-\$100	76,304	5%
More than \$100	53,055	4%
Total	415,934	29%

Source: Derived from Survey of Comparables

The bottom panel on Exhibit V-9 presents the findings of the reasonableness survey using a second set of thresholds based on the dollar variance between the Section 8 and estimated market rent. These findings echo the pattern shown for the percent difference in rents. Of those units that have Section 8 rents that exceed estimated market rent, a majority has rents that exceed market rent by \$50 or less per month. An estimated 4 percent of all Section 8 units in the comparability study universe have a rent that exceeds estimated market rent by more than \$100.

Section 8 Rents Below Market Rents. One unexpected finding from the reasonableness assessment merits further discussion—that is, the extent to which the study shows that Section 8 rents fall short of the estimated market rent for similar unassisted housing.

The study found that the average monthly contract rent for a Section 8 certificate or voucher unit is \$95 less than the estimated market rent for a comparable, unassisted unit, or an average of 10 percent less. Furthermore, as illustrated by Figure V-1 above, approximately one in every five Section 8 units (20 percent) were found to have a rent more than 25 percent below estimated market rent.

This disparity begs a question regarding landlord participation in the program, namely: Why would landlords accept rents under the Section 8 program that are so much less than the rents supported by similar units in the unassisted market? To help address this question, follow-up calls were made to the

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estimated market rents.¹⁸ This effort highlighted several program-related issues that help explain the difference in rents.¹⁹

Factors That Impact the Difference in Section 8 and Estimated Market Rents. Several factors that impact the difference in the Section 8 and estimated market rents are discussed below. Exhibit VIII-10 summarizes these factors and provides the average amount of rent for households within the factor subcategories.

Tenure. The study reveals that the longer a unit is in the program, the more likely it is for rent to deviate either below or above market rent. As indicated by Exhibit V-10, the longer a household has used Section 8 assistance for a particular unit, the greater the average disparity between the Section 8 and estimated market rents. Rent for units where the household has used Section 8 for less than a year is, on average, \$71 less than estimated market rent compared to a difference of \$135 for units that have been rented under the program for more than five years. This effect is amplified by focusing just on Section 8 units where rents are significantly less than market rent. Among these units, units that have been rented by the same Section 8 tenant for more than 5 years have rents that are on average \$245 less than the market rent for similar unassisted units.

However, the study also reveals that units that have rented under Section 8 for more than 5 years are *more likely* to have rents that significantly exceed market rent than units that have been in the program a shorter period of time. Approximately one-fourth (27 percent) of the units that have rented under the program for more than 5 years were found to have rents that exceeded market rent by at least 5 percent, compared to just 16 percent of units that have been in the program less than a year. In other words, although a longer period of tenure under the program on average results in greater rent discounts, it also increases the likelihood that Section 8 rents will be “unreasonable.”

Head of Household Type. Another reason why a landlord might be willing to provide a rent discount under the Section 8 program pertains to the characteristics of the assisted households. For example, landlords may be willing to forgo a portion of the rent they could demand in the unassisted market if they can use the program to rent their unit to an elderly household. In comparison to other households, especially families with children, elderly households are perceived to cause less physical wear and tear on a unit, and are thought to be less likely to cause problems with other tenants or neighbors. As indicated by Exhibit V-10, the study shows that the greatest disparity between Section 8 and estimated market rent exists for units with an elderly (non-disabled) head of household. The difference between the Section 8 rent and market rent is, on average, almost twice as great for elderly households (-\$149) as it is for non-elderly, non-disabled households (-\$87).

Exhibit V-10 also shows, however, that the rent discount landlords are willing to make for units occupied by elderly Section 8 recipients does not apply evenly to all elderly households. In fact, if a Section 8 household is headed by an elderly person who is also disabled, then their unit on average rents for \$80 less than market rent—the *smallest* disparity in rents among any of the demographic groups listed. This suggests that combination elderly and disabled households may require unit characteristics and housing services that command higher rents than for non-elderly and non-disabled households. The rent premium that is required for elderly and disabled households is illustrated further when examining data just for Section 8 units where the rent exceeds market rent by 5 percent or more. Among this group of units, the

¹⁸ The follow-up calls focused on the units where the Section 8 rent was at least 25 percent less than the estimated market rent. Information was compiled on 64 of the 85 sampled Section 8 units that fell in this category.

¹⁹ The follow-up calls also revealed methodological issues that help explain the disparity between Section 8 and estimated market rent for at least a subset of the comparability sample. For example, housing authorities indicated that some of the units in the sample did have project-based subsidies, and therefore a below-market rent even though the study design called for the exclusion of such units. This applied to approximately 1 in every 5 of the units examined through follow-up calls.

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greatest disparity in Section 8 and market rent occurs for combination elderly and disabled household—\$104 per month.

Exhibit V-10
Disparity in Monthly Section 8 and Estimated Market Rents

	Average Dollar Difference*				
	All Units (100 % of Sample)	Units with Rents 5% or More Below Comparable Value		Units with Rents 5% or More Above Comparable Value	
		Dollars	Percent	Dollars	Percent
All Units	-\$95	\$179	62 %	\$76	22 %
Tenure (Length of time in current unit with Section 8 assistance.)					
Less Than 1 Year	-\$71	-\$132	61%	\$65	16%
1 to 5 Years	-\$107	-\$175	67%	\$61	20%
More Than 5 Years	-\$135	-\$245	63%	\$69	27%
Head of Household Type					
Elderly	-\$149	-\$221	69%	\$53	8%
Disabled	-\$101	-\$179	67%	\$71	26%
Elderly & Disabled	-\$80	-\$204	56%	\$104	32%
Not Elderly or Disabled	-\$87	-\$169	60%	\$74	21%
Type of Assistance					
Certificate	-\$120	-\$216	63%	\$83	20%
Voucher	-\$66	-\$134	61%	\$69	24%
Number of Rent Reasonableness Determinations					
At least One Determination	-\$93	-\$177	62%	\$80	22%
No Determination	-\$126	-\$200	68%	\$51	21%
Status Undeterminable	-\$77	-\$154	55%	\$28	37%
Method for Determining Rent Reasonableness					
Unit-to-Unit	-\$85	-\$173	59%	\$78	24%
Combination	-\$119	-\$119	100%	--	0%
Unit-to-Market	-\$143	-\$217	71%	\$78	14%
Professional Judgement	-\$25	-\$110	39%	\$28	61%
Unit Type					
Single Family Detached	-\$76	-\$159	62%	\$92	24%
Duplex-Row	-\$122	-\$208	64%	\$59	22%
Manufactured Home	-\$53	-\$72	78%	\$47	8%
Apartment Walk-Up	-\$82	-\$162	60%	\$70	23%
Apartment Elevator	-\$197	-\$362	59%	\$130	12%
Neighborhood Housing Cost					
Relatively Low Cost Submarket	-\$14	-\$81	47%	\$77	32%
Relatively High Cost Submarket	-\$244	-\$274	90%	\$55	3%

Source: Table 17, Appendix D

*Section 8 rent minus estimated market rent--negative values indicate that the estimated market rent exceeds the Section 8 rent.

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Type of Assistance. While landlords may have their own reasons for offering a rent discount (or demanding a rent premium) under particular circumstances, there are also a number of provisions in the Section 8 program that may have depressed rents, historically. In particular, housing authorities cite the constraint of the FMR and the Annual Adjustment Factor (AAF) for units subsidized under the pre-merger certificate program as a reason why Section 8 rents are out-stripped by market rents. Under the certificate program, the rent-to-owner (or contract rent) for units occupied by assisted households was constrained (except under certain circumstances) by the FMR. In certain markets, this may have had the effect of keeping Section 8 rents under the rent that could be charged for similar, unassisted units in the same location. Similarly, the AAF that governed rent increases under the pre-merger certificate program may have fallen short of increases in rent for unassisted unit rents.

Housing authorities cite the constraints posed by the FMR and AAF as a major reason for the disparity between Section 8 and market rents for about a quarter (23 percent) of the units examined through follow-up calls. These constraints are also illustrated by the reasonableness assessment. As indicated by Exhibit V-10, the rent for certificate units is, on average, \$120 less than the estimated market rent for assisted units compared to \$66 for voucher units.

It should be noted, however, that there may be some markets where the application of the FMR and AAF in the certificate program have had the opposite effect. Some markets may have unassisted rents (and rent increases) that, historically, have been outstripped by the FMR and AAF. Under such circumstances, the rent for Section 8 certificate units may be expected to exceed estimated market rent. This pattern is illustrated by units that rent for an amount 5 percent or more greater than the market rent, there is a greater disparity for certificate holders (\$83) than for voucher holders (\$69).

The 40 percent cap on the share of a household's income that can go to pay initial rent under the merged Section 8 program may also constrain contract rent. While this requirement was implemented less than a year before the data collection for this study and was not cited by the housing authorities contacted through follow-up calls, it is likely to prompt landlords to tradeoff contract rent with the desirability of particular tenants, like the other provisions highlighted. In other words, it is likely to become one in a complex mix of factors, including the rent reasonableness requirement, that must be weighed by the tenant, landlord, and PHA in determining the contract rents that will be paid under the tenant-based Section 8 program.

Number of Rent Reasonableness Determinations. The study found that a majority of Section 8 units (89 percent) have had at least one rent reasonableness determination (see Exhibit V-5, above). But, what affect does the application of the rent reasonableness requirement have on rent comparability? Exhibit V-10 shows that among those units where the Section 8 rent exceeds the estimated market rents by 5 percent or more, the disparity in rents is *greatest* for units where there has been at least one rent reasonableness determination. At face value this finding seems to be counter-intuitive, but it may point to a couple of issues. First, that rent reasonableness status is a minimal standard, as applied in this study—there may have been “at least one determination,” but that determination may be out-of-date or otherwise in error. Second, it may point to self-regulation by PHAs in implementing the requirement, according to the “need” to verify rent reasonableness based, say, on their knowledge of the local market.

Method for Determining Rent Reasonableness. The study's examination of rent reasonableness procedures started with the basic method that PHAs use to determine reasonableness. The report divides PHAs into three main groups—those that directly compare the Section 8 rent to the rent for a discrete number of unassisted units; those that compare Section 8 rents to average market rents for similar units, and those that use a combination of methods. There also were two PHAs that did not have any formal method for determining rent reasonableness—in other words, they depend solely on professional judgment. (See Exhibit V-2, above.) Among units where Section 8 rents exceed market rents by 5 percent or more, there is no distinction between the PHAs that only use a unit-to-unit or unit-to-market method. Under either method, Section 8 rents exceed market rent by an average of \$78. However, it is more likely for units administered by PHAs that only use a unit-to-unit method to have rents that significantly exceed

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market rent. Approximately one-fourth (24 percent) of the units overseen by this type of agency had rents that exceeded market rent by at least 5 percent, compared to just 14 percent of units at agencies that used just a unit-to-market method. It is also noteworthy that none of the units at housing authorities that use a combination of methods have rents that exceed market rents by 5 percent or more. This suggests that to effectively guard against unreasonable rents, housing authorities (and HUD) need to recognize that no single method can be expected to work for all of an agency's units.

Unit Type. Unit type is important to rent reasonableness because it is one of the key characteristics that will determine what constitutes similar unassisted housing. Landlords may be more willing to discount the rent for certain types of units in return for a guaranteed stream of income (possibly because of the types of tenants that these units attract). Also, it may be more difficult to effectively monitor rent reasonableness for certain unit types.

Exhibit V-10 reveals an interesting pattern for elevator apartments. On the one hand, elevator apartments have the lowest rents in comparison to market rent among those units that have relatively low rents. On average, the Section 8 rent for this type of unit is \$362 less than comparable rent. On the other hand, elevator apartment rents exceed comparable rent by a *greater* amount than other types of units with rents that exceed comparable rent by 5 percent or more. One factor that may be driving this pattern is the presence of project-based subsidies. We know from follow-up calls that a portion of the units included in the comparability analysis have project-based subsidies. The extent to which such units are in high-rise properties may explain why elevator apartment rents should—under certain circumstances—fall so far short of comparable rent. Another likely factor is the extent to which Section 8 elderly households—who landlords are more likely to provide a rent discount—reside in highrise apartments.

Neighborhood Housing Cost. Local market conditions for each unit in the comparability study were measured using the ratio of comparable rent to the 2000 FMR for a unit of the same size. While the comparable rent is a composite market rent for the Section 8 unit, or a snapshot of the rent for a very specific submarket, the FMR is an area-wide benchmark pegged by HUD (in 2000) to the 40th percentile rent. As defined here, units in relatively low cost submarkets have comparable rents that equal or are less than the FMR, whereas units in relatively high cost submarkets have comparable rents that exceed the FMR.

It is not surprising that Section 8 rents fall short of market rent in relatively high cost areas, due to the historical limitations on program rents especially in the certificate program. However, given that approximately one-third of the units in the comparability study are in relatively high cost areas, the disparity between the two types of submarket is striking.

Units in relatively high cost submarkets almost universally have rents less than comparable rent. Overall, such units rent for \$244 less than comparable rents. Only 3 percent of such units have rents that exceed market rent by 5 percent or more.

By contrast, rents in relatively low cost submarkets are, on average, very close to comparable rents—as indicated, just \$14 less than comparable rent. That is not to say, however, that there are not disparities between Section 8 and comparable rents in this type of submarket. To the extent that relatively low cost submarkets coincide with submarkets with relatively weak housing demand (which they should do over time) then landlords may have a greater incentive to participate in the Section 8 program, and possibly to offer rent discounts to “good” Section 8 tenants, to ensure a guaranteed stream of income. On the otherhand, if the payment standard (or FMR) exceeds the rents in a particular submarket, then there is a possibility to charge an unreasonable rent under Section 8 if the PHA is not vigilant. Approximately one third (32 percent) of the units in relatively low-cost submarkets, as defined here, have rents that exceed comparable market rent by 5 percent or more.

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E. Recommendations

This section discusses policy recommendations offered by participating housing authorities and derived from the study findings, and suggests changes to methodology for the follow-up rent reasonableness study.

PHA Project Staff Recommended Changes

As part of the Project Staff Survey, representatives from the sample of housing authorities were asked what recommendations they would make to change the rent reasonableness requirement. Broadly speaking, the housing authorities' recommendations fall in two categories—first, regarding the possibility of eliminating the requirement and, second, regarding possible improvements in how the requirement is implemented.

Elimination of the Requirement. Many of the surveyed housing authorities voiced support for the requirement and acknowledged its importance to the operation of their tenant-based Section 8 program, but other authorities, some quite bluntly, urged HUD to consider its elimination. However, the arguments posed by those agencies interested in eliminating the procedure varied:

- Several agencies said that the requirement is no longer required with the recent reforms to the tenant-based Section 8 program. Specifically, agencies indicated that, together with the FMR, the new 40 percent of income cap on tenant payments provides a sufficient guard against excessive rents. Others voiced a more philosophical belief that with the shift to an entirely voucher-based system, the rent reasonableness procedure interferes with the legitimate choice assisted households should have in deciding how much they pay in rent. If the principle of the voucher system is to subsidize qualified households up to a certain payment standard, and then require the household to pay the difference in rent, then why not allow the household to pay as much as they wish?
- Other agencies voiced opposition for more pragmatic reasons. In particular, agencies argued that the benefits of implementing the requirement are outweighed by the requirement's costs in terms of time, staff resources, and scarce administrative funds. This opinion was voiced by agencies in a mix of different markets, and of different sizes, but was expressed in particular by those agencies overseeing small programs in rural areas where the staff relied in large part on their own discretion in making determinations. Why go through the exhaustive effort of documenting rent reasonableness when the staff members know their own market and what kinds of rents are reasonable?

Improvements to the Requirement. Other respondents fell short of recommending elimination of the requirement, choosing instead to focus their recommendations on how the requirement could be improved. These recommendations fell into three categories:

- Some agencies argued for the simplification of the requirement, often for the same pragmatic reasons outlined for elimination of the requirement above. In other words, these agencies view the requirement, especially as it is now monitored through SEMAP, as being overly burdensome. Individual respondents suggested, for example, that HUD do away with the requirement that specific criteria be considered in determining rent reasonableness (in particular, age, square footage, and management services). Others suggested that the requirement only be enforced for certain types of units and in certain types of markets where the risk of excessive program rents is particularly high. Another agency argued that a determination should only be required at lease-up. And several agencies recommended that the requirement be implemented with more flexibility.
- On the other hand, several respondents suggested that the best way for HUD to improve the rent reasonableness requirement would be to enforce more standardization. Specifically, agencies argued that additional guidance is required from HUD, that HUD should develop standardized forms to be used in assessing comparability (and integrate these data requirements with existing forms similar to

V. Rent Reasonableness Determinations

the request for lease approval), and that the requirement should focus in more detail on unit amenities. One agency called for greater consistency in HUD enforcement of the requirement across different agencies because the inconsistent application of the requirement causes problems in working with landlords who participate in more than one PHA's program.

