

# **ANALYSIS PLAN**

## **for the FY 2010 HUDQC Study**

### **Quality Control for Rental Assistance Subsidy Determinations**

**May 3, 2010**

**Prepared for:**

Office of Policy Development and Research  
Department of Housing and Urban Development  
Washington, DC 20410

**Contract #: GS-23F-9777H**

**Task Order #: CHI-T0001; C-CHI-01026**

**Prepared by:**

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# INTRODUCTION

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The purpose of this document is to describe how analyses will be conducted for the FY 2010 HUDQC Study: Quality Control for Rental Assistance Subsidy Determinations. The Department of Housing and Urban Development (HUD) provides housing assistance through several rental assistance programs. Subsidies are based on HUD regulations defining financial need, eligibility requirements, and subsidy amounts. Generally, eligibility for a HUD-assisted housing unit requires a total income equal to or below the very-low-income standard (50% of the median family income of the area). The tenant payment is set at the higher of two amounts: 10 percent of total income, or 30 percent of adjusted income, based on certain types of deductions.

This study examines the following rent subsidy programs:

- PIH-administered Public Housing (i.e., Public Housing)
- PIH-administered Section 8 projects
  - Moderate Rehabilitation
  - Vouchers
- Office of Housing-administered projects (i.e., owner-administered)
  - Section 8 New Construction/Substantial Rehabilitation
  - Section 8 Loan Management
  - Section 8 Property Disposition
  - Section 202 Project Rental Assistance Contracts (PRAC)
  - Section 202/162 Project Assistance Contracts (PAC)
  - Section 811 PRAC

The HUDQC Study focuses on the nature and extent of errors in rental assistance subsidies in the assisted housing programs listed above. The overall purpose of the study is to determine the type, severity, and cost of errors associated with income certification and rent calculations. This study will produce national estimates of error in each program. A nationally representative sample of 2,400 households in approximately 600 projects nationwide will be selected for review and verification of information used to determine rental assistance subsidies in their most recent (re)certification.<sup>1</sup> In order to conduct this review and verification, we will execute the following steps:

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<sup>1</sup> The timing of the verification information is a key aspect of the study. This study seeks to verify information as of the most recent (re)certification, or in the absence of a (re)certification, to verify information when the (re)certification was due. If the (re)certification is more than one year overdue, verification will be obtained for the month the recertification would have been effective if it had been completed on time. The fact that the study is being conducted after the (re)certification has occurred, requires more attention to obtaining accurate reports and verifications than would be needed if the study was done at the time of (re)certification. In order for the study to represent the population of assisted households, it is necessary to select all households with equal probability, even if it means that their most recent (re)certifications were performed up to a year before.

1. **Review Household File.** ICF Macro staff will use computer-assisted data collection technology to review and extract information contained in each sampled household's file. The focus of the review is HUD's forms 50058 and 50059 which are used by housing managers to record information required for determining rental assistance eligibility and subsidy amount; and the specific pieces of information contained in the file that are used by management to verify the figures used in the 50058 or 50059. The 50058/59 forms also contain the rent calculated by management.
2. **Determine Procedural Errors.** Using the information in the household file, ICF Macro will re-calculate the rent on the basis of verification documentation and information contained in the file. Discrepancies between the rent recorded on the 50058/59 and this recalculation will indicate procedural errors.
3. **Interview Households.** Each household will participate in a detailed item by item interview, capturing each element in the rent calculation. This interview will probe on all financial resources and household circumstances, including those that may not be contained in the tenant file. Household members will be asked to sign releases permitting ICF Macro to obtain verification from relevant third parties for items lacking verification documentation in the household file.
4. **Conduct Enhanced Verification.** Based on new or more accurate information provided by the household, ICF Macro will independently obtain verification from third parties regarding this new information. In addition, verification of benefits and earned income will be obtained directly from official Federal-level sources by matching household member identifying information (name, Social Security number, date of birth) with Social Security Administration files and the National Directory of New Hires.
5. **Calculate QC Rent.** A rent calculation will be performed on the basis of verified information, including that contained in the original household file and that obtained through the interview process and third party verification.
6. **Determine Error.** Errors are defined as the difference between the rent calculation on the 50058/59 and rent determined by the QC rent calculation.

Using the data collected in the above steps and the error determinations, the data analysis will proceed to address the study's objectives.



## RENT ERROR—THE DEPENDENT VARIABLE

Rent error in this study has several dimensions and definitions. At a very basic level, an error pertains to the condition in which a tenant is receiving an incorrect amount of subsidy, based on verified information.

**Rent Used in Error Determinations.** Error is determined by the difference between the rent actually paid by the household and the rent that should have been paid, based on verified information obtained by the HUDQC study:

- **Actual Rent**—the monthly rent indicated on the 50058/59 forms or, if this item is missing, this information is obtained from other sources in the household file. This is the monthly rent for the year to follow the most recent (re)certification.
- **Quality Control (QC) Rent**—the monthly rent calculated by ICF Macro using the information reported by the household and verified, if possible, as well as the verified information contained in the tenant file.

**Calculation of Quality Control Rent.** HUD specifies the formulas for determining assisted household rent for each of its programs. These formulas generally consider adjusted annual income, which is the total of household members' earned and unearned income, less specific allowances. There are several different calculation formulas, depending on the program and the specifics of each household's situation. These formulas are defined in the HUDQC Study Standards document delivered under separate cover.

**Error Definitions.** Study objectives require that several different types of errors be estimated on the basis of data collected in this study. The two primary distinctions are total errors and error rates.

### *Total Errors*

- **Dollar Rent Error**—the dollar amount of Actual Rent minus QC Rent for an individual household. A negative number indicates an underpayment, meaning the household paid less than it should and HUD's subsidy 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.
- **Total Gross Rent Error**—the weighted sum of the absolute values of positive and negative individual household Rent Dollar Errors.
- **Total Net Rent Error**—the arithmetic value of the weighted sum of individual household Rent Dollar Errors.

### *Error Rates*

- **Dollar Error Rate**—the quotient of Total Gross Rent Error divided by the weighted sum of individual household QC rents.
- **Case Error Rate**—the quotient of the weighted sum of Dollar Rent Errors in excess of \$5 per month divided by the total weighted number of households.

Errors in rental assistance subsidies relate to both eligibility and amount of subsidy:

- **Eligibility Error**—a household may not be eligible for rental assistance, which places the entire subsidy in error.<sup>2</sup>
- **Subsidy Error**—the amount of subsidy may be too high or too low.

Error sources are classified into two broad types:

- **Rent Error**—any of the components used to determine rent (e.g., earned income, household size, medical expenses) could be in error. These are often attributed to tenant misreporting, but they can also be due to tenant misunderstanding.
- **Procedural Error**—local housing administrative staff may make mistakes (e.g., calculation errors, transcription errors, improper application of income or allowances) or they may fail to follow HUD requirements (e.g., fail to recertify on time). Some procedural errors (e.g., not requesting a Social Security number) do not produce rent errors.

Errors may be made in either the determination of initial eligibility or in the determination of the correct household payment. Two types of payment errors may occur:<sup>3</sup>

- **Overpayment**—household payment is above the correct amount, and HUD’s subsidy is too low.
- **Underpayment**—household payment is below the correct amount, and HUD’s subsidy is too high.

Appendix A contains the definitions of all key terms used in this analysis plan.

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<sup>2</sup> Eligibility is determined at the time of initial certification; therefore, eligibility errors will be assessed only for certifications, not recertifications.

<sup>3</sup> It is possible that rent or procedural errors may produce no error in rent payment or subsidy amount. Some errors may “cancel” others out, or the individual items may not be of sufficient magnitude to have an effect on rents or subsidies.

## PREPARATION OF ANALYTIC DATA FILES

The main analytic data files will be based on the results of household file reviews, household interviews, and third party verification. While we will be using the third party verified information to determine errors, the analytic files must also contain the information collected from the household files and household interviews to address the study objectives pertaining to error sources and causes. The household file information is needed to identify the incidence of procedural errors; the household interview data is needed to determine the incidence of household misreporting; both files and the verification file are needed to determine the extent that various types of resources contribute to error.

Our core master analytic file will consist of a household record containing:

- **Household Record Review Data**—all information collected from the 50058/59, the items that are verified and the type of verification observed; and the tenant rent.
- **Household Interview Data**—all information collected during the household interview pertaining to items needed to calculate rent and determine eligibility.
- **QC Verification Data**—all information used to calculate the QC rent, consisting of verified information obtained from third parties, information provided by the household, and verified information obtained from the household file.

We will construct a series of analytic files to address the research questions, using the data in the master analytic file. Error values (as defined by the methods described above) will be calculated and appended to the main analytic file, and identify discrepancies and dollar differences between the three sources of household data listed above. Additional variables will be constructed, including error type (e.g., transcription, calculation). Weights equal to the inverse of the sampling fractions will be appended so that national estimates can be produced. Variance estimates will be produced using a replication procedure.

We will use two additional data sources. One of the study objectives is to determine whether 50058/59 data entered into TRACS/PIC has associated QC errors. Another objective is to determine whether errors can be predicted from household and project characteristics. To obtain information on housing project characteristics, we conduct a survey of local housing managers (i.e., Project Staff Questionnaire, PSQ) from which we obtain information on characteristics of the housing project and management practices. We will create separate analytic files to conduct the analyses associated with the PSQ. Relevant household information will be appended to the project survey file. The study sample will be matched with TRACS/PIC, and the 50058/59 data from TRACS/PIC will be appended to the household data for analysis.

# ANALYSIS PLAN BY STUDY OBJECTIVE

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This section of the Analysis Plan discusses the study objectives and describes the analysis that will address each objective. Appendix B contains a summary of the objectives and the source tables that address each objective. Appendix C contains shells for the source tables. Source tables will be used to produce the analytic exhibits displayed in the body of the report. We describe specific analytic exhibits and provide shells for these in the discussion below.

**Objective 1: Identify the various types of rent errors and error rates and related estimation variances.**

This objective requires us to identify types of errors and produce national estimates of the proportion of household cases with errors, along with associated variance estimates. These errors include the percent of households paying correct and incorrect rent, average dollar rent error, and dollar error rate. Analyses will cross-tabulate national estimates to produce a series of tables as described below. To assure comparability with prior studies, the tabular displays will follow the previously used formats and will include FY 2009 study results alongside the FY 2010 study results. Variance estimates are displayed in tables discussed under Objective 3.

