Final Report for FY 2013

Quality Control for Rental Assistance Subsidy Determinations FY 2013 Study

September 26, 2014

CONTRACT #: GS-23F-9777H
TASK ORDER #: DU208WP-13-T-00002

Prepared for:
Office of Policy Development and Research
U.S. Department of Housing and Urban Development
Washington, DC 20410

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EXECUTIVE SUMMARY

The Department of Housing and Urban Development (HUD) Quality Control for Rental Assistance Subsidy Determinations (HUDQC) Study provides national estimates of the extent, severity, costs, and sources of rent errors in tenant subsidies for the largest housing programs administered by the Office of Housing and the Office of Public and Indian Housing (PIH). These programs account for nearly all of HUD's current housing assistance outlays administered by the Office of Housing and PIH, as well as the large majority of units assisted by HUD. This study was designed to measure the extent of administrator income and rent determination error by housing providers. It does not involve an audit of individual Public Housing Authorities (PHAs) or projects, nor does it monitor the implementation of housing programs. Its singular focus is to identify households for which an error was made in the calculation of the amount of the household's rent and to provide nationally representative findings related to those errors.

The errors evaluated by ICF in this study affect the rent contributions that tenants should have been charged. The findings presented in this report are derived from data collected from December 2013 through April 2014 for actions taken by PHA and project staff during Federal fiscal year (FY) 2013 (October 2012 through September 2013). These findings show that 78 percent of households nationally paid the correct amount of rent in FY 2013. In 10 percent of cases, households paid too much rent, and in 12 percent of cases, households paid too little.

HUD administers its rental housing assistance programs through third-party program administrators, including PHAs, public and private project owners, and contracted management agents. In the programs examined, eligible tenants are generally required to pay 30 percent of their adjusted income toward shelter costs (i.e., contract rent plus utilities), with HUD providing the balance of the rental payment. New program applicants are required to provide information on household characteristics, income, assets, and expenses that is used to determine the amount of rent they need to pay. In most instances, current tenants must certify this information annually and, in some circumstances, must recertify the information when there are significant changes in the household's income or composition. Applicant or tenant failure to correctly report income may result in HUD's over- or underpayment of housing assistance. The failure of the responsible program administrator to correctly interview the tenant or process and calculate the tenant's rental assistance may also result in a HUD over- or underpayment.

In 2000, HUD established a baseline error measurement to cover the three major types of rental housing assistance payment errors: (1) program administrator income and rent determination error, (2) intentional tenant misreporting of income (the Income Match Study), and (3) errors in program administrator billings for assistance payments. Twelve studies have been conducted to identify program administrator income and rent determination error. In addition to the 2000 study, studies were conducted in FY 2003 through FY 2013. The study referenced in this report covers FY 2013 and updates the FY 2012 measurement of errors in program administrator income and rent determinations. The tenant data collected for this study were also used to provide the sample for the Income Match Study to measure the extent of intentionally unreported tenant income. The findings from the Income Match study are published as a separate report. The HUDQC Final Report for FY 2013 relates solely to program administrator income and rent determination error.

For the purposes of this study, "error" is defined as any rent calculation or eligibility determination that differs from what would have occurred if the PHA or other program administrator had followed all HUD income certification and rent calculation requirements during the initial certification or annual recertification conducted in FY 2013. When appropriate, study findings are compared with findings from the previous studies.

Financial Impact of Identifying Rent Error. Reduction in the rent error associated with the programs included in this study does not mean there will be an overall savings in the costs associated with administering these programs. Given the large number of eligible households on waiting lists, if a household leaves the program because it is no longer eligible for a subsidy, another household will take its place, and the replacement household may be entitled to a smaller or a larger subsidy than the household that left the program. Therefore, the most direct benefit of identifying households with Rent Error is ensuring that the households eligible for the program are receiving the correct subsidy, rather than reducing the funds needed to administer the programs. The most appropriate use of this study is as a tool for strengthening HUD's procedures for ensuring administrative compliance with regulations. The implementation of the recommendations presented in this report may require greater resources in order to provide HUD, PHAs, and Owners with the written policy guidelines, training, standardized forms, and ongoing monitoring needed to ensure program compliance. The HUDQC Study assists the agency's objective of providing the right subsidies to the right families to sustain and support quality rental assistance programs for communities.

A. Methodology

HUD Requirements and Study Standards. Using the *Code of Federal Regulations* and official HUD handbooks and notices, we consolidated all HUD rules relevant to the determination of rent into a set of HUD requirements. We invited program experts to participate in establishing and reviewing the standards used in this study.

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

- Public Housing
- PHA-administered Section 8 (Vouchers and Moderate Rehabilitation)
- Owner-administered Section 8, Section 202 Project Rental Assistance Contract (PRAC), Section 811 PRAC, and Section 202/162 Project Assistance Contract (PAC)

A random sample of four households was selected for most projects, but more households were selected from unusually large projects. The final study data set includes responses from 2,402 households.

Out-of-Scope Projects. Certain programs were excluded from the study because their eligibility and rent calculation rules differed from the standards, including the Owner-administered Rental Assistance Payment (RAP), Rental Supplement Program (SUP) and Below Market Interest Rate (BMIR) programs. Beginning with the FY 2012 study, Moving to Work (MTW) agencies were

included in the sampling frame and sample. Universe files requested from HUD either excluded out-of-scope projects, or those projects were identified by HUD for easy removal.

Weighting. Population counts per program were calculated based on the assisted housing universe files provided by HUD in June 2012 to compile weights for the study. Since the FY 2004 study, Owner-administered RAP/SUP and BMIR projects have been excluded from the population totals because of differences in their eligibility and rent calculation rules.

The same population totals per program, provided by HUD in the FY 2005 statement of work, were used from FY 2006 through FY 2010. Starting in FY 2011 the population totals were updated based on the FY 2012 HUDQC sample universe to better reflect the current population. Changes in total gross dollar error in FY 2011 and FY 2012 may be due to an increase in the population, not necessarily an increase in average dollar error. When comparing dollar error from FY 2011 to FY 2012, it is appropriate to compare average dollar error, as it is not affected by changes in population size. In order to increase comparability between years, the same population totals were used in FY 2013 as in FY 2012.

The Data Collection Process. The data collection effort included creating and automating more than 35 data collection instruments, contacting and obtaining information from PHA/Owner staff, hiring and training 56 field interviewers, and selecting the project and tenant sample. Field interviewers obtained data from tenant files and interviewed tenants using computer-assisted personal interviewing software developed for this study. The automated data collection process included built-in consistency and edit checks that prompted interviewers to probe inconsistent and anomalous responses. Collected data were electronically transferred daily to ICF headquarters for review. Requested third-party verifications related to income, assets, and expenses were also processed at ICF's office in Rockville, MD.

Calculation of Rent Error. A quality control (QC) rent was calculated for each household in the sample using the information reported by the PHA/project, household, Social Security match, and third-party verification. Rent error was calculated by subtracting the QC rent from the actual paid tenant rent (the rent from Form HUD-50058 or Form HUD-50059 that was calculated by the project staff). A discrepancy of $5 or less between the actual and QC rents was not counted as an error. This $5 differential was used to eliminate rounding differences and minor calculation discrepancies that have little effect on program-wide subsidy errors.

B. Major Rent Error Findings

National Rent Error Estimates. The analysis of the FY 2013 tenant files, household interviews, and income verification data indicates that:[1]

- Seventy-eight percent of all households paid the correct amount of rent within $5 (65 percent paid exactly the right amount).
- Twelve percent of all households paid at least $5 less than they should have (with an average error of $52 per month).

[1] Totals may not add to 100 percent because of rounding.

- Ten percent of all households paid at least $5 more than they should have (with an average error of $43 per month).

Rent Error Estimates by Program Type. The rate of rent underpayments was highest, at 13 percent, in the PHA-administered Section 8 program, followed by the Public Housing program at 11 percent and the Owner-administered program at 10 percent. The Public Housing program had the highest overpayment rate, at 13 percent. Both the PHA-Administered Section 8 and Owner-administered programs had a 10 percent rent overpayment rate. Exhibit ES-1 summarizes this information.

Exhibit ES-1
Frequency of Rent Error by Program Type

Program	Rent Underpayment (Subsidy Overpayment)	Rent Overpayment (Subsidy Underpayment)
Public Housing	11%	13%
PHA-administered Section 8	13%	10%
Owner-administered	10%	10%
Total	**12%**	**10%**

Dollar Error Effect of Rent Errors. All summary error estimates represent the summation of net case-level errors, meaning that a case was determined to have a net overpayment error, no error, or a net underpayment error. Major findings are as follows:[2]

- **Rent underpayments of approximately $347.6 million annually (down from $522.5 million in FY 2012).** For tenants who paid less monthly rent than they should have paid (12 percent), the average monthly underpayment was $52. For purposes of generalization, spreading total underpayment errors across all households (including those with no error and overpayment error) produces a program-wide average monthly underpayment error of $6.12 ($73 annually). Multiplying and weighting the $73 by the approximately 4.7 million units represented by the study sample resulted in an overall annual underpayment dollar error of approximately $347.6 million per year.
- **Rent overpayments of approximately $260.3 million annually (down from $276.3 million in FY 2012).** For tenants who paid more monthly rent than they should have paid (10 percent), the average monthly overpayment was $43. When this error is spread across all households, it produces an average monthly overpayment of $4.58 ($55 annually). Multiplying and weighting the $55 by the approximately 4.7 million units represented by the study sample resulted in an overall annual overpayment dollar error of approximately $260.3 million per year.
- **Aggregate net rent error of $87.3 million annually.** When combined, the average Gross Rent Error per case was $10.70 ($6.12 + $4.58). Over- and underpayment errors partly

[2] National annual totals in the text and exhibits were calculated using exact values and were weighted. Although household-level numbers are presented below, using them to calculate national annual totals will result in different amounts due to both rounding and weighting. Similarly, the source tables in Appendix C were rounded to the nearest integer for formatting purposes.

offset each other; the net overall average monthly rent error was -$1.54 (-$6.12 + $4.58). HUD subsidies for Public Housing and PHA-administered Section 8 programs equal the allowed expense level or payment standard minus the tenant rent, which means that rent errors have a dollar-for-dollar correspondence with subsidy payment errors, except in the Public Housing program in years in which it is not fully funded (in which case, errors have slightly less than a dollar-for-dollar effect). The study found that the net subsidy cost of the under- and overpayments was approximately $87.3 million per year ($347.6 million – $260.3 million).

Subsidy over- and underpayment dollars are summarized in Exhibit ES-2.[3] This information responds to study Objective 1 (i.e., identify the various types of errors, error rates, and related estimated variances).

Exhibit ES-2
Subsidy Dollar Error

Type of Dollar Error	Subsidy Overpayment	Subsidy Underpayment
Average Monthly per Tenant Error for Households with Errors	$52 (12% of cases)	$43 (10% of cases)
Average Monthly per Tenant Error Across All Households	$6.12	$4.58
Total Annual Program Errors	$347.6 million	$260.3 million
Total Annual Errors (95% Confidence Interval)	**$262.9-$432.2 million**	**$187.6-$332.9 million**

Exhibit ES-3 provides estimates of program administrator error by program type. These data respond to study Objective 3 (i.e., provide estimates of national-level net costs for total errors and major error types), Objective 7 (i.e., provide information on the extent to which errors are concentrated in projects and programs), and Objective 10 (i.e., estimate total positive and negative errors in terms of HUD subsidies).

Exhibit ES-3
Estimates of Error in Program Administrator Income and Rent Determinations (in $1,000s)

Program	Subsidy Overpayment	Subsidy Underpayment	Net Erroneous Payment	Gross Erroneous Payment
Public Housing	$103,641	$74,267	$29,375	$177,908
PHA-Administered Section 8	$183,874	$140,419	$43,454	$324,293
Total PHA-Administered	$287,515	$214,686	$72,829	$502,201
Owner-Administered	$60,049	$45,579	$14,469	$105,628
Total	**$347,563**	**$260,265**	**$87,298**	**$607,829**
95% Confidence Interval	**±$84,672**	**±$72,625**	**±$110,433**	**±$112,660**

[3] Estimates should be viewed in conjunction with 95% confidence intervals. Based on the sample, estimates may vary from year to year. Variations in estimates may not be statistically significant.

Comparison with Prior Studies. Eleven prior studies (the 2000 baseline study and the annual studies since FY 2003) estimated erroneous payments attributed to program administrator rent calculation and processing errors using similar methodology, sampling procedures, and sample sizes as this FY 2013 study. Although the FY 2003 and FY 2004 studies demonstrated significant reductions in erroneous payments attributed to program administrator income and rent determinations, the studies since that time have shown less dramatic changes in gross error.

The total gross erroneous payments had a statistically significant decrease from FY 2012 ($798.8 million) to FY 2013 ($607.8 million). In addition, the Owner-administered program also had a statistically significant decrease in gross error from FY 2012 ($177.2 million) to FY 2013 ($105.6 million). The following factors likely contributed to the substantial decrease in error from FY 2012 to FY 2013:

- At HUD's request, the methodology for determining the point in time when the rent was calculated by the project staff was altered for FY 2013. This change in methodology resulted in more documents from the tenant file being used in the QC rent determination process than in previous years.
- For FY 2013, field staff photocopied significantly more documents from the tenant file for review by the rent calculation experts than in previous years. These additional materials provided information on which the QC rent determination process was based and often resulted in the tenant file documents being used.
- Appreciably more flat rent cases were included in the sample this year than in previous years (approximately 70 more; 141 in FY 2013 compared to 62 in FY 2012). Based on the study methodology, flat rent cases cannot have rent error. As a result, this contributed to the error estimate for the Public Housing program.
- Sampling error contributes to the variation of the estimates from year to year as a new sample is drawn for each study in order to best represent the housing population at that point in time.

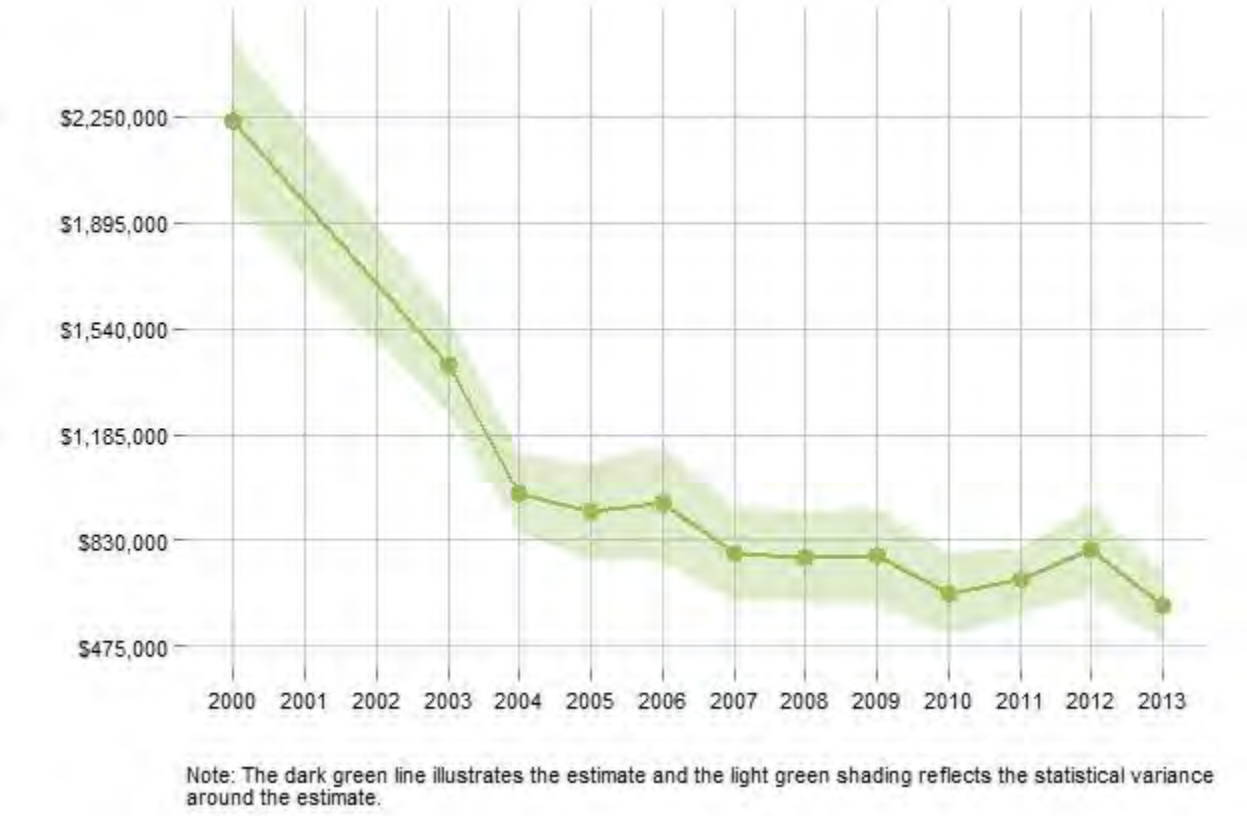
Exhibit ES-4 presents a review of the gross erroneous payments for the QC studies from 2000 to FY 2013. Figure ES-1 shows the progression of gross erroneous payments over time.

Exhibit ES-4
Comparative 2000 through FY 2013 Gross Erroneous Payments (in $1,000s)*

Fiscal Year	Administration Type				Gross Erroneous Payments (in $1,000s)
	Public Housing	PHA-administered Section 8	Total PHA-administered	Owner-administered	
FY 2013	$177,908	$324,293	$502,201	$105,628	$607,829 ±$112,660
FY 2012+	$190,849	$430,716	$621,566	$177,234	$798,800 ±$148,415
FY 2011#	$139,885	$436,156	$576,041	$119,168	$695,209 ±$108,728
FY 2010	$141,033	$341,515	$482,548	$167,719	$650,266 ±$137,235
FY 2009	$130,268	$440,288	$570,556	$209,455	$780,011 ±$162,116
FY 2008	$183,305	$400,248	$583,553	$191,723	$775,276 ±$153,447
FY 2007	$149,364	$435,012	$584,376	$199,104	$783,480 ±$157,292
FY 2006	$172,824	$520,020	$692,844	$261,324	$954,168 ±$192,264
FY 2005	$220,464	$456,240	$676,704	$248,580	$925,232 ±$164,206
FY 2004	$242,076	$521,220	$763,292	$224,460	$987,744 (±$131,201)
FY 2003	$316,116	$730,956	$1,047,072	$368,796	$1,415,844 (±$163,000)
2000	$602,556	$1,096,524	$1,699,092	$539,160	$2,238,252 (±$275,000)
Percent Reduction from 2000 to FY 2013	70.47%	70.43%	70.44%	80.41%	72.84%

* Gross Rent Error is the sum of the absolute value of positive and negative rent error.
+ For FY 2012 the population totals were updated to reflect the population in FY 2012. In addition, the MTW program was included in the QC study for the first time.
# For FY 2011, the population totals were updated to reflect the population in FY 2011.
Note: Numbers may not add exactly due to rounding.