- Other housing agencies focused their recommendations on the problem of finding, then collecting data on comparable units. Several agencies called for HUD to get more involved in this process by conducting surveys for housing authorities or providing satisfactory information from other HUD sources, by changing the requirement to put more of the burden on landlords, or by allowing agencies to offer landlords an incentive for providing information on comparables.

Policy Implications

In light of the study findings on the reasonableness of Section 8 rents, the recommendation for complete elimination of the requirement does not have merit. Although the study found that most Section 8 units have a contract rent that is considerably less than the estimated market rent, almost 30 percent of all Section 8 units have rents that exceed estimated market rent.

The recommendation for greater discretion in where and how the requirement is implemented may warrant further consideration for two reasons: first, because so many Section 8 units do have rents that fall short of market rent for similar unassisted units; and, second, because of the degree to which housing authorities permit some measure of discretion in making rent reasonableness determinations. The project staff survey suggested that many housing authorities go through the process of conducting rent reasonableness determinations to meet the regulatory requirement, but in practice rely largely on the professional judgment of agency personnel to ensure that rents are not excessive. To the extent that the agencies that exercise discretion in this fashion overlap with those in which Section 8 rents fall short of market rents, then HUD may want to consider some variability in how the requirement is applied.

The study findings also support some of the housing authorities' recommendations regarding standardization of the requirement. It is difficult to see how the procedures could be standardized so that one size fits all agencies, but HUD could take some reasonable steps to provide program resources and technical assistance for those agencies that need additional help. In effect, the study shows that standardization is occurring in part because of the demands of SEMAP, and in part because of the proliferation of technical assistance, database systems, and other commercial material that support rent reasonableness. But several agencies still operate with relatively antiquated systems. Standardization and technical guidance should help improve the procedures at such agencies, and standardization should also, over the long term, simplify the process of compiling information on comparable units.

Recommended Changes to the Rent Reasonableness Study

Recommendations for changes to a follow-up rent reasonableness study include potential improvements to the data collection that was carried out under the first study, as well as possible new directions for the research.

All aspects of the data collection for the rent reasonableness study could be improved:

- Telephone Survey—The telephone survey needs to be simplified and focused more tightly on the issues of greatest concern to HUD. This study successfully captured the variability of housing authorities' rent reasonableness procedures, but it did not focus in detail on any particular issue or type of approach. Having conducted the first survey, the design team will have a much better idea about what kinds of issues can be investigated in more depth. In particular, it would be worthwhile to focus on the new types of procedures and systems that housing authorities are implementing in response to SEMAP. Some field research on PHA procedures may be warranted to supplement telephone data collection on types of procedures that are of greatest interest to HUD.

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- **File Abstraction**—The abstraction of data should be redesigned to permit a more thorough and comprehensive audit of issues related to implementation of the requirement. A careful redesign of the documentation form should permit the collection of more useful information with the addition of a limited number of data items. Doing so should eliminate the need to photocopy information from the case file. In particular it would be useful to trace the rent history for units in the program so that housing authorities' compliance with HUD requirements regarding the timing of rent reasonableness determinations can be examined more definitively. It would also be useful to collect more systematic information on the comparable units (or unit categories) employed to make rent reasonableness determinations, since this is one of the major control points in which PHA personnel can exert their personal discretion. These enhancements also would make it easier to interpret findings from the comparability assessment.
- **Comparability Assessment**—Several aspects of the comparability assessment are candidates for redesign. One option for improving the quality of information on assisted and unassisted units would be to have the inspection subcontractor collect data on both sets of units, instead of the split that was used for the current study (however, this option has some logistical and budget implications). The next rent reasonableness study also needs to look more closely at the kinds of adjustments that are made to arrive at estimated market rent. While adequate for determining the overall reasonableness of Section 8 rents, the current study's use of regional adjustment criteria and PHA utility data could be improved by using adjustments tailored better to local market conditions. Finally, the current survey reveals that it is necessary to follow-up on the comparability survey to determine the valid reasons, if any, for the disparity between the Section 8 rent and estimated market rent. Such a follow-up effort might involve contact with housing authorities and landlords, whose perspective is largely missing from the current study.

Several new topics are suggested by the current study, which could be addressed to a lesser or greater extent by the existing data strategy. For example:

- Do housing authorities that use newer rent reasonableness procedures such as point-based systems do a better job than others, all things being equal, in determining rent reasonableness?
- How are housing authorities responding to the ongoing implementation of SEMAP, with its specific requirements related to rent reasonableness?
- What is the impact of exception payment standards and FMRs being set at the 50th percentile for rent reasonableness in some market areas?
- To what extent do PHA personnel exercise their own professional discretion over rent reasonableness determinations?
- How comparable are housing authorities' comparables?
- What factors affect the reasonableness of Section 8 rents? Are those agencies that use more discretion in determining rents more or less likely to have reasonable rents? What is the impact of other agency characteristics, policies, and procedures? How do market characteristics influence rent reasonableness?
- What causes landlords to rent units under the program below comparable market rent? What are landlords' opinions about the application of the rent reasonableness requirement?

The design for the next survey should consider these and other HUD research priorities in the context of ongoing changes to the tenant-based Section 8 program.

VI. Recommendations

This section discusses recommended changes to the study that will improve the data collection process or the quality of the data used in the analysis. Sections A through C provide a general discussion of the quality control review process with a summary of specific recommendations. Section D discusses error components that could be included in a future study.

A. The Quality Control Review Process

Conducting a study to produce national estimates of the errors occurring in the household certification and recertification process is a major undertaking that requires many tasks. The following major tasks are part of this process:

- Establishing a uniform set of standards to follow when determining error.
- Constructing the sampling frame.
- Selecting the sample from which data should be collected.
- Obtaining project identification information from HUD field offices.
- Identifying the sources of information from whom data should be collected.
- Establishing the time period for data collection.
- Designing the data collection instruments.
- Automating the data collection process.
- Hiring and training data collectors.
- Collecting the data.
- Editing the data.
- Constructing the analysis file.
- Calculating the QC (i.e., the correct) rent.
- Determining the amount and sources of error.

The *Quality Control for Rental Assistance Subsidies* study conducted by Macro was funded by HUD to obtain national estimates of error. While most financial assistance programs, such as TANF, Food Stamps, and Medicaid, have been conducting quality control reviews of their programs for years, HUD is still in the preliminary stages of developing a quality control system. Conducting a quality control review for HUD programs is more difficult than conducting reviews for other programs for two major reasons. First, most public welfare programs are administered at the State level. Quality control reviews are conducted by the State to identify the error rate, and Federal re-reviews are conducted to verify this error rate. Because HUD programs are not administered at the State level and there are thousands of PHAs and owners responsible for implementing the (re)certification process, no central or local organizations/agencies exist that could easily conduct quality control reviews. Therefore, the entire quality control process must be conducted at the Federal level.

VI. Recommendations

Secondly, HUD housing subsidies are funded through many different sections of the Federal regulations, each of which has different rules regulating the (re)certification process and rent determination. Conducting quality control reviews for HUD programs therefore requires reviewers who are familiar with several sets of eligibility requirements, policy exceptions, and options. On the other hand, financial assistance programs outside of HUD usually follow one set of basic rules. While options are allowed under these programs, they almost always have an impact on the entire State. State quality control reviewers need to be familiar with only one set of requirements.

B. Basic Components of a HUD Quality Control Study: Actual and QC Rent

As noted above, there are many components of a quality control study. However, there are two basic requirements of any quality control study that must be included in the study design. First, the data collected must include the *amount of rent the PHA/owner has determined the household should pay*. This is the amount calculated using the standard HUD formula, without any adjustments for prior over- or underpayments, fines, maintenance fees, and the like. This information is only available from project files.²⁰ Therefore, a file review is required.

Second, the data collected must include all elements necessary to calculate the *amount of rent the household should be paying*. For the HUD formula, this includes income, expense items for certain households, age of household members, and several other household characteristics. There are three sources of these data, as follows:

- Project files—These data are available from project files *if the (re)certification has been conducted correctly and if all relevant information is maintained in the file*. Relevant information includes all sources of income and expenses and timely verification of these amounts, as well as verified information on household member characteristics such as social security number and citizenship.
- Household interview—Because many project files are not complete or the project did not collect all the required information during (re)certification, a household interview is needed to increase the likelihood of obtaining all relevant information.
- Third-party verification—The accuracy of the data, whether obtained from the project files or the tenant, must be verified by the source (e.g., employers, hospitals, the Social Security Administration). This verification may be found in the project files or obtained from the third-party. Obtaining verification directly from the third-party source is preferred (and is the procedure used by other Federal assistance programs). Since a release form signed by the tenant is needed to obtain the verification an in-person contact with the tenant is required.

Exhibit VI-1 summarizes the sources of the data needed to meet the requirements of a quality control study. The issues associated with collecting the required data are discussed below.

²⁰ TRACS/MTCS data contains information on the amount of rent the household should pay. However, TRACS/MTCS data may not match the 50058/50059 file information, and the TRACS/MTCS files do not include data on all assisted households.

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**Exhibit VI-1
Data Collection Sources**

Type of Information	Project	Household	3rd Party
Rent and Rent Components			
Actual Rent paid by household	X		
Income/expense items used by project to calculate rent	X		
Actual sources of income/expenses	X	X	
Verification			
Items verified by project	X		
Items not verified by project		X	X

Rent Amount. The amount of rent the household is required to pay (ignoring adjustments for previous late payments, fees, etc.) must be collected from the project because this is the only source of this information for all assisted households. These data can be collected from the 50058/50059.

Income/Expense Items Used by Projects to Calculate Rent. To conduct analysis of what income or expense items caused errors in the rent amount, all income and expense data used in the 50058/5009 calculation must also be collected. The project files are the only source of this information.

Sources of Income/Expenses. The sources of income/expenses reported by the household can usually be obtained from the project file. The files (for the most part) contain information on sources of income and expenses for each household member. However, if project files are relied on to identify all sources of income/expenses, some sources may be missed. If project staff did not understand the regulations or did not ask the right questions, the project file may not include all the sources of income or expenses. Therefore, an in-depth interview with the household is needed to obtain more complete information about the income and expenses of all household members. Although this is a labor-intensive activity, an interview with the household is essential to gathering complete information about all the sources of household income and expenses as well as household composition.

Verification. The project file should also contain verification of the information used in the rent calculation. If this verification is current and complete, it can be used to validate the amount of the income or expense. However, if verification is missing, out of date, or incomplete, third-party verification must be obtained. At a minimum, income and expenses not verified by the project staff must be verified by a third party. Verification can be collected from third parties through the mail or it can be collected in person. In either case, signed release forms are needed from the tenant.

Verification could also be requested from sources other than those from which the household claims they have income to determine other possible sources of income. For example, if a family with children has little or no income, the social services office would be contacted to determine if the household was receiving TANF. This is known as verifying negative allegations, and is part of the quality control process for financial assistance programs such as TANF and Medicaid.²¹ Because HUD does not require verification of negative allegations, this study only verified reported sources of income and expenses. The data collection process as designed for the current study meets all of these requirements. It is recommended that the general data collection design remain the same. While verifying negative allegations could be added to the design of the data collection process, there is no indication that HUD

²¹Typically, sources of income that are checked for negative allegations are local banks and agencies administering programs that appear relevant to a low-income household's situation, such as TANF for families with children, SSI for elderly households, etc.

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wishes to formalize its quality control process to the same degree as those processes used by other financial assistance programs. In addition, the cost of adding this component is significant.

C. Other Study Components

Standards. A comprehensive set of all HUD requirements that have an impact on the rent calculation will continue to be needed to assure that the correct data are collected and the QC Rent is calculated correctly. The standards used to identify errors²² will need to be updated to reflect changes in HUD requirements.

Use of MTCS/TRACS Databases for Sampling and 50058/50059 Data. A sampling frame of all PHA- and owner-administered projects was created for the current study. After updating the list of projects, a similar frame can be used for future studies. However, there is an interest in determining if the project sample can be selected using TRACS and MTCS data.

A match of the households included in this study with MTCS/TRACS data is being conducted now. If all households are included in the MTCS/TRACS databases, consideration should be given to using these data as a base for selecting the household sample. Using the MTCS/TRACS data for selecting the household sample may not be appropriate, either because the data are not current or because of the delay between when the sample is drawn and when the actual data collection occurs. In the current study, the procedure of drawing the sample prior to the site visits resulted in a large number of ineligible households being included in the original sample.

If using the MTCS/TRACS data is not possible or practical, it is recommended that the household sample be selected by the data collector while at the project. Selecting the household sample prior to field data collection did not prove as advantageous as expected due to the high number of ineligible households included in the sample (due to turnover between the time the sample was drawn and actual data collection). In addition, not all projects sent their list ahead of time; therefore, all data collectors had to be trained in the sample selection procedures.

When researching the MTCS/TRACS sampling option, a determination should also be made as to whether the MTCS/TRACS data can be used in place of abstracting 50058/50059 data from the tenant file. Even if MTCS/TRACS cannot be used for sampling, it may be feasible to use the 50058/50059 data, thereby eliminating the need to abstract such data (for at least some of the households) during on-site data collection.

Letters to HUD Field Offices, Projects, and Tenants. Throughout the study, letters explaining the study and asking for cooperation are sent to Field offices, projects, and tenants. Each of these letters serves a very specific purpose. The letters designed for the current study can easily be used for future studies; however, we recommend that additional letters be used as well. A follow-up letter should be sent to the Field offices and to the projects just prior to the actual data collection. Under current study procedures, the time delay between the initial letter to the Field offices and projects and the actual data collection is substantial. A follow-up letter will keep the Field offices informed and allow the projects to be more responsive to our data collectors. These follow-up letters should include the name of the data collector and the date the data collector will be contacting the project.

The letter used to inform the tenant of the study and the requirement for them to participate should be revised so there are multiple versions of the letter to use depending on circumstances. Some tenants require a very firm letter, while others, particularly the elderly, need a less formal approach. The data collectors should be provided with several letters to use as appropriate.

²²See *Data Collection Standards*, an unpublished Macro report to HUD dated March 31, 1999.

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Data Collectors. While the majority of the data collectors for the current study were excellent, there were several data collectors who had to be replaced for a variety of reasons. For future studies, we recommend that several back-up data collectors, who are willing to travel to sites as needed, be hired. These back-up data collectors will attend the regular data collector training session and be assigned to sites as needed.

Automation Issues. Most of the data for the current study were collected using an automated data collection system. This system simplified the data collection process, reduced the number of data collection errors, and eliminated the need to code the data after data collection. While the existing system worked well, there are many improvements that can be made to the system. Recommended changes include expanding the data system used for on-site data collection to include the tracking and monitoring of verification forms sent to third parties, and automated tracking of replaced households. For example, the third-party verification system should be tied in to the field data collection software. This will reduce the level of effort involved in initiating and tracking third-party verification, and expedite the matching of verification received from third parties to project data.

The following is a summary of the recommended changes discussed above.

- Update study standards to reflect changes in HUD requirements.
- Consider the use of MTCS/TRACS data for selecting the sample and obtaining 50058/59 file data.
- Select the tenant sample on site during field data collection (unless it is determined that MTCS/TRACS data can be used for the tenant sample).
- Send follow-up letters to the Field offices and projects immediately before data collection will begin.
- Develop multiple letters to tenants taking into consideration different household circumstances.
- Hire and train several back-up data collectors to be assigned to sites as needed.
- Automate additional components of the data collection process and enhance the entire automated process within contract budget and time frames for future studies.

D. Error Components That Could Be Added to the Study

While the *Quality Control for Rental Assistance Subsidies* study, as currently designed, looks at most factors that contribute to rent error, there are other factors that the study does not address. Two of these factors are:

- **Utility Allowances.** The amount equal to the PHA or HUD estimate of the monthly cost of a reasonable consumption of utilities and other services for the unit by an energy-conservative household of modest circumstances consistent with the requirements of a safe, sanitary, and healthful living environment, if the cost of utilities (except telephone) and other housing services is not included in the tenant rent, but is the responsibility of the family occupying the unit.