Exhibit 1 illustrates how we will display the percent of households with proper payments. It provides the national estimate of the proportion of households whose QC rent is exactly equal to the Actual Rent, and the proportion within \$5 of an exact match. This exhibit also provides a comparison between FY 2009 and FY 2010 results, and a comparison of results by program type.

**Exhibit 1**  
**Percent of Households with Proper Payments (FY 2009 and FY 2010)**

Program Type	Percent Matched Within \$5		Percent Matched Exactly	
	FY 2009	FY 2010	FY 2009	FY 2010
Public Housing				
PHA-administered Section 8				
<i>Total PHA-administered</i>				
Total Owner-administered				
<b>Total</b>				

Source Tables 1a and 1b

Exhibit 2 provides further information on the tenant error rate, displaying the average dollars in error and gross dollar error rate for the total population in PHA-administered and owner-administered projects. It compares the FY 2009 results with the FY 2010 results.

**Exhibit 2**  
**Rent Error: Percent of Households in Error, Average Gross Dollars in Error, and Error Rate**  
**(FY 2009 and FY 2010)**

Program Type	Percent of Households in Error		Average Gross Dollars in Error		Gross Dollar Error Rate	
	FY 2009	FY 2010	FY 2009	FY 2010	FY 2009	FY 2010
Public Housing						
PHA-administered Section 8						
<i>Total PHA-administered</i>						
Total Owner-administered						
<b>Total</b>						

Source Tables 1a and 2

Exhibits 3a and 3b display the dollar amount of error associated with tenant over- and under-payments. Exhibit 3a displays the percent of households paying less than the proper amount and the average dollar underpayment error. Exhibit 3b displays the same information for households paying more than the proper amount.

**Exhibit 3a**  
**Underpayment Households: Percent of Households and Average Monthly Dollar Amount of Error**  
**(FY 2009 and FY 2010)**

Program Type	Percent of Households with Underpayment		Average Dollar Error for Households with Underpayment	
	FY 2009	FY 2010	FY 2009	FY 2010
Public Housing				
PHA-administered Section 8				
<i>Total PHA-administered</i>				
Total Owner-administered				
<b>Total</b>				

Source Tables 1b and 3

**Exhibit 3b**  
**Overpayment Households: Percent of Households and Average Monthly Dollar Amount of Error**  
**(FY 2009 and FY 2010)**

Program Type	Percent of Households with Overpayment		Average Dollar Error for Households with Overpayment	
	FY 2009	FY 2010	FY 2009	FY 2010
Public Housing				
PHA-administered Section 8				
<i>Total PHA-administered</i>				
Total Owner-administered				
<b>Total</b>				

Source Tables 1b and 3

**Objective 2: Identify the dollar costs of the various types of error.**

Previous QC studies identified several types of error that can be detected using information in the household file. These errors are identified using data obtained from the 50058/59 directly as it appears on the 50058/59 form, and other information from files used to determine which information should be recorded on the 50058/59. Procedural errors are detectable through the analysis of the household file data, and may or may not result in rent errors. This analysis will not use QC rent error as a standard because the QC rent will be based on information obtained during the household interview as well as verification obtained from third parties.

**Calculation errors** are detected by recalculating section subtotals and final rent based on the exact information in the 50058/59 forms. The rent will be calculated using the detailed information on the 50058/59 and compared to the tenant rent on the 50058/59. If the two rents differ, this indicates a calculation error.

**Consistency errors** are identified by assessing the logical conformity between elements within the 50058 or 50059 forms. For example, the *yearly child care cost that is not reimbursed* should only be completed if any family member is less than 13 years old. Elderly status must be consistent with the age of the head of household or spouse. If two items within the 50058/59 form contradict one another, a consistency error exists.

**Transcription errors** are detected by comparing 50058/59 data with information obtained from the household file. Each type of income and expense listed on the 50058/59 form is compared to the supporting information found in the household file. If the 50058/59 data do not match the household file data, a transcription error occurs.

The improper application of allowances and incorrect calculation of income are a subset of transcription errors. Failure to apply allowances correctly and identify income correctly will be identified by comparing household file information to 50058/59 data. Allowance errors will be detected by calculating the allowances based on the household file and comparing this QC allowance to the Actual Allowance on the 50058/59. Similarly, income will be calculated based on the types and amounts of income reported in the household file.

A series of exhibits will display errors detected in household file data. Exhibit 4 presents the percent of households with calculation and consistency errors in different sections of the 50058 and 50059 forms. More detailed data will be presented in Source Tables 4 (calculation errors) and 5 (consistency errors). Note that the 50058 form is formatted differently and in some sections provides more line items of information than the 50059 form. Consequently, the number and types of calculation and consistency errors on the forms will be different, and the findings from the two forms will not be comparable.

**Exhibit 4**  
**Percent of Households with Calculation and Consistency Errors (FY 2010)**

50058/50059 Item	Percent of Households					
	Calculation Errors			Consistency Errors		
	50058	50059	Total	50058	50059	Total
General Information	n/a	n/a	n/a			
Household Composition						
Net Family Assets and Income						
Allowances and Adjusted Income						
Family Rent and Subsidy Information						
<b>Total</b>						

Source Tables 4 and 5

**Overdue Recertifications** also produce errors in rents because rents are calculated using old information. We will calculate the error amount due to overdue recertification, based on the difference between Actual and QC Rent. Exhibit 5 will display the percent of cases with overdue recertifications, timely recertifications, and new certifications. This exhibit will provide this information by program type.

**Exhibit 5**  
**Timeliness of Certification Status (FY 2009 and FY 2010)**

Rent Component	New Certifications		Timely Recertifications		Overdue Recertifications	
	FY 2009	FY 2010	FY 2009	FY 2010	FY 2009	FY 2010
Public Housing						
PHA-administered Section 8						
<i>Total PHA-administered</i>						
Total Owner-administered						
<b>Total</b>						

Source Table 7

Our analysis will also graphically represent the proportion of cases that are new certifications, timely recertifications, and overdue recertifications. Exhibit 6 illustrates the error associated with overdue recertifications compared to errors from certification and timely recertifications. In cases with overdue recertifications, the information at the time the recertification was due will be used to determine rent, as it was in the previous studies.

**Exhibit 6**  
**Average Monthly Underpayment and Overpayment Dollar Amount Averaged across All Households**  
**(FY 2009 and FY 2010)**

Action Type	Underpayment Average Dollar Amount		Overpayment Average Dollar Amount	
	FY 2009	FY 2010	FY 2009	FY 2010
New Certification				
Timely Recertification				
Overdue Recertification				
<b>Total</b>				

Source Table 6

As in FY 2009, we will conduct additional analyses to summarize the information that addresses this objective. Exhibit 7 provides the proportion of cases with procedural error, the estimated average cost of each type of error, and the standard error of the estimated average (i.e., the variance estimate of the average). That cost will be the difference between the actual rent and the recalculated rent, using the household file information and correcting transcription and calculation errors.

**Exhibit 7**  
**Procedural Error: Percent of Households, Average Dollars in Error, All Households with 50058/59**  
**Recalculated Rent (FY 2010)**

Error Type	Gross Rent Error			Net Rent Error		
	Percent of Households in Error	Average Dollars in Error	Standard Error of Mean	Percent of Households in Error	Average Dollars in Error	Standard Error of Mean
Transcription Error						
Calculation Error – Allowances						
Calculation Error – Income						
Calculation Error – Other						
Overdue Recertifications						
Any Procedural Error						
<b>All Households with Procedural Errors</b>						

Source Table 8



Exhibit 8 provides a summary of the errors identified from the 50058/59 forms. These data are produced using cross-tabulations and show the error rates and costs for households with each type of procedural error, for households without procedural errors, and for the total weighted sample. The exhibit presents the percent of households in error, the average dollar error, and the standard errors for both households with recalculated 50058/59 error (error determined using only the 50058/59 form), and households with QC Rent error.

**Exhibit 8**  
**50058/50059 Procedural Error: Percent of Households, Average Dollars in Error (FY 2010)**

Error Type Based on 50058/59 Recalculation	Households with Recalculated 50058/59 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								
Households without Consistency Error								
Households with Allowance Calculation Error								
Households without Allowance Calculation Error								
Households with Income Calculation Error								
Households without Income Calculation Error								
Households with Other Calculation Error								
Households without Other Calculation Error								
Overdue Recertifications								
On-time Recertifications								
Certifications								
Unduplicated Count, Any Type of 50058/50059 Error								
Unduplicated Count, No 50058/50059 Error								
<b>Total</b>								

Source Tables 4-8

**Incorrectly applied flat rent schedule** will be identified by obtaining flat rent schedules from PHAs and comparing them to the actual rent amount recorded on the 50058. This examination only applies to public housing program tenants. HUD policy requires that “for families who choose flat rents, the PHA must conduct a reexamination of family composition at least annually, and must conduct a reexamination of family income at least once every three years.” [24 CFR 960.257 (a)(2)]. Therefore, multiple flat rent schedules to cover the three year period prior to the data collection effort must be obtained and documented as to when they became effective. The correct flat rent for a particular case will vary depending on when the last annual recertification was conducted. The examination of flat rents and schedules will be accompanied by a discussion of the issues identified during the analysis.

**Objective 3: Estimate national-level net costs for total errors and major error types.**

This analysis will replicate the cross-tabulations developed in the previous studies that address error dollars. Results from FY 2009 and FY 2010 will be presented for comparison. The gross rent error is obtained by adding together the absolute values of the dollar amount of overpayments to the dollar amount of underpayments. The net cost for total errors is an arithmetic calculation of the sum of positive and negative nationally weighted error costs. This sum represents the net amount of tenant payments in error and will be displayed by program type. Exhibit 9 provides this information with its associated standard error.

**Exhibit 9**  
**Gross and Net Dollar Rent Error (Monthly) for All Households**  
**(FY 2009 and FY 2010)**

Program Type	Average Dollars in Error					
	Gross Rent Error				Net Rent Error	
	FY 2009	(Standard Error)	FY 2010	(Standard Error)	FY 2009	(Standard Error)
Public Housing						
PHA-administered Section 8						
<i>Total PHA-administered</i>						
Owner-administered						
<b>Total</b>						

Source Table 9

**Objective 4: Determine the relationship between errors detectable by using the HUD-50058 and HUD-50059 forms and total errors found in the study.**

Objective 2 estimates *procedural error* that can be attributed to mistakes made by the housing management staff. Except for overdue recertifications, it does not estimate QC error detected through the verification process. The purpose of Objective 4 is to determine the relationship between those procedural errors detected from the 50058/59 forms and the total error found after all information was verified in the study. Exhibit 10 illustrates this analysis.