Figure ES-1
Comparative 2000 through FY 2013 Gross Erroneous Payments over Time (in $1,000s)



A sharp decline in erroneous payments occurred from 2000 to FY 2004, from $2.2 billion to $988 million. From FY 2004 through FY 2013, the gross rent error has been relatively less varied and showed a general decline.

C. Sources of Errors

Rent errors are often a result of a mix of different types of errors. In addition to dollar errors, this study also examined administrative and component errors. For the purposes of this study, administrative errors are analyzed separately from specific component errors.

Administrative Errors. Administrative errors are errors that result from administrative mistakes. They consist of the following:

- Consistency errors, which are errors in logical conformity between elements within Form HUD-50058/50059
- Calculation errors, which are arithmetic errors within subsections of Form HUD-50058/50059
- Transcription errors, which are errors in transferring documentation in the tenant file to Form HUD-50058/50059

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

Component Errors. Component errors are related to the income and expense components used to calculate rent. The income components are employment income, Social Security benefits and pensions, public assistance, other income, and asset income. The expense and allowance components are the elderly/disabled allowance, dependent allowance, medical allowance, child care allowance, and disability allowance. Component errors often occur when project staff do not conduct a thorough tenant interview or do not verify the information obtained during the interview. However, component error may also occur when the tenant supplies incorrect information, either intentionally or unintentionally. The discussion below responds to study Objective 1 (i.e., identify the various types of errors, error rates, and related estimated variances) and Objective 2 (i.e., identify the dollar costs of the various types of errors).

Consistency and Transcription Errors. The two most common administrative errors are transcription and consistency errors. The HUD PIC and TRACS data systems check the rent calculations on Form HUD-50058/50059. For tenants for whom data are submitted (and corrected if required), these systems virtually eliminate rent determination calculation errors for the items included on the forms. However, not all cases are reported, and some cases that are returned to program administrators for correction may either be ignored or changed in HUD systems without the changes actually being implemented.

Overdue Recertifications. In general, HUD requires that every household be recertified annually. About one percent of households had overdue recertifications in FY 2013, which was about the same as in FY 2012.

Verification Errors. Recognizing the issues associated with verifying tenant information, HUD program staff have taken steps to clarify, and to some extent simplify, verification guidelines. PIH Notice 2010-19, dated May 2010, and Housing Notice H 2010-10, dated July 2010, provided new procedures for obtaining and using verification. The new HUD verification guidelines were implemented at the end of FY 2010, and FY 2011 was the first fiscal year in which they were applied. In FY 2012, based on a request from HUD staff, the acceptable verification date range for document used by PHA/project staff was extended by approximately two months so that more documents in the tenant file met the HUDQC Study requirements. For FY 2013, the study's verification date range was revised (after discussion with HUD program staff) to provide a more accurate timeframe for acceptable verification of documents. The changes included new criteria for selecting the Quality Control Month and narrowing the timeframe for acceptable verification documents found in the tenant file to exclude any that were dated after the effective date of the transaction being reviewed.

Obtaining income verification is often difficult. Even when repeated requests are made, employers sometimes do not respond to requests for verification, or they require payment for the information. Some program sponsors do a much better job than others of achieving third-party compliance with written verification. The HUDQC Study shows that it is reasonable to expect all program administrators to have as high a success rate as the current high performers. The study also shows that there is significant room for improvement in using the verification data obtained.

Component Error Findings. Incorrect income and allowance amounts were by far the most significant sources of error in determining rents; only about six percent of households with rent errors did not have an income or expense component error. Earned income (27 percent), pensions (17 percent), medical allowances (17 percent), and other income (15 percent) continued to have the highest percentage of households in error. Exhibit ES-5 shows the frequency of the most frequent component errors and the average dollar amount for each type. The percentage of households represents households with any rent component error in which the specified rent component was responsible for the largest error. The average dollar amount reported represents the average dollar amount for the specified rent component for households in which the specified component was responsible for the largest error. For comparison purposes, findings from FY 2012 are provided in parentheses. While the percentage of households with specific rent component errors remained relatively consistent from FY 2012 to FY 2013, there are often large differences in the annual average dollar error from year to year.

Exhibit ES-5
Rent Components Responsible for the Largest Dollar Error for Households with Rent Error

Rent Component	Percent of Households	Annual Average Dollar Amount
Earned Income	27% (28%)	$4,410 ($4,632)
Pensions	17% (25%)	$1,594 ($1,846)
Medical Allowance	17% (15%)	$863 ($1,049)
Other Income	15% (11%)	$2,905 ($3,599)
Public Assistance	5% (6%)	$3,289 ($2,706)
Asset Income	4% (2%)	$733 ($684)
Dependent Allowance	4% (6%)	$512 ($519)
Elderly/Disabled Allowance	4% (3%)	$400 ($400)
Child Care Allowance	2% (2%)	$1,879 ($2,626)
No Rent Component Error	6% (3%)	$0
Total	**100%**	**$2,280 ($2,555)***

* The sum of the dollars associated with the largest component in error divided by the number of households with that error.
Note: FY 2012 findings are provided in parentheses. The cell size for elderly/disabled allowance is small; therefore, estimates may not be reliable.

Exhibit ES-6 displays the impact of changes in the error threshold on the case error rate and gross dollar error. As noted above, a monthly error of less than $5 is currently ignored due to rounding. An increase in the error threshold of $5 to $10 would result in an increase in proper payments by 6 percent, as well as a decrease in the estimate for gross dollar error by about $25.7 million. Based on the distribution of household error, most rent errors are within $100 per month, or $1,200 per year. At the individual household level, the gross error may seem insignificant; however, these errors can result in a substantial amount of gross dollar error for the assisted housing programs in aggregate. Although an increase in the error threshold to $100 per month would result in 98 percent of cases being proper payments, the increased error threshold would not capture most errors associated with improper payments.

Exhibit ES-6
Impact of Changes in the Error Threshold on Frequency and Estimates of Error (in $1,000s)

Monthly Error	Percent of Households			Dollar Error Amount			
	Rent Under-payment	Proper Payment	Rent Over-payment	Rent Under-payment	Rent Over-payment	Gross Error	Net Error
Exact Match	16.5%	65.1%	18.4%	$354,555	$267,405	$621,960	$87,150
Within $5	11.7%	77.8%	10.6%	$347,563	$260,265	$607,829	$87,298
Within $10	8.8%	83.4%	7.7%	$334,964	$247,116	$582,080	$87,848
Within $15	7.2%	87.0%	5.8%	$323,388	$233,058	$556,446	$90,331
Within $25	4.9%	91.5%	3.6%	$296,749	$207,129	$503,878	$89,620
Within $50	2.4%	95.9%	1.8%	$245,901	$169,352	$415,254	$76,549
Within $100	1.4%	97.6%	1.0%	$206,794	$137,609	$344,403	$69,185

D. Additional Findings

Eligibility of Newly Certified Households. A separate analysis of newly certified households (9 percent) was conducted to determine whether the households were eligible for HUD housing assistance. Ninety percent of these households met all the eligibility criteria, lower than the FY 2012 value of 95 percent. All certified households in the sample were income-eligible on the basis of the QC income determination.

Five percent of newly certified households failed to document Social Security numbers for one or more household members, and six percent lacked the signed consent forms needed to authorize verification of income and assets (for each member of the household at least 18 years old). All households had the signed declaration forms or evidence accepted as proof of citizenship. These findings respond to study Objective 8 (i.e., estimate the percentage of newly certified tenants who were incorrectly determined eligible for program admission).

Occupancy Standards. Study Objective 6 asks for the extent to which households are under- or over-housed relative to HUD's occupancy standards. Fifteen percent of all households occupied a unit with too many or too few bedrooms in FY 2013, according to the guidelines used for this study. Historically, the percentage of households in units with the correct number of bedrooms according to study guidelines has fluctuated between 83 percent and 88 percent since FY 2004.

Rent Reasonableness. Study Objective 9 asks for the extent to which PHA-administered Section 8 Voucher rent comparability (reasonableness) determinations are found in the tenant file and the method used to support the determinations. Ninety-one percent of new admission files contained rent reasonableness documents, as did 82 percent of the files for households for which data were collected for an annual recertification. However, the absence of documentation does not necessarily indicate a determination was not completed; only that it was not properly documented. Information was also collected at the PHA level to understand the method used to determine rent reasonableness. To determine whether the rent was reasonable, 96 percent of PHAs in the study used unit-to-unit rent comparison, unit-to-market rent comparison, or a point system.

Utility Allowances. For PHA-administered Section 8 Voucher households, the utility allowances found on Form HUD-50058 were compared to the utility allowance worksheets found in the tenant file, and to the utility allowance values calculated using the utility allowance schedules provided by the PHAs. For the first comparison, 92 percent of the utility allowance values matched. For the second comparison, 93 percent of the values matched between the QC utility allowance amount and that on the HUD-50058 Form. However, nonmatching values may not necessarily mean the utility allowance found on Form HUD-50058 was incorrect.

Payment Standards. A special analysis was conducted to determine if the correct payment standards were used for PHA-administered Section 8 Voucher households. The payment standard found on Form HUD-50058 was compared to the payment standard schedules provided by the PHA, and to the Fair Market Rent (FMR) for the appropriate geographical area. For the first comparison, 80 percent of the payment standards matched. For the second comparison, 90 percent of the payment standards found on Form HUD-50058 fell within the 90 to 110 percent FMR band. As with the utility allowance analysis, the information needed to conduct the analysis was not always available. Therefore, because the payment standards did not match does not necessarily mean the incorrect payment standard was used when calculating the amount of the tenant rent.

Form HUD-50058/50059 Rent Calculation Error. The tenant rent was calculated using only data on Forms HUD-50058/50059 to determine the relationship between errors detected using Forms HUD-50058/50059 and total rent errors found in the study (in response to study Objective 4). When using only Form HUD-50058/50059 data to calculate rent, errors were found in 9 percent of households. This is clearly different from the QC error calculation, in which errors were found in 23 percent of households. Error was found in both Form HUD-50058/50059 and the QC calculation in only 3 percent of households.

Automated Rent Calculation Systems. Study Objective 11 asks whether error rates in projects that use an automated rent calculation system differ from errors in those using other or calculation methods. We did not find a difference between PHAs/projects that use automated rent calculation systems and those that do not. This is not surprising because nearly all PHAs/projects use an automated rent calculation system of some kind.

Tenant Characteristics and Project Characteristics and Practices. The multivariate modeling followed the conceptual and analytical approaches used in previous years. The analysis identified patterns in which rent errors related to project and household variables, particularly involving project-caused errors such as transcription error and overdue recertification errors and their association with Gross Rent Error. These findings were essentially similar to those reported in prior years' analyses with one exception - that differences among program types were not found to be statistically significant with regard to Gross Rent Error, subsidy overpayment, and subsidy underpayment, net other project and household effects. (See Appendix F for more information on the Multivariate Analysis.)

Project-caused errors accounted for a large proportion of Gross Rent Error, controlling for other effects. Of the project-caused errors, transcription errors, overdue recertification errors, and the rate of items without third-party written verification predicted a higher gross error, which has been consistently found in prior analyses. Transcription error was a source of both high subsidy overpayment and underpayment as well. The rate of items with transcription error related to higher

overpayment and underpayment, and transcription error was found in households with and without associated rent error.

Household background variables were strong predictors of Gross Rent Error, subsidy overpayment and underpayment. Variables indicative of complex financial conditions and income strongly predicted higher rent errors. The relationship between household financial or sociodemographic variables and rent error is highly consistent across models and years, a finding which indicates that PHA/project staff should emphasize quality control of these cases.

E. HUD Initiatives: 2000–2013

In response to the findings and recommendations of the 2000 Assisted Housing Quality Control Study, HUD initiated a series of aggressive actions to address the causes of erroneous assistance payments, including extensive onsite monitoring. Actions taken by HUD included the following:

- A Rental Housing Integrity Improvement Program committee, headed by the Office of the Chief Financial Officer with representatives from other affected offices, was formed to coordinate and monitor corrective actions. The committee meets to review progress and to identify and resolve impediments to progress in reducing errors.
- The Office of Housing and PIH developed and issued new handbooks and instructional materials that detailed all current HUD program requirements and standardized them to the extent possible without regulatory or statutory change. The handbooks cover nearly all aspects of occupancy policy, from the point of tenant application for admission and rent calculations through ongoing occupancy to lease termination. For Public Housing, the issuance of a Public Housing Occupancy Guidebook represented the first such effort in more than 20 years and provided a defined methodology for calculating a number of complex requirements (e.g., the Earned Income Disallowance).
- The Office of Housing and PIH substantially increased training efforts and held a number of national and regional training sessions. This contrasts with a less educational approach in the 1980s and 1990s.
- The Office of Housing and PIH initiated comprehensive, large-scale, and onsite occupancy and management reviews, which also represented a major procedural change from the previous two decades for most HUD offices:
    - The Office of Housing primarily used new agreements with contract administrators, which are usually State agencies, to perform this function. Contract administrators provide technical support in adhering to HUD program requirements and routinely perform detailed monitoring of agency compliance.
    - PIH initiated a system of Rental Integrity Monitoring (RIM) reviews to detect and reduce errors in income and rent calculations at targeted PHAs, reduce rent under- and overpayments by residents, and ensure that HUD's limited housing resources were being used to serve eligible families in a fair and equitable manner as intended by Congress.

- HUD initiated a legislative change that granted it access to the U.S. Department of Health and Human Services National Directory of New Hires (NDNH) income and wage database for income matching purposes. HUD uses these data to compare tenant-reported income with State wage data to better ensure that the right subsidy payments are made to the right households in accordance with program statutory and regulatory requirements. This legislation was passed in late 2003 and required the implementation of agreements and data systems. HUD also negotiated agreements with some States to obtain access to the same information. Access to the NDNH database is available through the Enterprise Income Verification (EIV) system.
- The Office of Housing and PIH initiated a computer matching program with the Social Security Administration (SSA) that provides SSA data for tenants receiving assisted housing. SSA electronically provides HUD with benefit information on all active household members who have disclosed a valid Social Security number. HUD makes this information available to administrators of the Public Housing and Section 8 programs through the EIV system. This information allows PHAs to validate Social Security numbers and SSA benefits quickly and efficiently.
- In 2010, HUD issued the *Implementation of Refinement of Income and Rent Rule*, which mandated the use of the EIV system (discussed in the previous two bullets) as a third-party source to verify tenant employment and income information during mandatory recertification of household composition and income. The use of EIV minimizes the need for traditional third-party verification forms. To make the EIV system as effective as possible, the rule was also revised to require all applicants and participants to disclose a Social Security number, no longer exempting children younger than age six.

HUD's performance goals, which were developed in consultation with the Office of Management and Budget, called for reducing the 2000 benchmark assisted housing error levels by 50 percent by the end of 2005. The study of program administrator error for FY 2005 showed that HUD exceeded this goal, and HUD has further decreased error since. It should be noted, however, that the reduction of errors and improper payments is unlikely to have an equivalent effect on budget outlays. HUD's experience has been that program integrity improvement efforts are likely to result in some higher-income tenants leaving assisted housing and being replaced with lower-income tenants requiring increased outlays. Nevertheless, HUD's goal remains to ensure that the right benefits go to the right people.

F. Recommendations

HUD's progress in decreasing improper payment since 2000 is impressive. However, findings from the study suggest general actions that should be continued or policies that should be considered to maintain or improve PHA/project performance in rent determination. As previously discussed, the errors associated with HUD programs included in this study decreased substantially in FY 2013. Whether this decrease was due to specific HUD policies, changes in local program administration, or other factors in the arena of affordable housing is not entirely certain. Below we present recommendations that may improve administrative error rates in HUD programs, based on insights we have gathered during the study:

1. **Continue Requiring the Use of EIV Reports.** HUD should continue to require the use of EIV information in the process of rent determination. Data that are systematically collected from NDNH and SSA provide a strong method of verifying specific sources of income information. The study shows that the majority of subsidy overpayment errors are associated with earned income and that a large majority of tenant income underreporting also relates to earned income; EIV reports allow the opportunity to correct errors associated with reported and unreported income. Although EIV provides a uniform and efficient method of verifying income sources that lessens the burden on program administrators, caution must be exercised when using information from the system. The data are extremely helpful in identifying unreported sources of income, but they are not current and sometimes contain errors (including instances of identity theft and incorrect identification of disability status). HUD's EIV requirement should be coupled with policies aimed at addressing the challenges of using EIV for verification. HUD may want to consider forming additional relationships with State programs, organizations, and companies to collect other data not currently captured by the EIV system.

2. **Perform Onsite Review of Rent Calculation.** HUD should continue onsite monitoring of program administration, and PHA/Owners should be held accountable for implementing HUD regulations and calculating rent accurately. Onsite monitoring that includes reviews at both the local and Federal levels is essential to improving accountability. PHA/Owners with excessive errors should be required to develop corrective action plans and show improvement within specified time periods. Improved HUD monitoring was likely a key factor in reducing subsidy error between the 2000 study and the current study.

   We recommend that HUD require PHA/Owners to perform their own QC reviews on income determinations and rent calculations. Agencies that have aggressively sought to improve the performance of their programs have demonstrated success in this area, and one of the most frequently used error-reduction strategies includes the establishment of internal QC review procedures. Based on the Project Staff Questionnaire (PSQ) survey, it appears that programs that conduct QC on all their transactions have a significantly lower rent determination error rate than programs that do not perform QC on all their files. Of course, a comprehensive approach may not be feasible, given limited staffing resources, but even a review of a small percentage of transactions may be beneficial in supporting the reduction of rent determination error.