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- **Payment Standard.** In a voucher tenancy the maximum subsidy payment for a family (before deducting the total tenant payment). For a voucher tenancy, the PHA generally sets the payment standard in the range from 90 percent to 110 percent of the current FMR (the basic range). With HUD approval the PHA may set the payment standard higher or lower than the basic range.

In the current study, we assumed the utility allowance and Payment Standard used by the PHA/owners were correct. If these figures were not correct, the amount of rent the tenant pays and, therefore, the HUD subsidy, may be incorrect. The process of determining whether one or more of these figures is correct could be added to this study. However, the tasks involved in making this determination need to be examined closely before a decision regarding their inclusion is made. Any changes in the study design will likely impact the study budget or time frame. Some issues regarding the impact of the utility allowance and the payment standard are discussed below.

Utility allowances. PHA/owners are required to calculate utility allowances under certain circumstances and they are required to review their utility allowance schedules at least annually to ensure currency.

The calculations used in creating utility allowances, particularly for the tenant-based Section 8 programs, can be very complex given there are separate allowances for each bedroom size, for each unit type, and for each possible combination of utilities (e.g., gas cooking, oil heating, electric refrigeration). Many utilities have different winter and summer rates; many also have different rates for differing levels of consumption. Some PHAs create separate allowances for each (of perhaps dozens) of water or garbage service providers in their jurisdiction. Once a complex network of allowances is created, the PHA/owner must be exact in determining which water/sewer company, which garbage company, electric company, gas company, etc., provides the service to the particular assisted unit. An error can be made if records reflect the wrong type of utility (i.e., gas heating instead of electric).

A household receives too large a utility allowance if the PHA/owner incorrectly believes that the tenant is responsible for a particular utility payment when the owner actually assumes that responsibility. Conversely the allowance would be too small if the household were not given credit for all of the utilities for which they were responsible.

To include utilities in the study, HUD must first determine the level at which the review should be completed. Possibilities include: checking the basis for the utility allowance schedule itself (i.e., rates, consumption assumptions, arithmetic calculations), determining if the utility standard is current, or checking the accuracy of applying the schedule to the sample households. Once this decision is made, the data to be collected by the on-site data collectors need to be identified.

At a minimum to determine if the PHA/owner is using the correct utility allowance, the data collector would have to collect additional data from several sources including:

- The utility allowance schedules covering the period of time for which the study collected data (generally two calendar years) and the effective dates of these utility allowance schedules
- The utility types ascribed to the unit when determining the utility allowance (from the tenant file)
- The breakdown of utility responsibilities, either tenant or PHA/owner, used by the PHA/owner (typically listed on the lease)

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- The utilities actually paid by the tenant according to the tenant (during the household interview)

This information would be used to determine the correct utility allowance, and whether this allowance is the same as the allowance used by the PHA/owner.

Payment Standard. Payment Standards must be kept current and set between 90 and 110 percent of the fair market rent (FMR). If a PHA does not ensure that their payment standards are within this range, or they misunderstand how new FMRs affect exception payment standards, errors in tenant rent determinations will result.

PHAs may apply payment standards incorrectly resulting in errors in tenant rents. A PHA may have several Payment Standard areas with complex borders, sometimes making it difficult to select the correct Payment Standard for any given address within the jurisdiction. PHAs may also err by applying the family-size Payment Standard (the size authorized for the family as shown on the voucher) in lieu of the lesser of the family-size Payment Standard or the Payment Standard for the unit size (number of bedrooms in the unit). Other potential areas for error include whether a PHA has been authorized to use FMRs based on the 50th percentile of rents in the area; whether the PHA has been authorized to use success rate payment standards based on the 50th percentile of rents; and whether the PHA continues to be eligible for these higher subsidy standards. Another complication allows PHAs to change the Payment Standard only at the time of the annual recertification or prior to moving to a new address. Thus, even if a change in family composition requires an interim recertification with several family members moving in or out, the Payment Standard used in determining the rent should not be changed at the interim recertification.

Based on a recent revision to the Housing Act of 1937, HUD has a particular interest in monitoring the correct use of the payment standard. Section 545 of the Quality Housing and Work Responsibility Act of 1998 calls on HUD to monitor rent burdens and review any payment standard that results in a significant percentage of the families occupying units of any size paying more than 30 percent of adjusted income for rent.

To determine if the PHA is using the correct Payment Standard, the following information is required:

- The Fair Market Rents for each unit size for each geographic area within the PHA's jurisdiction
- The Payment Standard for each unit size for each geographic area within the PHA's jurisdiction
- Any exception Payment Standard area approved by HUD, and the boundaries of those areas
- The number of bedrooms in the unit the family selects
- The payment standards for both the family size and the unit size
- The Payment Standard area in which any given assisted unit is located

This information would be used to determine the correct Payment Standard, and whether this amount is the same as the amount used by the PHA.

* * * *

Definitions

Actual Rent—the tenant rent from the 50058/50059 form

Administration Type—PHA or owner

Case Type—certification, recertification, and overdue recertification

Abstract Month—the month in which the data collection process for any given household was initiated

Error Rate—the sum of the dollar amount of Gross Rent Error divided by the sum of the dollar amount of the QC Rent.

Net Rent Error—the arithmetic sum of over- and underpayments

Gross Rent Error—the sum of the absolute values of under- and overpayments

Largest Component Dollar Error—the annual dollar amount of error in the component with the largest error

Overpayment—results when the household paid more than it should have paid; HUD's contribution was less than it should have been

Payment Type—underpayment, proper payment, and overpayment

Program Type—Public Housing, Section 8 Certificates, Section 8 Vouchers, Section 8 Moderate Rehabilitation, Section 8 Substantial Rehabilitation and New Construction, Section 8 Loan Management, Section 8 Property Disposition, and Section 8 Preservation

Quality Control Month—the month in which the PHA/owner completed the rent calculation

Quality Control (QC) Rent—calculated by Macro using the Household Questionnaire and verification data

Rent Component—the five sources of income (earned, pensions, public assistance, other income, and assets) and the five types of deductions (medical, child care, and disability assistance expenses, dependent allowance, and elderly/disabled allowance)

Rent Error—the difference between the monthly Actual Rent and the monthly QC Rent

Total Component Dollars in Error—the absolute sum (i.e., the sum of the positive and negative amounts, ignoring the plus or minus signs) of all individual income and expense component errors. These errors are combined to provide an overall Total Dollars in Error and are presented as annual amount.

Underpayment—results when the household paid less than it should have paid; HUD's contribution was higher than it should have been.

Appendix A

Rent Calculations

Rent Calculations

A. Public Housing

- a. Obtain the Total Tenant Payment (TTP).
- b. Determine if the family includes any ineligible noncitizens. IF YES, **continue**.
If NO, **go to d**.
- c. Determine if the family includes any citizens or eligible noncitizens. IF YES, **go to**
Continuation of Assistance. IF NO, **go to** Temporary Deferral of Termination of Assistance.

MARKER (marks the return point after determining continuation of assistance status).

- d. Obtain the Utility Allowance.
- e. Determine if the PHA has a Flat Rent. IF YES, **continue**. IF NO, **go to g**.
- f. Determine if the tenant selected the Flat Rent. IF NO, **go to g**. IF YES, the QC RENT equals
the flat rent.
- g. Determine if the PHA has a Ceiling Rent.
IF YES, obtain the amount of the ceiling rent. The amount of the tenant's rent (QC RENT)
is the lower of the Ceiling Rent or a. (TTP) minus b. (Utility Allowance).
IF NO, the amount of the tenant's rent (QC RENT) is a. (TTP) minus d. (Utility Allowance).

B. Section 8 Regular Certificates and Moderate Rehabilitation

- a. Obtain the TTP.
- b. Determine if the family includes any ineligible noncitizens. IF YES, **continue**. If NO, **go to**
d.
- c. Determine if the family includes any citizens or eligible noncitizens. IF YES, **go to**
Continuation of Assistance. IF NO, **go to** Temporary Deferral of Termination of Assistance.

MARKER (marks the return point after determining continuation of assistance status)

- d. Obtain the Utility Allowance.
- e. Subtract d. (Utility Allowance) from a. (TTP).
6. If e. is less than or equal to the gross rent, it is the QC RENT. If e. is greater than the gross
rent, the gross rent is the QC rent.

C. Section 8 Over-the-Fair-Market-Rent-Tenancy Option (OFTO)

- a. Obtain the TTP.
- b. Obtain the Gross Rent.
- d. Obtain the Fair Market Rent.
- d. Subtract d. (Fair Market Rent) from c. (Gross Rent) to determine the amount by which the Gross Rent exceeds the Fair Market Rent.
- e. Add a. to d. to determine the Family Share.
- f. Determine if the family includes any ineligible noncitizens. IF YES, **continue**. If NO, **go to h**.
- g. Determine if the family includes any citizens or eligible noncitizens. IF YES, **go to Continuation of Assistance**. IF NO, **go to Temporary Deferral of Termination of Assistance**.

MARKER (marks the return point after determining continuation of assistance status).

- h. Obtain the Utility Allowance.
- i. Subtract h. (Utility Allowance) from e. (Family Share) to determine QC RENT.

D. Section 8 Vouchers

- a. Obtain TTP.
- b. Obtain Gross Rent.
- c. Obtain 30 percent of monthly ADJUSTED INCOME.
- d. Obtain 10 percent of Monthly TOTAL INCOME.
- e. Obtain Minimum Rent.
- f. Obtain Payment Standard.
- g. Determine if the Gross Rent (b.) equals the Payment Standard (f).
IF YES, the Family Share equals a. (TTP). **Go to v**.
IF NO, continue.
- h. Determine if the Gross Rent exceeds the Payment Standard.
IF YES, subtract f. (Payment Standard) from b. (Gross Rent).
IF NO, **go to o**.

- i. Add a. to h.
- j. Determine if the (re)certification was effective on or after 10/1/99. IF YES, continue. IF NO, the Family Share = i. **Go to v.**
- k. Determine if this is the FAMILY's initial assisted lease for this unit (D-9, Q.1b = No) . IF YES, continue. IF NO, the Family Share equal i. **Go to v.**
- l. Obtain Monthly Adjusted Income.
- m. Divide i. by l.
- n. Determine if m. is equal to or less than .40. IF YES, the Family Share equal i. **Go to v.** IF NO, **procedural error.** Family Share equals i. **Go to v.**
- o. Determine if the family was admitted to the program between 12/20/98 and 10/1/99. IF NO, **go to q.** IF YES, **continue.**
- p. Determine if the assisted unit is in the same unit or in the same complex where the FAMILY lived immediately prior to receiving assistance (D-9, Q.1c = Yes). IF YES, the Family Share equals the greater of c. or d. **Go to v.** IF NO, **continue.**
- q. Determine if the (re)certification was effective prior to 10/1/99. IF YES, **continue.** IF NO, **go to u.**
- r. Subtract a. (TTP) from f. (Payment Standard) to determine HAP.
- s. Subtract r (HAP) from b. (Gross Rent).
- t. The Family Share equals the higher of d., e., or s. **Go to v.**
- u. The Family Share equals a.
- v. Determine if the family includes any ineligible noncitizens. IF YES, **continue.** If NO, **go to x.**
- w. Determine if the family includes any citizens or eligible noncitizens. IF YES, **go to Continuation of Assistance.** IF NO, **go to Temporary Deferral of Termination of Assistance.**

MARKER (marks the return point after determining continuation of assistance status)

- x. Obtain the Utility Allowance.
- y. Subtract x. (Utility Allowance) from the Family Share (g., j., k., n., p., t., or u.). This is the QC RENT.

E. Section 8 Preservation Certificates

- a. Obtain the TTP.
- b. Obtain Monthly Adjusted Income.
- c. Obtain the Monthly Adjusted Income of the FAMILY at the time of mortgage prepayment or voluntary termination.
- d. Obtain the gross rent the FAMILY was paying on the date of prepayment or voluntary termination.
- e. Record the greatest of a. or d.
- f. Determine if the PHA implemented the regulation related to the FAMILY's income declining by 15 percent or more. IF YES, **continue**. IF NO, record e. as the Family Share, and **go to l**.
- g. Subtract b.(current monthly adjusted income) from c. (previous monthly adjusted income), and divide the result by c. (previous monthly adjusted income). (This determines the percent by which the family's income decreased.)
- h. Is g. greater than or equal to 15 percent? IF YES, **continue**. IF NO, record e. as the Family Share, and **go to l**.
- i. Divide d. by c. to determine the percentage of income being paid by the FAMILY at the time of mortgage prepayment or voluntary termination.
- j. Determine the greater of 30 percent or the percentage determined in i.
- k. Multiply b. (Monthly Adjusted Income) by j. to determine Family Share.
- l. Determine if the family includes any ineligible noncitizens. IF YES, **continue**. If NO, **go to n**.
- m. Determine if the family includes any citizens or eligible noncitizens. IF YES, **go to Continuation of Assistance**. IF NO, **go to Temporary Deferral of Termination of Assistance**.

MARKER (marks the return point after determining continuation of assistance status).

- n. Obtain the utility allowance.
- o. Subtract n. (utility allowance) from f., h., or k. (Family Share). This is the QC RENT.

F. Section 8 Preservation Vouchers

- a. Obtain the new Gross Rent.
- b. Obtain the Payment Standard.
- c. Obtain 30 percent of Monthly Adjusted Income.
- d. Obtain 10 percent of Monthly Total Income.
- e. Obtain the Monthly Adjusted Income.
- f. Obtain the Monthly Adjusted Income of the FAMILY at the time of mortgage prepayment or voluntary termination.
- g. Obtain the applicable Rent the FAMILY was paying on the date of prepayment or voluntary termination.
- h. Obtain the Minimum Rent.
- i. Determine if the FAMILY stayed in their unit or moved within the project to an appropriate size unit (D-9, Q. 1b = Yes, or D-9, Q. 6g. = Yes). IF YES, **continue** IF NO, **go to l.**
- j. Determine if a. (Gross Rent) exceeds b. (Payment Standard). IF YES, **continue**. IF NO, **go to l.**
- k. Record the greatest of c., d., g., and h. **Go to q.**
- l. Subtract c. (30% of monthly ADJUSTED INCOME) from b. (Payment Standard).
- m. Record the greatest of d., g., or h.
- n. Subtract m. from a. (Gross Rent).
- o. Record the lesser of l. or n. to determine HAP.
- p. Subtract o. (HAP) from a. (Gross Rent).
- q. Determine if the PHA implemented the regulation related to the FAMILY's income declining by 15 percent or more. IF YES, **continue**. IF NO, record k. or p. as the Family Share. **Go to w.**
- r. Subtract e.(monthly adjusted income) from f. (previous monthly adjusted income), and divide the result by f. (previous monthly adjusted income). (This determines the percent by which the family's income decreased.)

- s. Determine if r. is greater than or equal to 15 percent? IF YES, continue. IF NO, record k. or p. as the Family Share. **Go to w.**
- t. Divide g. by f. to determine the percentage of income being paid by the FAMILY at the time of mortgage prepayment or voluntary termination.
- u. Determine the greater of 30 percent or the percentage determined in t.
- v. Multiply e. (Monthly Adjusted Income) by the percentage in u. to determine Family Share.
- w. Determine if the family includes any ineligible noncitizens. IF YES, **continue.**
If NO, **go to y.**
- x. Determine if the family includes any citizens or eligible noncitizens. IF YES, **go to** Continuation of Assistance. IF NO, **go to** Temporary Deferral of Termination of Assistance.

MARKER (marks the return point after determining continuation of assistance status).

- y. Obtain the Utility Allowance.
- z. Subtract y. (Utility Allowance) from k., p., or v. (Family Share) to obtain the QC RENT.

G. Section 8 Project-Based (except Moderate Rehabilitation)

- a. Obtain the Gross Rent.
- b. Obtain the TTP.
- c. Determine if b. (TTP) is less than a. (Gross Rent). IF YES, **continue.** IF NO, **mark as Procedural Error.** This case should not be an assisted household, and should not have been in the sample. However, to determine the amount of the subsidy error, the tenant rent capped by the gross rent must be calculated. **Continue.**
- d. Determine if the family includes any ineligible noncitizens. IF YES, **continue.** If NO, **go to** f.
- e. Determine if the family includes any citizens or eligible noncitizens. IF YES, **go to** Continuation of Assistance. IF NO, **go to** Temporary Deferral of Termination of Assistance.