**Exhibit 10**  
**50058/59 Rent Calculation Error Compared to QC Rent Error**  
**(FY2008 and FY2009)**

Rent Calculation Method	Percent of Households with Correctly Calculated Rent		Percent of Households with Incorrectly Calculated Rent	
	FY 2009	FY 2010	FY 2009	FY 2010
Using Information on the 50058/50059 Form				
According to the QC Rent Calculation				
Both 50058/50059 calculation and QC Rent calculation				

Source Table 1

Since HUD collects 50058/59 forms centrally on the TRACS/PIC System, it may be beneficial for the agency to re-calculate information on the 50058/59 forms to help identify cases likely to be in error. This decision could be made on the basis of the results of the descriptive analysis, or HUD may choose to use more sophisticated techniques. Additional discussion of the use of PIC and TRACS data to predict error is found under Objective 14.

Exhibit 11 presents the percent of households in error and the total annual program dollar errors, comparing error obtained from household file information alone to error obtained from household file information plus household interview information.

**Exhibit 11**  
**Percent of Households in Error and Dollar Error by Error Basis**  
**(FY 2009 and FY 2010)**

Error Basis	Percent of Households in Error		Total Annual Dollar Errors	
	FY 2009	FY 2010	FY 2009	FY 2010
Error based on household file and interview information				
Error based on household file information only				

Source Table 3

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

We plan to tabulate the household/tenant data to generate mean error rates and mean dollar costs for each program type (Public Housing, PHA-administered Section 8, and owner administered) and perform two-tailed t-tests to determine statistical significance of the differences across programs. Specifically, we will compare program means of gross error rate, gross dollar error, net error rate, and net dollar error. The gross error rate 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. We will also aggregate the data to generate total gross and net dollar errors for each program type by summing up, respectively, the two measures for the

sampled projects under each program type. Again, statistical significance of program differences will be tested by two-tailed t-tests. Sampling weights and replicate weights will be used in variance estimation for program differences in both means and aggregated measures. Exhibit 12 illustrates how these results might be displayed.

**Exhibit 12**  
**The Impact of Program Type on Gross and Net Dollar Error (FY 2010)**

Program Type	Average Gross Error	Gross Error Rate	Average Net Error	Net Error Rate
Public Housing				
PHA-administered Section 8				
Owner-administered				

**Objective 6:** *Determine the apparent cause of significant rent errors to provide HUD with information on whether the error was caused primarily by the tenant or by program administrator staff.*

Understanding the sources and causes of significant rent errors is important for determining corrective actions. First, it is necessary to have an understanding of which items in the rent calculation formula contribute most to error. Second, it is important to understand whether this error is caused by the tenant or by the project’s administrative staff. However, it is sometimes difficult to disentangle the source and cause of errors. Transcription and calculation errors, improper application of allowances, and failure to recertify on time are procedural errors. These are clear responsibilities of the project’s management and administrative staff. The cause of discrepancies between the information used to calculate rent by the project and that obtained through the QC verification process is not always clear. Tenants may have failed to report an income item because they intentionally withheld the information to pay less rent; they may not have been asked to report an item during the interview; or they may have misunderstood the requirement. For that reason, we prefer not to ascribe to the tenant all errors attributed to discrepancies between information in the project files and the QC verification process. It may often be the case that the error is due to the tenant, but this study will not be able to make that determination. Therefore, we consider discrepancies between information used to determine rent and verified information as sources of error, rather than ascribing cause to tenants or project staff.

For the purposes of analysis and corrective action, it is useful to learn which elements in the rent computation formula contribute to QC errors. Even if we don’t know why items such as income or medical expenses were inaccurate, HUD will know that these items should be given more careful attention by local project staff when they obtain information from tenants and/or verify information from third parties.

We propose two levels of analysis to address this issue. First, we will provide descriptive information on the sources of discrepancies between housing file information and verified information, and describe the incidence of procedural errors and their impacts. Exhibit 7, already presented in our discussion of objective 4, describes the proportion of cases with procedural errors

(i.e., calculation, transcription, improper application of allowances, improper calculation of income, and overdue certification), and their corresponding QC rent error.

It shows the relationship between these procedural errors and QC errors. Second, we will produce exhibits that illustrate another type of procedural error—*failure to verify information or inappropriate application of verification information*, as shown in Exhibits 13, 14, and 15 below. Source Table 11 will provide the data for these exhibits.

Exhibit 13 presents the number of households by rent component where verification was not obtained, where it was obtained but the verification amount did not match the amount used on the 50058/59, and where verification was obtained and it did match the amount used on the 50058/59.

**Exhibit 13**  
**Percent of Households with Verification of 50058/50059 Rent Components**  
**(FY 2009 and FY 2010)**

Rent Component	No Project Verification		Item Verified by Project		Verification Matched 50058/59	
	FY 2009	FY 2010	FY 2009	FY 2010	FY 2009	FY 2010
Earned Income						
Pensions						
Public Assistance						
Other Income						
Asset Income						
Dependent Allowance						
Elderly Allowance						
Child Care Allowance						
Disability Allowance						
Medical Allowance						

Source Table 11

Exhibit 14 provides case file verification information by program type. It displays 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 14**  
**Verification of 50058/50059 Rent Components (FY 2010)**

Rent Component	PHA-administered Section 8		Owner-administered		Public Housing	
	Verified	Matched*	Verified	Matched*	Verified	Matched*
Earned Income						
Pensions						
Public Assistance						
Other Income						
Asset Income						
Child Care Expense						
Disability Expense						
Medical Expense						

Source Table 13. \* Matched within \$100

Exhibit 15 takes the analysis a step further. It provides data on whether failure to verify sources of income and expenses was a contributor to QC error. It displays the percent of households with QC error for which verification was missing in the household file. Each error is presented by rent component.

**Exhibit 15**  
**QC Error Households with Missing Verification in the Tenant File**  
**(FY 2009 and FY 2010)**

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	
	FY 2009	FY 2010	FY 2009	FY 2010	FY 2009	FY 2010	FY 2009	FY 2010
Earned Income								
Pensions								
Public Assistance								
Other Income								
Asset Income								
Child Care Expense								
Disability Expense								
Medical Expense								
<b>No Component Error</b>								

Source Table 11

Rent components—the elements used to calculate rent—are another source of error, so we will conduct analyses of rent component error. Exhibit 16 shows the relationship between errors in each rent component and the average dollar amount for cases in error.

**Exhibit 16**  
**Rent Components Responsible for the Largest Dollar Error**  
**Households with Rent Error (listed by amount of dollar error)**  
**(FY 2009 and FY 2010)**

Rent Component	Percent of Households in Error		Average Dollar Amount	
	FY 2009	FY 2010	FY 2009	FY 2010
Earned Income				
Other Income				
Pensions				
Asset Income				
Public Assistance				
Child Care Expenses				
Medical Expenses				
Dependent Allowance				
Disability Expenses				
Elderly/Disabled Allowance				
<b>No Rent Component Error</b>				

Source Table 12



Exhibit 17 compares the percent of total households with and without component error by component type and payment type. It also compares this information for households in different housing program types.

Exhibit 18 presents the standard errors for the total number of households with and without component error by component type and payment type.

**Exhibit 17**  
**Income and Expense Component Error by Payment Type for All Households (FY 2010)**

Income/Expense Component	Underpayment			Proper Payment			Overpayment		
	PHA	Owner	Total	PHA	Owner	Total	PHA	Owner	Total
Earned Income									
Pension Income									
Public Assistance Income									
Other Income									
Asset Income									
Dependent Allowance									
Elderly Household Allowance									
Child Care Allowance									
Disability Assistance Expense									
Medical Expense									
<b>No Rent Component Error</b>									

Source Table 13

**Exhibit 18**  
**Percent of Households and Standard Error by Rent Component and Payment Type (FY 2010)**

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						
Pension Income						
Public Assistance Income						
Other Income						
Asset Income						
Dependent Allowance						
Elderly Household Allowance						
Child Care Allowance						
Disability Assistance Expense						
Medical Expense						
<b>No Rent Component Error</b>						

Source Table 13

Exhibit 19 will provide the annual gross dollar error and the percent of dollar error attributed to each component.

**Exhibit 19**  
**Annual Gross Dollar Error by Largest Component Error for Households with Rent Error (FY 2010)**

<b>Largest Component Error</b>	<b>Annual Gross Dollar Error</b>	<b>Col % of Dollar Error</b>	<b>Number of Cases in Error (in 1,000)</b>	<b>Col % of Cases in Error</b>
Earned Income				
Pensions				
Medical Allowance				
Child Care Allowance				
Dependent Allowance				
Asset Income				
Elderly/Disabled Allowance				
Other Income				
Public Assistance				
No Rent Component Error				
<b>Total</b>				

This table presents the sum of gross dollar error for cases categorized by their largest component error. Many individual cases have errors in multiple components.

Exhibit 20 will explore whether elderly/disabled and dependent allowances<sup>4</sup> are applied correctly.

**Exhibit 20**  
**Percent of Households with Elderly/Disabled Allowances and Dependent Allowances (FY 2010)**

	<b>Elderly Allowance</b>			<b>Dependent Allowance</b>		
	<b>Non-Elderly/ Non-Disabled Households</b>	<b>Elderly/ Disabled Households</b>	<b>All Households</b>	<b>Households without Dependents</b>	<b>Households with Dependents</b>	<b>All Households</b>
No Allowance						
Incorrect Allowance						
Correct Allowance						

Source Table 15

<sup>4</sup> 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).

**Objective 7: 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 standards<sup>5</sup> specifying the appropriate size unit for PHA-administered Section 8 households are shown in Exhibit 21 below.

**Exhibit 21  
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

There are exceptions to these guidelines. If a tenant is elderly, disabled, pregnant, or meets other criteria, they may be allowed a larger bedroom unit. There are also circumstances when households are allowed smaller bedroom units. The determination of appropriate bedroom size is locally based. For this study it will be based on the *Data Collection Standards*, delivered under separate cover, which specify rules for bedroom size.

Overhousing refers to tenants occupying units that exceed the bedroom size allowed by HUD regulation for their actual household size. This study will replicate the analysis completed in previous studies, identifying by bedroom size and program, the proportion of households in compliance with and in violation of occupancy standards. This analysis will be conducted with national estimates of proportions in tabular displays showing the results for FY 2009 and FY 2010.