   In addition to internal agency reviews, HUD regional offices can support field offices by conducting a secondary review of transactions. This review would provide HUD Federal staff with more on-the-ground insights into the issues and challenges faced by local program administrators. In addition, this approach would demonstrate HUD's concern regarding program integrity and improper payments, thereby focusing PHA/Owner attention on accurately determining tenant income and rent.

3. **Reduce Additional and New Program Requirements.** Federal laws, regulations, and HUD requirements should be simplified and reduced, to the extent possible. The current statutory environment poses substantial obstacles to efficient, accurate income and rent calculations. It includes requirements that may be well-intentioned and have potentially desirable impacts but that, taken as a whole, make the income and rent determination

process more challenging. HUD has sought to issue guidance on virtually all aspects of current income and rent determination requirements, but some of the provisions create unintended administrative complexity. Because of the size of the administrative organizations and their ability to respond to policy changes, special and temporary provisions aimed at reducing administrative burden, although developed with the best intent, can create more work to implement than if the policy had not been issued at all. Examples of this include the additional requirement to review student status and the use of the past-income provision to determine income.

4. **Implement Biennial Certifications for Some Tenant Populations.** HUD should consider requiring some reexaminations to be completed less frequently than annually for certain populations. PIH Notice 2013-03(HA) which was issued on January 22, 2013, addressed this option for elderly/disabled households, but on a temporary basis; HUD should consider implementing this policy on a permanent basis. With the time saved by this policy change, PHA/project staff could spend more time conducting required reexaminations, following up on suspected cases of fraud, and conducting more internal reviews of tenant files.
5. **Create an Online Community to Share Best Practices and Tools.** HUD should provide PHA/Owners with an online venue to support the sharing of best practices for its assisted housing programs. A Web-based resource could facilitate communication between HUD and program administrators regarding identifying ways to improve and address challenges related to proposed policies. Comprehensive supporting documents, including forms for interviewing tenants, obtaining verification, and determining rent, could be posted to the site for download. Manuals and training materials describing how to implement requirements and accurately calculate rent could also be available electronically, with webcasts providing an additional training resource for local program offices.

   HUD experts and local housing staff should be given the opportunity to work together to develop tools and systems to reduce rent error. Many local PHA/Owners have already developed forms, training materials, manuals, automated systems, and monitoring processes that enable them to provide accurate, efficient service to their tenants. HUD should create a platform for organizations to learn from each other.

In addition to providing general program recommendations to decrease error rates, we seek to improve the HUDQC study that provides the estimates of the error rates. The current methodology used by ICF to conduct the study is based on established study objectives and builds on insights from previous studies. The following recommendations serve to expand the utility of the data collected, support HUD's research goals, and improve the overall efficiency of ongoing QC studies.

1. **Update Measurements of Improper Payment Associated with Billing Error.** HUD should conduct billing error studies to obtain a more accurate assessment of improper payments. In the *FY 2012 HUD Agency Financial Report*, billing error estimates are based on FY 2004 data for the Public Housing program and FY 2009 data for Owner-administered programs. An updated study would provide HUD with a better assessment of billing error associated with rental assistance programs in order to understand one of the main contributors to improper payments. The information from these

billing studies could strengthen financial management controls so that HUD can better detect and prevent improper payments.

2. **Incorporate Additional Objectives into the HUDQC Study.** Data collected through the HUDQC Study provide details that are not available through other HUD sources (e.g., PIC/TRACS) and could be used to track trends such as the extent to which income and expense items are verified or the number of sources of employment income for a particular household or household member. Furthermore, because a statistically valid nationwide sample of projects and households is created for the study, other HUD-related topics could be investigated using the HUDQC Study's research mechanisms and data collection processes. The RIM review validation, identified in the July 2013 issuance of the HUD Research Roadmap for FY 2014–FY 2018, is a task that could be incorporated into the HUDQC Study's data collection process. Additional topics could include a review of the changing demographics of HUD tenants, participant satisfaction surveys, and a more in-depth review and evaluation of MTW programs.
3. **Conduct a Utility Allowance Comparison Study.** In response to tightening budgets and overall concerns with energy efficiency, HUD should undertake a study to better understand utility costs and consumption in subsidized housing. HUD should consider conducting an in-depth QC study of how utility allowance values are calculated and used in rent calculation. This study could involve collecting data from utility companies regarding utility usage for a given fiscal year and comparing actual consumption with the utility allowance subsidy calculated by program administrators. The investigation could also include an evaluation of the HUD Utility Schedule Model and its ability to accurately estimate utility costs for assisted housing participants.
4. **Learn More About PHA/Project Policies and Practices.** Each PHA establishes its own policies, procedures, and forms for collecting information that is ultimately used to calculate tenant rent. The differences in these practices should have some (possibly major) impact on the rent error, yet the analysis of the project practices and characteristics collected by the Project Staff Questionnaire does not demonstrate the expected impact. We recommend conducting focus groups, interviews, and discussion with program administrators to identify additional PHA/project-level factors that may impact error. This information could be used to revise the PSQ to include questions focused on the specific practices expected to influence errors. The analysis of more detailed, project-level data would assist in this process.
5. **Continue Performing the HUDQC Study.** The HUDQC Study provides a consistent ongoing method to monitor, manage, and improve HUD rent determination processes. The ongoing evaluation of HUD rental housing assistance programs is essential to program management and improvement, and rigorous research is important for understanding how well HUD programs are reaching their goals. The primary objective of the HUDQC Study is to measure rent calculation and improper payment error; however, the study also gives HUD the opportunity to learn more about methods to reduce rent calculation errors and better manage current and changing conditions at PHAs/projects. Annual evaluations facilitate more accurate, cross-year comparisons of rent errors.

I. INTRODUCTION

The U.S. Department of Housing and Urban Development (HUD) provides housing subsidies to multifamily project owners and public housing authorities to administer housing assistance primarily to low-income households. The Office of Public and Indian Housing (PIH) and the Office of Multifamily Housing provide funding for rental subsidy through Public Housing, the Section 8 Housing Choice Voucher (HCV) program, and the Owner-administered Section 8 project-based programs. Collectively these programs are referred to as HUD's Rental Housing Assistance Programs (RHAP). They are administered by more than 4,058 intermediary agencies and provide affordable housing for approximately 4.6 million households (i.e., 1.1 million though public housing, 2.3 million through the HCV program, and 1.2 million through project-based program).[4]

Under the Improper Payments Elimination and Recovery Act (IPERA), signed into law in 2010, and the guidance of the Office of Management and Budget (OMB), agencies are responsible for assessing all programs they administer and for identifying those that may be susceptible to improper payments. An improper payment is any payment that should not have been made or that was made in an incorrect amount. In fiscal year (FY) 2012, $30.9 billion, or 29 percent, of HUD's total payments were attributed to HUD's rental assistance programs. These programs constitute a significant amount of HUD's total payments and continue to be assessed as being at high risk of significant improper payments.[5]

During this challenging economic period, it is more important than ever to evaluate program administration and internal controls to maintain sustainable, quality programs that meet the needs of communities. The reduction of improper payments directly increases the efficacy of HUD's housing programs and ensures that Federal dollars are being allocated fairly across the nation. The purpose of the Quality Control for Rental Assistance Subsidy Determination Study (HUDQC Study), some background information on the study, and the organization of the report are outlined in this section.

A. Purpose of the Quality Control for Rental Assistance Subsidy Determinations Study for FY 2013

ICF International was contracted to perform the HUDQC Study to support HUD's continued dedication to reducing the amount of annual improper payments in its programs and to comply with the reporting and administrative requirements under IPERA. The HUDQC Study provides national estimates of the level of improper payments and rent calculation error in tenant subsidies for Public Housing; Section 8 HCV and Moderate Rehabilitation programs; and the Owner-administered Section 8, Section 202, and Section 811 Project Rental Assistance Contracts (PRAC) and Section 202/162 Project Assistance Contracts (PAC) programs. For the purpose of this study, error is defined as any rent calculation or eligibility decision that is determined based on methods discrepant from HUD's income certification and rent calculation requirements. The study

[4] U.S. Department of Housing and Urban Development. *Annual Report: FY 2013 Agency Financial Report.* Washington, DC: U.S. Department of Housing and Urban Development, 2013. pg. 163.

[5] U.S. Department of Housing and Urban Development. *Annual Report: FY 2013 Agency Financial Report.* Washington, DC: U.S. Department of Housing and Urban Development, 2013. pg. 190.

examines the sources, the costs associated with, and the frequency of subsidy errors in tenant certification and annual recertification processes for recertification transactions conducted during Federal FY 2013.[6]

A total of 13 objectives are examined in this report and are outlined in more detail in Section III. The main focus of this work involved collecting and analyzing information that pertained to eligibility and rent determination processes to identify possible causes of error in rent calculation. Throughout this report information is reported for the three major housing programs separately and in combination. As a separate analysis, key error estimates are also provided for the 20 largest PHAs included in the study sample. In addition, some special analyses were conducted regarding PHA utility allowances, payment standards, and rent reasonableness practices. As part of our review, we also compared unit size to household size to identify any errors in the determination of unit size.

B. Study Background

HUD defines potential rental assistance improper payment based on three major error types. These error types include:

- *Program administrator error* is the program administrator's failure to correctly determine eligibility and income and to apply all income exclusions and deductions when conducting the recertification.

- *Tenant income reporting error* is a consequence of the tenant's failure to disclose all employment income and unemployment compensation sources.

- *Billing error* occurs when there is incorrect billing and payment of subsidies between HUD and third-party program administrators and/or housing providers.

As an indicator of overall program health, HUD has annually reported the amount of improper rental assistance payments in their agency financial reports. Exhibit I-1 shows findings from 2009 to 2012 and 2000 for comparison purposes.

[6] PHAs and owners of HUD-assisted housing are required to make an initial determination of eligibility and thereafter an annual recertification of each household's rent. In this report, the term recertification refers to the initial certification and annual recertification. Interim recertification transactions were not included in this study.

Exhibit I-1

Improper Rental Assistance Payments[7] (in $1,000s)

Administration/ Error Type	2012 Gross Erroneous Payments	2011 Gross Erroneous Payments	2010 Gross Erroneous Payments	2009 Gross Erroneous Payments	2000 Gross Erroneous Payments
Public Housing					
Administrator Error	$190,850	$139,885	$141,033	……	$602,557
Income Reporting Error	$203,685	$78,622	$45,433	……	$294,000
Billing Error	$49,000	$49,000	$49,000	……	Not available
Subtotal:	**$443,535**	**$267,507**	**$186,466**	……	**$896,557**
Section 8 Voucher					
Administrator Error	$430,716	$436,155	$341,515	$440,288	$1,096,535
Income Reporting Error	$168,802	$265,696	$86,709	$121,477	$418,000
Billing Error	-	-	-	-	Not available
Subtotal:	**$599,518**	**$701,751**	**$428,224**	**$561,765**	**$1,514,535**
Total PHA-administered					
Administrator Error	$621,566	$576,040	$482,548	$440,288	$1,699,092
Income Reporting Error	$372,487	$344,318	$132,142	$121,477	$712,000
Billing Error	$49,000	$49,000	$49,000	-	Not available
Subtotal:	**$1,043,053**	**$969,358**	**$614,690**	**$561,765**	**$2,411,092**
Total Project-based/Owner-administered					
Administrator Error	$177,234	$119,168	$167,719	$209,455	$539,160
Income Reporting Error	$46,713	$84,175	$71,056	$96,326	$266,000
Billing Error	$57,000	$57,000	$57,000	$57,000	Not available
Subtotal:	**$280,947**	**$260,343**	**$295,775**	**$362,781**	**$805,160**
Total Improper Payments					
Administrator Error	$798,800	$695,208	$650,267	$649,743	$2,238,252
Income Reporting Error	$419,200	$428,493	$203,198	$217,803	$978,000
Billing Error	$106,000	$106,000	$106,000	$57,000	Not available
Total:	**$1,324,000**	**$1,129,701**	**$959,465**	**$924,546**	**$3,216,252**

[7]Data for 2000, 2010–2012: U.S. Department of Housing and Urban Development. *Annual Report: FY 2013 Agency Financial Report.* Washington, DC: U.S. Department of Housing and Urban Development, 2013. pg. 193.

Data for 2009: U.S. Department of Housing and Urban Development. *Annual Report: FY 2010 Agency Financial Report.* Washington, DC: U.S. Department of Housing and Urban Development, 2011. pg. 174.

As illustrated in Exhibit I-1, HUD has reduced the combined baseline gross improper payment estimates of $3.22 billion to $1.32 billion[8] from FY 2000 to FY 2012, a reduction of 59 percent.[9] Although overall improper payment estimates in the chart were determined by HUD, most of the data used to calculate these estimates derive from the annual HUDQC Study.

The FY 2013 HUDQC Study is the twelfth in a series of studies designed to:

- identify potential metrics for improper payments error, including HUD eligibility determination, income calculation, and rent calculation;
- translate regulations for HUD programs (i.e., Public Housing, PHA-administered Section 8, and Owner-administered projects) into data collection and survey instruments;
- develop an error detection system for flagging inconsistencies in household data and establishing an internal quality control process for data collectors; and
- provide nationally representative estimates of rent subsidy errors.

Activities for the FY 2013 HUDQC Study commenced in December 2013, starting the review of recertification transactions effective November 1, 2012 to October 31, 2013. Tasks completed prior to data collection that have not been listed above included designing the research and survey methodology and automating the data collection process. Data were collected from a nationally representative sample of HUD-assisted housing projects, and participant household data were collected from tenant files, household interviews, and third-party verification when necessary.

C. Organization of This Report

This report is organized into the following sections:

- Section I: Introduction
- Section II: Methodology
- Section III: Study Objectives and Analytic Methods
- Section IV: Findings
- Section V: Recommendations
- Appendices
  - Appendix A: Rent Calculations
  - Appendix B: Weighting Procedures
  - Appendix C: Source Tables

[8] These figures combine the FY 2000 baseline estimate of $3.22 billion for all types of improper payments (i.e. program administrator error, tenant income reporting error, and billing error) with the FY 2012 baseline estimate of $1.32 billion, based on the same types of improper payments.

[9] U.S. Department of Housing and Urban Development. *Annual Report: FY 2013 Agency Financial Report.* Washington, DC: U.S. Department of Housing and Urban Development, 2013. pg. 192.

- Appendix D: Consistency and Calculation Errors
- Appendix E: Project Staff Questionnaire Descriptive Analysis
- Appendix F: Multivariate Analysis

D. Definitions of Key Terms

The HUDQC Study uses key terms for the study of RHAP rent calculation error and improper payments. These key terms are used throughout the report and can be referenced here:

- **Actual Rent**—the tenant rent listed on the Form HUD-50058 or Form HUD-50059
- **Administration Type**—PHA or owner
- **Abstract Month**—the month in which the data collection process for any given household was initiated
- **Calculation Errors**—arithmetic errors within subsections of the Form HUD-50058 or Form HUD-50059
- **Case Type**—certification, recertification, and overdue recertification
- **Component Errors**—the income components (i.e., employment income, Social Security and pensions, public assistance, other income, and asset income) and expense components (i.e., elderly/disabled allowance, dependent allowance, medical expenses, child care expenses, and disability expense) responsible for an error in rent calculation
- **Consistency Errors**—errors in logical conformity between elements within the Form HUD-50058 or Form HUD-50059
- **Dollar Rent Error**—calculated at the household level by subtracting the household's QC Rent (see definition below) from the Actual Rent
- **Error Rate**—the sum of the dollar amount of Rent Error divided by the sum of the dollar amount of the QC Rent
- **Gross Rent Error**—the sum of the absolute values of under- and overpayments
- **Largest Component Dollar Error**—the annual dollar amount of error in the component with the largest error
- **Net Rent Error**—the arithmetic sum of under- and overpayments
- **(Rent) Overpayment**—results when the household paid more than it should have paid, making HUD's contribution less than it should have been
- **Payment Type**—underpayment, proper payment, or overpayment
- **Program Type**—Public Housing, Section 8 Housing Choice Voucher, Section 8 Moderate Rehabilitation, Section 8 project-based, Section 202 PRAC, Section 811 PRAC, or Section 202/162 PAC
- **Quality Control Month**—the month in which the PHA/owner completed the rent calculation; used during household interview to obtain data for the correct time period

- **Quality Control Date**—the day the tenant rent was calculated by the project staff; this date is used to determine whether verification is acceptable
- **Quality Control (QC) Rent**—calculated by ICF using the tenant file, household interview, and verification data
- **Rent Component**—one of the five sources of income (i.e., earned, pensions, public assistance, other income, and assets) or the five types of deductions (i.e., medical, child care, disability assistance expenses, dependent allowance, and elderly/disabled allowance)
- **Rent Error**—the difference between the monthly Actual Rent and the monthly QC Rent
- **Total Component Dollars in Error**—the absolute sum (i.e., the sum of the positive and negative amounts, ignoring the plus or minus signs) of all individual income and expense component errors, combined to provide an overall Total Dollars in Error and presented as an annual amount
- **Transcription Errors**—errors in transferring information from documentation in the tenant file to the Form HUD-50058 or Form HUD-50059
- **(Rent) Underpayment**—results when the household paid less than it should have paid, making HUD's contribution higher than it should have been

II. METHODOLOGY

A. HUD Requirements and Study Standards

ICF used the *Code of Federal Regulations* and official HUD handbooks and notices to consolidate all HUD rules relevant to the determination of rent into a set of HUD requirements. We used these requirements to create a uniform set of rules that could identify errors in eligibility determination, rent calculation, and unit assignment for the housing programs in the study. In general, this uniform set of rules—known as the standards—follows the official HUD requirements. However, for some complex requirements, standardized procedures were developed to ensure a uniform manner of data collection. A complete list of the standards used in this study can be found in the *Final Data Collection Standards for the FY 2013 HUDQC Study, Quality Control for Rental Assistance Subsidy Determinations*.[10]

B. The Sample

The initial sampling design called for a nationally representative sample of 600 projects with 4 households randomly selected from each project, equaling 2,400 households. We selected projects with probabilities proportional to size (PPS), but 8, 12, or more households were selected from larger projects whose size exceeded the sampling interval; these were counted as more than one project for the purpose of determining the sample size. The sampling design required approximately equal allocations for the three assisted program types: Public Housing, PHA-administered Section 8 (Vouchers and Moderate Rehabilitation), and Owner-administered (Section 8, Section 202 PRAC, Section 202/162 PAC, and Section 811 PRAC). Certain projects were excluded from the study because of their different eligibility and rent calculation rules, such as Owner-administered Rental Assistance Payment or Rental Supplement Program (RAP/SUP) projects. Universe files requested from HUD either excluded out-of-scope projects or those projects were identified for easy removal. Because some large projects were selected multiple times, the study sample included 542 distinct projects in 57 geographic areas in the United States and Puerto Rico. We sampled 200 projects from each major program type[11] and collected data for a multiple of four households from each project. An additional project was added to the sample to ensure that the sample would include a minimum of 2,400 households, even if unexpected circumstances were encountered. The final data set includes responses from 2,402 households in 542 projects.