MARKER (marks the return point after determining continuation of assistance status).

- f. Obtain the Utility Allowance.
- g. Subtract f. (Utility Allowance) from b. (TTP). This is the QC RENT.

H. Manufactured Home Space Rental for Section 8 Regular Certificates

- a. Obtain FMR for manufactured home space rental.
- b. Obtain the amortization cost.
- c. Obtain the Utility Allowance.
- d. Obtain the Rent to Owner.
- e. Determine if d. (Rent to Owner) is greater than a. (FMR).
IF YES, **procedural error, continue**. IF NO, **continue**.
- f. Add b., c., and d. to determine the manufactured home space cost.
- g. Obtain the TTP.
- h. Subtract g. (TTP) from f. (manufactured home space cost).
- i. Select the lesser of d. (rent to owner) or h. to determine HAP.
- j. Determine if the family includes any ineligible noncitizens. IF YES, **continue**.
If NO, **go to l**.
- k. Determine if the family includes any citizens or eligible noncitizens. IF YES, **go to**
Continuation of Assistance. IF NO, **go to** Temporary Deferral of Termination of Assistance.

MARKER

- l. Subtract i. (HAP) from d. (rent to owner) to determine the QC RENT.

I. Manufactured Home Space Rental for Section 8 Vouchers - Pre Merger

- a. Obtain the Manufactured Home Space Rental FMR.
- b. Obtain the amortization cost.
- c. Obtain the Utility Allowance.
- d. Obtain the Rent to Owner.
- e. Add b., c., and d.
- f. Obtain 30 percent of Monthly Adjusted Income.
- g. Subtract f. from e.
- h. Obtain 10 percent of Gross Monthly Income.

- i. Obtain Minimum Rent.
- j. Determine the higher of h. or i.
- k. Subtract j. from d. (rent to owner).
- l. Determine the lesser of g. or k. to determine HAP.
- m. Determine if the family includes any ineligible noncitizens. **IF YES, continue.**
If NO, **go to o.**
- n. Determine if the family includes any citizens or eligible noncitizens. **IF YES, go to**
Continuation of Assistance. **IF NO, go to** Temporary Deferral of Termination of Assistance.

MARKER

- o. Subtract l. (HAP) from d. (Rent to Owner) to determine QC Rent.

J. Manufactured Home Space Rental for Section 8 Vouchers - Post Merger

- a. Obtain the Payment Standard.
- b. Obtain the Total Tenant Payment.
- c. Obtain the maintenance and management charges.
- d. Obtain the Utility Allowance.
- e. Obtain the rent to owner.
- f. Subtract b. (Total Tenant Payment) from a. (Payment Standard).
- g. Add c. (Maintenance and management charges), d. (Utility Allowance), and e. (Rent to Owner).
- h. Subtract b. (Total Tenant Payment) from g.
- i. Determine lesser of f. or h to determine HAP.
- j. Determine if the family includes any ineligible noncitizens. **IF YES, continue.** If NO, **go to**
l.
- k. Determine if the family includes any citizens or eligible noncitizens. **IF YES, go to**
Continuation of Assistance. **IF NO, go to** Temporary Deferral of Termination of Assistance.

MARKER

- l. Subtract i. (HAP) from e. (Rent to Owner) to obtain QC Rent.

K. Manufactured Home Space Rental for Section 8 Over-FMR Tenancy Option (OFTO)

- a. Obtain the Manufactured Home Space Rental FMR.
- b. Obtain the amortization cost.
- c. Obtain the utility allowance.
- d. Obtain the Fair Market Rent.
- e. Add b., c., and d.
- f. Obtain the TTP.
- g. Subtract f. from e.
- h. Obtain the rent to owner.
- i. Obtain the minimum rent.
- j. Subtract i. from h.
- k. Select the lesser of g. or j. to determine HAP.
- l. Determine if the family includes any ineligible noncitizens. **IF YES, continue.**
If NO, **go to n.**
- m. Determine if the family includes any citizens or eligible noncitizens. **IF YES, go to**
Continuation of Assistance. **IF NO, go to** Temporary Deferral of Termination of Assistance.

MARKER

- n. Subtract k. from h. to determine QC RENT.

Special Calculations for Households with Ineligible Non-Citizens

A. Continuation of Assistance

- a. Determine if the family was receiving assistance on June 19, 1995. IF YES, **continue**. IF NO, the FAMILY maybe eligible for pro-rated assistance; **go to** Proration Formula.
- b. Determine if the FAMILY head or spouse is a citizen or eligible noncitizen. IF YES, **continue**. IF NO, the FAMILY may be eligible for pro-rated assistance; **go to** Proration Formula.
- c. Determine if the FAMILY includes any ineligible members other than the head, spouse, child or parent of the head or spouse. IF NO, **continue**. IF YES, the FAMILY maybe eligible for pro-rated assistance; **go to** Proration Formula.
- d. Determine if the FAMILY was granted continuation of assistance before 11/29/96. IF YES, the FAMILY is eligible for full continuation of assistance, **Return to** MARKER. IF NO, the FAMILY maybe eligible for pro-rated assistance; **go to** Proration Formula.

B. Temporary Deferral of Termination of Assistance

- a. Determine if the FAMILY includes a refugee under Section 207 of the Immigration and Naturalization Act or an individual seeking asylum under Section 208 of that Act. IF YES, the FAMILY is entitled to ongoing deferral of termination. **Go to** MARKER. IF NO, **continue**.
- b. Determine if temporary deferral of termination of assistance was granted prior to 11/29/96. IF YES, **continue**. IF NO, **go to** e.
- c. Determine if more than 36 months have passed since temporary deferral of termination of assistance was granted. IF YES, **go to** g. IF NO, the FAMILY is entitled to temporary deferral of termination of assistance. **go to** MARKER.
- d. Determine if more than 18 months have passed since temporary deferral of termination of assistance was granted. IF YES, **continue**. IF No, the FAMILY is entitled to temporary deferral of termination of assistance. **go to** MARKER.
- e. Determine if there are eligible members.
IF YES, **go to** f.
IF NO, **go to** g.
- f. Determine if the household elected pro-rated assistance.
IF YES, **go to** Proration Formula.
- g. Determine if the FAMILY is exercising its hearing rights. If **YES**, **go to** MARKER.
IF NO, **continue**.
- h. Determine if the PHA is making reasonable efforts to evict. IF YES, **go to** MARKER. IF NO, **Procedural Error, HOUSEHOLD IS INELIGIBLE**.

C. Proration Formula for Public Housing

- a. Determine if this is a Public Housing case? IF YES, **continue**. IF NO, **go to** Proration Formula for all Section 8 Programs.
- b. Determine the number of FAMILY members.
- c. Determine the number of eligible FAMILY members.
- d. Obtain the TTP.
- e. Obtain the 95th percentile of Gross Rents for similarly sized public housing units in order to determine the “public housing maximum rent.”
- f. Subtract d. (TTP) from e. (maximum rent) to determine maximum subsidy.
- g. Divide f. (maximum subsidy) by b. (number of FAMILY members) and multiply by c. (number of eligible members) to determine the eligible subsidy for the FAMILY.
- h. Subtract g. (eligible subsidy) from e. (maximum rent) to obtain the pro-rated TTP.
- i. Obtain the Utility Allowance.
- j. Determine if the PHA has a Flat Rent. IF YES, **continue**. IF NO, **go to** l.
- k. Determine if the tenant selected the Flat Rent. IF NO, **go to** l. IF YES, the QC RENT equals the flat rent. **Go to** q.
- l. Determine if the PHA has a Ceiling Rent.
IF YES, go to m.
IF NO, go to o.
- m. Obtain the amount of the ceiling rent.
- n. Determine if the Ceiling Rent is lower tHAn h. (prorated TTP) minus i. (Utility Allowance).
IF YES, the QC RENT is the Ceiling Rent. **STOP**
IF NO, the QC Rent is h. (prorated TTP) minus i. (Utility Allowance). **Go to** p.
- o. The amount of the tenant’s rent (QC RENT) is h. (prorated TTP) minus i. (Utility Allowance).
- p. Did the Family accept the prorated rent? Y/N
IF NO: Go to Temporary Deferral of Termination of Assistance.

D. Proration Formula for All Section 8 Programs

- a. Calculate the HAP.
- b. Record the number of FAMILY members.
- c. Record the number of eligible FAMILY members.
- d. Obtain the Gross Rent.
- e. Divide a. (HAP) by b. (total number of FAMILY members), and then multiply the result by c. (number of eligible FAMILY members) to obtain the prorated HAP.
- f. If Manufactured Home Space Rental, return to MARKER.
- g. Subtract e. (prorated HAP) from d. (Gross Rent) to obtain the prorated Family Share.
- h. Obtain the utility allowance.
- i. Subtract h. (utility allowance) from g. (prorated Family Share) to determine the prorated QC RENT.

Appendix B

Weighting Procedures

Weighting Procedures

This appendix describes the procedures followed in weighting the sample data.

Study Population. The universe under study included all projects and tenants located in the continental United States, Alaska, Hawaii, and Puerto Rico.

The following programs were given an opportunity to appear in the sample:

- Public Housing
- PHA-administered Section 8 projects:
 - Moderate Rehabilitation
 - Certificates
 - Vouchers
- Owner-administered projects:
 - Section 8 New Construction/Substantial Rehabilitation
 - Section 8 Loan Management
 - Section 8 Property Disposition

The following programs/project types are excluded from the sample:

- Mutual Help projects
- Indian Housing projects
- Section 23 projects
- A small number of Section 8 projects that are in development but were not expected to be operational during the study period
- Section 236, including projects without tenant-based subsidy, with Rental Assistance Payments (RAP) subsidy, and with the Section 8 subsidy

Weighting Strategy. There are two weighting strategies that may be followed in a design, such as this one, where Primary Sampling Units (PSUs) and projects may be selected more than once depending on whether they exceed the sampling interval. One approach is to determine how many times a PSU has been selected and use the conditional probabilities given that it was selected that number of times. We then determine the number of times a project was selected and use the conditional probabilities given that the tenant was selected that number of times. Therefore, if a sample was drawn twice, the same household could have different weights depending on how many times the associated PSU or project was selected.

Instead of the above approach we used inverse probabilities of selection. This means that we calculated every possible way a household could have been selected to determine its overall probability of selection. We then trimmed the weights and post-stratified in order to obtain the final weights. For this reason, instead of speaking of PSU weights and project-level weights we discuss probabilities of selection at each stage.

Primary Sampling Unit Probabilities. Each PSU was sampled with probabilities proportional to size. The size measure used was the number of tenants adjusted to obtain equal expectation for the three major types of programs in the study. The number of tenants of each kind in a PSU was multiplied by an inflation factor to make all three numbers equal. The size measures were then added and the PSU probability of selection was its size measure divided by the sum of the size measures nationwide, multiplied by the number of PSUs to be selected (which was 60). PSUs with probabilities greater than 1 could be selected more than once. Its probability for weighting purposes was still set to 1.0.

Project Probabilities. Replacements were treated just like initially selected projects. The projects were selected with probabilities proportional to adjusted size (using the same adjustment as that used for PSUs). Ten projects were selected from each PSU and, if a PSU was selected several times, ten projects were selected for each time the PSU was selected. In turn a project might be selected more than once.

If a PSU had a probability of selection less than one, the probability of selection of the projects, given that the PSU was selected, is $p=10s/\sum s_j$ where s is the adjusted size of the project, 10 is the number of projects to be sampled, and the summation is taken over the entire PSU. This is a conditional probability and it must be multiplied by the probability that the PSU was selected at all in order to obtain the unconditional probability of selection of the project.

If the PSU had a probability of selection equal to 1, then the PSU could have been selected m or $m+1$ times. The probability that the PSU was selected m times and the probability that the project was selected if the project was selected m times was then calculated. As a result the overall probability of the project being selected was calculated as follows. Let x be the event that the PSU was selected m times, and x' the probability that the PSU was selected $m+1$ times. Then $p(x)+p(x')=1$. Let y be the event that the project was selected. Then $p(y)=p(x)p(y|x)+p(x')p(y|x')$. Since the probability of the PSU is already 1.0, this was also a probability given that the PSU was selected. In other words, we calculated the probability of selecting the projects by following what would have happened had the PSU been selected m times and what would have happened had the PSU been selected $m+1$ times.

Tenant Probabilities. In order to calculate tenant weights we followed a procedure analogous to that for calculating project weights. If a project had no chance of being selected more than once, probability of selection of the tenant was $4/N_{ij}$, where N_{ij} was the number of tenants in project j in PSU i and four was used since this was the number of tenants selected from the project. Note that since projects were selected proportional to N_{ij} , had accurate data been available for all projects the probabilities would have been the same for tenants in the three major groups. It is only because the number of tenants in the projects was seldom exactly the number in the frame that tenant weights and probabilities differ.

If a project could be selected more than once, the total probability of selection was calculated following every possible path. This may have entailed calculating four different conditional probabilities, considering the possibilities of the PSU being selected m or $m+1$ times, and the project being selected k or $k+1$ times. Once the overall probability was calculated, this incorporated the PSU and project probabilities of selection.

At this point a tenant weight was calculated as the multiplicative inverse of the tenant probability of selection.

Adjustments to Weights. Up to this point the assumption was that we would obtain the exact number of tenants in the project and that we would sample exactly four tenants for every time the project was selected. In practice we sampled tenants who were not in scope, and in a very few cases we sampled a number other than the one called for in the design. This happened because an out-of-scope tenant was discovered too late or because a tenant thought to be out-of-scope and replaced turned out to be in scope.

If some tenant was found to be out-of-scope, the tenant weights were multiplied by $n/(n+m)$ where n is the number of in-scope tenants sampled and m is the number of out-of-scope tenants sampled. This multiplication has the effect of reducing the N_{ij} to account for the fact that some of the tenants making up that number are out of scope.

If the number sampled in a project was n' and the number that was supposed to be sampled was n , then weights in the project were multiplied by n/n' in order to spread the weights accordingly while retaining the sum of the weights provided by the project.

Post-Stratification. The sample was designed to obtain similar numbers of tenants in each of three categories of projects:

- Public Housing
- PHA-administered Section 8
- Owner-administered Section 8

HUD provided approximate totals for each of the three categories. The frame totals did not correspond to these numbers, and in any case required extensive adjustments. Thus it was decided to adjust the weights so they added up to those provided by the external source.

Trimming the Weights. Extreme weights tend to add to the variance of the estimates. There is an approach that allows the reduction of the extreme weights. This approach uses the NAEP procedure (so called because it was used in the National Assessment of Education Progress). The procedure essentially works as follows:

- For each of the three post-strata, the NAEP criterion is defined as $\sqrt{10 * (\sum w^2 / n)}$.
- If any weight exceeds the criterion it is set to the criterion.

- The weights in the post-strata are adjusted to add up to the same value as before.
- The procedure is repeated as many times as is necessary.

This procedure was applied both before and after post-stratification. It essentially had the effect of reducing extreme weights while retaining the total number in each post-stratum.