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<sup>5</sup> Local projects have discretion in determining unit size, and may determine unit size differently than shown.

Exhibit 22 presents the percent of households in units with the correct number of bedrooms by program type with information for both the FY 2009 and FY 2010 study. Exhibit 23 presents the overall findings. The shaded cells generally indicate incorrect unit assignments.

**Exhibit 22**  
**Percent of Households in Units with Correct Number of Bedrooms**  
**(According to Study Guidelines)**  
**(FY 2009 and FY 2010)**

Number of Bedrooms	PHA-administered				Owner-Administered		Total	
	Public Housing		Section 8					
	FY 2009	FY 2010	FY 2009	FY 2010	FY 2009	FY 2010	FY 2009	FY 2010
0								
1								
2								
3								
4								
5								
<b>All Units</b>								

Source Table 16

**Exhibit 23**  
**Percent of All Households by**  
**Number of Bedrooms and Number of Household Members (in thousands) (FY 2010)**

Number of Bedrooms	Number of Household Members									
	1	2	3	4	5	6	7	8	9	10
0										
1										
2										
3										
4										
5										

Source Table 16

**Objective 8: Provide information on the extent to which errors are concentrated in projects and programs.**

We will determine the degree to which errors are concentrated in certain projects, as opposed to randomly distributed across the sample. On the one hand, if most errors are caused by the project staff, we would expect to find errors clustered in certain projects. On the other hand, if errors are mostly caused by the tenant, we would expect to find errors randomly distributed among projects. We will explore the application of the hierarchical linear modeling (HLM) technique to partition the variance of rent error and estimate the proportion of variance at the project level. Given the nested

data structure (household/tenants within the project), HLM allows us to formally estimate the variance at the two levels and model the variance with predictor variables if the project level variance is substantially large.

Using information obtained from the Project Staff Questionnaire in combination with household/tenant data, we will conduct multivariate analyses to explore the association between project characteristics (e.g., program type, staff training practices, percent of elderly tenants, management practices) and error rates. This analysis will identify how each of these variables contributes to differences in error. The results will provide HUD with information to guide the management of error rates, and will elaborate relationships between management practices and project/tenant characteristics associated with error rates.

**Objective 9: Estimate the percentage of newly certified tenants who were incorrectly determined eligible for program admission.**

Incorrect initial eligibility determinations create long-term problems for assisted-housing programs. It is key to prudent housing management practices to correctly determine initial eligibility criteria. Eligibility for housing assistance is based on five certification criteria: family composition, citizenship, verification of Social Security numbers, signed consent forms, and low and very low income limits. This study will examine eligibility criteria and verify the accuracy of collected information. We will examine citizenship, Social Security number, consent form and low income criteria, and present results as shown in Exhibit 24, and by program type, as in Exhibit 25.

**Exhibit 24  
Percent of Newly Certified Households Meeting Certification Criteria (FY 2010)**

Certification Criteria	Percent of Households		
	Met Criterion	Did Not Meet Criterion	Unable to Determine
Citizenship			
Social Security Number			
Consent Form			
Low and Very Low Income			
<b>Meets All Eligibility Criteria</b>			

Source Table 17

**Exhibit 25**  
**Percent of Newly Certified Households Meeting Certification Criteria (FY 2010)**

Certification Criteria	Percent of Households Meeting the Criteria		
	Public Housing	PHA-administered Section 8	Owner-administered Section 8
Citizenship			
Social Security Number			
Consent Form			
Low and Very Low Income			
<b>Meets All Eligibility Criteria</b>			

Source Table 18

**Objective 10:** *Determine the extent to which Section 8 Voucher rent comparability determinations are found in the tenant file, and indicate the method used to support the determination. Determine whether Voucher payment standards are within 90–110 percent of fair market rents, and determine whether the correct utility allowances are being applied.*

Objective 10 examines several issues related to the Section 8 Voucher program that have important but indirect influences on rent errors.

## RENT REASONABLENESS ANALYSIS

To comply with the rent reasonableness requirement, housing authorities must determine that Section 8 Voucher rents are reasonable in comparison to rents for similar housing in the private, unassisted market. We will determine, based on information obtained from PHAs, their usual method for assessing rent reasonableness. Exhibit 26 illustrates these results.

**Exhibit 26**  
**Rent Reasonableness Determination Methods (FY 2010)**

Method for Assessing Rent Reasonableness	PHAs Using Method	
	Number	Percent
Unit-to-Unit Comparison		
Unit-to-Market Comparison		
Point System		
Other or Rent Control		
No Information Provided		
<b>Total</b>		

Using information collected from household files, we will estimate the proportion of new admission Section 8 Voucher recipients with rent reasonableness documentation. We will also determine the timing of their most recent determination, and compare this to the results from FY 2009. Exhibits 27 and 28 illustrate these results.

**Exhibit 27  
Rent Reasonableness Documents in Files for New Admissions  
(FY 2009 and FY 2010)**

Status	FY 2009		FY 2010	
	Units in 1000s	Percent	Units in 1000s	Percent
<b>Determination documented</b>				
A signed statement certifying that the rent is reasonable				
Comparable units documented by the property owner in section 12a of HUD 52517				
Comparable units documented on other documents				
Any other reference to rent reasonableness				
Missing reference				
<b>No determination documented</b>				
<b>Total</b>				

**Exhibit 28  
Timing of Most Recent Rent Reasonableness Determination—New Admissions  
(FY 2009 and FY 2010)**

Determination-Certification Chronology	FY 2009		FY 2010	
	Units in 1000s	Percent	Units in 1000s	Percent
More than 4 months before lease date				
Up to 4 months before lease date				
After lease date—up to 2 months				
After lease date—greater than 2 months				
Date missing				
<b>Total</b>				

**Annual recertifications** require rent reasonableness documents only when owners increased rental rates. We will examine case files to determine when the current rent first became effective, and whether rent reasonableness documentation is present in the files. This analysis is displayed in Exhibit 29. We will also compare timing of determinations from FY 2009 and FY 2010, as Exhibit 30 illustrates.

**Exhibit 29**  
**Rent Reasonableness Documents for Annual Recertifications**  
**(FY 2009 and FY 2010)**

Status	FY 2009		FY 2010	
	Units in 1000s	Percent	Units in 1000s	Percent
<b>Determination documented</b>				
A signed statement certifying that the rent is reasonable				
Comparable units documented by the property owner in section 12a of HUD 52517				
Comparable units documented on other documents				
Any other reference to rent reasonableness				
Missing reference				
<b>No determination documented</b>				
<b>Total</b>				

**Exhibit 30**  
**Timing of Most Recent Rent Reasonableness Determination—Annual Recertifications**  
**(FY 2009 and FY 2010)**

Determination-Certification Chronology	FY 2009		FY 2010	
	Units in 1000s	Percent	Units in 1000s	Percent
More than 4 months before lease date				
Up to 4 months before lease date				
After lease date—up to 2 months				
After lease date—greater than 2 months				
Date missing				
<b>Total</b>				



## PAYMENT STANDARDS ANALYSIS

HUD will supply the published Fair Market Rents (FMR) to ICF Macro. This information will be compared to payment standard data from the 50058 form, which will be captured during the data collection process. As Exhibit 31 indicates, payment standard discrepancies will be tabulated by reason for the discrepancy. Household rents outside of the 90–110 percent band of the FMR will be appropriately flagged and this information will be sent to HUD. The comparison of FMRs and payment standard data will result in a table that summarizes the number and percent of households below, in, and above the 90–110 percent band. Exhibit 32 displays this.

**Exhibit 31**  
**Number and Percent of Households with Payment Standard Discrepancies (FY 2010)**

<b>Reason</b>	<b>Number of Households (Elderly/ Disabled)</b>	<b>Number of Households (Non-Elderly/ Disabled)</b>	<b>Total Percent of Households with Discrepancies</b>
Wrong Number of Bedrooms was Used			
Gross Rent instead of the Payment Standard was Used			
Old Payment Standard Amount was Used			
Other Reasons; Decrease in Payment Standard, Typos, Used the FMR, Limitation of the Computer Software System			
<b>Total</b>			

Data provided in this table are not weighted.

**Exhibit 32**  
**Percent of Households by Fair Market Rent Category**  
**after Comparing Payment Standard to Fair Market Rent (FMR; FY 2010)**

<b>Fair Market Rent Category</b>	<b>Percent of Households</b>		
	<b>Under 90% FMR</b>	<b>90–110% FMR</b>	<b>Over 110% FMR</b>
Less than \$500			
\$500–\$599			
\$600–\$799			
\$800–\$999			
\$1,000–\$1,199			
\$1,200–or Higher			
All Voucher Households			

For households that fall outside the 90–110 band, we will determine whether they received an exemption. Exhibit 33 illustrates this analysis.

**Exhibit 33**  
**Percent of Households Meeting Payment Standard Requirements (FY 2010)**

	Percent of Households			Total Percent Outside the 90–110% Band
	Under 90% FMR	90–110% FMR	Over 110% FMR	
Payment Standard Compared with Fair Market Rent				
Households Granted an Exemption				
Households (without exemptions) with Elderly or Disabled Members				
Households Not Meeting Requirements				

ICF Macro will also obtain payment standard schedules from the PHAs included in the study. We will determine the correct payment standard for each household, using the PHA schedules, and compare this amount to the payment standard data from the 50058. Where discrepancies are found, we will attempt to determine the reason for the discrepancy. This analysis will be summarized and presented with the above analysis.

## UTILITY SCHEDULES

The types of documents used by PHAs to calculate utility allowance values will be tabulated. Voucher utility allowances will also be evaluated by comparing the utility allowance amount recorded in the household file utility worksheet to the utility allowance recorded on the 50058/59 form, and to the amount calculated using the PHA utility allowance schedule. ICF Macro will obtain utility schedules in use by the PHAs and the utility allowance worksheet from the household file. We will compare the total utility allowance amount, the number of bedrooms, and the address. Exhibits 34 and 35 illustrate this analysis.

**Exhibit 34**  
**Type of Document Used by the PHA to Calculate the Utility Allowance Value (FY 2010)**

Type of Document	Number of PHAs	Percent of PHAs
HUD Form 52667		
HUD Form 52641—HAP contract		
PHA Created Form		
HUD Form 52617—Tenancy Approval		
Combination of Above		
<b>Total</b>		

Data in this table are not weighted.