The tenant sample was selected from all households that received assistance in Federal FY 2013. A random sample of four households was selected from most projects. An equal number of "replacement" households were identified as potential substitutes in the event that a selected household did not meet the study requirements or was unavailable to be interviewed. For example, 12 PHA-administered Section 8 Voucher projects, including those in New York City (NYC) and Los Angeles, had household sample sizes of 12 or more.

[10] ICF International unpublished report to HUD dated December 2, 2013.

[11] For the purpose of this study, a "project" for the Section 8 Voucher program is defined as the administration of the program in one county/township. Therefore, if a PHA administers vouchers in more than one county/township, the PHA could be represented in this study by more than one "project."

Once the sample for the QC study was identified, additional projects and households were selected for the 20 largest PHAs in the study sample. This additional sample allowed us to provide supplemental findings for these large PHAs. At least 32 cases were sampled per PHA. If a PHA's QC study sample size was sufficiently large, we did not supplement it; however, if only a few households were sampled from the PHA, we added substantially to the sample. As in the QC study, we allowed vouchers to be selected more than once. Since we selected households in groups of four, we aimed for eight projects per PHA, with possible multiple selections for the PHA-administered Section 8 Voucher and Moderate Rehabilitation projects. The resulting sample yielded 42 new projects that were not selected for the QC study and 296 new households. For additional information on the sampling procedures, see the *Sampling Plan for the FY 2013 HUDQC Study, Quality Control for Rental Assistance Subsidy Determinations*.[12]

Weighting. In studies from FY 2004 to FY 2010, Owner-administered RAP/SUP projects and Moving to Work (MTW) projects in Public Housing and Voucher programs were excluded from the population totals because of the differences in their eligibility and rent calculation rules. For FY 2012 and FY 2013, however, MTW projects were included in the study, at HUD's request.

In studies from FY 2005 to FY 2010, the population totals from the June 13, 2005, request for proposal were used as the basis for the estimate of occupied units in each of the programs. In FY 2011, a comparison of the previous population totals to the frame population totals showed a change sufficient enough to warrant updating the population counts. In FY 2012, the inclusion of MTW projects led to an increase in the population. We used the same population totals in FY 2013 to ensure comparability between the FY 2012 and FY 2013 studies (see Exhibit II-1).

Exhibit II-1
Change in Frame Population Totals Used to Pull the Study Sample Over Time

Program Type	FY 2005–FY 2010 Population Totals*	FY 2011 Study Sample*	FY 2012 and FY 2013 Study Sample**	Percent Increase in Population Totals from FY 2011 to FY 2013 Study Sample
Public Housing Total	955,000	1,052,503	1,154,796	+9.72%
Public Housing (non-MTW)	955,000	1,052,503	1,040,708	-1.12%
Public Housing (MTW)	0	0	114,088	
PHA-administered Section 8 Total	1,858,000	1,912,467	2,198,722	+14.97%
PHA-administered Section 8 (non-MTW)	1,858,000	1,912,467	1,935,597	+1.21%
PHA-administered Section 8 (MTW)	0	0	263,125	
Owner-administered	1,320,000	1,382,670	1,378,158	-0.33%
Total	**4,133,000**	**4,347,640**	**4,731,676**	+8.83%

* Excluding RAP/SUP and MTW populations
** Excluding RAP/SUP; including MTW

[12] ICF unpublished report to HUD dated July 13, 2012

The use of the same population counts increases the comparability of data, so any change from year to year would not be due to a change in the number of households in the program but to an actual change in the average gross dollar error or percentage of households that are in error. However, maintaining constant population counts over time despite changes in the population itself may result in estimates for total dollar amounts and the proportion of the population represented by each program type not being representative of the current population. Based on the above, and given the inclusion of MTW projects in the FY 2012 sample and with HUD's agreement, ICF updated the population counts for the FY 2012 study and has used those counts again for the FY 2013 study.[13]

C. Data Collection

This study used a multistage data collection process to obtain all required information. Web surveys provided project-level information from PHA/project staff. Tenant-level information was obtained by field interviewers who abstracted data from the household file; interviewed households; and requested verification of income, expense, and household composition items from third parties.[14] Tenant income, expense, allowance, and third-party verification information was collected using HUD-sanctioned data collection procedures. ICF field interviewers strictly adhered to these procedures to avoid misclassifying errors caused by PHAs/projects that did not follow HUD requirements.

The initial collection of project-level data began in October 2013 with the Web-based Project Specific Information (PSI) questionnaire. Another Web-based survey, the Project Staff Questionnaire (PSQ), was sent to projects in April 2014. Field data collection began in December 2013 and ended in April 2014. Because PHAs/projects have varying practices, ICF designed data collection instruments and guidelines for data collection that were flexible enough to obtain data from the variety of circumstances found in PHAs/projects. The major tasks accomplished during data collection and the instruments used to accomplish those tasks are discussed below.

Creating the Data Collection Instruments. For this study, more than 35 data collection instruments were used to collect data at both the project and tenant levels. These instruments were similar to those used for the previous data collection efforts, although instruments were modified to improve the data collection process. Project-level instruments were used to gather information to facilitate data collection, collect the data elements necessary to calculate QC rent, and gather information about certification and recertification practices. The tenant-level data collection instruments were created to collect data and determine whether:

(1) There were errors in the eligibility determination

(2) The household rent was calculated correctly

(3) Units were correctly assigned according to the study standards.

[13] For a more detailed discussion of population total updates, please reference Appendix B.

[14] Verification is a process of obtaining information about income or expenses from a third party that can attest to the accuracy of the information provided by the household. HUD requires that most information provided by the household be verified by a third party or substantiated using documents (e.g., printouts from the Enterprise Income Verification (EIV) system).

Each instrument was created by a survey research specialist and reviewed by a HUD policy expert. The Office of Management and Budget approved all data collection instruments.

Automating the Data Collection Process. This study used an enhanced version of the data collection system used in previous studies. Project-level data were collected through the PSI and PSQ Web surveys that were developed using the Select Survey Software. Data from household files were entered directly into laptop computers, and a computer-assisted personal interviewing (CAPI) system was used to interview tenants. This system, referred to as the HUD Data Collection Software (HDCS) system, was developed by a special team of ICF survey specialists and computer systems experts.[15] As sections of the instruments were collected by field interviewers, the HDCS system compared the data with a range of acceptable responses and data previously entered, allowing data entry errors to be corrected in the field. The system required all data to be collected in the correct order and all appropriate skip patterns to be followed.

This structured, automated process greatly reduced the need to edit, code, and clean the data after the close of data collection. HDCS data were transferred to study headquarters electronically on a daily basis. The incoming data were reviewed in an ongoing QC process. This continual data review during the collection process ensured data accuracy and permitted study headquarters staff to resolve issues or request other clarifying documents while interviewers were still in the field.

Contacting the PHA/Project. PHA/project contact names were obtained from HUD headquarters staff. Emails were sent to PHA/project staff advising them of the study and requesting their participation. Prior to field interviewer training and data collection, each project in the study was sent a Web survey requesting background information essential to the data collection process as well as specific data for the calculation of QC rent. The rent calculation information requested varied by program but included questions relating to items such as passbook rate, utility allowance schedules, payment standards, minimum rent, and flat rent. PHA/project staff verified the project type and size and the location of project offices and files. Projects were also asked to indicate whether the selected project had been designated a "special demonstration project" by HUD. If a project answered "yes" to this question and this status was confirmed, the project was replaced in the study. Public Housing projects were asked to identify the location of any information on permissible deductions. In addition, PHA-administered Section 8 Voucher projects and Public Housing projects were asked to provide their Administrative Plan and Admissions and Continued Occupancy Policy (ACOP) documents. Administrative Plans and ACOPs were thoroughly reviewed for local discretionary policies that would impact QC rent determination.

The data requested from the PHA/project were essential to the calculation of the QC rent and to preparing interviewers to begin the process of data collection. For these reasons, a 100 percent response rate to our request for information was necessary. Rigorous strategies were employed to ensure compliance and the completeness of requested information prior to field data collection.

Hiring and Training Field Interviewers. Fifty-six field interviewers were hired to complete the field data collection, and each interviewer was assigned a group of projects. Field interviewers typically lived in the same general area as the projects selected for the study. Thirty-nine field

[15] The base of HDCS is the Census and Survey Processing System (CSPro) software package, which is used by the U.S. Agency for International Development to collect demographic and health information in many countries.

interviewers who had not worked on the previous year's study (for FY 2012), attended a 9-day training; 17 experienced interviewers who completed the FY 2012 study attended a 3-day training. The 9-day training covered:

- Project background
- HUD programs and requirements
- Survey procedures
- Automated data collection
- Administrative procedures

The 3-day training covered a review of the project background and data collection procedures and focused on changes implemented for the FY 2013 study.

Abstracting from Household Files. At certification and recertification, PHAs/projects must complete either Form HUD-50058 (for each household in Public Housing and PHA-administered Section 8 programs), a Form HUD-50058 MTW (for each household in MTW projects), or a Form HUD-50059 (for all other programs in the study). Data from Form HUD-50058/50059 were entered directly into HDCS on each field interviewer's laptop computer. As the data were entered, the system identified potential data entry errors, such as incorrect codes or numbers, on the basis of internal calculations and consistency checks. These electronic checking procedures enabled field interviewers to make immediate corrections and updates.

HDCS was designed to collect data in the same format as the official Form HUD-50058 and Form HUD-50059 published by HUD. The NYC Public Housing Authority uses a Form HUD-50058 format that differs slightly from the standard. However, because of the large number of NYC Public Housing units and PHA-administered Section 8 Voucher cases in the study, copies of the corresponding PIH Information Center (PIC) 50058 data for these cases were requested and used for data collection when available. In previous study years, we encountered projects where Form HUD-50058 differed from the official HUD format. In those cases, ICF developed crosswalks by examining the data elements on the atypical forms and developing a plan that illustrated which fields corresponded to the standard Form HUD-50058. In the FY 2013 study, two nonstandard documents required crosswalks, compared to 82 in FY 2012. These two documents were used by two projects administered by two MTW PHAs.

In addition to the data collected from Form HUD-50058/50059, field interviewers collected data from the household files to document the determination of tenant eligibility and the calculation of rent. A series of documents that supported the certification action were copied by the field interviewer to verify income, assets, household composition, expenses, and other items needed for accurate rent calculations. The documents may have been supplied by the tenant to the project or by a third-party agency, and they were used in the QC rent determination. In addition to those documents, EIV reports, earned income documentation, tenant declaration and certification interview forms, worksheets indicating rent calculation, and utility allowance calculation worksheets were used in the QC rent calculation. These specific documents from the file were photocopied and sent to study headquarters weekly. In a departure from previous years, the photocopies were used to abstract data relating to assets, income, expenses, and some household

composition items at study headquarters, by headquarters staff who were better trained and more knowledgeable about HUD policies.

Interviewing Tenants. For this study, an adult household member (preferably the head of household) was interviewed in person using CAPI. Interview questions focused on family composition, sources and amounts of income, assets, and applicable expenses. Data were collected for the same point in time that the recertification was conducted. HDCS compared data from Form HUD-50058/50059 with those entered during the interview to alert the interviewer to possible errors. While interviewing tenants, field interviewers also requested specific verification documents, which they then scanned and securely sent to study headquarters. Those documents were reviewed if the supporting documents from the tenant file did not meet study verification criteria.

Requesting Verification from Third-Party Sources. When there was no evidence in the household file that the PHA/Owner verified the information used for calculating rent, or the existing verification information did not meet the requirements for this study,[16] ICF requested verification from appropriate third-party sources. Verification was also requested from third parties when household interviews resulted in the identification of sources of income that were not found in the household files. Tenants signed release forms during the household interview so that third-party verification of income and expenses could be obtained. In addition, release form cover letters were also signed by all adult members of the household to ensure that third parties contacted for the verification of information would be satisfied with the validity of the request. Third-party entities completed the forms and returned them to study headquarters, where data were compared to other file information.

Matching Social Security Data. Sample household members were matched with Social Security Administration (SSA) files by HUD. The output from this match identified the Social Security and Supplemental Security Income (SSI) benefit, as well as the Medicare premium data, for all household members. These data were considered third-party verification during the final QC rent determination.

D. Field Data Collection Time Periods

Data were collected in the field between December 2013 and April 2014 for the certification or annual recertification that occurred during FY 2013 (November 2012 through October 2013). Field interviewers collected data related to actions that may have occurred up to 18 months prior to the file abstraction and household interview. In collecting data to document actions taken in the past, a major challenge was to develop methodologies to ensure that collected data reflect the situation that existed at the selected point in time. For the respondent in the household interview, it may be difficult to recall details of life situations at a past point in time. Some respondents in this population may have unstable situations resulting from inconsistent income or changes to household size, further complicating the collection of data from the past. In light of these challenges, ICF developed strategies to ensure the consistent and accurate collection of data across

[16] For the purposes of this study, verification was acceptable if it was in writing, was received from a third party, and was dated within 119 days prior to the QCM date. Acceptable verification could include documentation from a third party brought in by the tenant if the documents met specific date criteria.

program types, projects, and households in the study. The information below describes the two primary strategies developed for this purpose: the quality control month and third-party verification rules.

Quality Control Month. The month for which data were collected is referred to as the Quality Control Month (QCM) and is used during the household interview to obtain data for the correct time period. The Quality Control Date refers to the day the tenant rent was calculated by the project staff, or the effective date the action for FY 2013 was completed. For most households in the Owner-administered program, the Quality Control Date is the date on which the project manager (or other authorized housing project staff member) or the tenant signed Form HUD-50059, certifying that the information on the form was correct. For most households in the PIH-administered programs, the Quality Control Date is the date on which the rent calculation worksheet was signed. If these pieces of information were not available, the field interviewer used other documentation in the household file to determine when the action was taken.

After the Quality Control Date was established, the data from Form HUD-50058/50059 corresponding to that action was entered into HDCS. The data from the documents used by project staff to verify information on Form HUD-50058/50059 on the Quality Control Date were also entered in a separate HDCS module. The household interview included frequent reminders to the respondent that the questions being asked pertained to the QCM.

Note: If the recertification was overdue by more than 12 months, 12-month intervals were added to the QCM so that the Quality Control Date fell within the FY 2013 review period. In this situation, during the household interview, the respondent was questioned about circumstances for the month in which the recertification would have been completed had housing project staff completed it on time. In rare situations when the rent was calculated after the effective date of the action (because of retroactive adjustments), the QCM is the date of that action.

Third-Party Verification Rules. Occasionally the verifications found in the file for household composition, income, assets, and expense items were different from those required by HUD. In addition, files were likely to contain verification documents other than those intended to support the recertification corresponding to the QCM. To ensure that data from the correct documents (i.e., those that were gathered to verify the information on the Form HUD-50058/50059 under review) were used to calculate QC rent, and to apply rules fairly and consistently across all households in the study, ICF developed a set of guidelines defining acceptable verification. For the purpose of this study, verification was considered acceptable if it was in writing, was from a third party, and was dated within the 119 days prior to the QCM date. This is a modification of prior QC studies, in which verification was considered acceptable if it was dated within 120 days before or 59 days after the effective date of recertification. Third-party verification was considered acceptable whether it was received directly from the third party, provided by tenants during the recertification process, or submitted during the household interview. Study headquarters staff classified these documents and determined whether each document met the verification acceptability criteria. For items that did not meet the requirements, verification was requested from the appropriate third-party entity.

E. Constructing the Analysis Files

The initial data files consisted of five separate files that included the following: abstracted information from Form HUD-50058/50059, household file information obtained from the tenant's file at the project, household file information abstracted by study headquarters staff, information from the household interview, and third-party release form data. Data items were collected at both the member and household levels. ICF constructed an analysis file that annualized all income and expense data at the household level. For some items, such as stable income from Social Security, this calculation was relatively easy. For other items, such as sporadic employment or medical expenses, annualizing income or deductions was more complicated. A unique linking variable was created to compare information abstracted from file documentation with information obtained in the household interview and received from third-party verification. This variable specifically identified the income, asset, or expense and the household member to which the item belonged.

For the calculation of rent error, the final analysis files contained income and expense/allowance data aggregated at the household level in annual amounts. Rent data were in monthly amounts. Separate files were created for the analysis of issues such as verification, internal Form HUD-50058/50059 errors, and occupancy standards.

F. Rent Formula

HUD uses a specific set of rules for determining tenant rents for each of its programs. The algorithm for determining the Total Tenant Payment (TTP) is the same for all programs except Sections 202 PRAC, 811 PRAC, and 202/162 PAC and MTW. The TTP is the greater of the following:

- Thirty percent of a household's adjusted monthly income defined as one-twelfth of the total of all household members' earned and unearned income—other than those amounts specifically excluded by HUD or PHA policy—less allowances for elderly/disabled households and household dependents and deductions for disability, medical, and child care expenses
- Ten percent of a household's gross monthly income with no allowances or expense deductions
- The welfare rent in as-paid States (New York was the only as-paid State in this study)
- The minimum rent ($25 for Owner-administered projects or an amount established by the PHA, not to exceed $50)

The formula for determining the TTP for the Sections 202 PRAC, 811 PRAC, and 202/16 PAC programs includes the first three items above, but there is no minimum rent requirement for those programs.