Appendix C

Sample Sizes for Analysis

Sample Sizes for Analysis

Analysis Purpose	Number of Weighted Cases	Percent of Universe	Number of Sample Cases Included in the Analysis	Sample Cases Excluded from the Analysis Because 50058/50059 Missing or Incomplete	
				Cannot Calculate Actual Rent	Cannot Calculate QC Rent
Case Characteristics (recertification, certification, unit size, verification)	4,303,000	100%	2,403	n/a	n/a
Rent Error	4,290,000	99.8%	2,398	1*	4**

* 50058/50059 missing Actual Tenant Rent or Total Tenant Payment

** Cases missing critical information needed to calculate rent



Appendix D

Analysis Tables



Tables Responding to Objective(s)

OBJECTIVE	TABLE
Objective 1: Identify the various types of errors and error rates and related estimated variances.	<ol style="list-style-type: none"> 1. Verification of QC Rent Components 2. Dollar Rent Error by Program Type 3. Percent of Households by Payment Type and Program Type 4. Dollar Error Amount by Payment Type and Program Type 5. Gross and Net Rent Error by Program Type 6. Case Type by Program Type 7. Dollar Error Amount by Payment Type and Case Type 8. Largest Component Error For Households with Rent Error 10. QC Rent Components by Payment Type and Administration Type 11. Allowances
Objective 2: Identify the dollar costs of the various types of errors.	<ol style="list-style-type: none"> 2. Dollar Rent Error by Program Type 4. Dollar Error Amount by Payment Type and Program Type 5. Gross and Net Rent Error by Program Type 7. Dollar Error Amount by Payment Type and Case Type 8. Largest Component Error For Households with Rent Error 9. Total and Largest Dollar Error by Program Type for Households with Rent Error
Objective 3: Estimate the national-level costs for total error and major error types.	<ol style="list-style-type: none"> 2. Dollar Rent Error by Program Type 4. Dollar Error Amount by Payment Type and Program Type 5. Gross and Net Rent Error by Program Type 7. Dollar Error Amount by Payment Type and Case Type 8. Largest Component Error For Households with Rent Error 9. Total and Largest Dollar Error by Program Type for Households with Rent Error
Objective 4 Determine the relationship between errors detectable using the HUD 50058 and HUD 50059 forms and total errors.	<ol style="list-style-type: none"> 12. Calculation Errors on Form 50058/59 13. Consistency Errors on Form 50058/59 14. Verification of Form 50058/59 Rent Components
Objective 5: Determine whether error rates and error costs have statistically significant differences from program to program.	<ol style="list-style-type: none"> 2. Dollar Rent Error by Program Type 3. Percent of Households by Payment Type and Program Type 4. Dollar Error Amount by Payment Type and Program Type 5. Gross and Net Rent Error by Program Type 6. Case Type by Program Type 9. Total and Largest Dollar Error by Program Type for Households with Rent Error
Objective 6: Determine the extent to which households are overhoused relative to HUD's standards.	<ol style="list-style-type: none"> 15. Occupancy Standards
Objective 7: Determine the extent to which errors are concentrated in projects and programs.	<ol style="list-style-type: none"> 2. Dollar Rent Error by Program Type 16. Percent of Cases and Standard Error by Rent Component and Payment Type

OBJECTIVE	TABLE
Objective 8: Estimate the percentage of newly certified tenants who were incorrectly determined eligible for program admission.	6. Case Type by Program Type 7. Dollar Error Amount by Case Type
Objective 9: Estimate the total positive and negative errors in terms of HUD subsidies.	3. Percent of Households by Payment Type and Program Type 4. Dollar Error Amount by Payment Type and Program Type 7. Dollar Error Amount by Case Type
Objective 10: Determine the apparent cause of significant rent errors, either on a sample or a comprehensive basis, to provide HUD with information on whether the error was caused primarily by the tenant or by the program sponsor staff.	16. Percent of Cases and Standard Error by Rent Component and Payment Type Multivariate regression analysis with error sources and error causes as independent variables, and QC error as the dependent variable.
Objective 11: Determine whether other tenant or project characteristics on which data are available are correlated with high or low error rates.	Multivariate error prone analysis using tenant and project characteristics as independent variables and QC error as the dependent variable.
Objective 12: Determine whether cases for which 50058/59 data had been submitted to HUD were more or less likely to have errors than those for which data had not been submitted.	17. Program Type by TRACS/MTCS Data 18. Payment Type by TRACS/MTCS Data
Objective 13: Determine the extent to which Section 8 certificate and voucher rents are consistent with market rate rents for comparable units in comparable locations.	19. Disparity in Monthly Section 8 and Estimated Market Rents

Terms: **Rent Component:** The five sources of income (earned, pensions, public assistance, other, and asset), three types of expense deductions (medical, child care, and disability expenses), and two allowances (dependent and elderly allowances)

Rent Error: The difference between the Actual Rent and the QC Rent; net rent error is the algebraic sum of over- and underpayments; gross rent error is the sum of the absolute values of under- and overpayments.

Program Type: Public Housing, Section 8 Certificates, Section 8 Vouchers, Section 8 Moderate Rehabilitation, Section 8 Substantial Rehabilitation and New Construction, and Section 8 Loan Management and Property Disposition.

Administration Type: PHA or Owner

Payment Type: Underpayment, proper payment, and overpayment

Case Type: Certification, recertification, and overdue recertification

[Remaining files not available electronically]

Appendix E

Sample List of Cases

Sample List of Cases

This appendix includes all cases where the Actual and QC rents vary by more than \$100. The list includes the data from both the 50058/50059 (the first line) and the QC calculations (the second line) for each observation. The program type for each case is listed in the second column with the rent formula used for the QC tenant rent in the third column. Program Types include:

PH = Public Housing
C/V = Certificate or Voucher
OA = Owner Administered

Rent formulas include:

A Public Housing
B Section 8 Regular Certificates and Moderate Rehabilitation
C Section 8 Over-the-Fair-Market-Rent-Tenancy Option (OFTO)
D Section 8 Vouchers
G Section 8 Project-Based (except Moderate Rehabilitation)

Rent formulas for households with ineligible non-citizens also include proration. An asterisk (*) next to the rent formula indicates the household included an ineligible non-citizen and required proration. Each of the rent formulas are provided in detail in Appendix A

For each source of information (50058/59 and QC) the following items are listed:

- HH Status - Elderly or Non-elderly
- Number of Dependents
- Earned Income
- Pension Income
- Public Assistance Income
- Other Income
- Asset Income
- Total Income
- Dependent Allowance
- Child Care Allowance
- Disability Allowance
- Medical Allowance
- Elderly Allowance
- Total Allowances
- Adjusted Income
- Total Tenant Payment
- Utility Allowance
- Ceiling Rent (for Public Housing) or Gross Rent (for Section 8)
- Payment Standard
- Tenant Rent

Tenant Rent

The tenant rent is the amount of rent the tenant pays. It is found on the 50058 or 50059 form in the following places. The information in parenthesis is the instruction from the 50058 form. There is no instruction on the 50059 form in the TRACS instructions for this data item.

50059 All Owner-Administered Programs	Item # 51 on the paper form Item # 66 on the TRACS Basic Record
50058 Public Housing (total rent amount the family pays, or the total credit amount the family received to pay utilities)	Item 10e or 10s if prorated
Section 8 Certificates (total rent amount the family pays to the owner, or the total credit amount the family receives to pay utilities)	Item 11s or 11ak if prorated
Section 8 Vouchers (Total rent amount the family pays to the owner)	Item 12x or 12ai if prorated
Moderate Rehabilitation (total rent amount the family pays to the owner, or the total credit amount the family receives to pay utilities)	Item 13k or 13x if prorated
Manufactured Home Owner Renting the Space (total rent amount the family pays to the owner)	Item 14w or 14ag if prorated

Tenant Rent is not the same as Total Tenant Payment. In fact the two figures are only the same in about one-third of the households. Reasons for the difference include adjustments for utility allowances, ceiling or gross rents, households where the payment standard is less than the gross rent, households where the TTP exceeds the gross rent, and households with ineligible noncitizens which require proration.

Specific Case Examples

To help the reader interpret the information provided in the attached list of cases, a description of a sample of these cases is provided.

- Obs. #1: This is a voucher household. The QC data identified earned income and a child care allowance not used by the project staff. The QC data also indicates that the "other" income is less than reported on the 50058. The gross rent and the payment standard are the same. The QC TTP for this household is \$283. However, the tenant rent is \$226. The difference between the TTP and the tenant rent is the utility allowance.
- Obs. #7: This is a public housing household with one member who is an ineligible non-citizen. This household was incorrectly identified on the 50058 as a non-elderly household and not credited with the elderly allowance. Additionally, the pension amount recorded on the 50058 was higher than the QC data, and a source of income was left out. The QC TTP is \$903, however the QC tenant rent is \$663. The difference between the TTP and the tenant rent is the prorated rent based on the ineligible non-citizen, minus the utility allowance (\$159), capped by the ceiling rent (\$579).

- Obs. # 8: This is an owner-administered Section 8 household with one member who is an ineligible non-citizen. The QC data found a small amount of income not recorded on the 50058. In this case the 50059 TTP is \$50, and the QC TTP is \$54; however the QC tenant rent differs from the 50059 tenant rent by \$125. The difference is accounted for by the prorated assistance for the ineligible non-citizen.
- Obs. # 20: This is a voucher household for which the QC TTP and the 50058 TTP are the same (\$356). The payment standard is greater than the gross rent. Therefore, the QC tenant rent (\$295) is the TTP (\$356) minus the utility allowance (\$61).
- Obs. # 30: This is an owner-administered Section 8 household where the QC TTP is greater than the gross rent. The QC data indicates employment income not found on the 50058, and a smaller amount of other income than recorded on the 50059. As a result, the adjusted annual income is much larger than that recorded on the 50059 form. The gross rent is \$1224 and the QC TTP is \$1229. This household technically should not have been assisted and should not have been in the sample. However, to determine the amount of the subsidy error, the QC tenant rent was calculated and capped by the gross rent. The tenant rent (\$1166) is the gross rent minus the utility allowance (\$58).
- Obs. #56: This is an owner-administered Section 8 household. The QC data identified two sources of income not recorded on the 50059. The total QC income is more than double the income recorded on the 50059. The QC tenant rent is the same as the QC TTP of \$312.
- Obs. #72: This is a voucher household where the payment standard is less than the gross rent. The QC data found the 50058 form under-recorded the amount of earned income for the household. In this case the QC TTP is \$566 and the QC tenant rent is \$579. The tenant rent is the TTP plus the difference between the gross rent (\$618) and the payment standard (\$502) minus the utility allowance (\$103).
- Obs. #96: This is a voucher household. The QC data found that earned income was over-recorded on the 50058 form. In this case the QC TTP is \$97 and the QC tenant rent is \$146. When the payment standard is less than the gross rent, the tenant rent is the TTP plus the difference between the gross rent (\$983) and the payment standard (\$851) minus the utility allowance (\$83).
- Obs. #313: This is a certificate household. The QC data found two new sources of income and one source of income that was under-recorded on the 50058 form. The QC total income is 4 times as much as that recorded on the 50058. This household was also incorrectly identified as non-elderly by the project staff and therefore not credited with the elderly allowance. The QC TTP for this case is \$1,267 however, the rent is capped by the gross rent. Therefore, the QC tenant rent is \$929.

[Table not available electronically]

Appendix F

Consistency Errors

50058 - Consistency Errors

ITEM	ERROR
General Information:	
1d. Program	Must equal P, CE, VO, MR, MC, or B
2a. Type of Action	Must equal 1 through 8
2b. Effective Date of Action	Cannot be earlier than Date of Admission to the Program (2c)
Household Composition:	
3g. Sex	Must equal M or F
3h. Relationship	Must equal H, S, K, F, Y, E, L, or A
3i. Citizenship	Must equal EC, EN, IN, PV, or XX
3k. Race	Must equal 1 through 4
3m. Ethnicity	Must equal 1 or 2
3s. Family Subsidy Status	Must equal C, E, F, N, P, T, or blank
3t. Effective Date	Should not be blank if 3s equals C or T
Net Family Assets and Income	
6a. Family Member No.	Must equal a number used in 3a.
7a. Family Member No.	Must equal a number used in 3a.
7b. Income Code	Must equal P, B, SS, M, S, F, T, HA, G, W, C, U, I, or N
8a. Total Annual Income	Must equal Total Annual Income (7m)
8e. Earnings Made Possible by Disability Assistance Expense	Must be <= the sum of Dollars per Year (7d) for Income Codes (7b) HA, F, W, B, or M
Allowances and Adjusted Income	
8d. Maximum Disability Allowance	Should only be completed if any member is disabled
8f. Allowable Disability Assistance Expense	Should be <= 8d (Maximum Disability Allowance) Should be 0 if 8c (Medical/Disability Threshold) is > 8d Should be 0 or blank if 8d is 0 or blank
8g. Total Medical Expenses	Should only be completed if the head or spouse is 62 or over, or disabled; otherwise it should be blank
8i. Medical/Disability Assistance Allowance	Should equal 8h minus 8c if 8d is blank or 8d is less than 8c Should equal 8c if 8d is >= 8c
8j. Elderly/Disability Allowance	Should be \$400 if head or spouse is 62 or over, or disabled; otherwise it should be 0 or blank
8m. Dependent Allowance	Must be completed if the household contains a member under age 18, disabled, or a full-time student (excluding the head, spouse, foster child or adult, or live-in attendant)
8p. Yearly Child Care Cost That Is Not Reimbursed (Child Care Allowance)	Should only be completed if any member is less than 13 years old

ITEM	ERROR
Family Rent and Subsidy Information	
10a., 11q, 12k, 13j, 14s TTP	Must equal TTP (9j) or blank
10a. through 14ag. Rent Calculations	<ul style="list-style-type: none"> - If Program (1d) = P, items 10a., 10c., and 10e. must be completed; items 11a. through 14ag. must be blank. - If Program (1d) = CE or MC, items 10a. through 10u. and 12a. through 13z. must be blank. - If Program (1d) = VO items 10a through 11an, and 13a. through 13z. must be blank. - If Program (1d) = MR, items 13f., 13g., 13h., 13j., 13k., and 13m must be completed; items 10a. through 12ak., and 14a through 14ag. must be blank.

50059 - Consistency Errors

ITEM	ERROR
General Information:	
1. Effective Date	Cannot be earlier than Date Tenant Moved into Project (2.)
6a. Action Processed	Must equal 1 through 5
6b. Action Processed	Must equal 1 through 4, or blank
7. Type of Subsidy	Must equal 1 through 6
9a. Race of Head of Household	Must equal 1 through 4
9b. Ethnicity of Head of Household	Must equal 1 or 2
Household Composition	
16. Sex	Must equal M or F
19. Special Status Code	Must equal E, S, H, F, J, or blank; should be E if Age > 61
21. Eligibility Code (Citizenship)	Must equal EC, EN, IC, IN, IP, PV, or XX
Net Family Assets and Income	
26b. C or I	Must equal C or I
28. Family Member No.	Should not be greater than the total number of members listed in item 13 (Family Member Number)
28a. Care Code	If the family member is greater than 18 years of age, then this code should be C, H, CH, HC or blank
Allowances and Adjusted Income	
36. Dependent Allowance	Must be completed if the household contains a member under age 18, disabled, or a full-time student (excluding the head, spouse, foster child or adult, or live-in attendant)
37. Child Care Allowance	Should only be completed if any member is less than 13 years old

ITEM	ERROR
39a. Total Handicapped Expenses	Should be 0 or blank if Item 28a (Care Code) is not equal to H, or CH
39b. Handicapped Allowance	Should be \leq 39a (Handicap Expenses) Should be 0 if 38 (3% of Annual Income) is $>$ 39a Should be 0 or blank if 39a is 0 or blank
40a. Total Medical Expenses	Should only be completed if the head or spouse = H or E, or age 62 years old or older
41. Elderly Household Allowance	Should be \$400 if the Special Status Code for the head or spouse = H or E; otherwise it should be 0 or blank
Family Rent and Subsidy Information:	
51. Tenant Rent	Should equal the maximum of Item 50 (TTP) minus Item 45 (Utility Allowance) or 0
52. Utility Reimbursement	Should be blank if Item 45 $<$ Item 50

Appendix G

**The Impact of Administrative Error and Component
Error on Dollar Rent Error**

The Impact of Administrative Error and Component Error on Dollar Rent Error

Objective of the Analysis

The primary purpose of this analysis was to investigate the relationship between administrative errors and component error and provide insight into their effect on the level of QC Dollar Rent Error. This analysis was intended to amplify and further explain observations displayed in Exhibit IV-12, Rent Components Responsible for the Largest Dollar Error, which shows the relative contribution of each of the rent components to QC Dollar Rent Errors.

Administrative errors are errors that result from mistakes in procedure. They consist of:

- Consistency errors
- Calculation errors
- Transcription errors
- Failure to conduct a recertification in a timely manner
- Failure to verify information.

Component errors are the ten income and expense components used to calculate rent. The five income components are employment income, Social Security and pensions, public assistance, other income, and asset income. The five expense/allowance components are elderly/disabled allowance, dependent allowance, medical expenses, child care expenses, and disability expenses.

Administrative errors tell us at what point in the process the error occurred, while the component errors tell us which income or expense caused the error. It is the impact of the two combined on the level of QC Rent Error that we investigated during this analysis. We used multivariate regression to create the models that predict error.

Data Considerations

The unit of analysis was the household. The analysis included 2,398 households. All components of error were aggregated to the household level.

Understanding that the model produced as a result of this analysis would exclude some other more complex factors (e.g., number of sources of income), other analytic approaches were used to help explain the causes of error. Such analyses are discussed in Sections VI and VII of this report.