**Exhibit 35**  
**QC Utility Allowance Comparison Findings (FY 2010)**

Number	Percent	Outcome
		No Worksheet Was Available
		QC UA Matched Amount on 50058
		Worksheet Was Missing Critical Information
		Discrepancy in Number of Bedrooms
		Discrepancy Due to Math Error
		Discrepancy—Incorrect Schedule Used
		Discrepancy—Unable to Determine Reasons
		<b>Total</b>

Data in this table are not weighted.

**Objective 11: Estimate total positive and negative errors in terms of HUD 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 tenant rent. In the previous study, proper payments were defined as those in which the Actual Rent equals the QC Rent (i.e., there is no dollar error in the tenant payment). Errors can be either overpayments (Actual Rent greater than QC Rent) or tenant underpayments (Actual Rent less than QC Rent). Overpayment error rates are computed by dividing the total amount of overpayment by the total Actual Rent; underpayment error rates are calculated by dividing the total amount of underpayments by the total Actual Rent. Tenant overpayments are negative subsidy errors; tenant underpayments are positive subsidy errors. Tables as shown in Exhibits 36, 37 and 38 below will illustrate the results of these comparisons.

**Exhibit 36**  
**Negative Subsidy Households (Under-subsidies)**  
**Percent of Households and Average Monthly Dollar Amount of Error**  
**(FY 2009 and FY 2010)**

Program Type	Percent of Households in Error		Average Dollar Amount of Error			
			Negative Subsidy Households (with errors > \$5)		All Households	
	FY 2009	FY 2010	FY 2009	FY 2010	FY 2009	FY 2010
Public Housing						
PHA-administered Section 8						
<i>Total PHA-administered</i>						
Total Owner-administered						
<b>Total</b>						

Source Tables 1b and 3

**Exhibit 37**  
**Positive Subsidy Households (Over-Subsidies)**  
**Percent of Households and Average Monthly Dollar Amount of Error**  
**(FY 2009 and FY 2010)**

Administration Type	Percent of Households in Error		Average Dollar Amount of Error			
			Positive Subsidy Households (with errors > \$5)		All Households	
	FY 2009	FY 2010	FY 2009	FY 2010	FY 2009	FY 2010
Public Housing						
PHA-administered Section 8						
<i>Total PHA-administered</i>						
Total Owner-administered						
<b>Total</b>						

Source Tables 1b and 3

**Exhibit 38**  
**Average Monthly Dollar Amounts of Error for Negative (Under-) and Positive (Over-) Subsidies**  
**Averaged Across All Households**  
**(FY 2009 and FY 2010)**

Household Type	Negative Subsidy Average Dollar Amount of Error		Positive Subsidy Average Dollar Amount of Error	
	FY 2009	FY 2010	FY 2009	FY 2010
Certifications				
Non-overdue Recertifications				
Overdue Recertifications				
<b>Total</b>				

Source Tables 1b and 3

**Objective 12: Determine the extent to which error rates in projects that use an automated rent calculation system differ from errors in those that do not.**

In previous studies we found that the vast majority of projects used computers for various administrative processes. For the FY 2010 study, we will augment these findings by examining the data to measure the sophistication of computer and information technology use by projects. We will build a scale to gauge the extent to which project personnel use computer technologies in information collection/integration, rent calculation, verification, and database management. Exhibit 39 displays the possible administrative tasks for which projects may use computer technology.

**Exhibit 39**

**Percent of Projects Using Computer Software for Administrative Tasks in the Past 12 Months (FY 2010)**

Administrative Tasks	Percent Using Computer Software			
	Public Housing Projects	PHA-Administered Section 8 Projects	Owner-Administered Projects	All Projects
Interview tenants and record answers				
Keep track of pending verifications				
Input verified information				
Calculate rent				
Print the 50058/50059 form				
Conduct accounting tasks				
Track maintenance activities				
Print letters to the tenants				
Assign recertification dates/appointments				
Print checks				
Submit tenant information to HUD				
Conduct rent reasonableness comparisons				
Maintain demographics on the population				
Keep other types of statistics				
Do not use computers				
<b>Total Number of PHA/Projects</b>				

We will also examine use of computers by project size, as illustrated by Exhibit 40.

**Exhibit 40**

**Percent of Projects Using Computer Software Uses in the Past 12 Months, by Project Size (FY 2010)**

Administrative Tasks	Percent Using Computer Software		
	Projects with <150 Units	Projects with 150 to 500 Units	Projects with >500 Units
Interview tenants and record answers			
Keep track of pending verifications			
Input verified information			
Calculate rent			
Print the 50058/50059 form			
Conduct accounting tasks			
Track maintenance activities			
Print letters to the tenants			
Assign recertification dates/appointments			
Print checks			
Submit tenant information to HUD			
Conduct rent reasonableness comparisons			
Maintain demographics on the population			
Keep other types of statistics			
Do not use computers			
<b>Total Number of PHA/Projects</b>			

**Objective 13: Determine whether other tenant or project characteristics on which data are available are correlated with higher or low error rates.**

Prior HUDQC studies have identified a number of tenant and project variables that accounted for rent errors. We will build upon the information to further examine household/tenant and project characteristics that are potentially related to errors. Multiple regression with combined project and household data will be conducted to examine this issue.

Many Federal and state agencies use error-prone modeling techniques to identify cases with a high probability of being in error. These techniques are often used in welfare, Medicaid, student aid, food assistance, and tax compliance programs. A variety of tools have been used, including regression analysis, sequential search techniques, discriminant analysis, correlation and regression trees (CART), and other statistical methods, depending on the nature of the available data. Ideally, these methods are used to develop equations that predict the likelihood a case is in error or an administrative unit is making errors.

Error prone models provide a cost-effective means to target quality control monitoring efforts by identifying specific types of households and projects likely to exhibit high error rates. We will use multivariate regression techniques, path analysis, and CART to develop error-prone models. The dependent variable in these analyses will be rent errors.

Project characteristics (e.g., PHA/project size; staff training methods) and tenant characteristics (e.g., number of sources of income; type of expenses) will be used as independent variables. Where possible, we will incorporate data from TRACS/PIC into the models to provide HUD with more information for identifying projects and households likely to exhibit high error rates. Although the explanatory findings of error-prone models are important, we believe that such models will be most useful to HUD if its analysts can combine the findings from program data (e.g., TRACS/PIC) to target projects and households likely to exhibit high error rates. In this proposed study, our error-prone modeling efforts will focus on producing practical tools that HUD analysts can use in ongoing quality control efforts.

**Objective 14: 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.**

A national database of tenant 50058/59s is maintained by HUD on the TRACS/PIC system. However, not all tenants are on the system. There are concerns about projects that fail to routinely transmit information to TRACS/PIC, and it is hypothesized that a reason for this failure is that recertifications are not performed on a timely basis. The existence of TRACS/PIC in concert with the QC study provides the opportunity to investigate the relationship between TRACS/PIC reporting and rent accuracy.

ICF Macro will compare QC error rates for sampled tenants who appear on TRACS/PIC with those who do not. Any difference that is greater than sampling error would be considered significant. The results will be presented, as shown in Exhibits 41 and 42, for program type and payment type. The total population will be used to determine the average dollars in error.

**Exhibit 41  
Average Dollars in Error by Program Type and TRACS/PIC Data (FY 2010)**

Administration Type	TRACS/PIC Present		TRACS/PIC Absent	
	Percent of All Households in Error	Average Dollars in Error	Percent of All Households in Error	Average Dollars in Error
Public Housing				
PHA-administered Section 8				
Total PHA-administered				
Total Owner-administered				
<b>Total</b>				

Source Table 19

**Exhibit 42**  
**Average Dollars in Error by Payment Type and TRACS/PIC Data (FY 2010)**

Payment Type	TRACS/PIC Present		TRACS/PIC Absent	
	Percent of Households in TRACS/PIC	Average Dollars in Error	Percent of Households Not in TRACS/PIC	Average Dollars in Error
Overpayment				
Underpayment				
Proper Payment				
<b>Total</b>				

Source Table 20

Analyses will identify the number of households where the effective date of action on the 50058/50059 used in the study matches the effective date of action in the TRACS/PIC file. For those households that match on effective date of action, we will determine whether certain key variables match. Variables included in this analysis will be gross income, net income, tenant rent, and total tenant payment (TTP). Exhibit 43 provides the percent of households where key variables on the 50058/59 forms matched the TRACS/PIC data.

**Exhibit 43**  
**Percent of Matched and Non-Matched Dollar Amounts for Key Variables**  
**Matching Variables from the 50058/50059 Form and TRACS/PIC Data Files (FY 2010)**

	Gross Income		Net Income		Total Tenant Payment		Tenant Rent
	PIC	TRACS	PIC	TRACS	PIC	TRACS	PIC
No Match							
Match							
Subtotal							
Missing							
<b>Total</b>							

Source Table 20

The households which included variables where the 50058/50059 data did not match the TRACS/PIC data will be reviewed to determine if these households' rent was calculated in error. Exhibit 44 displays the cases with discrepancies in gross income, net income, total tenant payment, and tenant rent, and the percents that also have rent errors.



**Exhibit 44**  
**Percent of Gross Dollar Rent Errors for Cases Where Key Variables Did Not Match (FY 2010)**

Rent Error Status	Gross Income		Net Income		Total Tenant Payment		Tenant Rent
	PIC	TRACS	PIC	TRACS	PIC	TRACS	PIC
Rent Error							
No Rent Error							
<b>Total</b>							

Analysis will also be conducted to determine whether non-matching households had consistency, transcription or calculation errors within the 50058/50059. Exhibit 45 presents these households by type of error.

**Exhibit 45**  
**Percent of Procedural Errors for Cases Where Key Variables Did Not Match (FY 2010)**

Calculation and Consistency Error Status	Gross Income		Net Income		Total Tenant Payment		Tenant Rent
	PIC	TRACS	PIC	TRACS	PIC	TRACS	PIC
Consistency Error							
Allowance Calculation Error							
Income Calculation Error							
Other Calculation Error							
Transcription Error							

**Objective 15: Determine the extent of errors that were due to unreporting of income by tenants**

All household members in the QC study will be matched with the National Directory of New Hires (NDNH) database to identify sources of earnings and unemployment compensation benefits received, but not reported, by tenants. Following the guidelines provided in the *HUD Income Matching Procedures for Analyzing Income Match Data*, unreported sources of income will be identified and the subsidy overpayment dollars associated with those unreported sources of income will be identified.

Analysis will be conducted to categorize the information obtained via the NDNH match with that collected in the QC Study. Categorization will be done separately for earned income and unemployment compensation as Exhibits 46 and 47 illustrate.