MTW programs have the flexibility of modifying their TTP calculation process from the standard formulas if the modification was established in their ACOP or Administrative Plan. In order to ensure that the MTW projects were not found in error if modifications to rent calculation processes had been approved, ICF reviewed the ACOPs and Administrative Plans for all MTW projects.

Based on the review, modifications to the standard TTP calculations were implemented for specific projects. Some common modifications used by MTW projects were:

- Using 28 percent, or some other set percentage, of a household's adjusted monthly income to calculate TTP, instead of 30 percent
- Not deducting dependent or elderly/disability allowances from total annual income
- Using rent schedules for households within certain income bands
- Not counting income from assets if total assets were less than $50,000, or allowing for self-certification of assets when assets totaled less than $50,000
- Using a tiered schedule to determine the amount of child care, medical, or disability expense deductions

Five different rent calculations were used to calculate the actual amount of the household's rent, depending on program type:

- Public Housing (MTW and non-MTW)
- Section 8 Project-based (including Moderate Rehabilitation) and Sections 202 PRAC, 811 PRAC, and 202/162 PAC
- Section 8 Vouchers (MTW and non-MTW)
- Section 8 Enhanced Vouchers (there were 13 Enhanced Voucher households in the study)
- Manufactured Home Space Rental for Section 8 Vouchers (there were no households in the study sample that met this criterion)

The household rent was calculated after data from all sources were collected. When calculating rent, a cap was placed on the maximum amount of rent the tenant was required to pay. For all Section 8 programs, this is the lesser of the gross rent or the payment standard; in the Public Housing program, this is the flat rent. If the flat rent was not available, the Ceiling Rent was used to cap the rent. The rent was not capped for the Sections 202 PRAC or 811 PRAC programs.

Additional rent calculations were necessary for households with ineligible noncitizens. Determining the correct rent for these households was a multistep process that first determined whether the household is entitled to continued assistance or a temporary deferral of termination of assistance and then prorated the rent, if appropriate. Two proration formulas were used, one for Public Housing and one for all Section 8 programs.

The algorithms for the rent calculation formulas can be found in Appendix A.

G. Calculation of Rent Error

The monthly rent algorithms used by ICF to calculate the national estimates of error are:

- **Actual Rent—**The Actual (AC) Rent is the monthly rent indicated on Form HUD-50058/50059. If this item was missing on Form HUD-50058/50059, the AC Rent was taken from another official document in the file.[17]
- **Quality Control Rent—**The Quality Control (QC) Rent is the monthly rent calculated by ICF using all verified household information.[18]

Rent error was calculated by subtracting the QC Rent from the AC Rent. A discrepancy of $5 or less between the monthly AC and QC rents was not considered an error. The $5 increment was used to allow for minor calculation and rounding errors and to focus the data analysis on major sources of error.

H. Quality Control Rent

ICF calculated QC Rents using the best available information. Every effort was made to use data that would have been available to the PHA/project when determining which data to use in the QC Rent calculation. Each income and expense item was processed individually. For each item, ICF first used available verification from the household files. If acceptable verification was not available from the household file, verification was requested during the household interview. If verification was not available during the household interview, verification was requested from an appropriate third party (see Section II-C for a discussion of acceptable verification). If verification was not returned by a third-party entity, data from certain documents in the household file were used, even if those documents did not meet the verification criteria. The only documents used when acceptable verification was not available were verification documents from third-party entities whose date fell outside the acceptable date range (when documents were present with other verification documents in the file for a particular transaction) and tenant self-certification documentation collected during the household's recertification process. The following special procedures were followed when calculating the QC Rent, as appropriate:

- Income that started after the QCM was not counted when calculating the QC Rent.
- Income that ended after the QCM was counted for the full year unless it was clear that the PHA/Owner knew that this income was going to end.
- Earned income bonuses were not counted unless it was clear that the bonus was paid on a regular basis.
- Temporary Assistance for Needy Families (TANF) and other welfare income were treated as the same source of income so that income listed as TANF on one form (e.g., the household questionnaire) and "Other Welfare" on another form (e.g., the documentation forms) would not be counted twice.

[17] Rent Roll data were not used as a substitute for AC Rent because a previous study found that the Rent Roll sometimes included amounts to make up for previously unpaid rent, fines, or damages.

[18] Attempts were made to verify items that were not verified by PHA/Owner staff; however, verification was not always obtained. If verification was not available, other information from the household file or documentation obtained during the household interview that met study requirements was used to calculate the QC Rent. Additionally, codes were assigned to indicate the rents that were based on verified information and those for which the income/expense information was only partially verified or was not verified.

- Welfare income (TANF and other welfare), child support income, and child care expenses were treated at the household level instead of the household member level so that the same source of income assigned to various household members would not be counted twice. For example, if one household member (e.g., the head of household) was assigned a source of income on one document and the same income was assigned to another household member (e.g., a child) on another form, the income would not be counted twice because it was assigned at the household level.
- Disability status was assigned to a household member based on EIV documentation if two items were evident on the EIV printout: (1) receipt of Social Security or SSI benefits and (2) a disability status of "yes."
- Passbook rates (for determining the imputed income from assets) for PHA-administered programs were taken from the project-level data provided by PHA/Owner staff. The passbook rate for Owner-administered programs was two percent.
- For new certifications, the low and very low income limits were obtained from HUD's Web site.
- When determining the prorated rent for Public Housing households with ineligible noncitizens, if the maximum rent was not present on Form HUD-50058, the Fair Market Rent (FMR) was used instead of the 95th percentile of gross rent because the 95th percentile of gross rent was not available.
- The values from Form HUD-50058 were used for minimum rent, gross rent, payment standard, and flat rent unless the value was missing, in which case the missing value was taken from the PHA/project-level data collection information provided by PHA staff.
- The values from Form HUD-50059 were used for gross rent and contract rent unless the value was missing, in which case the missing value was taken from the project-level data collection information provided by Owner staff.
- Welfare rent for the State of New York was taken from the project-level data collection information provided by PHA staff.
- A separate verification code was used to identify verification obtained from the EIV system. When Social Security, SSI, or Black Lung benefits were verified by EIV, the information was considered third-party in-writing verification. If EIV information was in the file for earned income or unemployment benefits, the dates associated with the form were examined to determine whether PHA/project staff had access to the EIV information at the time of recertification. Copies of EIV reports (as well as other types of verification of earned income found in the household file) were sent to study headquarters and reviewed by data quality specialists to prevent mistakes in calculating the QC earned income value. *Note:* EIV was not considered an acceptable verification source for earned income.
- When working with Social Security and SSI benefit information obtained through the SSA data match, discrepancies were sometimes found between those data and EIV printouts contained in the household file. If the two sources of information were contradictory, the information found on the EIV printout (from the household file) was used in the QC calculation.

I. HUD Requirements Complicating the Analysis

Several HUD requirements affected the data collection methodology and subsequent analysis. As noted in Section II-A, relevant HUD requirements were incorporated into the study standards used to determine error. All data collection procedures and analyses were developed on the basis of these standards. Although most standards were easily implemented, several were more problematic, complicating the data collection process or the analysis, as discussed below.

Anticipated Income. The amount of rent a household will pay is determined based on anticipated household income and deductions for the 12 months following recertification. For households with a stable income source, such as Social Security or steady employment, annual income estimates for the next 12 months are relatively accurate. However, many assisted households have members with sporadic employment or members who move in and out of the household. Also, certain expenses (e.g., medical expenses for elderly/disabled households, child care costs) are difficult to anticipate. Determining whether such income and expense amounts were calculated correctly at the time of recertification is very difficult when data are collected after the changes occurred. Every effort was made to treat questionable income or expenses in the manner they were treated by PHA/project staff. Several of the special procedures described in Section II-H were created for this purpose.

Third-Party Verification Requests. HUD regulations require the information supplied by residents at recertification to be verified by third parties (e.g., employers, SSA, banks, medical personnel). Field interviewers obtained release forms from the household when evidence of verification was not present in the tenant's file; the release forms were used to request verification from the appropriate third parties. However, some third parties did not respond, returned information for incorrect time periods, required payment for the information requested, or presented other challenges that prevented us from obtaining the correct verification. Follow-up requests for missing verifications were not made in all cases because of time constraints.

ICF and HUD established a set of verification rules to determine whether an item was verified. Section II-D identifies the rules used to determine whether verification was acceptable for each matched item used in the rent calculation. Tables 1a to 1h (in Appendix C) and Exhibit IV-19 in Section IV-D present the verification rates for different rent components.

Earned Income Disregard. The regulations governing the Public Housing and PHA-administered Section 8 Voucher programs require PHAs to exclude a portion of earned income for households meeting certain criteria. Only participants in these programs—not applicants entering the programs—are eligible for this income exclusion.

To identify households eligible for the earned income disregard, tenants were asked during the household interview about training and self-sufficiency programs. Eighty-seven household members were identified as possibly entitled to an earned income disregard.

For these household members, we examined information on Form HUD-50058 and other household file documentation. We compared the QC-calculated earned income exclusion (using the household questionnaire information) with the earned income used by the PHA when calculating the total annual income.

From the original 87 cases identified from household interview data, QC calculations determined that 57 cases were possibly entitled to an earned income disregard. After investigating further for additional factors that affect EID, 32 of the 57 cases were eligible and 25 were not eligible for EID. In 19 of the 32 eligible cases, our QC calculation confirmed the PHA's earned income disregard determination. In the remaining 13 cases, our QC review determined that an earned income disregard was appropriate, but the PHA did not provide the household with the income exclusion.

Training Programs. The regulations governing all housing programs included in this study require the PHA/Owners to exclude all amounts received under training programs funded by HUD as well as the incremental earnings and benefits resulting to any household member from participation in qualifying State or local employment training programs.

To identify households eligible for the training program exclusion, field interviewers documented training program information found in the household file and provided during the household interview. This process identified members of eight households with indications of involvement in training programs, and two of those eight households were found to be eligible for this income exclusion.

Permissible Deductions. Public Housing programs may adopt other deductions from annual income in addition to HUD's required deductions. To ensure that the appropriate additional permissible deductions were taken into consideration when determining the adjusted annual income, we examined two sources of information. First, we reviewed items 8b through 8e on Form HUD-50058, which record the type and amount of permissible deductions. Second, we requested a copy of local discretionary policies from all PHAs to identify additional exclusions adopted in their Public Housing program. This was the first year we made such a request, and in our review of these documents, we did not find many unique permissible deductions across Public Housing programs. The few special deductions that we found related to excluding the Federal Insurance Contributions Act (FICA) tax in calculating earned income and excluding the full amount of child support provided to someone outside of the household.

Moving to Work Exceptions. As mentioned in Section II-F, MTW programs have the flexibility of modifying their TTP calculation process from the standard formulas if the modification was established in their ACOP or Administrative Plan. To ensure that all modifications were incorporated into the QC rent calculation, policies regarding the various exceptions were extrapolated from each project's ACOP or Administrative Plan, and these policies were included in the QC rent calculation.

Flat Rent. Households that elected to pay a flat rent rather than an income-based rent were included in the study. For these households there is no rent error; the QC Rent is the same as the flat rent used by the PHA. In FY 2013, there were 144 flat rent cases in the study sample. It should be noted that determining whether a household is paying a flat rent is not always easy, because of contradictory data within Form HUD-50058. In most cases, items 2a (i.e., Flat Rent Annual Update) and 10u (i.e., Type of Rent Selected) could be used to determine whether the household is paying a flat rent instead of an income-based rent. However, if these two items contradicted one another, information from other documents in the file was taken into consideration.

Ineligible Noncitizens. HUD regulations require that rents be prorated for households with ineligible noncitizens unless the household meets certain criteria that allow the continuation of full assistance. ICF reviewed all households with ineligible noncitizens to ensure that the rent was calculated correctly. Twenty-three households (less than one percent of households in this study) included an ineligible noncitizen and had a prorated rent amount per HUD regulations.

Reduced or Terminated TANF Benefits. The regulations governing Public Housing and PHA-administered Section 8 programs included in the study require using the amount of the TANF benefit before reduction or termination when such changes to TANF benefits resulted from fraud or failure to cooperate with the welfare family self-sufficiency program. To identify households with reduced or terminated TANF benefits, tenants were asked during the household interview about previous receipt of TANF and whether their TANF benefits were reduced.

If the TANF benefits were reduced or terminated because of fraud or failure to comply with the welfare family self-sufficiency requirements, the value of the TANF benefit before the reduction or termination was used in the QC Rent calculation.[19] TANF benefits in 26 households were reviewed, and we identified 1 household for which TANF amounts should have been imputed, but the PHA did not properly impute them in the household's income calculation.

Students. The regulations governing the PHA-administered Section 8 and Owner-administered programs included in the study require that students aged 17–24 meet certain criteria. If these criteria are not met, the parent's income must be included when determining whether the student meets the program's financial requirements. For households with students, field interviewers documented student enrollment and member characteristics found in the household file or provided during the household interview. These households were then reviewed to determine whether the student met the special student criteria as defined by HUD regulations. Seventy-eight cases were reviewed, and all cases were determined to be correctly receiving housing assistance.

[19] The value of the reduced or terminated TANF benefit is offset by the amount of additional income that the family received starting after the sanction was imposed.

III. STUDY OBJECTIVES AND ANALYTIC METHODS

This section presents the 13 study objectives and a brief description of the methodology used to fulfill these objectives.[20] At the end of this section, Exhibit III-2 summarizes these objectives and provides information on where each objective is addressed within this report.

Objective 1: Identify the various types of rent errors and rent error rates, and calculate their variance estimates.

The identification of error types and error rates in the FY 2000 through FY 2012 studies is replicated in the FY 2013 analysis. These errors include the percentage of households paying correct and incorrect rent, dollar error amounts, and dollar error rates. Variance estimates (standard errors) are provided for selected error rates. Errors are determined by recalculating the tenant rent on the basis of verified QC information and subtracting this amount from the tenant rent indicated on the Form HUD-50058/50059 (Actual Rent). The following three types of dollar rent error estimates were calculated:

- **Dollar Rent Error**—The Dollar Rent Error is the difference between the monthly Actual Rent (AC Rent) and the monthly QC Rent (i.e., AC Rent minus QC Rent). A household rent was found to be in error if the difference between the AC Rent and QC Rent was greater than $5, while proper rent payments reflect differences of $5 or less. Rates of exactly matching AC and QC rents (within $1) are also presented. Simple percentages of the number of households paying the proper and exact rents are reported, as well as the percentage of households in error per program, the average gross dollars in error, and the percentage of rent dollars in error. For households that were ineligible when initially certified, the QC Rent is the flat rent for Public Housing households, or the Housing Assistance Payment (HAP) for Section 8 programs. The dollar error in these cases is also the QC Rent amount minus the AC Rent.
- **Total Component Dollars in Error**—The Total Component Dollars in Error is the absolute sum (i.e., the sum of the positive and negative amounts, ignoring the plus or minus signs) of all individual income and expense component errors. These errors are combined to provide an overall Total Dollars in Error and are presented as annual amounts.[21] A dollar amount of rent overpayment and underpayment was calculated for each component with identified error; however, some of these errors were overlapping or offsetting. For example, earned income may have been underreported while, perhaps because of a calculation error, SSI may have been overstated. The net difference could be zero or a positive or negative amount.

[20] For a more detailed description of the methodology, see *Final Analysis Plan for the FY 2013 HUDQC Study, Quality Control for Rental Assistance Subsidy Determinations,* an unpublished ICF report to HUD dated November 29, 2013.

[21] Because dollar component errors (CE) are reported on an annual basis while dollar rent errors (RE) are reported on a monthly basis, and rents are generally set at 30 percent of adjusted income, component errors are usually 40 times the corresponding rent error (0.30 * CE = 12 * RE, or CE = (12/0.30) * RE = (120/3) x RE = 40 * RE).

- **Largest Component Dollar Error**—The Largest Component Dollar Error is the annual dollar amount of error for the income or expense components with the largest error. Income and expense components include the five sources of income (i.e., earned income, pension, public assistance, other income, and assets) and the five types of deductions (i.e., medical, childcare, and disability assistance expenses; dependent allowance; and elderly/disabled allowance). If, for example, the component with the largest error is earned income, the largest dollar error would reflect the difference between the earned income used by the PHA/project and the earned income used in the QC rent calculation.

The dollar error rate is used for other error calculations, including the national Rent Error Rate and Net and Gross Error Rates. The latter error calculations link errors in the rent determination process to dollar error rates, sparking new oversight practices to better manage HUD subsidies.

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

Five types of administrative errors are linked to rent errors. Data obtained directly from the Form HUD-50058/50059 as well as project and tenant information from the tenant file are used to identify and measure each of the following error types:

- Calculation errors
- Consistency errors
- Transcription errors
- Incorrect determination of allowances and income sources
- Overdue certifications

Calculation errors are detected by recalculating section subtotals and the final rent based on the exact information on Form HUD-50058/50059. The tenant rent is calculated using the detailed information on Form HUD-50058/50059 and compared to the actual tenant rent on Form HUD-50058/50059. If the two rents differ, there is a calculation error.

Consistency errors are detected when there is a lack of logical conformity between elements within Form HUD-50058/50059. For example, the Effective Date of Action must be on or after the Date of Admission. Elderly status information must be consistent with information about the age of the head of household or spouse.

Transcription errors are detected by comparing Form HUD-50058/50059 data with information in the tenant file. If Form HUD-50058/50059 data for a specific income or expense item do not match the tenant file data, a transcription error exists.

Incorrect determinations of allowances and income sources are identified by taking tenant file information and comparing it to the Form HUD-50058/50059 data. Allowance errors are detected by calculating the allowances based on the tenant file information and comparing this QC allowance amount to the actual allowance on Form HUD-50058/50059. Similarly, income is calculated based on the types and amounts of income reported in the tenant file. The improper

application of allowances and the incorrect calculation of income are a subset of transcription errors.

Overdue recertifications often produce rent errors because rents are based on out-of-date information. For households with overdue recertifications, the QC information is based on the month the recertification should have been completed rather than when it was completed.

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

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

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

As discussed under Objective 2, calculation and consistency errors identify mistakes made by the housing project staff. Under Objective 4, households with calculation and consistency errors are compared to households with QC errors to determine whether errors found within Form HUD-50058/50059 can be used to predict QC errors.