Dependent Variable

The dependent variable was the level of QC Rent Error. Net Error was used to define QC Rent Error because it is a continuous variable which allowed us to finely measure changes in the dollar amount of QC Rent Error. Although we considered using Gross Error (the absolute value of net error) to define QC Rent Error, it was determined that there was no simple linear relationship between gross error and the variables at the component level.

More of the errors are errors in underpayments rather than in overpayments, indicating a possible bias towards errors in underpayment. If this bias were due to different behaviors driving overpayments versus underpayments, with the behaviors associated with underpayments being simply more common, then separate models would be required. However, assuming that the bias comes from a natural tendency to settle questions in favor of the recipients of housing assistance, one model was constructed for all net dollar error, with the assumption that the same types of administrative errors cause both underpayment and overpayment errors. Whether this assumption was warranted was determined by the quality of the fit for one model. The good fit of the model validated the assumption that similar administrative errors drive both underpayment and overpayment errors.

Independent Variables

As discussed earlier in this report, data was collected from multiple sources. These include:

- The 50058 or 50059 form
- Other information found in the tenant file including verification (recorded on Documentation forms)
- Verification from third parties (when the verification was not found in the tenant file)
- The household interview

Each type of administrative error is identified by taking data from one or more of these different sources of data.

Consistency errors are based on information from the 50058/50059 form. These errors were identified by determining whether there was logical conformity between elements within the 50058 or 50059 form. (Internal 50058/50059 consistency checks.)

Calculation errors are also based on information from the 50058/50059 forms. The information recorded on the 50058/50059 form was used to calculate the rent. An error occurred when the rent calculated using the rent components on the 50058/50059 form did not match the actual rent amount recorded on the 50058/50059 form. (Recalculated 50058/50059 components minus actual 50058/50059 rent components.)

Transcription errors were identified by comparing the information on the 50058/50059 form to the other information found in the tenant file. The rent was calculated using the information from the tenant file. An error occurs if this information does not match the information on the 50058/50059 file. (File information minus 50058/50059 data.)

Errors based on *failure to conduct a recertification in a timely manner* were identified by looking at the effective date of the most recent action in the tenant file. If the effective date was more than 12 months prior to the date the data were collected, the household's recertification was overdue.

Errors resulting from *failure to verify information* were identified by comparing the tenant file information with the QC information. If the PHA/owner verified the information correctly, there is no error. If they did not, the error is based on failure to verify or use the verified information. (File information minus QC data.)

Three of the administrative errors—calculation, transcription, and failure to verify—can be associated with one or more of the rent components. Therefore, each of these administrative errors when combined with the rent components represents ten different variables for a total of 30 independent variables. Consistency errors and errors resulting from failure to conduct a recertification in a timely manner are

not associated with rent components. Therefore, each of these errors represents one independent variable, for a total of 32 independent variables.

During the analysis, another set of rent component variables was added to the list of independent variables. These variables were based on the difference between the recalculated rent components (the rent calculated using on the information on the 50058/50059 forms) and the QC rent components. They represent a combination of the errors identified when comparing the recalculated 50058/50059 rent component errors to the file information (transcription errors), and the errors identified when comparing the rent components documented from the file information to the QC rent components (verification errors). They were added because the number of variables in earlier versions of the model that predicted error were quite large, and better predictors of error were needed if available.

Exhibit G-1 below presents each of the independent variables based on combining rent component with administrative error.

**Exhibit G-1
Administrative/Component Independent Variables**

Component	Administrative Error			
	Calculation (Errors identified using 58/59 data)	Transcription (Errors identified using file data)	Verification (Errors identified through the QC process)	Combined Transcription and Verification Errors
Earned Income	Calculation-Earned Income	Transcription- Earned Income	Verification-Earned Income	Trans./Verif.-Earned Income
Pension Income	Calculation-Pension Income	Transcription- Pension Income	Verification-Pension Income	Trans./Verif.-Pension Income
Public Assistance Income	Calculation-Public Assistance	Transcription- Public Assistance	Verification-Public Assistance	Trans./Verif.-Public Assistance
Other Income	Calculation-Other Income	Transcription- Other Income	Verification-Other Income	Trans./Verif.-Other Income
Asset Income	Calculation-Asset Income	Transcription- Asset Income	Verification-Asset Income	Trans./Verif.-Asset Income
Medical Expenses	Calculation- Medical Expenses	Transcription- Medical Expenses	Verification-Medical Expenses	Trans./Verif.-Medical Expenses
Child Care Expenses	Calculation-Child Care Expenses	Transcription- Child Care Exp.	Verification-Child Care Expenses	Trans./Verif.- Child Care Expenses
Disability Expenses	Calculation- Disability Exp.	Transcription- Disability Exp.	Verification-Disability Expenses	Trans./Verif.-Disability Expenses
Elderly/Disabled Allowance	Calculation- Elderly/Disabled Allowance	Transcription- Elderly/Disabled Allowance	Verification- Elderly/Disabled Allowance	Trans./Verif.- Elderly/Disabled Allowance
Dependent Allowance	Calculation- Dependent Allowance	Transcription- Dependent Allowance	Verification-Dependent Allowance	Trans./Verif.-Dependent Allowance

Model Construction

In order to select specific variables for the regression equation from the 32 variables, we examined correlations of the variables with Net Rent Error. In addition, we looked at the correlation between predictor variables to ensure as much independence among predictors as possible. Although consistency errors and overdue recertifications failed to have a strong correlation with net error for overpayments as well as underpayments, they were retained in the hope that they might still prove useful as predictors.

When developing a model for one payment type, the data with the opposite sign was set to zero so as not to reduce the sample size. Models were checked afterwards (without the extra data) to make certain that including the extra households did not influence the fit of the model unduly. In addition, only those errors greater than plus or minus five dollars constituted an overpayment or underpayment. For variable selection from the pool, we first ran correlations on the variables and Net Rent Error.

Choosing the most promising variables (those with highest correlations) for the pool of variables, we then used stepwise regression for variable selection for each model. Several tests were used to determine the adequacy of the model. These included R-square, F-test, collinearity tests, and t-tests for the significance of individual coefficients. The final models were those where the R-square Change Score (the change in the percentage of fit) decreased significantly, i.e., .009 or less, and the F Change Score changed direction (if possible). All models were screened for outliers and standardized residuals examined against the fit.

The Model

Variables were screened for inclusion through correlations with Net Rent Error. Several variables exhibited strong correlations, including all forms of income error, especially earned income.

The results of the regression are shown below in Exhibits G-2 and G-3. As can be seen in Exhibit G-2 from the adjusted R-square, net error exhibited a good fit: the adjusted R-square was .68. This means that the final model was able to account for 68 percent of the net error. The model was checked for fit without including the proper payment data (or zero error) to determine if it changed the fit significantly. The adjusted R-Square was 0.682, indicating that the inclusion of the zero error data did not significantly alter the fit of the model.

**Exhibit G-2
Fit of the Model**

R	R-Square	Adjusted R-Square	Standard Error of Estimate
0.825	0.680	0.679	68.6681

In Exhibit G-3, the coefficients show a large effect on net error. The unstandardized coefficient is the percent effect that a variable has in describing net error. For the last coefficient listed, Trans./Verif.-Medical Expense error, the unstandardized coefficient is a negative .16 percent. The interpretation here is that the negative sign of the coefficient tells us that an under-reporting in medical expenses results in overpayment in rent (or that an overreporting in medical expenses results in an underpayment in rent). The size of the coefficient tells us the impact this has on net error. The amount that the model estimates that this variable contributes is .16 percent, a very small impact. That the error was from the Trans./Verif. process means that the QC process in addition to information from the tenant file (but not from recalculating the 50058/59 information), was able to estimate what should have been claimed as medical expenses.

Exhibit G-3
Table of Coefficients - Total Model

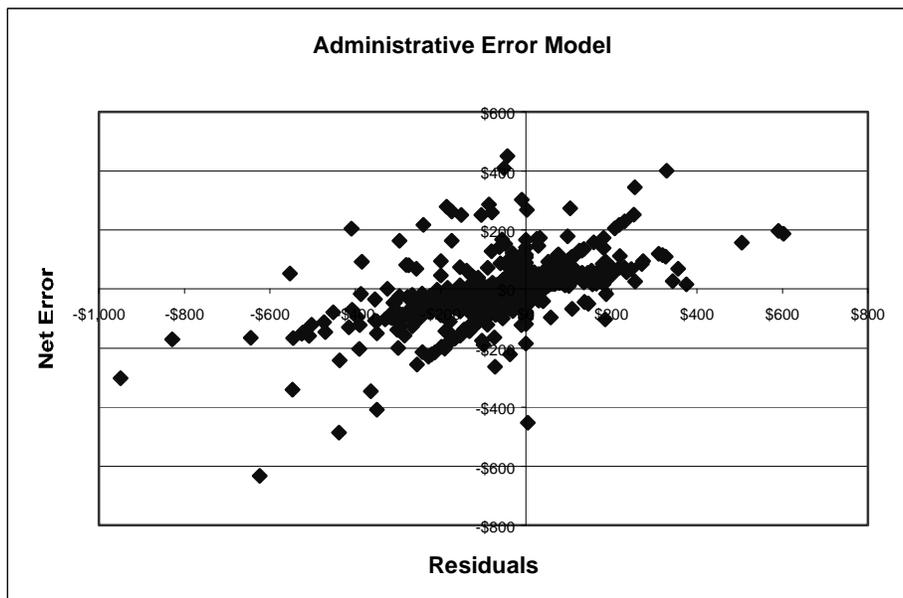
	Unstandardized Coefficients		Standardized Coefficients		
	B		Beta	t	Sig.
Constant	- 5.198	2.033		-2.557	.011
Trans./Verif.-Earned Income Error	0.001779	0.000	0.731	46.214	.000
Trans./Verif.- Pensions Income Error	0.001846	0.000	0.332	20.807	.000
Trans./Verif. - Other Income Error	0.001945	0.000	0.323	20.192	.000
Trans./Verif. - Public Assistance Income Error	0.002005	0.000	0.226	14.460	.000
Trans./Verif. - Asset Income Error	0.001513	0.000	0.164	10.544	.000
Trans./Verif.-Medical Expense Error	-0.001586	0.000	-0.125	- 8.020	.000

While the unstandardized coefficient describes the impact on the error, the standardized coefficients describe the relative contribution of the variable to the fit. In the case of medical expenses this was negative 12.5 percent. The largest contribution was the Trans./Verif.-Earned Income error with a standardized coefficient of 73 percent. This means that 73 percent of the fit of the model (which accounts for 68 percent of the error) is from mistakes in reporting earned income. The model also includes the Trans./Verif.-Pension Income, Trans./Verif.- Other Income, Trans./Verif.-Public Assistance Income, Trans./Verif.-Asset Income and Trans./Verif.- Medical Expense Expenses. All the variables included in the model were significant as displayed by the t-test and p-value (Sig.) in the table above. From it we see that most of the variables are related to sources of income. Only the last variable is from medical expenses. As expected, Trans./Verif.- Earned Income error was important.

When breaking down income by types we can see that the three types of income error with the most impact are Trans./Verif.-Earned Income, Trans./Verif.-Pension Income, and Trans./Verif.-Other Income (in descending order). The standardized coefficients show that the first three variables all contribute strongly to the model relative to the other variables. The other errors are much smaller in comparison and include Trans./Verif.-Public Assistance Income, Trans./Verif.-Asset Income, and Trans./Verif.-Medical Expenses error. Importantly, none of the other administrative errors contributed to the model.

This model exhibited a good fit but an examination of the residuals revealed some interesting phenomena. Examination of residuals is crucial before accepting a “good” model, as they reveal what has not been accounted for by the model. Systematic patterns in residuals mean that either the form of the model requires respecification (restating) or that more remains to be explained. The residuals from the total model are shown in Exhibit G-4. As can be seen, the residuals (or the remainder unaccounted for by the model) revealed a unique two- line pattern. Both pieces were linear patterns not explained by the model. Although we conducted an extensive prior examination of correlations, more variables (unrelated to the model at hand) were examined for possible correlations without success. The fact that the two pieces intersect near the origin suggested that there may be some other factors at work. These factors were systematic and seem to multiply the error by one of several constants. Close examination of several possible factors such as number of people in the household, number of elderly, and number of bedrooms all failed to account for either of these factors. That we were unable to identify these factors suggests that the phenomena underlying the residuals are complex and would require much more investigation.

Exhibit G-4
Fit of Residuals Against the Net Error



Summary of Findings

One model was presented for both overpayment and underpayment. The overall insight of the administrative error model is that the type of administrative error does not affect the level of dollar error, but rather that the income components cause that error. This is not surprising, as one would expect that dollar errors in income would have the greatest impact on dollar level rent errors due to its proportionate size compared to allowances and expenses. That is, income dollar error is usually many times larger than allowance or expense dollar error. Finally, although the total model is a good one, the residuals for the error model suggested that some other additional factor not described by this model are at play.

Appendix H

The Impact of Tenant Characteristics on Rent Error

The Impact of Tenant Characteristics on Rent Error

The incidence of rent error may be related to tenant characteristics, project characteristics, or both. An analytical approach known as Classification and Regression Tree (CART) was employed to break down characteristics and relate them to the significant rent errors, i.e., those with absolute values greater than five dollars. The analysis presented below seeks to discover which *tenant characteristics* had a substantial impact on rent error. A model focusing on *project contributions* to rent error is presented in the next appendix of this report.

Objective of the Analysis

The objective of this analysis was to determine how various tenant characteristics were related to the magnitude of rent error. In particular, this analysis was designed to develop profiles of tenant characteristics that lead to error. Different tenant characteristics may impact the incidence of rent errors. For example, tenants who are elderly may have multiple sources of medical expenses. The amount of effort required to verify these expenses would be greater for these households than for households without medical expenses. It would be reasonable to expect that each additional source of medical expenses presents more opportunities to make mistakes. In other words, we would expect households with multiple sources of medical expenses to have more rent errors than those without medical expenses. It is this type of relationship to rent error that this analysis investigated.

Sample

The household was the unit of analysis. This analysis included 2,398 households. Slightly different numbers of households participated at the different stages of the model-building process because of missing values among some of the explanatory variables such as age, race, ethnicity, and gender of the head of household. The final model included 2,314 households because 84 households were missing information on the age of the head of household.

Measures

Measures of Rent Error. The dollar amount of rent error was used in this analysis. A household's rent was considered to be in error if the gross error (defined as the absolute value of the difference between the household's Actual Rent and the household's QC Rent) exceeded five dollars.

Measures of Tenant Characteristics. The tenant characteristics used in the analysis were divided into two groups. The first group included demographic information such as the age, sex, race, and ethnicity of the head of household; the number of members, dependents, and elderly in the household; and whether the household constituted a single adult. It also included the urbanization level of tenant location (measured as urban vs. non urban), and number of years the household participated in the program.

The second group of measures contained the number of various income and expense sources of the household. Specifically, it included the number of sources of Earned Income, Asset Income, Pension Income, and Other Income, as well as the number of sources of Medical and Child Care Expenses. The number of sources of income and expenses was used instead of the simple presence or absence of the type of income or expense so it would capture the complexity of working with multiple sources of income and expenses, each requiring their own documentation and verification. This type of variable structure yields more specific results and, if the item is not important, is still able to distinguish between the presence or

absence of the variable of interest. Citizenship status and disability expenses were not included in the analysis because there were not enough households in these subgroups.

Two types of measures of the tenant characteristics were used, categorical and continuous. All the variables in the second group were simple counts. The categorical variables were: sex; race/ethnicity (for analysis purposes race and ethnicity were combined resulting in four categories: white, black, Hispanic, and other); presence or absence of elderly head, spouse, or co-head; single adult household; and urbanization level.

Approach

CART is capable of handling a mix of categorical and continuous (or continuous) predictors. Tree-based modeling is an exploratory technique commonly employed to uncover structure in data, whether the data are linear or non-linear. Some of the uses of tree-based modeling are: devising prediction rules that can be rapidly evaluated, screening variables, assessing the adequacy of linear models, and summarizing multivariate data. CART employs a procedure known as binary recursive partitioning to successively split the data into smaller and smaller groups; the resulting structure is known as a regression or classification “tree”. This algorithm recursively splits the data in each group or node until the node is either homogeneous or contains too few observations.

Compared to linear and additive models, tree-based models have the following advantages. They are:

- Easier to interpret when the predictor variables are a mix of categorical and continuous (ordinal) measures.
- Invariant to monotonic transformation of predictor variables.
- More adept at capturing non-additive behavior.
- Better able to address general (i.e., other than a particular multiplicative form) interactions between predictor variables.