**Exhibit 46**  
**Categorization of Earned Income for Each Household by Program Type (FY 2010)**

Categories	PHA-administered Section 8		Owner-administered Section 8		Total	
	Number	Percent	Number	Percent	Number	Percent
NDNH and QC Employer Are the Same						
NDNH Earnings Are Not Considered to be New						
Unclear Whether NDNH and QC Are the Same						
<b>Total</b>						

**Exhibit 47**  
**Categorization of Unemployment Compensation for Each Household by Program Type (FY 2010)**

Categories	PHA-administered Section 8		Owner-administered Section 8		Total	
	Number	Percent	Number	Percent	Number	Percent
NDNH and QC Employer Are the Same						
NDNH Earnings Are Not Considered to be New						
Unclear Whether NDNH and QC Are the Same						
<b>Total</b>						

For those income match items where it is unclear whether they match with the QC Study information, third party verification requests will be made. Our analysis will produce a table such as the one in Exhibit 48 to summarize earned income verification requests by program type.

**Exhibit 48**  
**Results of Verification Attempts (FY 2010)**

Third Party Verification Requests	PHA-administered Section 8		Owner-administered Section 8		Total	
	Number Requested	Number/Percent	Number Requested	Number/Percent	Number Requested	Number/Percent
Directly to the Employer						
The Work Number						
<b>Total Number of Requests</b>						

After the third party verification has been obtained and reviewed, each case will be given a final disposition regarding the match of QC Study and NDNH match data. As depicted in Exhibit 49, information will be presented by program type for both earned income and unemployment compensation separately.

**Exhibit 49**  
**Income Match Case Dispositions (FY 2010)**

Third Party Verification Requests	PHA-administered		Owner-administered Section 8	Total
	Public Housing	Section 8 Vouchers		
QC Household Sample				
QC Households Reporting Earnings or Unemployment Compensation				
Households with NDNH Identified Income Sources Unmatched with QC Study Sources				
Earned Income				
Unemployment Compensation				
QC Households with Countable Unreported Income				
Earned Income				
Unemployment Compensation				
Total Countable Unreported Income that Affected Subsidy Determinations for QC Households				

Further analysis will provide the subsidy cost estimates by program type for both earned income and unemployment compensation. Both unweighted and weighted values will be provided as indicated in Exhibit 50.

**Exhibit 50**  
**Summary of Subsidy Cost Estimates for both Earned Income**  
**and Unemployment Compensation**

<b>Program Type</b>	<b>Unweighted Values Cases w/ Unreported Income</b>	<b>Nationally Weighted Values Cases w/ Unreported Income</b>
<b>EARNED INCOME</b>		
<b>PIH-administered—Public Housing</b>		
Households in Error		
Unreported Income		
Subsidy Cost		
<b>PIH-administered—Section 8 Vouchers</b>		
Households in Error		
Unreported Income		
Subsidy Cost		
<b>Owner-administered</b>		
Households in Error		
Unreported Income		
Subsidy Cost		
<b>UNEMPLOYMENT COMPENSATION</b>		
<b>PIH-administered—Public Housing</b>		
Households in Error		
Unreported Income		
Subsidy Cost		
<b>PIH-administered—Section 8 Vouchers</b>		
Households in Error		
Unreported Income		
Subsidy Cost		
<b>Owner-administered</b>		
Households in Error		
Unreported Income		
Subsidy Cost		
<b>TOTAL</b>		
Household in Error		
Unreported Income		
Subsidy Cost		

Finally, income match findings from FY 2009 and FY 2010 will be compared. The first comparison will focus on weighted subsidy costs while the second will provide a summary of potential new sources of income and verification requests (Exhibits 51 and 52).

**Exhibit 51  
Comparison of FY 2008 and FY 2009 Findings Using Nationally Weighted Values**

<b>Program Type</b>	<b>FY 2009 Cases w/ Unreported Income</b>	<b>FY 2010 Cases w/ Unreported Income</b>
<b>EARNED INCOME</b>		
<b>PIH-administered—Public Housing</b>		
Households in Error		
Unreported Income		
Subsidy Cost		
<b>PIH-administered—Section 8 Vouchers</b>		
Households in Error		
Unreported Income		
Subsidy Cost		
<b>Owner-administered</b>		
Households in Error		
Unreported Income		
Subsidy Cost		
<b>UNEMPLOYMENT COMPENSATION</b>		
<b>PIH-administered—Public Housing</b>		
Households in Error		
Unreported Income		
Subsidy Cost		
<b>PIH-administered—Section 8 Vouchers</b>		
Households in Error		
Unreported Income		
Subsidy Cost		
<b>Owner-administered</b>		
Households in Error		
Unreported Income		
Subsidy Cost		
<b>TOTAL</b>		
Household in Error		
Unreported Income		
Subsidy Cost		

**Exhibit 52**  
**Comparison of FY 2009 and FY 2010**  
**Summary of Potential New Sources of Income and Verification Requests**

	FY 2009			FY 2010		
	Owner-admin	PIH-admin	Total	Owner-admin	PIH-admin	Total
Total Households With Potential New Sources of Income						
Employers to Whom Third Party Requests Were Sent						
Employers from Whom Third Party Verification Was Received						

In recent years HUD has requested an additional analysis that depicts gross erroneous payments associated with income sources covered by EIV. Specifically, the focus of this information is to present findings related to unreported income. Exhibit 53 will be created using the FY 2010 data and findings will be listed by program type and for all assisted housing programs together.

**Exhibit 53**  
**Gross Erroneous Payments by Source (FY 2010)**

A. **Total Gross Erroneous Payments.** Calculated by adding together erroneous payments identified in the QC study with erroneous payments identified through the Income Match study.

		<b>Public Housing</b>	<b>PHA-Admin Section 8</b>	<b>Owner-Administered</b>	<b>Total</b>
1	Gross Erroneous Payments from the FY2007 HUDQC Report				
2	Erroneous Payments for Households with Unreported Unemployment Compensation from Income Match				
3	Erroneous Payments for Households with Unreported Earned Income from Income Match				
	<b>TOTAL Gross Erroneous Payments</b>				

B. **Erroneous Payments Associated with Unreported SSA/SSI benefits**

4	Erroneous Payments for Households with Unreported SSA/SSI Benefits (Included in Gross Erroneous Payments from the HUDQC Report above)				
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C. **Percentage of Payment Error Attributable to the Income Sources Covered by EIV**

5	Percent of Payment Error Attributable to <b>Unreported SSA/SSI</b>				
6	Percent of Payment Error Attributable to <b>Unreported Unemployment Compensation</b>				
7	Percent of Payment Error Attributable to <b>Unreported Earned Income</b>				

**Objective 16: Determine the extent of program administrator rent and income determination errors**

This objective is essentially a summary of objectives 1 through 3. The percent of households in error and the dollars associated with those households will be determined analytically and reported accordingly. Refer to Exhibits 1–9 in this document for how we will fulfill objective 16 (i.e., objectives 1–3).

**Objective 17: Determine the extent of errors due to Multifamily Housing Program administrators billing for subsidy that did not correspond to the subsidy reported on the HUD-50019/HUD-50059A for a tenant household.**

A separate deliverable is being created that details all aspects of the Billing Study. The analysis plans for the Billing Study will be presented in this document.

## FINAL REPORT OUTLINE

The final report will communicate all study findings and recommendations to HUD, the assisted housing community, the Congress, and other interested parties. As such, it must provide accurate and clear findings in a fashion that is easy to read and understand. While many of the overall goals of the project are straightforward, the processes for addressing them may be analytically complex. The challenge in preparing the report is to present important findings without burdening the reader with all of the complexity that went into conducting the analysis. Our approach to report preparation is to use simple tabular and graphical displays that illustrate key findings.

The final report outline is presented below.

### Executive Summary

- I. Introduction** (Purpose, background, and organization of the report)
- II. Methodology** (Requirements and study standards, sample description, data collection process, data sources, and analysis processes)
- III. Study Objectives** (Discussion of each of the study's analytic objectives)
- IV. Findings** (Narrative, tabular, and graphical presentations of the findings)
  - A. Overview
  - B. Rent Error
  - C. Sources of Error
  - D. Errors Detected Using Information Obtained from Project Files
  - E. Occupancy Standards Analysis
  - F. Rent Reasonableness Analysis
  - G. Utility Allowance Analysis
  - H. Payment Standards Analysis
  - I. PIC/TRACS Analysis
  - J. Project Staff Questionnaire Analysis
  - K. Multivariate Analysis
- V. Recommendations** (Policy implications, and a discussion of how study methodologies can be improved)
- VI. Appendices**
  - A. Rent Calculations
  - B. Weighting Procedures
  - C. Source Tables
  - D. Consistency and Calculation Errors
  - E. Project Staff Questionnaire Analysis
  - F. Multivariate Analysis



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**Appendix A**  
**Definitions of Key Terms**

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## DEFINITIONS

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**Actual TTP**—actual Total Tenant Payment obtained from the 50058/50059.

**Administration Type**—PHA or Owner.

**Aggregate Error**—the difference between the actual rental payment and the QC rental payment.

**Case Type**—certification, recertification, and overdue recertification.

**Dollar Error Rate**—the quotient of dividing the Total Gross Rent Error by the weighted sum of the QC rents.

**Case Error Rate**—the quotient of dividing the sum of the weights of tenant cases with dollar error rates in excess of \$5 per month by the total sum of the weights of tenant cases.

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

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

**Overpayment**—results when the tenant paid more than he/she 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 Vouchers, Section 8 Moderate Rehabilitation, Section 8 Substantial Rehabilitation and New Construction, Section 8 Loan Management, Section 8 Property Disposition, Section 202 PRAC/PAC, and Section 811 PRAC/PAC.

**Quality Control Month (QCM)**—the effective date of the most recent action in the file.

**Quality Control (QC) Total Tenant Payment (TTP)**—calculated value using both household interview 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, disability, dependent allowance, and elderly/disabled family allowance).

**Rent Dollar Error**—the dollar amount of the Actual Rent minus the QC Rent for an individual household. A negative number indicates an underpayment, meaning the household paid less than it should and HUD's subsidy 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.

**Total Gross Rent Error**—the weighted sum of the absolute values of positive and negative Dollar Rent Errors.

**Total Net Rent Error**—the arithmetic value of the weighted sum of individual tenant Rent Dollar Errors.

**Underpayment**—results when the tenant paid less than he/she should have paid; HUD's contribution was higher than it should have been.