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

This analysis presents differences in error rates by program type. Data are provided for three program groups: Public Housing, PHA-administered Section 8 (Section 8 Vouchers and Moderate Rehabilitation programs), and Owner-administered (Section 8, Section 202 PRAC, Section 811 PRAC, and Section 202/162 PAC). The Gross and Net Error Rates are provided for each of these program types. 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 is the sum dollar amount of net error divided again by the sum dollar amount of QC Rent. Multivariate analyses were performed to determine whether differences from program to program were statistically significant.

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

This objective addresses whether households reside in units with the correct number of bedrooms. Generally accepted HUD guidelines specifying the appropriate size unit for assisted households are shown in Exhibit III-1.[22]

For most programs, the rules are not based solely on household size and allow discretion on the part of the project staff. All programs allow exceptions to these rules. This study replicates the analyses in the previous studies that identified bedroom size and program, and the proportion of households in compliance with and in violation of occupancy standards according to the guidelines in Exhibit III-1.

[22] Housing projects have discretion in determining unit size and may determine unit size differently than shown.

Exhibit III-1
PHA-administered 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	5	10

Objective 7: Provide information on the extent to which errors are concentrated in projects and programs.

ICF conducts further descriptive analyses to examine whether errors are concentrated within or randomly distributed across PHAs/projects. Multivariate analyses are conducted with the tenant as the unit of analysis. Tenant and PHA/project characteristics are analyzed as independent variables predicting error rates. This analysis identified how each of these variables contributes to rent error. The results will help guide HUD's management of error rates and help HUD evaluate relationships between management practices and project/tenant characteristics that affect error rates.

Objective 8: Identify 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. Newly certified households are reviewed to determine whether they met the eligibility requirements for assisted housing.

Five eligibility requirements reviewed at initial certification are not a part of the recertification process (and thus not confirmed on an ongoing basis): definition of family, citizenship, verification of Social Security numbers, signing consent forms, and low and very low income limits. This study did not investigate the definition of family because it is determined by the PHA or owner. Therefore, findings are provided on four of the five initial certification criteria. This study also did not include suitability factors that PHA/owners may use in selecting tenants—factors such as tenant histories, histories of drug use or criminal activity.

Objective 9: 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 to 110 percent of fair market rents, and determine whether the correct utility allowances are being used in Section 8 Voucher households.

To comply with the rent reasonableness requirement, housing authorities must determine that Section 8 Voucher rents are reasonable in comparison with rents for similar housing in the private, unassisted market. Using information collected from tenant files, we estimated the proportion of

Section 8 Voucher recipients with comparable documentation. For those with documentation, we classified the type of evidence cited in the tenant file documentation (e.g., no evidence, cited market estimates for comparable units, or the rents of one or more units considered to be comparable). We present weighted proportions of voucher recipients with rent comparability data.

Additionally, payment standard data from Form HUD-50058 are compared with FMR data to identify the households whose payment standards fall outside the 90 to 110 percent FMR band. Utility allowance schedules are likewise matched to tenant files to evaluate the issues associated with independently evaluating utility allowances as a potential component of rent error.

Objective 10: Estimate the total positive and negative errors in terms of HUD subsidies.

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

Objective 11: Determine the extent to which error rates in projects that use an automated rent calculation system differ from errors in those that do not.

We investigate the relationship between using an automated rent calculation system and project-level gross error rate by using an analysis of variance. We also examine whether Gross Rent Error differed significantly by computer use between programs.

Objective 12: Determine whether other tenant or project characteristics on which data are available are correlated with higher or lower error rates.

To respond to this objective, we used multivariate analysis to conduct more detailed analyses of differences among PHAs/projects and to provide HUD with more information for identifying projects and tenants likely to exhibit high error rates.

Objective 13: Determine whether cases for which Form HUD-50058/50059 data had been submitted to HUD were more or less likely to have errors than those for which data had not been submitted.

The QC sample was matched to the PIC/TRACS data. Analysis was conducted to compare the average dollars in error for households included in PIC/TRACS with those that are not included.

Exhibit III-2
Summary of Study Objectives

#	Objective	Where Objective Is Addressed
1	Identify the various types of rent errors and rent error rates, and calculate their variance estimates. These include: • Dollar Rent Error • Total Component Dollars in Error • Largest Component Dollar Error	Exhibits IV-2– IV-4; Exhibits IV-12– IV-14; Exhibit IV-16; Exhibits IV-31a- IV-31b
2	Identify the dollar costs of the various types of errors, including: • Calculation errors • Consistency errors • Transcription errors • Incorrect determination of allowances and income sources • Overdue recertifications	Exhibits IV-22a– IV-23; Exhibits IV-11– IV-12; Exhibit IV-8
3	Estimate the national-level costs for total error and major error types.	Exhibits IV-2– IV-5; Exhibits IV-15– IV-16
4	Determine the relationship between errors detectable using the Form HUD-50058/50059 and total errors found in the study.	Exhibits IV-17– IV-21
5	Determine whether error rates and error costs have statistically significant differences from program to program.	Exhibit IV-4
6	Determine the extent to which households are over-housed relative to HUD's occupancy standards.	Exhibits IV-24a– IV-24c
7	Provide information on the extent to which errors are concentrated in projects and programs.	Exhibits IV-1 – IV-5
8	Identify the percentage of newly certified tenants who were incorrectly determined eligible for program admission.	Exhibit IV-6; Exhibits IV-7a – IV-7b
9	For Section 8 Voucher households, determine: • the extent to which rent comparability determinations are found in the tenant file, and indicate the method used to support the determination; • whether payment standards are within 90–110% of fair market rents; • whether the correct utility allowances are being used.	Exhibits IV-25 – IV-29d
10	Estimate the total positive and negative errors in terms of HUD subsidies.	Exhibits IV-9a – IV-10
11	Determine the extent to which error rates in projects that use an automated rent calculation system differ from errors in those that do not.	Appendix F
12	Determine whether other tenant or project characteristics on which data are available are correlated with higher or lower error rates.	Appendix F
13	Determine whether cases for which Form HUD-50058/50059 data were submitted to HUD were more or less likely to have errors than those for which data was not submitted.	Exhibits IV-30a – IV-30e

IV. FINDINGS

A. Overview

Analyses were conducted using nationally weighted sample data for 2,402 households.[23] Data are presented by the three program types that were the basis for the sampling design: PHA-administered Public Housing; PHA-administered Section 8 Housing Choice Voucher and Moderate Rehabilitation programs (PHA-administered Section 8); and Office of Housing-administered Section 8, Section 202 PRAC, Section 811 PRAC, and Section 202/162 PAC programs (Owner-administered). The major study findings, the reasons for the errors, and other background information concerning these errors are discussed below. In many of the exhibits in this report, the data collected during the current study (referred to as the FY 2013 data) are compared with the data collected in the previous study (referred to as the FY 2012 data). Data were collected and the analysis was completed for the FY 2013 study in calendar year 2014.

Our discussion is divided into seven parts:

1. The errors in the rent amount based on the QC data (rent error)
2. The errors in sources of income and expenses (component errors)
3. The errors found using only project-file data (administrative error)
4. Occupancy standards
5. Comparisons with PIH Information Center/Tenant Rental Assistance Certification System PIC/TRACS data
6. Analysis of the responses received from PHA/project staff regarding PHA/project practices (based on the PSQ)
7. Errors for the 20 largest PHAs

The first three parts present different types of error, as described below.

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

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

[23] Appendix B presents the procedure used in weighting the data.

Administrative errors are errors that result from administrative mistakes. They consist of the following:

- Consistency errors, which are errors in logical conformity between elements within Form HUD-50058/50059
- Calculation errors, which are arithmetic errors within subsections of Form HUD-50058/50059
- Transcription errors, which are errors in transferring information from documentation in the tenant file to Form HUD-50058/50059
- Failure to conduct a recertification in a timely manner
- Failure to verify information

Component and administrative errors may or may not result in rent errors. Administrative errors tell us at what point during the rent determination process an error occurred, while component errors tell us which income or expense caused the error. Data supporting this discussion are presented in the source tables found in Appendix C.

B. Rent Error

Overview. Rent errors were identified by subtracting the QC Rent from the Actual Rent.[24] The QC Rent was calculated using data obtained from one of several sources, including the tenant file, the household interview, and third-party verification. If acceptable verification was present in the tenant file, that information was used. If acceptable verification was not present in the tenant file, other sources were used. The Actual Rent is the Tenant Rent from Form HUD-50058/50059. As noted above, a household was considered to be correct (proper payment) if the QC Rent and the Actual Rent matched within $5. All exhibits included in this report (except Exhibit IV-1) and all tables in Appendix C (except the supplemental tables) define households in which AC Rents and QC Rents matched within $5, indicating a proper payment. As noted, this is not the case for the supplemental tables in Appendix C (designated by the letter "S"), which are based on exact matches between these two rents.

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

- *Dollar Rent Error* was calculated at the household level by subtracting the household's QC Rent from the Actual Rent. Note that these are monthly rents. A negative number indicates an underpayment, meaning that the household paid less than it should have paid and that HUD's contribution was higher than it should have been. A positive number indicates a

[24] Rent error is determined on the basis of Tenant Rent, not TTP. Error based on TTP may differ from error based on Tenant Rent because of the program-specific rent formulas applied when calculating Tenant Rent. These rent formulas are listed in Section II-F and presented in detail in Appendix A.

household overpayment, meaning that the household paid more than it should have paid and that HUD's contribution was less than it should have been.

- *Gross Rent Error* is the absolute value (i.e., the sum of the absolute value of positive and negative Rent Error) of the Dollar Rent Error for the sample as a whole or a specified group of households. The Gross Rent Error functions simply as a measure of the magnitude of the errors. The dollar amounts presented in the tables are Gross Rent Error values, unless otherwise indicated.
- *Net Rent Error* is the arithmetic value (i.e., the sum of the negative and positive values of under- and overpayments) of the Rent Error.
- *Error Rate* is calculated by dividing the sum of the Rent Error (gross or net) by the sum of the QC Rent for the entire sample or a specified group of households.

Financial Impact of Identifying Rent Error. Reduction in the rent error associated with the programs included in this study does not mean there will be an overall savings in the costs associated with administering these programs. Given that there are large numbers of eligible households on waiting lists, if a household leaves the program because it is no longer eligible for a subsidy, another household will take its place, and the replacement household may be entitled to a smaller or a larger subsidy than the household that left the program. Therefore, the most direct benefit of identifying households with rent error is ensuring that the households that are eligible for the program are receiving the correct subsidy, rather than reducing the funds needed to administer the programs. The most appropriate use of this study is as a tool for strengthening HUD's procedures for ensuring administrative compliance with regulations. The recommendations presented in this report may require greater rather than fewer resources to provide HUD, PHAs, and Owners with the written policy guidelines and training, standardized forms, and ongoing monitoring needed to ensure that the programs are administered correctly.

Proper Payments. Exhibit IV-1 shows the percentage of households with proper payments by program, for households where the Actual Rent and QC Rent matched within $5 and where the Actual Rent and QC Rent matched exactly.

Exhibit IV-1
Percent of Households with Proper Payments

Administration Type	Percent of Households Within $5			Standard Error	Percent of Households That Matched Exactly			Standard Error
	FY 2011	FY 2012	FY 2013	FY 2013	FY 2011	FY 2012	FY 2013	FY 2013
Public Housing	79%	75%	77%	2.0%	65%	60%	67%	2.2%
PHA-administered Section 8	68%	70%	77%	1.7%	57%	53%	62%	1.9%
Total PHA-administered	*72%*	*71%*	77%	*1.3%*	*59%*	*55%*	*64%*	*1.6%*
Owner-administered	81%	75%	80%	1.4%	67%	61%	68%	1.5%
Total	**75%**	**72%**	**78%**	**1.0%**	**62%**	**57%**	**65%**	**1.3%**

Source: Tables 2 and 2S, Appendix C

- At recertification, the rent was calculated correctly (within $5) in 78 percent of households, higher than the 72 percent of households for which rent was calculated correctly in FY 2012.
- There was an exact match of rent payment in 65 percent of households in FY 2013, an increase over the 57 percent that matched in FY 2012.

Households with QC Rent Error. Exhibit IV-2 shows the percentage of households in error, average dollar amount in error, and error rate by program.

- Twenty-two percent of households had a rent error greater than $5, lower than the 28 percent recorded in FY 2012.

The average gross dollars in error is calculated by dividing the sum of the dollar amount of gross error (i.e., the sum of the absolute values of under- and overpayments) by the total number of households.

- The average gross dollars in error was $11 in FY 2013, lower than the $14 average-gross-dollar error in FY 2012.

The total gross dollar error rate was calculated by dividing the sum of the dollar amount of Gross Rent Error by the sum of the dollar amount of the QC Rent.

- The total gross dollar error rate decreased by one percent, from six percent in FY 2012 to five percent in FY 2013.

Exhibit IV-2
Percent of Households with Error, Average Dollars in Error, and Dollar Error Rate for All Households with Error

Administration Type	Percent of Households with Error		Average Gross Dollars in Error		Gross Dollar Error Rate	
	FY 2012	FY 2013	FY 2012	FY 2013	FY 2012	FY 2013
Public Housing	25%	23%	$14	$13	6%	5%
PHA-administered Section 8	31%	23%	$16	$12	7%	5%
Total PHA-administered	*29%*	*23%*	*$15*	*$12*	*7%*	*5%*
Owner-administered	26%	20%	$11	$6	5%	3%
Total	**28%**	**22%**	**$14**	**$11**	**6%**	**5%**

Source: Tables 2 and 5, Appendix C

Underpayment and Overpayment Households. Exhibits IV-3a and IV-3b show the percentage of households and average dollar amount of error for all households when errors of $5 or less are excluded from the calculations; these exhibits present the error for underpayment and overpayment households, respectively.

- Twelve percent of all households paid in excess of $5 less than they should have in FY 2013, lower than the 16 percent in FY 2012.
- For FY 2013 households, the average monthly underpayment error was $52, less than the means of $60 in FY 2012 and $73 in FY 2011.

Exhibit IV-3a
Underpayment Households: Percent of Households and Average Monthly Dollar Amount of Error

Administration Type	Percent of Households in Error			Average Dollar Amount of Error					
				For Underpayment Households (with errors >$5)			For All Households		
	FY 2011	FY 2012	FY 2013	FY 2011	FY 2012	FY 2013	FY 2011	FY 2012	FY 2013
Public Housing	11%	13%	11%	$75	$68	$70	$8	$9	$7
PHA-administered Section 8	15%	17%	13%	$81	$62	$53	$13	$10	$7
Total PHA-administered	*14%*	*15%*	*12%*	*$80*	*$64*	*$58*	*$11*	*$10*	*$7*
Owner-administered	9%	16%	10%	$50	$49	$36	$5	$8	$4
Total	**12%**	**16%**	**12%**	**$73**	**$60**	**$52**	**$9**	**$9**	**$6**

Source: Tables 2 and 4, Appendix C

- Ten percent of all households paid in excess of $5 more than they should have in FY 2013, which is lower than the FY 2012 percentage of 12 percent and the FY 2011 percentage of 13 percent.
- The average monthly overpayment for households with overpayment error was $44 in FY 2013, up from $39 in FY 2012 and $34 in FY 2011.

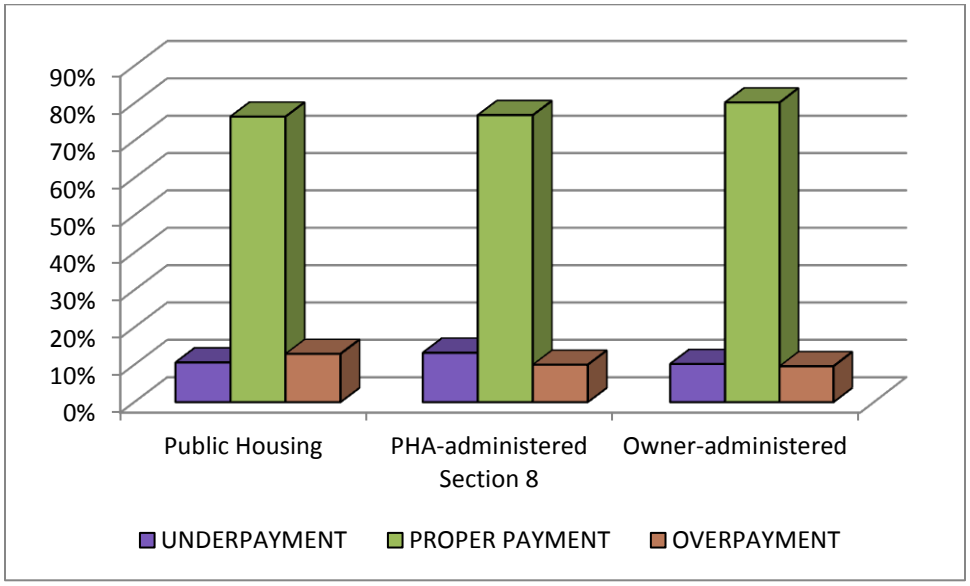
Exhibit IV-3b
Overpayment Households: Percent of Households and Average Monthly Dollar Amount of Error

Administration Type	Percent of Households in Error			Average Dollar Amount of Error					
				For Overpayment Households (with errors >$5)			For All Households		
	FY 2011	FY 2012	FY 2013	FY 2011	FY 2012	FY 2013	FY 2011	FY 2012	FY 2013
Public Housing	10%	13%	13%	$27	$41	$42	$3	$5	$5
PHA-administered Section 8	16%	14%	10%	$39	$43	$53	$6	$6	$5
Total PHA-administered	*14%*	*14%*	*11%*	*$36*	*$42*	*$49*	*$5*	*$6*	*$5*
Owner-administered	10%	9%	10%	$27	$30	$29	$3	$3	$3
Total	**13%**	**12%**	**10%**	**$34**	**$39**	**$44**	**$4**	**$5**	**$5**

Source: Tables 2, 3, and 4, Appendix C

Figure IV-1 shows the percentage of underpayments, proper payments, and overpayments by program type. Programs were grouped into three categories: Public Housing, PHA-administered Section 8, and Owner-administered. For all program types, the majority of cases fall into the proper-payment category. As indicated above, a household was considered to be correct (proper payment) if the Actual Rent and the QC Rent matched within $5.