All of these features make CART attractive for this analysis, especially the ability to profile groups or population characteristics that may have differential propensities for error.

Model Construction

The model-building process started with all the tenant characteristic measures described above. In order to avoid obtaining small nodes, the following two restrictions were imposed on the tree building process: nodes were not split if they had less than 50 households, and they were not split if this would result in a node with less than 20 households.

CART produced a large number of partitions that made the result seem over-complicated. A “pruning” procedure to remove nodes that failed to contribute much to the overall goodness-of-fit was employed. Pruning successively trimmed the least important splits through specification of a cost-complexity measure. This measure indicated the importance of a “branch” of the tree in terms of a deviance measure. The plot of the deviance measure by the complexity measure displayed a large drop at the point corresponding to a 12-node solution. This model at the intersection of the most complexity with the least deviance was adopted as the final model. Several other cutoff points were examined and misclassification rates (the number of misclassified households divided by the total number of households) were compared.

The final model exhibited a good fit with the data: the misclassification rate, or the percentage of households that the model failed to classify correctly, was less than 31 percent.

Presentation of Results

The final model tree is shown in Figure H-1 (at the end of this appendix). The boxes denote the nodes in the tree; red boxes depict the terminal nodes, i.e., the nodes that do not branch out. All the terminal nodes constitute a mutually exclusive partition of the whole sample: all members of the sample are accounted for by all the terminal nodes and no household can be in more than one terminal node. The following information is presented on the tree: the splitting condition (the value of the predictor variables used for the split); the number of households (N) in the node; the proportion (P) of households with rent error (actually, an estimate of the probability of being in error); and the mean dollar error (μ). The legend in the exhibit provides a description of the variable names used on the tree.

At the top or root node is the full sample. The percentage of those in error in the total sample population was 55 percent. To determine the probability of a specific type of household being in error, follow the tree from the root node at the top down to the node of interest, according to the splits at the interior nodes.

Significant Findings

The following were among the key indicators related to large differences in error:

At least two sources of Earned income. Among households with two or more sources of Earned Income, 88 percent exhibited some dollar error (the mean dollar error was \$134.11). In contrast, only 64 percent of the households with one source of Earned Income exhibited some dollar error (mean dollar error = \$63.43). Combining the households with at least one source of Earned Income, 68 percent exhibited some dollar error (mean dollar error = \$76.45) whereas only 48 percent of the households with no Earned Income exhibited a dollar error (mean error = \$24.94). In other words, households with more sources of earned income exhibited greater rates of dollar error. Households with two or more sources of earned income exhibited the greatest error rates.

At least one source of Public Assistance. Among households with one source of earned income and no public assistance income, 58 percent exhibited some dollar error (mean dollar error = \$52.94). A much greater proportion (i.e., 85 percent) of households with one source of earned income and one or more sources of public assistance income exhibited some dollar error (mean dollar error = \$105.30). In other words, among households with one source of earned income, those with public assistance income exhibited higher error rates than did those without public assistance income.

At least one source of Other Income. Among households with no earned income and no medical expenses but at least one dependent, 92 percent of those with Other Income exhibited some dollar error (mean dollar error = \$101.54). Fifty-three percent of the households with no earned income and no medical expenses but at least one dependent and no Other Income exhibited some dollar error (mean dollar error = \$33.13). That is, within the subset of respondents with no earned income, no medical expenses, and one or more dependent(s), those with Other Income had higher rates of error than did those with no Other Income.

Mean overpayments and underpayments were calculated along with the mean dollar error (absolute value) to determine if either underpayments or overpayments were a major contributor to error. As expected, underpayments were a significant contributor to error in most of the groups. The overpayments were over \$20.00 in only three groups—at least two sources of Earned Income (and no Other Income), at least one

source of Child Care expenditures (give other conditions), and only one source of Earned Income (given other conditions).

Summary

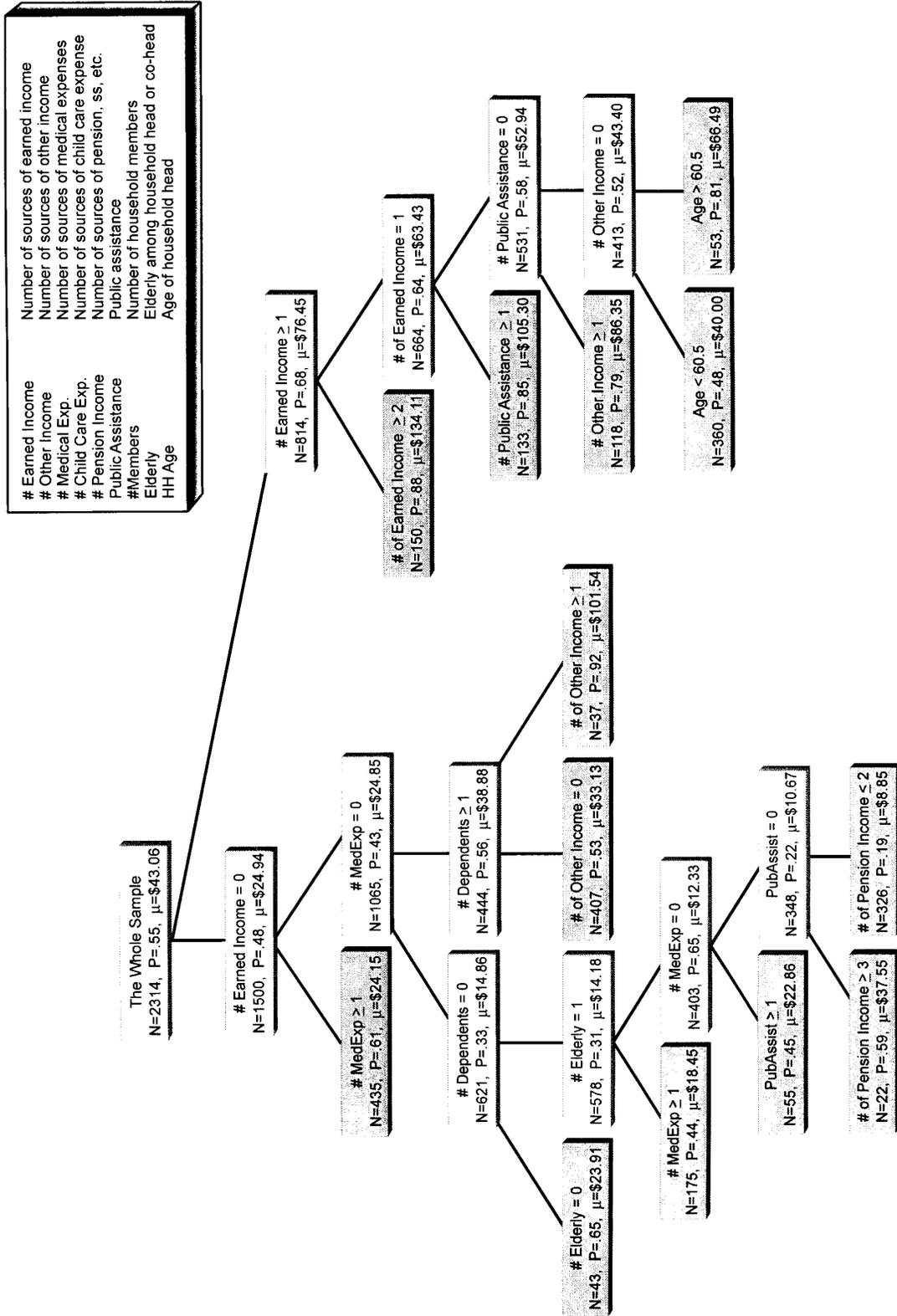
A Classification and Regression Tree model was developed to profile tenant characteristics associated with rent error. One clear observation that can be made about the final model is that having more than one source of Earned Income in the household is the single strongest predictor of rent error. This is further demonstrated by the fact that households with multiple sources of Earned Income display no other distinguishing characteristics.

The number of sources of Other Income is a strong identifier of rent error when considered in conjunction with other qualifying characteristics. Different characteristics had different dollar errors associated with them, but the dollar error associated with the number of sources of Other Income is two to three times greater when there are sources of Other Income present.

While the number of sources of Other Income and Earned Income appears to be a powerful identifier of rent error, it only accounts for error in slightly more than half of the sample. Nonetheless, when looking for a simple indicator of rent error, the presence of multiple sources of Earned or Other Income works quite well.

The profiles for the rest of the sample, however, are quite complex, splitting several times into groups with distinguishing characteristics. It appears that among households having only one source of earned income, the number of sources of income from Public Assistance becomes a strong secondary identifier, with those having at least one source of Public Assistance having a mean error twice as high (\$105.30 vs. \$52.94) as those without Public Assistance. Finally, those households with no sources of Earned Income and more than one source of Medical Expenditures amounts to almost one-fifth of the sample but the associated mean dollar error is both small (\$24.15) and not much different than those with no Medical Expenditures and no sources of Earned Income (\$24.85). Consequently, although multiple sources of Medical Expenditure may account for a large number of errors (when error is defined categorically as presence or absence of error), they do not result in a significant dollar error when error is considered as a continuous variable.

Exhibit H-1 Indicators of the Presence of Error



Earned Income
 # Other Income
 # Medical Exp.
 # Child Care Exp.
 # Pension Income
 # Public Assistance
 # Members
 Elderly
 HH Age
 Number of sources of earned income
 Number of sources of other income
 Number of sources of medical expenses
 Number of sources of child care expense
 Number of sources of pension, ss, etc.
 Public assistance
 Number of household members
 Elderly among household head or co-head
 Age of household head

Appendix I

**The Impact of Project Characteristics and Practices on
Error**

The Impact of Project Characteristics and Practices on Error

Three study objectives addressed whether rent errors are related to project characteristics (e.g., project size) and to project practices (e.g., the training of project staff). Two analytical approaches were used to determine how project characteristics and practices were related to errors. First, a path analysis was conducted to examine direct and indirect pathways leading from project characteristics and practices to *administrative errors* such as incorrect calculation and erroneous transcription. (This analysis relates to Objective 10 of the study.) Second, logistic regression was used to examine how project characteristics and practices were related to significant *rent errors*, i.e., those with absolute values exceeding five dollars. (This analysis relates to Objective 11 of the study.)

A. Pathways From Project-Level Factors to Administrative Errors (Path Model)

Objective of the Path Analysis

The objective of this analysis was to determine how administrative errors are related to project characteristics and practices. *Administrative errors* were defined as improper steps in certification/recertification resulting in rent errors, such as improper calculation or improper transcription of documented sources of income. *Project characteristics* were defined as project features that are not under the control of project staff, such as number of housing units. *Project practices* were defined as project features that are at least partly under the control of project staff, such as training procedures.

Project characteristics and practices may impact administrative errors directly, or they may impact errors indirectly by affecting other factors that in turn directly influence errors. For example, the size of a project may impact procedures for training staff, and staff training may in turn affect errors. In this example, project size impacts errors indirectly by affecting staff training, while staff training affects errors directly.

To determine how administrative error relates to project characteristics and procedures, the analysis investigated indirect and direct pathways leading from project characteristics and practices to administrative errors. Path analysis is a useful technique for addressing this kind of research question. Path analysis provides estimates (coefficients) for a series of interconnected regression-like equations. The estimates indicate the strength and direction of direct and indirect connections among a set of variables. A path model with a good “fit” will portray a series of connections among variables that closely mirrors the observed relations (covariance matrix) among the variables in the sample data.

Sample

This analysis focused on connections among project-level factors and administrative errors. Therefore, project was the appropriate unit of analysis. The analysis included only projects that were studied in-depth via the project staff questionnaire. Staff from 512 projects completed the Project Staff Questionnaire. Project data from the project staff questionnaire were linked with the data for the sampled households within each project (typically four households per project). Sufficient household-level data were not available for two of the projects for which we had project staff questionnaire data. Therefore the analysis included only the 510 projects for which sufficient household-level data was available.

Measures

Measures of Administrative Errors. The incidence of administrative errors was the main outcome of interest in the model. We examined three types of administrative errors:

- **Errors based on the 50058/50059 forms.** These were errors in calculation based on the data recorded on the 50058/50059 forms.
- **Errors based on file data.** These were errors in transcription: the information on the 50058/50059 forms did not match the documents in tenants' files.
- **Errors based on the QC process.** Typically, these errors were due to insufficient documentation, e.g., verification needed for correct rent calculation was lacking.

Initially, the three types of errors were determined at the household level. A household was considered to exhibit a given type of administrative error if the dollar amount of the household rent was impacted by that type of error. To compute project-level measures of administrative errors, the percentage of households in error per project was determined; this was done separately for each of the three error types.

The dollar amount of errors (as opposed to the presence versus absence of errors, regardless of dollar amount) was also considered as a measure. However, this exhibited weaker, less interpretable relations with project characteristics and practices; therefore it was not used in the final model.

Measures of Project Characteristics and Practices. Measures of project characteristics and practices were available from two sources: 1) the project staff questionnaire; and 2) household data from the files and the interviews.

Principal components analysis was used to reduce the Project Staff Questionnaire data to a smaller set of meaningful variables. The principal components represent common patterns of responses to the project staff questionnaire. For example, some response patterns were related to training practices (described below). Based on this analysis, component scores were computed and used as measures of project characteristics and practices. There was one exception: to measure requests for third-party verification, we computed the percentage of verified items for which staff reported that they *requested* third-party verification; this was done to enhance comparability with household-level file data on how much third-party verification was actually obtained by the projects.

Measures of project characteristics and practices were also taken from the household data. Most of these measures differed among households within a project, e.g., the number of sources of income or expenses that were verified through third parties. For such measures, we computed an average across households within a project, similar to the computation of the administrative error measures described above.

Initially we hypothesized that project characteristics would indirectly affect errors by affecting project practices, which would in turn directly affect errors, that is, characteristics → practices → errors. Accordingly, in order to select characteristics and practices for the path analysis, we first examined relationships among practices and errors. The practices most strongly related to errors were selected. Next, relationships between characteristics and practices were examined, and the characteristics most strongly related to practices were selected. If two variables showed basically the same connections with other variables in the model (i.e., they were redundant), but one of the variables had connections with larger coefficients, the variable with weaker connections (smaller coefficients) was dropped from the final

model. Variables that were neither directly nor indirectly connected with administrative errors were also dropped from the final model.

The measures of project characteristics and practices included in the final model were defined as follows.

Project characteristics

- **Number of units:** the number of housing units in a project.
- **Elderly/disabled project:** designation as an elderly or disabled project.
- **Number of sources of elderly- or disability-related income/expenses:** the number of sources of income or expenses of types that are particularly likely to occur among the elderly or disabled, i.e., medical expenses, social security and pensions, asset income, and disability expenses. An average was computed over the sampled households in each project.
- **Number of sources of income/expenses (all types):** the number of sources of income or expenses of all types that were measured, i.e., medical expenses, social security and pensions, asset income, disability expenses, public assistance, other income, childcare expenses, and earned income. An average was computed over the sampled households in each project.

Project practices

- **Workshop-based training:** a training pattern characterized by extensive, recent participation in training workshops (usually by 4 or more project staff members), especially those offered by Nan McKay.
- **Request verification from third party:** the percentage of items verified (income, medical expenses, etc.) for which staff reported asking for written documentation from third parties for verification purposes.
- **Obtain verification from third party:** in contrast to the previous variable, which is a *self-report* measure of attempts to verify via third-party documentation, this variable is the percentage of verified items for which third-party documentation was *actually received*.

Although strictly speaking verification obtained from a third party is not a project practice, it was included in the model to help explain the pathway from requests for third-party verification to errors.

In addition, the measures of sources of income/expenses may not seem appropriate as measures of project characteristics, because they are based on household characteristics. While it is true that these measures are based on household characteristics, because these measures are averaged across all households within a project, they may be indicative of project practices.

Model Construction

Data screening was conducted to ensure that the data were appropriate for path analysis. The number of levels for each variable, the number of households, and the parameter-to-case ratio all exceeded the minimum required for path analysis. All variables were standardized to ensure comparable standard

deviations and some variables were transformed to reduce kurtosis, which can be problematic for path analysis models.