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## **Appendix B**

### **Source Tables Responding to Each Objective**

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### Tables Responding to Objective(s)

OBJECTIVE	SOURCE TABLE
Objective 1: Identify the various types of errors and error rates and related estimated variances.	1. Percent of Households by Payment Type and Program Type 1a. Proper payment based on exact match of actual and QC rent 1b. Proper payment based on a match of actual and QC rent within \$5 2. Dollar Rent Error by Program Type 3. Dollar Error Amount by Payment Type and Program Type
Objective 2: Identify the dollar costs of the various types of errors.	4. Calculation Errors on Form 50058/59 5. Consistency Errors on Form 50058/59 6. Dollar Error Amount by Payment Type and Case Type 7. Case Type by Program Type 8. Administrative Error: percent of Households, Average Dollars in Error
Objective 3: Estimate national-level net costs for total errors and major error types.	9. Gross and Net Rent Error by Program Type
Objective 4: Determine the relationship between errors detectable using the HUD 50058 and HUD 50059 forms and total errors found in the study.	1. Percent of Households by Payment Type and Program Type 3. Dollar Error Amount by Payment Type and Program Type
Objective 5: Determine whether error rates and error costs have statistically significant differences from program to program.	9. Gross and Net Rent Error by Program Type 10. Total and Largest Dollar Error by Program Type for Households with Rent Error
Objective 6: Determine the apparent cause of significant rent errors.	11. Verification of Form 50058/59 Rent Component 12. Largest Component Error for Households with Rent Error 13. QC Rent Components by Payment Type and Administrative Type 14. Percent of Cases and Standard Error by Rent Component and Payment Type 15. Allowances  Multivariate regression analysis with error sources and error causes as independent variables, and QC error as the dependent variable.
Objective 7: Determine the extent to which households are overhoused relative to HUD's occupancy standards.	16. Occupancy Standards

OBJECTIVE	SOURCE TABLE
Objective 8: Provide information on the extent to which errors are concentrated in projects and programs.	2. Dollar Rent Error by Program Type  These data are from the Project Staff Questionnaire
Objective 9: Estimate the percentage of newly certified tenants who were incorrectly determined eligible for program admission.	17. Percent of Newly Certified Households Meeting Certification Criteria 18. Percent of Newly Certified Households Meeting Certification Criteria by Program Type
Objective 10: Determine the extent to which Section 8 voucher rent comparability determinations are found in the tenant file, and indicate the method used to support the determination.	Source tables are not used for rent comparability reporting.
Objective 11: Estimate total positive and negative errors in terms of HUD subsidies.	1. Percent of Households by Payment Type and Program Type 3. Dollar Error Amount by Program Type and Program Type
Objective 12: Determine the extent to which error rates in projects that use an automated rent calculation system differ from error rates in those that do not.	2. Dollar Rent Error by Program Type 3. Dollar Error Amount by Payment Type and Program Type
Objective 13: 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 14: 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.	19. QC Errors by Match with TRACS/PIC and Program 20. Payment Type by Program and Match with TRACS/PIC
Objective 15: Determine the extent of errors that were due to un-reporting of income by tenants	Source tables are not used for income match reporting.

OBJECTIVE	SOURCE TABLE
Objective 16: Determine the extent of program administrator rent and income determination errors	<ol style="list-style-type: none"> <li>1. Percent of Households by Payment Type and Program Type</li> <li>1a. Proper payment based on exact match of actual and QC rent</li> <li>1b. Proper payment based on a match of actual and QC rent within \$5</li> <li>2. Dollar Rent Error by Program Type</li> <li>3. Dollar Error Amount by Payment Type and Program Type</li> <li>4. Calculation Errors on Form 50058/59</li> <li>5. Consistency Errors on Form 50058/59</li> <li>6. Dollar Error Amount by Payment Type and Case Type</li> <li>7. Case Type by Program Type</li> <li>8. Administrative Error: percent of Households, Average Dollars in Error</li> <li>9. Gross and Net Rent Error by Program Type</li> </ol>
Objective 17: Determine the extent of errors due to Multifamily Housing Program administrators billing for subsidy that did not correspond to the subsidy reported on the HUD-50019/HUD-50059A for a tenant household.	Analytic tables associated with the Billing Study will be provided under separate cover.

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## **Appendix C**

### **National Estimate Source Tables**

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## National Estimate Source Tables

**Table 1a. Percent of Households by Payment Type by Program Type  
Proper Payment Based on Exact Match of Actual and QC Rent**

	UNDERPAYMENT			PROPER PAYMENT				OVERPAYMENT				TOTAL
	# of Cases*	Row % of Cases	Col %of Cases	# of Cases*	Row % of Cases	Col %of Cases	# of Cases*	Row % of Cases	Col %of Cases	# of Cases*	Row % of Cases	Col %of Cases
<b>PHA-Administered</b>												
Public Housing												
PHA-Administered Sec. 8												
<b>Group Total</b>												
<b>Owner-Administered</b>												
<b>Group Total</b>												
<b>Table Total</b>												

Note: \* denotes values in the thousands

## National Estimate Source Tables

**Table 1b. Percent of Households by Payment Type and Program Type  
Proper Payment Based on a Match of Actual and QC Rent within \$5**

	UNDERPAYMENT			PROPER PAYMENT			OVERPAYMENT			TOTAL		
	# of Cases*	Row % of Cases	Col % of Cases	# of Cases*	Row % of Cases	Col % of Cases	# of Cases*	Row % of Cases	Col % of Cases	# of Cases*	Row % of Cases	Col % of Cases
<b>PHA-Administered</b>												
Public Housing												
PHA-Administered Sec. 8												
<b>Group Total</b>												
<b>Owner-Administered</b>												
<b>Group Total</b>												
<b>Table Total</b>												

Note: \* denotes values in the thousands

## National Estimate Source Tables

**Table 2. Dollar Rent Error by Program Type**

	ACTUAL RENT (MONTHLY)				QC RENT (MONTHLY)				GROSS RENT ERROR (MONTHLY)		
	# of Cases* (1)	Col % of Cases	Sum Dollar Amount* (2)	Ave. Dollar Amount (2)/(1)	# of Cases*	Col % of Cases	Sum Dollar Amount * (3)	Ave. Dollar Amount (3)/(1)	Sum Dollar Amount* (4)	Ave. Dollar Amount* (4)/(1)	Error Rate
<b>PHA-Administered</b>											
Public Housing											
PHA-Administered Sec. 8											
<b>Group Total</b>											
<b>Owner-Administered</b>											
<b>Group Total</b>											
<b>Table Total</b>											

Note: \* denotes values in the thousands

## National Estimate Source Tables

**Table 3. Dollar Error Amounts by Payment Type and Program Type**

	UNDERPAYMENT (MONTHLY)				OVERPAYMENT (MONTHLY)				QC RENT (MONTHLY)			
	# of Cases*	Col % of Cases	Sum Dollar Amount* (1)	Ave. Dollar Amount (1)/(3)	# of Cases *	Col % of Cases	Sum Dollar Amount* (2)	Ave. Dollar Amount (2)/(3)	# of Cases* (3)	Col % of Cases	Sum Dollar Amount* (4)	Ave. Dollar Amount (4)/(3)
<b>PHA-Administered</b>												
Public Housing												
PHA-Administered Sec. 8												
<b>Group Total</b>												
<b>Owner-Administered</b>												
<b>Group Total</b>												
<b>Table Total</b>												

## National Estimate Source Tables

**Table 4. Calculation Errors on Form 50058/59**

	FORM				Total Number of Cases	
	50058		50059		# of Cases*	Col % of Cases
	# of Cases*	Col % of Cases	# of Cases*	Col % of Cases		
Age						
Number of Family Members						
Number of Foster Children & Live-in						
Number of Dependents						
Total Assets						
Imputed Asset Income						
Earned Income Sum						
Pension, Etc., Income Sum						
Public-Assistance Income Sum						
Asset Income Sum						
Other Income Sum						
Total Non-asset Income						
Income From Asset						
Total Annual Income						
Elderly/Disabled Allowance						
Dependent Allowance						
3% of Annual Income						
Medical Allowance						
Disability Allowance						
Child Care Allowance						
Total Allowance						
Adjusted Annual Income						
Gross Rent						
Total Tenant Payment						
Tenant Rent						
<b>Table Total</b>						

Note: \* denotes values in the thousands

## National Estimate Source Tables

**Table 5. Consistency Errors on Form 50058/59**

ITEM	50058		50059		Total	
	# of Errors*	# of Cases*	# of Errors*	# of Cases*	# of Errors*	# of Cases*
General Information						
Household Composition						
Net Family Assets and Income						
Allowances & Adjusted Income						
Family Rent and Subsidy Information						
Flat Rent Schedule Information (PH only)						

Note: \* denotes values in the thousands

## National Estimate Source Tables

**Table 6. Dollar Error Amount by Payment Type and Case Type**

	UNDERPAYMENT (MONTHLY)				OVERPAYMENT (MONTHLY)				QC RENT (MONTHLY)			
	# of Cases*	Col % of Cases	Sum Dollar Amount*	Ave. Dollar Amount	# of Cases*	Col % of Cases	Sum Dollar Amount*	Ave. Dollar Amount	# of Cases*	Col % of Cases	Sum Dollar Amount*	Ave. Dollar Amount
Certification												
Group Total												
Recertification												
Non-Overdue												
Overdue												
Group Total												
<b>Table Total</b>												

Note: \* denotes values in the thousands

## National Estimate Source Tables

**Table 7. Case Type by Program Type**

	CERTIFICATIONS			RECERTIFICATIONS/ NON-OVERDUE			RECERTIFICATIONS/OVERDUE			TOTAL		
	# of Cases*	Row % of Cases	Col % of Cases	# of Cases*	Row % of Cases	Col % of Cases	# of Cases*	Row % of Cases	Col % of Cases	# of Cases*	Row % of Cases	Col % of Cases
<b>PHA-Administered</b>												
Public Housing												
PHA-Administered Sec. 8												
<b>Group Total</b>												
<b>Owner-Administered</b>												
<b>Group Total</b>												
<b>Table Total</b>												