Figure IV-1
Payment by Program Type



Gross and Net Dollars in Error. Exhibit IV-4 presents the gross and net average dollars in error and their associated standard error. To obtain the Gross Rent Error and the Net Rent Error, the dollar amount of overpayments was added to the dollar amount of underpayments, first using the absolute values for gross error and then the arithmetic values for the net error.

- Gross average dollar error decreased in FY 2013 for all program types.
- Gross average dollar error decreased for Public Housing by $1, to $13, for FY 2013. PHA-administered Section 8 programs had a gross dollar error decrease of $4, from $16 in FY 2012 to $12 in FY 2013. In Owner-administered programs, gross dollar error fell from $11 for FY 2012 to $6 for FY 2013.Total dollar error for all PHA-administered programs decreased by $3, to $12, for FY 2013.
- As noted in Exhibit IV-4 with an asterisk, the difference between the Gross Rent Error from FY 2012 to FY 2013 was statistically significant ($p < 0.05$) for Owner-administered programs and for the total of Gross Rent Error across all program types.
- The net error measures the dollar cost of the errors and was -$2 (indicating a tenant underpayment) for FY 2013; the average gross dollar error was $11 for FY 2013 and represents the dollars associated with the errors (the magnitude of the errors).

Exhibit IV-4
Gross and Net Dollar Rent Error (Monthly) for All Households

Administration Type	Gross Rent Error				Net Rent Error			
	Average Dollars in Error		Standard Error		Average Dollars in Error		Standard Error	
	FY 2012	FY 2013	FY 2012	FY 2013	FY 2012	FY 2013	FY 2012	FY 2013
Public Housing	$14	$13	$2.11	$2.09	-$3	-$2	$1.36	$2.08
PHA-administered Section 8	$16	$12	$1.95	$2.37	-$4	-$2	$2.14	$1.57
Total PHA-administered	*$15*	*$12*	*$1.65*	*$1.39*	*-$4*	-$2	*$1.59*	*$1.14*
Owner-administered	$11	$6	$1.78	$0.84*	-$5	-$1	$1.77	$0.96
Total	**$14**	**$11**	**$1.25**	**$0.95***	**-$4**	**-$2**	**$1.22**	**$0.93**

Source: Table 5, Appendix C
* Difference between FY 2013 and FY 2012 is significant ($p < .05$).

Error Rates by Program. Differences in error rates by program type were investigated, and the results are summarized in Exhibit IV-5.

Differences include the Gross Error Rate (i.e., the sum dollar amount of gross error divided by the sum dollar amount of QC Rent) and the Net Error Rate (i.e., the sum dollar amount of net error divided again by the sum dollar amount of QC Rent).

- For all programs, the Gross Error Rate dropped nearly two percent from FY 2012 to FY 2013.
- The Gross Error Rate of 5.2 percent for PHA-administered Section 8 programs remained higher than the rate for either Public Housing or Owner-administered programs. PHA-administered Section 8 programs showed a modest decrease in their Gross Error Rate in FY 2013 compared to FY 2012, decreasing about 2.1 percent, but it still remained higher than either Public Housing or Owner-administered programs.
- The Gross Error Rate for FY 2013 decreased from FY 2012 for all programs.
- The Net Error Rates for all programs fell from -1.9 percent to -0.7 percent from FY 2012 to FY 2013.

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

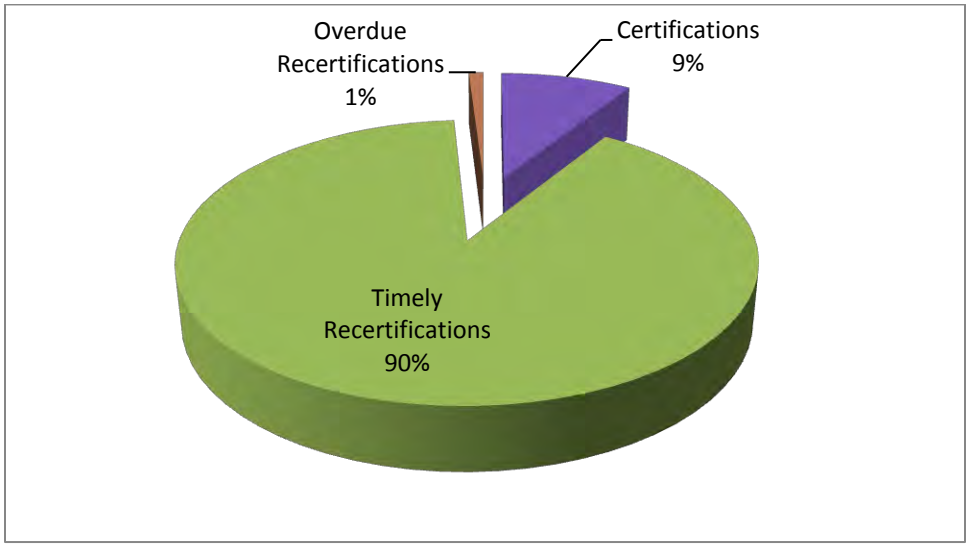
Administration Type	Error Rates			
	Gross Error Rate		Net Error Rate	
	FY 2012	FY 2013	FY 2012	FY 2013
Public Housing	5.8%	4.7%	-1.4%	-0.8%
PHA-administered Section 8	7.3%	5.2%	-1.9%	-0.7%
Total PHA-administered	*6.7%*	*5.0%*	*-1.7%*	*-0.7%*
Owner-administered	4.8%	3.1%	-2.3%	-0.4%
Total	**6.2%**	**4.5%**	**-1.9%**	**-0.7%**

Source: Table 5, Appendix C

Certifications/Recertifications. The sampled households included both certifications (i.e., newly admitted households) and recertifications. Certifications were analyzed to determine whether the households were eligible for HUD housing assistance, and recertifications were analyzed to determine whether they were overdue.

Figure IV-2 presents the breakdown of cases by case type: timely certifications, recertifications, and overdue recertifications.

Figure IV-2
Percentage of Cases by Case Type



Source: Table 6, Appendix C

Exhibit IV-6 shows the percentage of timely certifications, timely recertifications, and overdue recertifications, by program type.

- Ninety percent of households had timely recertifications, up from 88 percent in FY 2012.
- One percent of households had overdue recertifications.
- There was a slight decrease in the total percentage of certifications, from 11 percent in FY 2012 to 9 percent in FY 2013.

Exhibit IV-6
Certifications and Recertifications by Administration Type

Administration Type	Certifications		Timely Recertifications		Overdue Recertifications		Row Total By Year*
	FY 2012	FY 2013	FY 2012	FY 2013	FY 2012	FY 2013	
Public Housing	14%	9%	85%	89%	1%	2%	100%
PHA-administered Section 8	8%	7%	91%	91%	1%	2%	100%
Total PHA-administered	*10%*	*8%*	*89%*	*91%*	*1%*	*2%*	*100%*
Owner-administered	15%	13%	85%	87%	<1%	<1%	100%
Total	**11%**	**9%**	**88%**	**90%**	**<1%**	**1%**	**100%**

Source: Table 6, Appendix C
* Rounding may result in totals not equal to 100 percent.

Certifications. Exhibit IV-7a presents a summary of the findings related to eligibility criteria, and Exhibit IV-7b shows the percentage of newly certified households meeting the certification criteria by program type.

The reviewed criteria included qualifying as low-income or very-low-income households, citizenship, Social Security number, and signing the appropriate consent form.

- However, only those households that do not meet the appropriate low- or very-low-income limit are ineligible for assistance. One-hundred percent of households (according to the QC Rent calculation) fell within the low-income limit for total gross income.

A household met the citizenship criteria if there was evidence in the tenant file that citizenship had been verified.

- A citizenship code (indicating whether each household member was a citizen, eligible noncitizen, or ineligible noncitizen) was available from either the tenant file or the household interview for each household member.
- According to the citizenship codes, no households in FY 2013 had a household member for whom there was no verification of citizenship. This is unchanged since FY 2010.

To meet the citizenship verification requirement, the file must have contained one of the following for each household member: a signed declaration of U.S. citizenship or eligible immigration status, proof of age documentation, a U.S. Citizenship and Immigration Services (USCIS) card or USCIS system verification of citizenship status, or documentation that the household member was undergoing verification or an INS hearing.

To meet the Social Security number verification requirement, the file must have contained for each household member a copy of the Social Security card or statement from the SSA verifying the Social Security number.

- A Social Security number was available for 97% of all PHA-administered program households, and 93% of Owner-administered households.
- Five percent of households had at least one member for whom there was no verification of their Social Security number.
- In 94 percent of households, there was a signed consent form dated within 15 months of the QCM (the date for which data were collected) for all members age 18 or older.

Note: Not meeting the citizenship, Social Security number, or consent form criteria may not mean that the household was not eligible for assistance; rather, it may mean that project staff did not follow HUD requirements in documenting the information.

Exhibit IV-7a
Percent of Newly Certified Households Meeting Certification Criteria

Certification Criteria	Met Criterion	
	FY 2012	FY 2013
Citizenship	100%	100%
Social Security Number	99%	95%
Consent Form	95%	94%
Low and Very Low Income	100%	100%
Meets All Eligibility Criteria	95%	90%

Source: Table 7, Appendix C

Exhibit IV-7b
Percent of Newly Certified Households Meeting Certification Criteria by Program Type

Certification Criteria	Percent of Households Meeting the Criteria		
	Public Housing	PHA-administered Section 8	Owner-administered
Citizenship	100%	100%	100%
Social Security Number	97%	97%	93%
Consent Form	89%	92%	99%
Low and Very Low Income	100%	100%	100%
Meets All Eligibility Criteria	86%	90%	93%

Source: Table 7b, Appendix C

Underpayments and Overpayments for Certifications, Timely Recertifications, and Overdue Recertifications. Exhibit IV-8 presents a summary of the households with overpayments and underpayments by the type of case: certification, timely recertification, and overdue recertification.

The average dollar amounts are based on the sum of the dollar amounts for payment errors (either underpayment or overpayment) for the type of household (i.e., certification, timely recertification, or overdue recertification) divided by the number of households with that payment type.

- For example, the sum of monthly underpayment dollar amounts for new certifications ($4.1 million) was divided by the total number of certifications ($0.43 million). The result is an underpayment average dollar amount of six dollars.
- The amount of underpayment and overpayment average dollar error in new certifications and timely recertifications in FY 2013 ranged from four dollars to ten dollars each month.
- As might be expected, there is a large difference in the underpayment dollar error for overdue recertifications ($28) as well as the overpayment dollar error for overdue recertifications ($48).

It is important to note that the estimates for overdue recertifications can vary widely from year to year because of the small number of cases.

Exhibit IV-8
Average Monthly Underpayment and Overpayment:
Dollar Amounts Averaged Across All Households

Household Type	Underpayment Average Dollar Amount		Overpayment Average Dollar Amount	
	FY 2012	FY 2013	FY 2012	FY 2013
Certifications	$8	$10	$5	$6
Timely Recertifications	$9	$5	$5	$4
Overdue Recertifications	$38	$28	$31	$48
Total	**$9**	**$6**	**$5**	**$5**

Source: Table 8, Appendix C

Subsidies. The actual cost of errors to HUD is expressed in terms of subsidy payments. For the purpose of this study, HUD subsidies for the PHA-administered Section 8 Voucher program equal the lesser of the gross rent or the applicable payment standard minus the tenant share. For Public Housing, the subsidy is the applicable payment standard minus the TTP. For Owner-administered programs, the subsidy equals the gross rent minus the TTP. The subsidy is correct if the Actual Rent equals the QC Rent (within $5). A negative subsidy error occurs when the tenant paid too much rent (QC Rent < Actual Rent). A positive subsidy error occurs when the tenant paid too little rent (QC Rent > Actual Rent).

These subsidy errors by program type are summarized in Exhibits IV-9a and IV-9b. The subsidy errors by certification status are summarized in Exhibit IV-10.

- As shown in Exhibit IV-9a, the percentage of households with a positive subsidy error decreased for all program types between FY 2012 and FY 2013, from 16% to 12%.
- The average dollar amount of error also decreased for all households between FY 2012 and FY 2013, from nine dollars to six dollars.

Exhibit IV-9a
Positive Subsidy Households (Tenant Underpayment)
Percent of Households and Average Monthly Dollar Amount of Error

Administration Type	Percent of Households in Error		Average Dollar Amount of Error			
			For Positive Subsidy Households (with errors >$5)		For All Households	
	FY 2012	FY 2013	FY 2012	FY 2013	FY 2012	FY 2013
Public Housing	13%	11%	$68	$70	$9	$7
PHA-administered Section 8	17%	13%	$62	$53	$10	$7
Total PHA-administered	*15%*	*12%*	*$64*	*$58*	*$10*	*$7*
Owner-administered	16%	10%	$49	$36	$8	$4
Total	**16%**	**12%**	**$60**	**$52**	**$9**	**$6**

Source: Tables 2 and 4, Appendix C
Note: Table results replicate Exhibit IV-3a for the convenience of the reader.

- As seen in Exhibit IV-9b, the percentage of households in error due to a negative subsidy decreased slightly for the PHA-administered Section 8 programs, but remained relatively stable for Owner-administered and Public Housing programs.

Exhibit IV-9b
Negative Subsidy Households (Tenant Overpayment)
Percent of Households and Average Monthly Dollar Amount of Error

Administration Type	Percent of Households in Error		Average Dollar Amount of Error			
			For Negative Subsidy Households (with errors >$5)		For All Households	
	FY 2012	FY 2013	FY 2012	FY 2013	FY 2012	FY 2013
Public Housing	13%	13%	$41	$42	$5	$5
PHA-administered Section 8	14%	10%	$43	$53	$6	$5
Total PHA-administered	*14%*	*11%*	*$42*	*$49*	*$6*	*$5*
Owner-administered	9%	10%	$30	$29	$3	$3
Total	**12%**	**11%**	**$39**	**$44**	**$5**	**$5**

Source: Tables 2 and 4. Appendix C
Note: Table results replicate Exhibit IV-3b for the convenience of the reader.

- As seen in Exhibit IV-10, the average dollar amount of error for overpayment across program types stayed the same at five dollars from FY 2012 to FY 2013. That amount decreased for underpayment errors, decreasing from nine dollars in FY 2012 to six dollars in FY 2013.

- Overdue recertifications remained the source of the highest average dollar amount for both underpayment and overpayment.

Exhibit IV-10
Average Monthly Underpayment and Overpayment:
Dollar Amount Averaged Across All Households

Household Type	Underpayment Average Dollar Amount		Overpayment Average Dollar Amount	
	FY 2012	FY 2013	FY 2012	FY 2013
Certifications	$8	$10	$5	$6
Timely Recertifications	$9	$5	$5	$4
Overdue Recertifications	$38	$28	$31	$48
Total	**$9**	**$6**	**$5**	**$5**

Source: Table 8, Appendix C
Note: Table results replicate Exhibit IV-8 for the convenience of the reader.

C. Sources of Error

Additional analyses examined which income and expense components contributed the most to rent error. It should be noted that the component dollar amounts are annual income and expense dollars, rather than the monthly figures used to present rent error data, and that rents are generally computed at 30 percent of adjusted income. Therefore, every $100 of monthly income or expense error generally translates into $2.50 of rent error.

In addition, the sum of the component errors is greater than Net Rent Errors because of offsetting errors. For example, the household presented in Figure IV-3 has earned income and child care costs with errors in both components. The total component error is $1,000 ($800 + $200); however, the adjusted net income error (the amount used to determine the household's rent) is only $600.

Figure IV-3
Example of the Impact of Component Errors

Component	File Data	QC Data	Dollar Error
Earned Income	$2,200	$3,000	$800
Child Care Expense	$400	$600	$200
Adjusted Income	$1,800	$2,400	$600

Exhibit IV-11 presents each income and expense component included in the rent calculation and the percentage of households in error[25] when each specific component contributed the most to the gross error.

- The exhibit indicates that the largest average dollar error continues to be in earned income, with an average error of $4,410. Twenty-seven percent of households were in error when earned income was the largest component error.
- Public assistance income was the next largest component error, with an average dollar error of $3,289 found in 5 percent of households in error.
- Pension income was a component of error in 17 percent of households, with an average associated dollar error of $1,594.
- Between FY 2012 and FY 2013, average dollar error amounts decreased for seven of the ten rent components producing the highest error percentages.
- Pension income in particular had a pronounced decrease, from 25 percent in FY 2012 to 17 percent in FY 2013.
- The rent component with the greatest average dollar error increase was public assistance, which experienced an increase of $583 from FY 2012 to FY 2013.

[25] The denominator in the percentage is the number of households with any component error, which was percent of total households in FY 2013.

Exhibit IV-11
Rent Components Responsible for the Largest Dollar Error for Households with Rent Error

Rent Component	Percent of Households in Error		Average Dollar Amount	
	FY 2012	FY 2013	FY 2012	FY 2013
Earned Income	28%	27%	$4,632	$4,410
Pensions	25%	17%	$1,846	$1,594
Public Assistance	6%	5%	$2,706	$3,289
Other Income	11%	15%	$3,599	$2,905
Asset Income	2%	4%	$684	$733
Dependent Allowance	6%	4%	$519	$512
Elderly Household Allowance	3%	4%	$400	$400
Child Care Allowance	2%	2%	$2,626	$1,879
Disability Allowance	<1%	<1%	$4,528	$1,900
Medical Allowance	15%	17%	$1,049	$863
No Rent Component Error	3%	6%	$0	$0
Total	**100%***	**100%**	**$2,555**	**$2,280**

Source: Table 9, Appendix C
* Numbers may not total to 100 percent because of rounding.

- For most rent components, the percentage of households in error changed minimally, with the exception of pension income as the source of rent error.
- Households in error because of pension income decreased to 17 percent in FY 2013, from 25 percent in FY 2012.

Note: For some households, the rent error was not caused by any one of the ten components listed. Rather, it was caused by other arithmetic errors or by the use of the wrong rent calculation formula.

Total and Largest Component Dollar Error by Program Type. Exhibit IV-12 shows the dollar amounts associated with the total dollars in error (the sum of the absolute value of errors in all rent components) and the largest dollars in error (the largest error attributable to a specific source for each household), by program type.