Preliminary models were examined and modified to optimize model fit with the data. Wald and Lagrange tests, standardized residuals, and interpretability considerations were used to decide which paths among variables to add or remove. The final model exhibited a good fit with the data: the model was overidentified, as required for path analysis; the model chi-square was over two times its degrees of freedom ($\chi^2 = 82.73$, $df = 31$); the residuals were fairly small; and the comparative fit index (CFI) and the non-normed index both exceeded .90 (CFI = .96, non-normed index = .94).

Presentation of Results

The final model is shown in Figure I-1 (found at the end of this section). The boxes show the variables in the model. The arrows show connections among the variables. The causal flow moves from left to right in the figure, that is, variables to the left may influence variables to the right but not vice versa. A variable with an arrow pointing to it may be thought of as an “effect,” which is “caused” by the variable with the arrow pointing from it. (The quotations are used because, strictly speaking, the data do not permit tests of causality; however, for purposes of discussion, we will assume that the underlying processes are causal.) Solid lines indicate positive relationships, that is, an increase in one variable is related to an increase in the other. Dashed lines indicate negative relationships, i.e., an increase in one variable is related to a decrease in the other. Single-headed arrows represent causal paths and the double-headed arrow represents a covariance. The number beside each arrow is an estimated coefficient, which indicates the strength of the relationship; the larger the coefficient, the stronger the relationship. The coefficients are interpreted as regression coefficients. For example, the coefficient next to the path leading from number of units to workshop-based training is .26; therefore, given a 1-unit increase in the number-of-units measure, one would expect a .26-unit increase in the measure of workshop-based training. All coefficients in the model were significant at the .05 level or better.

Significant Findings

The model indicates that project characteristics and practices both have an impact on administrative errors. Some of the more interesting conclusions consistent with this model are highlighted below.

Project size is important. Projects with more units show more administrative errors based on 50058/50059 forms, which are basically calculation errors. Elderly/disabled projects, which are relatively small (note the negative covariance between elderly/disabled project and number of units), show lower rates of such errors. In large projects, the need to process a large number of certifications/recertifications may cause more staff to make a higher proportion of calculation errors. Also, it is possible that larger projects serve more varied tenant populations, making completion of the forms a less standardized and routine procedure, which might lead to more calculation errors. Project size also matters for training: Projects with more units utilize more workshop-based training, possibly because it is efficient to train large numbers of staff within a standardized workshop format.

Workshop training is helpful because it leads to better verification. Workshop-based training led to a reduction in administrative errors, apparently by encouraging staff to use sound verification practices, i.e., to request verification via third parties.

Third-party verification is important. As one would expect, obtaining more third-party verification leads to a reduction in errors. Emphasizing the importance of third-party verification may be one of the most direct ways to reduce errors.

More sources of income/expenses leads to more documentation-related errors. Not surprisingly, it appears that having to document more sources of income and expenses leads to more documentation errors. That is, projects with households that on average have more sources of income/expenses tend to make more documentation-related errors, specifically errors based on file data (transcription errors) and errors based on the QC process (improper verification). Because households in elderly/disabled projects tend to have more sources of elderly- or disability-related income/expenses (e.g., medical expenses, pensions), such projects must deal with more sources of income/expenses overall, which in turn leads to an increase in documentation-related errors.

While the model makes sense and it exhibits a good fit with the sample data, two caveats are in order. First, while the variables in the model account for a respectable chunk of the variance in errors based on the QC process ($R^2 = .31$), they account for less of the variance in errors based on 50058/50059 forms ($R^2 = .10$) and in errors based on file data ($R^2 = .08$). The remaining variance may be due to unmeasured project-level variables, or to tenant- or household-level factors, or to some other unknown factors. A second caveat is that the self-report measure of third-party verification appears to be less than ideal. While staff reports of requests for third-party verification were significantly and positively related to actually obtaining such verification (as one would expect), the relationship was surprisingly weak. This may be because the Project Staff Questionnaire did not measure the extent to which staff emphasize third-party verification. Staff were asked whether third-party verification was one among several forms of verification that they request. There was no indication of whether third-party verification was the preferred form, and there was no indication of how persistent staff are in their attempts to obtain third-party verification. Measures that tap these important aspects of third-party verification might be included in future versions of the Project Staff Questionnaire.

B. Relationships Between Project Characteristics/Practices and Rates of Rent Errors (Logistic Regression Models)

Objective of the Logistic Regression Models

The path model described above, focusing on the project as the unit of analysis, shows how administrative errors are related to project characteristics and practices. Another approach is to examine the usefulness of project characteristics/practices as predictors of rent error at the household level, i.e., using household as the unit of analysis. This approach was taken in the analyses described below.

One objective was to examine whether project characteristics and practices are useful predictors of household rent errors. A second objective was to determine whether tenant characteristics provide additional predictive power, above and beyond that provided by project characteristics and practices. The CART analysis (described in Appendix H) pointed to tenant characteristics that are predictive of household rent errors; income-related items appeared to be most predictive of rent errors among the variables considered in the model. Combining these tenant characteristics with project characteristics and practices might lead to an even more powerful model of household rent errors.

A household's rent was considered to be in error if the difference between the household's Actual Rent and the household's QC Rent exceeded five dollars. Because the dependent variable was categorical (i.e., rent error vs. no rent error), logistic regression was an appropriate analytic technique. In the first stage of the analysis (predicting rent errors from project characteristics and practices), stepwise logistic regression was utilized to identify a set of project characteristics/ practices that was useful for predicting rent errors. In the second stage of the analysis, tenant characteristics were added to the logistic regression model to see if tenant characteristics provided additional predictive utility.

Sample

The sample data were derived from the household dataset and from the project staff questionnaire. The household was the unit of analysis.

Measures

In all models, rent error (as defined above) served as the dependent variable. The predictor variables submitted for analysis were: 1) all project characteristics and practices that were included in the path model; 2) additional project characteristics and practices that might help to predict rent errors, such as PHA- vs. owner-administered, staff-to-tenant ratio, Public Housing vs. Section 8, and so forth; and 3) all tenant characteristics that contributed to the prediction of rent errors in the CART analysis (see Appendix H). All measures were defined exactly as they were defined for purposes of the path and CART models, to facilitate cross-model comparisons. Measures from the path model as well as other measures derived from the project staff questionnaire were converted to the household level, that is, the same values were assigned to all sampled households within a given project.

Before the analyses were conducted, all predictor variables were standardized. Conversion of all variables to a common scale facilitates evaluation of the relative impact of different variables.

Logistic Regression Model 1: Predicting Rent Errors from Project Characteristics and Practices

Model Construction. The first model utilized stepwise logistic regression to identify a set of project characteristics/practices that were useful for predicting rent errors. The variables in the final model—coefficients, standard errors, Wald tests, and odds ratios—are shown in Exhibit I-1. The model correctly predicted error for 64.6 percent of the households, while the remaining 35.4 percent were not correctly predicted. Thus, while the model fits reasonably well it is far from perfect. Diagnostics were examined to see if dropping some unusual influential households would improve the prediction. However, the removal of such households did not result in a noticeably improved model.

Exhibit I-1
The Stepwise Logistic Regression Model Predicting Rent Errors
from Project Characteristics and Practices.

Variable	Coefficient	SE	Wald χ^2	p-Value	Odds Ratio
(Intercept)	.09	.05	3.22	<.07	N/A
Number of sources of income/expenses (all types)	.32	.05	36.31	<.0001	1.38
Obtain verification from third party	-.42	.05	79.46	<.0001	.66
Elderly/disabled project	-.41	.06	52.03	<.0001	.44

Significant Findings. Rent errors were positively related to the number of sources of income/ expenses—that is, more sources = more errors. In contrast, errors were negatively related to obtaining third-party verification (i.e., less verification = more error) and being in an elderly/disabled project (i.e., elderly/disabled projects have less error). The three variables have coefficients of comparable size; therefore, within this model, it appears that the strength of their relationship with error is approximately equal.

The relationships depicted in this model are very similar to those in the path model, despite the fact that the path model was done with project as the unit of analysis, and error was defined differently in the path model (the path model focused on administrative errors as opposed to rent errors). This suggests that the findings are quite robust – they hold across different units of analysis and across different definitions of

error. In the path model, obtaining verification from third parties, being an elderly/disabled project, and the number of sources of income/expenses were all directly related to administrative errors, and in the logistic regression model these same measures were predictive of rent errors. One difference between the models is that in the path model, number of units was directly connected with administrative errors, but this measure did not enter the stepwise logistic regression model. This does not mean that number of units is unrelated to household rent errors, it simply means that number of units contributes nothing additional to the prediction, once the other variables have been accounted for.

Logistic Regression Model 2: Predicting Rent Errors from Tenant Characteristics and Project Characteristics/Practices

As stated above, in the model including project characteristics and practices, error was incorrectly predicted for 35.4 percent of the households. This suggests that project characteristics and practices do not tell the whole story. Tenant characteristics may also be important. Adding tenant characteristics might enhance the model’s predictive power. To examine this possibility, tenant characteristics were added to the logistic regression model.

Model Construction. The model including tenant characteristics as well as project characteristics/practices is shown in Exhibit VII-2.

**Exhibit VII-2
The Logistic Regression Model Predicting Rent Errors
from Tenant Characteristics and Project Characteristics and Practices**

Variable	Coefficient	SE	Wald χ^2	p-Value	Odds Ratio
Intercept	.24	.06	19.32	<.001	N/A
Project Characteristics/ Practices					
Number of sources of income/expenses (all types)	-.03	.07	.17	.68	.97
Obtain verification from third party	-.39	.05	60.70	<.0001	.68
Elderly/disabled project	-.17	.07	6.41	.01	.71
Tenant Characteristics					
Number of sources of other income	.51	.06	68.17	<.0001	1.67
Number of sources of earned income	.73	.08	90.45	<.0001	2.08
Number of sources of medical expenses	.52	.07	50.25	<.0001	1.67
Receives elderly allowance	-.08	.09	.89	.35	.85
Number of sources of pension income, social security, etc.	.28	.07	16.91	<.0001	1.33
Number of sources of public assistance	.38	.06	43.06	<.0001	1.46
Age of head of household	.05	.08	.31	.58	1.04
Number of Dependents	-.01	.07	.01	.94	1.00

Adding tenant characteristics to the model resulted in improved predictions. The model with tenant characteristics exhibited a significantly improved fit with the data, compared to the model including only project characteristics and practices ($\chi^2 = 2[(-1303.44, \text{i.e., log likelihood for full model}) - (-1429.73, \text{i.e., log likelihood for model including only project factors})] = 252.58, \text{ df} = 9, \text{ p} < .0001$). The full model—that is, the model including tenant characteristics as well as project characteristics/ practices—correctly predicted rent error for 73.1 percent of the households, which is an improvement over the 64.6 percent correctly predicted by the model including only project characteristics/practices, although the prediction is still far from perfect.

Significant Findings. Several tenant characteristics related to sources of income and expenses appeared to be particularly good predictors of error. Namely, sources of earned income, other income, and medical expenses all had coefficients greater than .50. By comparison, the largest coefficient among the project characteristics/practices was -.39 for obtaining third-party verification. Therefore, within this model it appears that tenant characteristics tend to be more strongly related to rent errors, although project characteristics/practices do make a significant contribution to the model's predictive power.

Overall, the results of the four models (i.e., path model, CART, and the first and second logistic regression models) are quite consistent. As noted above, most of the measures that were directly related to administrative errors within the path model were also predictive of rent errors in the first logistic regression model. Further, two of the three project measures that were predictive of rent errors in the initial logistic regression model were also predictive of errors in the final logistic regression model with tenant characteristics added. Also, in the final logistic regression model, all of the tenant characteristics except the age of the head of household made significant contributions to the prediction of errors, providing support for the CART analysis findings. Although there were some discrepancies among the models, the discrepancies are ones that (with hindsight) one might well expect. Number of sources of income/expenses (all types) predicts errors in the initial logistic regression model but not in the final model. This is not surprising when one considers that rent errors are strongly related to various sources of income/expenses at the household level (i.e., considered as tenant characteristics). After the household-level income/expense measures have been accounted for, the average number of income/expenses across all households within a project would not necessarily be expected to make an *additional* contribution to the prediction of error. Along similar lines, the impact of the household-level measure of age (i.e., age of head of household) may be drowned out by more powerful and direct age-related measures such as elderly/disabled project and elderly allowance.

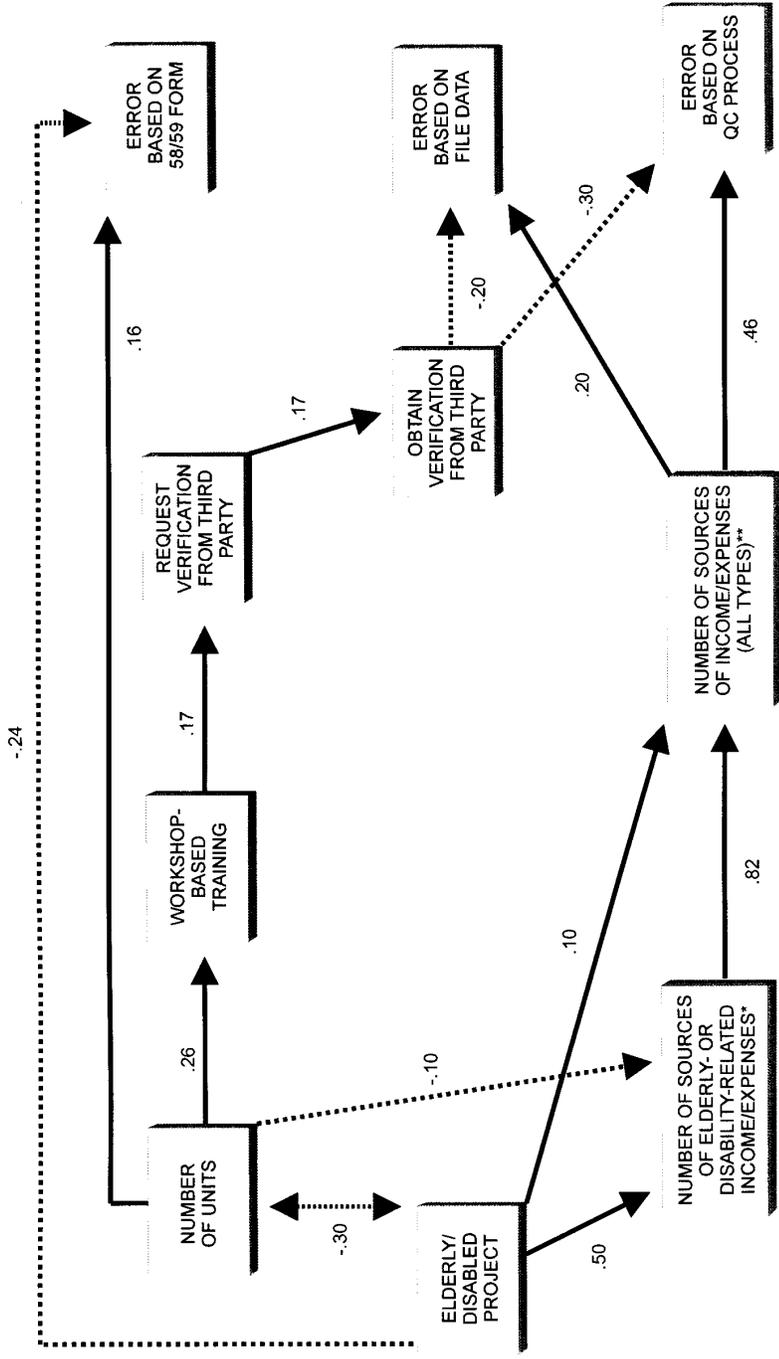
C. Possibilities for Future Work

The path analysis and logistic regression models provide insight into how project characteristics and practices are related to errors. However, more work could enrich and strengthen these findings.

First, as noted above, in future versions of the project staff questionnaire, additional measures of third-party verification might be useful. It would be worthwhile to ask project staff if third-party verification is the preferred form, and how persistent they tend to be in their attempts to obtain third-party verification.

Second, hierarchical linear modeling (HLM) could provide further insights into how errors are related to tenant characteristics, project characteristics/practices, and interactions among the two levels. An HLM model would provide a relatively simple, unified picture of relationships at the project and household levels.

Figure I-1 Path Model Relating Project Characteristics and Practices to Administrative Errors.
 (Standardized coefficients are shown.)



* Includes medical expenses, social security and pensions, asset income, and disability expenses.
 ** Includes earned income, public assistance, other income, childcare expenses, medical expenses, social security and pensions, asset income, and disability expenses.