Note: \* denotes values in the thousands



## National Estimate Source Tables

**Table 8. Administrative Error: Percent of Households, Average Dollars in Error**

Error Type	GROSS RENT ERROR (MONTHLY)				NET RENT ERROR (MONTHLY)				QC RENT (MONTHLY)			
	# of Cases* (1)	Col % of Cases	Sum Dollar Amount * (2)	Ave. Dollar Amount (2)/(1)	# of Cases * (3)	Col % of Cases	Sum Dollar Amount * (4)	Ave. Dollar Amount (4)/(3)	# of Cases * (1)	Col % of Cases	Sum Dollar Amount* (5)	Ave. Dollar Amount (4)/(3)
Transcription Errors												
Calculation Errors - Allowances												
Calculation Errors - Income												
Calculation Errors - Other												
Overdue Recertifications												
Any Administrative Errors												

Note: \* denotes values in the thousands

## National Estimate Source Tables

**Table 9. Gross and Net Rent Error by Program Type**

	GROSS RENT ERROR (MONTHLY)				NET RENT ERROR (MONTHLY)				QC RENT (MONTHLY)			
	# of Cases * (1)	Col % of Cases	Sum Dollar Amount * (2)	Ave. Dollar Amount (2)/(1)	# of Cases* (3)	Col % of Cases	Sum Dollar Amount * (4)	Ave. Dollar Amount (4)/(3)	# of Cases* (5)	Col % of Cases	Sum Dollar Amount * (6)	Ave. Dollar Amount (6)/(5)
<b>PHA-Administered</b>												
Public Housing												
PHA-Administered Sec. 8												
<b>Group Total</b>												
<b>Owner-Administered</b>												
<b>Group Total</b>												
<b>Table Total</b>												

Note: \* denotes values in the thousands

## National Estimate Source Tables

**Table 10. Total and Largest Dollar Error by Program Type for Households with Rent Errors**

	TOTAL DOLLAR IN ERROR				LARGEST DOLLAR ERROR			
	# of Cases*	Col % of Cases	Sum Dollar Amount*	Ave. Dollar Amount	# of Cases*	Col % of Cases	Sum Dollar Amount*	Ave. Dollar Amount
<b>PHA-Administered</b>								
Public Housing								
PHA-Administered Sec. 8								
<b>Group Total</b>								
<b>Owner-Administered</b>								
<b>Group Total</b>								
<b>Total</b>								

Note: \* denotes values in the thousands

## National Estimate Source Tables

**Table 11. Verification of Form 50058/59 Rent Component Provided for Each Major Program Type**

**Third Party Verbal or in Writing, or Documentation**

RENT COMPONENT	NO VERIFICATION		VERIFICATION				TOTAL	
	# of Cases*	Row %of Cases	Dollar Amt. Not Matched		Dollar Amt. Matched		# of Cases*	Row %of Cases
			# of Cases*	Row %of Cases	# of Cases*	Row %of Cases		
Earned Income								
Pension, Etc.								
Public Assistance								
Other Income								
Asset Income								
Elderly/Disabled Allowance								
Child Care Allowance								
Disability Allowance								
Medical Allowance								

Note: \* denotes values in the thousands

## National Estimate Source Tables

**Table 12. Largest Component Error for Households with Rent Error (Annual Dollars)**

RENT COMPONENT	# of Cases*	Col %of Cases	Sum Dollar Amount*	Ave. Dollar Amount
Earned Income				
Pension, Etc.				
Public Assistance				
Other Income				
Asset Income				
Dependent Allowance				
Elderly Allowance				
Child Care Allowance				
Disability Allowance				
Medical Allowance				
No Rent Component Error				
<b>Total</b>				

Note: \* denotes values in the thousands

## National Estimate Source Tables

**Table 13. QC Rent Components by Payment Type and Administration Type**

RENT COMPONENT	PHA-ADMINISTERED			OWNER-ADMINISTERED			TOTAL		
	# of Cases*	Col %of Cases	Row % of Cases	# of Cases*	Col %of Cases	Row % of Cases	# of Cases*	Col %of Cases	Row % of Cases
<b>Underpayment</b>									
Earned Income									
Pension, Etc.									
Public Assistance									
Other Income									
Asset Income									
Dependent Allowance									
Elderly/Disabled Allowance									
Child Care Allowance									
Disability Allowance									
Medical Allowance									
No Error									
<b>Proper Payment</b>									
Earned Income									
Pension, Etc.									
Public Assistance									
Other Income									
Asset Income									
Dependent Allowance									
Elderly/Disabled Allowance									
Child Care Allowance									
Disability Allowance									
Medical Allowance									
No Error									
<b>Overpayment</b>									
Earned Income									
Pension, Etc.									
Public Assistance									
Other Income									
Asset Income									
Dependent Allowance									
Elderly/Disabled Allowance									
Child Care Allowance									
Disability Allowance									
Medical Allowance									
No Error									
<b>Total w/Rent Error Calc</b>									

Note: \* denotes values in the thousands

## National Estimate Source Tables

**Table 14. Percent of Cases and Standard Error by Rent Component and Payment Type**

RENT COMPONENT	% PHA-ADMINISTERED			% OWNER-ADMINISTERED			TOTAL		
	# of Cases*	% of Total Cases	SE (%)	# of Cases*	% of Total Cases	SE (%)	# of Cases*	% of Total Cases	SE (%)
<b>Underpayment</b>									
Earned Income									
Pension, Etc.									
Public Assistance									
Other Income									
Asset Income									
Dependent Allowance									
Elderly/Disabled Allowance									
Child Care Allowance									
Disability Allowance									
Medical Allowance									
No Error									
<b>Proper Payment</b>									
Earned Income									
Pension, Etc.									
Public Assistance									
Other Income									
Asset Income									
Dependent Allowance									
Elderly/Disabled Allowance									
Child Care Allowance									
Disability Allowance									
Medical Allowance									
No Error									
<b>Overpayment</b>									
Earned Income									
Pension, Etc.									
Public Assistance									
Other Income									
Asset Income									
Dependent Allowance									
Elderly/Disabled Allowance									
Child Care Allowance									
Disability Allowance									
Medical Allowance									
No Error									

Note: \* denotes values in the thousands

## National Estimate Source Tables

**Table 15. Allowances**

**ELDERLY/DISABLED ALLOWANCE**

	NONELDERLY/DISABLED HH			ELDERLY/DISABLED HH			TABLE TOTAL		
	# of Cases*	Col %of Cases	Row % of Cases	# of Cases*	Col %of Cases	Row % of Cases	# of Cases*	Col %of Cases	Row % of Cases
No Allowance									
Incorrect Allowance									
Correct Allowance									
<b>Table Total</b>									

Note: \* denotes values in the thousands

**DEPENDENT ALLOWANCE**

	HH W/OUT DEPENDENT			HH W/DEPENDENT			TABLE TOTAL		
	# of Cases*	Col %of Cases	Row % of Cases	# of Cases*	Col %of Cases	Row % of Cases	# of Cases*	Col %of Cases	Row % of Cases
No Allowance									
Incorrect Allowance									
Correct Allowance									
<b>Table Total</b>									

Note: \* denotes values in the thousands



## National Estimate Source Tables

**Table 16. Occupancy Standards**

Number of Bedrooms	Public Housing				PHA-Administered Section 8				Owner-Administered				Table Total
	Under-housed	Correct	Over-housed	Group Total	Under-housed	Correct	Over-housed	Group Total	Under-housed	Correct	Over-housed	Group Total	
	# of Cases*	# of Cases*	# of Cases*	# of Cases*	# of Cases*	# of Cases*	# of Cases*	# of Cases*	# of Cases*	# of Cases*	# of Cases*	# of Cases*	# of Cases*
0													
1													
2													
3													
4													
5													
<b>Table Total</b>													

Note: \* denotes values in the thousands

## National Estimate Source Tables

**Table 16. Occupancy Standards (cont'd)**

Percent of Cases

Number of Bedrooms	Public Housing			PHA-Administered Section 8			Owner-Administered		
	Under-housed	Correct	Over-housed	Under-housed	Correct	Over-housed	Under-housed	Correct	Over-housed
0									
1									
2									
3									
4									
5									
<b>Table Total</b>									

## National Estimate Source Tables

**Table 17. Percent of Newly Certified Households Meeting Certification Criteria**

	MET CRITERION		DID NOT MEET CRITERION	
	# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases
Citizenship				
Social Security Number				
Consent Form				
Low and Very Low Income				
Meets All Eligibility Criteria				

**Table 18. Percent of Newly Certified Households Meeting Certification Criteria by Program Type**

		MET CRITERION		DID NOT MEET CRITERION	
		# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases
<b>PUBLIC HOUSING</b>	Citizenship				
	Social Security Number				
	Consent Form				
	Low and Very Low Income				
	Meets All Eligibility Criteria				
<b>PHA-ADMINISTERED SECTION 8</b>	Citizenship				
	Social Security Number				
	Consent Form				
	Low and Very Low Income				
	Meets All Eligibility Criteria				
<b>OWNER-ADMINISTERED</b>	Citizenship				
	Social Security Number				
	Consent Form				
	Low and Very Low Income				
	Meets All Eligibility Criteria				

## National Estimate Source Tables

**Table 19. QC Errors by Match with TRACS/PIC and Program**

50058/59 DATA ON TRACS/PIC	PERCENT OF CASES				
	HOUSING AUTHORITY MANAGED			OWNER ADMINISTERED	TOTAL
	Public Housing	Section 8	Subtotal PHA Administered		All Projects
<b>Matched With TRACS/PIC</b>					
% Cases in Error					
Average Payment Error					
Std. Error of Mean					
<b>Nonmatch with TRACS/PIC</b>					
% Cases in Error					
Average Payment Error					
Std. Error of Mean					
<b>Table Total</b>					
% Cases in Error					
Average Payment Error					
Std. Error of Mean					

**National Estimate Source Tables**

**Table 20. Payment Type by Program and Match with TRACS/PIC**

	UNDERPAYMENT			PROPER PAYMENT			OVERPAYMENT			TOTAL		
	# of Cases (in 1,000)	Row % of Cases	Col % of Cases	# of Cases (in 1,000)	Row % of Cases	Col % of Cases	# of Cases (in 1,000)	Row % of Cases	Col % of Cases	# of Cases (in 1,000)	Row % of Cases	Col % of Cases
<b>PHA-Administered</b>												
TRACS/PIC Present												
TRACS/PIC Absent												
<b>Public Housing</b>												
TRACS/PIC Present												
TRACS/PIC Absent												
<b>Section 8</b>												
TRACS/PIC Present												
TRACS/PIC Absent												
<b>Owner-Administered</b>												
TRACS/PIC Present												
TRACS/PIC Absent												
<b>Total</b>												
TRACS/PIC Present												
TRACS/PIC Absent												
<b>Table Total</b>												