- There were decreases in the Average Total Dollars in Error for all program types in FY 2013, with the largest decrease evident in Owner-administered programs, which had a reduction of $473 from FY 2012 to FY 2013.
- There were also decreases in Average Largest Dollars in Error in all program types, most notably in Owner-administered programs, which had a decrease of $430.

Exhibit IV-12
Total and Largest Component Dollars in Error for Households with Rent Error

Administration Type	Average Total Dollars in Error		Average Largest Dollars in Error	
	FY 2012	FY 2013	FY 2012	FY 2013
Public Housing	$3,715	$3,319	$3,198	$2,827
PHA-administered Section 8	$3,273	$2,865	$2,621	$2,426
Total PHA-administered	*$3,408*	*$3,023*	*$2,797*	*$2,565*
Owner-administered	$2,177	$1,704	$1,891	$1,461
Total	**$3,079**	**$2,682**	**$2,555**	**$2,280**

Source: Table 10, Appendix C

QC Rent Components by Payment Type and Administration Type. Exhibit IV-13 shows the percentage of the total number of households with and without component error by component type and payment type. Exhibit IV-13 also provides these data by PHA- and Owner-administered households.

- For example, four percent of total households with underpayment rent error had errors in earned income, six percent of households with proper payment had errors in earned income, and three percent of households with overpayment rent error had errors in earned income.
- The exhibit indicates that when considering both underpayment and overpayment, pension income and earned income are the rent components with the highest percentage of error leading to improper payment, followed by medical allowance.

Exhibit IV-13 also reflects component errors in proper payment households when the component dollar error resulted in a tenant payment error of $5 or less.

- Considering all component errors, not just errors that resulted in tenant payment error, the pensions (22 percent), earned income, and medical allowance (both 13 percent) components had the highest rates of error.

Exhibit IV-13
Percent of Households with Rent Component Error by Payment Type

Rent Component	Underpayment			Proper Payment			Overpayment		
	PHA	Owner	Total	PHA	Owner	Total	PHA	Owner	Total
Earned Income	5%	2%	4%	8%	2%	6%	4%	2%	3%
Pensions	4%	5%	4%	14%	18%	15%	3%	4%	3%
Public Assistance	1%	1%	1%	1%	2%	2%	1%	<1%	1%
Other Income	3%	2%	3%	5%	4%	5%	2%	1%	2%
Asset Income	1%	1%	1%	3%	5%	4%	1%	1%	1%
Dependent Allowance	1%	<1%	1%	1%	—	1%	1%	1%	1%
Elderly Household Allowance	1%	<1%	<1%	2%	<1%	1%	1%	1%	1%
Child Care Allowance	<1%	<1%	<1%	<1%	—	<1%	1%	<1%	<1%
Disability Allowance	—	—	—	<1%	—	<1%	—	<1%	<1%
Medical Allowance	2%	5%	3%	5%	14%	7%	2%	4%	3%
No Rent Component Error	1%	<1%	1%	48%	49%	48%	1%	—	1%

Source: Table 11, Appendix C

Allowances. Elderly/disabled and dependent allowances were examined to determine whether these allowances were applied correctly.[26] The findings are summarized in Exhibit IV-14. The exhibit shows the percentage of elderly/disabled and non-elderly/disabled households for which allowances were correctly or incorrectly applied.

- Elderly/disabled allowances were incorrectly used in three percent of all households in FY 2013.
- Five percent of elderly/disabled households received an incorrect allowance.
- Less than one percent of non-elderly/disabled households received an allowance erroneously.

The exhibit also shows the percentage of households with and without dependents for which a dependent allowance was correctly or incorrectly applied.

- The dependent allowances were incorrectly applied in four percent of all households with dependents. These households were given the wrong amount.
- In less than one percent of households, a dependent allowance was given to a household that did not have dependents.
- A total of two percent of all households had an incorrect dependent allowance in FY 2013.

[26] 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 household members other than the head of household or spouse).

Exhibit IV-14
Percent of Households with Elderly/Disabled Allowances and Dependent Allowances

Allowance	Elderly/Disabled Allowance			Dependent Allowance		
	Non-Elderly/ Disabled Households	Elderly/ Disabled Households	All Households	Households Without Dependents	Households with Dependents	All Households
No Allowance	100%	—	45%	100%	—	55%
Incorrect Allowance	<1%	5%	3%	<1%	4%	2%
Correct Allowance	—	95%	52%	—	96%	43%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Tables 12a and 12b, Appendix C

D. Errors Detected Using Information Obtained from Project Files

To respond to HUD's interest in understanding the cause of errors, tenant rent was recalculated using only income and expense items documented in the tenant file. The source of information used for this analysis included only items that were documented clearly in the tenant file in a location other than Form HUD-50058/50059. If an item was recorded on Form HUD-50058/50059 but not documented elsewhere in the tenant file, it was not included when the tenant rent was calculated for this analysis. Therefore, it is possible that some of the discrepancies identified between Form HUD-50058/50059 tenant rents and tenant rents calculated solely on the basis of file data were not, in fact, due to incorrect determinations, but rather to program sponsor failure to maintain information supporting income or expense items.

Therefore, relying solely on information in tenant files may result in misstating the basis for the program sponsor income and rent determination and could lead to a determination that an error existed when the determination was actually correct. The fact remains that, even if a program sponsor made the correct income determination, failure to document the determination is a serious administrative problem. Also, in practice it appears that these types of discrepancies are often suggestive of subsidy determination errors, even if they cannot be assumed to prove the existence of such errors.

The findings from this analysis were compared with the QC findings where tenant rent was calculated based on all the information collected during the study (including household interview data and verification obtained by ICF through third-party sources).

Exhibit IV-15 shows the percentage of households in error and the average dollar error based on the tenant file, but without income and expense items identified during the household interview and verified by ICF through third-party sources.

The percentage of households with overpayment and underpayment errors are nearly identical if only the tenant file information or all sources of QC data were used. Findings varied considerably, however, for the average annual dollar error.

- There was a difference of three dollars in subsidy overpayment average dollar error between what was discovered in the tenant file and what the QC review determined.
- For subsidy underpayment, the difference in error between the QC determination and what was found in the file was $29 in FY 2013.

The difference found in average dollar error using information other than the tenant file implies that there were income and expense items not listed in the file at the PHA/project.

Exhibit IV-15
Findings With and Without Information Obtained from Sources Other Than the Tenant File

Error Source	Percent of Households in Error		Average Annual Dollar Error	
	Subsidy Overpayment	Subsidy Underpayment	Subsidy Overpayment	Subsidy Underpayment
Error Based on All Income and Expense Items Identified During the Study	12%	11%	$52	$43
Error Based on Tenant File Without Income and Expense Items Identified During the Household Interview and Verification Obtained by ICF Through Third-Party Sources	12%	10%	$49	$72

Source: QC Tables 2 and 4 and Tenant File Tables 2 and 4, Appendix C

Analysis of the errors on Form HUD-50058/50059 examined whether the errors identified using Form HUD-50058/50059 as the sole source of information are representative of the total errors in the program. These analyses focused on calculation and consistency errors:

Calculation error was identified from income, expenses, and allowances used to calculate the rent amount and recorded on Form HUD-50058/50059. This calculation did not take into account whether dollar amounts were verified or whether the recertification was conducted on time. This analysis identified errors resulting from arithmetic mistakes, the incorrect use of a formula, and items that were not completed but should have been. This analysis did not identify households in which items were recorded in the wrong place on Form HUD-50058/50059, although improper use of a field on Form HUD-50058/50059 can result in a calculation error. Table 13 in Appendix C presents the number of households with a Form HUD-50058/50059 that contained calculation errors by the rent component contributing to the error. The items considered when determining calculation error are listed in Appendix D.

Consistency errors were based on the logical conformity of elements in Form HUD-50058/50059. For example, the effective date of action must be on or after the date of admission, elderly status information should be consistent with household head and spouse ages, and number of dependents should not exceed the number of household members. Table 14 in Appendix C shows the number of households with consistency errors on Form HUD-50058/50059, summarized by form subsections. Appendix D lists the data items by subsection that were included in this analysis.

Exhibit IV-16 shows the percentage of households with calculation and consistency errors by Form HUD-50058/50059 subsections. It is important to emphasize that Form HUD-50058 is formatted differently from and contains more line items of information than Form HUD-50059. Consequently, the number and types of calculation and consistency errors on the forms differ, and

findings from the two forms are not directly comparable. In addition, the Office of Housing implemented a new version of Form HUD-50059 in FY 2006 and again in FY 2009. Most recently, a minor revision was made in FY 2011.

- The large number of calculation errors (particularly in the Allowances and Adjusted Income section of Form HUD-50058) may be a contributing factor to QC errors.

A calculation or consistency error does not necessarily lead to a rent error. The PHA/Owner may make an error when completing one section of the form yet still calculate the rent correctly.

Exhibit IV-16
Percentage of Households with Calculation and Consistency Errors

Form HUD-50058/50059 Item	Percentage of Households					
	Calculation Errors			Consistency Errors		
	Form HUD-50058	Form HUD-50059	Total	Form HUD-50058	Form HUD-50059	Total
General Information	n/a	n/a	n/a	2%	8%	3%
Household Composition	6%	—	4%	4%	22%	9%
Net Family Assets and Income	9%	5%	8%	3%	—	2%
Allowances and Adjusted Income	43%	—	30%	8%	—	5%
Family Rent and Subsidy Information	10%	—	7%	3%	1%	3%

Source: Tables 13 and 14, Appendix C

Comparison of Form HUD-50058/50059 Errors to QC Error. A comparison was made between the rent calculation errors on Form HUD-50058/50059 and errors identified through the QC Rent calculation process. The purpose of this comparison was to determine whether errors identified using only Form HUD-50058/50059 data could predict the rent errors found in a QC review.

- When using only Form HUD-50058/50059 data to calculate the Actual Rent, errors were found in 9 percent of the households in FY 2013, a decrease from the FY 2012 figure of 12 percent.
- The QC error calculation found errors in 23 percent of households in FY 2013, down from 29 percent in FY 2012. The results are quite different from the individual and joint comparison methods.

This comparison emphasizes that data from Form HUD-50058/50059 alone cannot accurately identify rent error. Exhibit IV-17 summarizes these results for FY 2012 and FY 2013.

Exhibit IV-17
Form HUD-50058/50059 Form Rent Calculation Error Compared with QC Rent Error

Rent Calculation	Percent of Households with Correctly Calculated Rent		Percent of Households with Incorrectly Calculated Rent	
	FY 2012	FY 2013	FY 2012	FY 2013
Using Information on Form HUD-50058/50059	89%	92%	12%	9%
According to the QC Rent Calculation	71%	77%	29%	23%
Both Form HUD-50058/50059 Calculation and QC Rent Calculation	63%	71%	3%	3%

Source: QC Table 2 and Tenant File Table 2, Appendix C

Verification errors were identified by whether an item was verified by the project and, if it was, whether the correct information was transferred to Form HUD-50058/50059. An error occurs when the verified amount obtained by the project was not recorded properly on Form HUD-50058/50059 (and, presumably, not used correctly in the rent calculation). When determining whether a verified income or expense item matched the amount used on Form HUD-50058/50059, we assumed a variance of $100 to accommodate potential rounding errors when annualizing data. In 2010, HUD issued the *Implementation of Refinement of Income and Rent Rule*, which mandated the use of EIV as a third-party source to verify tenant employment and income information during mandatory recertification of family composition and income. The use of EIV minimizes the need for traditional third-party verification forms. FY 2011, the first fiscal year affected by this rule, displayed significant verification rate decreases across the board when compared to FY 2010, as verification was required in fewer instances. In FY 2013, this trend was repeated, with modest decreases in items verified for the seven rent components.

The table series 15a through 15n in Appendix C shows the number of households with and without verification by type of verification (i.e., third-party in writing, third-party verbal, EIV, Upfront Income Verification (UIV), and documentation). These tables provide this information for each of the rent components and also by program type.

Verification Used in Determining the QC Rent. As indicated above, a set of rules was established for the use of third-party verification (see Section II-D). If an income or expense component was used for a rent calculation and was not verified by the PHA/Owner, ICF staff sought third-party verification. However, ICF verification could not be obtained for all PHA/Owner unverified items despite considerable effort.[27] In FY 2011, HUD issued new guidelines regarding verification. As a result, ICF modified its standards to accept third-party documentation submitted by the tenant if the documents met specific date criteria.[28]

[27] If third-party verification was not available, documentation from the tenant file was used to calculate the QC Rent. If neither third-party verification nor file documentation was available, documentation collected during the household interview that met study-specific date requirements was used to calculate the QC Rent. Information collected during the household interview that did not meet study-specific date requirements was not used.

[28] For more information, please refer to the *Data Collection Standards for the FY 2011 HUDQC Study*, an ICF unpublished report to HUD dated December 9, 2011.

Exhibit IV-18 shows the percentage of each rent component that was verified by either the PHA/Owner or ICF. Findings from FY 2013 are compared to findings from FY 2012.

The first two columns present the percentage of rent components that were verified using third-party in writing, third-party verbal, documentation, EIV, or UIV, which was counted as part of third-party in writing in studies prior to FY 2012.

- Verification of all rent component categories decreased slightly in FY 2013 compared to the previous year, which continues the downward trend from FY 2011.
- Verification of asset income experienced the most marked decrease, from 98 percent in FY 2012 to 89 percent in FY 2013.

As of FY 2011, the category of third-party in writing included only written third-party verification forms, which are sent directly to the third-party and completed by the third-party.

- Verification using third-party in writing decreased substantially in FY 2013 compared to FY 2012. As the exhibit indicates, when compared to the previous study period, the use of third-party in-writing verification declined for all rent components except for a moderate increase in medical expense verification.
- Pension income verification had the largest decrease, dropping 64 percent between FY 2012 and FY 2013.

Exhibit IV-18
Percent of Households Fully Verified by Either the PHA/Owner or ICF

Rent Component	Third-Party Verbal or in Writing, Documentation, EIV, or UIV		Third-Party in Writing		Documentation	
	FY 2012	FY 2013	FY 2012	FY 2013	FY 2012	FY 2013
Earned Income	96%	91%	43%	30%	39%	48%
Pensions	99%	98%	74%	10%	4%	21%
Public Assistance	100%	96%	24%	21%	34%	48%
Other Income	93%	88%	27%	20%	32%	43%
Asset Income	98%	89%	49%	43%	27%	24%
Child Care Expense	97%	91%	59%	38%	35%	50%
Medical Expense	99%	94%	43%	45%	21%	22%

Source: Tables 1a, 1b, and 1e, Appendix C

The general decline seems to be the result of revised HUD guidelines, which considers documentation from a third party submitted by the tenant to be acceptable, requiring fewer instances of direct third party requests. Such documentation would, for example, include paystubs or letters from benefits agencies. The increased use of documentation for verification confirms these findings.

- The use of documentation increased for six rent components and decreased very slightly for one, asset income verification.

Tables 1c, 1d, 1e, 1f, and 1g in Appendix C provide additional verification information by rent component, including the number of households for which the income or expense component was not verified (i.e., no component items verified), partially verified (i.e., some component items verified), or fully verified (i.e., all component items verified) by different types of verification.

- Table 1c includes items verified by a third-party in writing or by EIV/UIV.
- Table 1d provides data for items verified by verbal third-party information.
- Table 1e provides data for items verified via tenant file documentation.
- Table 1f includes items verified by EIV.
- Table 1g includes items verified by UIV.

Exhibit IV-19 summarizes the findings in Table 15a in Appendix C.

- In FY 2013, the number of households where verification was not obtained by the PHA/Owner increased for five of the seven rent components.
- Earned income and medical expense both showed an increase in lack of verification, at six percent and five percent, respectively.
- There was modest improvement in project verification of other income and public assistance, which increased by five percent and two percent, respectively, over FY 2012, although the rest of the rent components had a decreased percentage of project verification.
- Pension income continued to be the most commonly verified rent component item; it was verified in 96 percent of cases in FY 2013.
- Percentage of verifications found to match Form HUD-50058/50059 entries within $100 decreased for five of the seven rent components in FY 2013.

Exhibit IV-19
Verification of Form HUD-50058/50059 Rent Components by PHA/Owners

Rent Component	Percent of Households with No Project Verification		Percent of Households with Item Verified by Project		Percent of Households where Verification Matched Form HUD-50058/50059*	
	FY 2012	FY 2013	FY 2012	FY 2013	FY 2012	FY 2013
Earned Income	9%	15%	91%	86%	65%	64%
Pensions	3%	4%	97%	96%	85%	84%
Public Assistance	19%	17%	81%	83%	68%	74%
Other Income	29%	24%	71%	76%	60%	58%
Asset Income	7%	13%	93%	87%	85%	74%
Child Care Expense	11%	12%	89%	88%	76%	82%
Medical Expense	6%	11%	94%	89%	73%	68%

Source: Table 15a, Appendix C
* Matched within $100

Exhibit IV-20 shows verification results by program type, again presenting the verification rate for each rent component and the proportion that matched within $100 of Form HUD-50058/50059 amounts.

Exhibit IV-20
Verification of Form HUD-50058/50059 Rent Components by PHA/Owner Staff, by Program*

	Public Housing		PHA-Administered Section 8		Owner-Administered	
Rent Component	Verified	Matched**	Verified	Matched**	Verified	Matched**
Earned Income	83% (88%)	52% (57%)	87% (93%)	67% (68%)	86% (91%)	70% (69%)
Pensions	93% (95%)	80% (80%)	97% (98%)	85% (86%)	98% (99%)	87% (86%)
Public Assistance	79% (80%)	65% (69%)	87% (85%)	77% (68%)	78% (75%)	77% (68%)
Other Income	63% (63%)	46% (51%)	80% (74%)	60% (62%)	80% (72%)	67% (64%)
Asset Income	82% (82%)	72% (63%)	83% (96%)	65% (88%)	89% (94%)	78% (88%)
Child Care Expense	66% (68%)	56% (57%)	95% (95%)	90% (77%)	89% (95%)	84% (95%)
Medical Expense	86% (89%)	51% (65%)	83% (93%)	60% (69%)	94% (96%)	79% (79%)

Source: Table 15h, Appendix C
* Findings from FY 2012 are provided in parentheses.
** Matched within $100

When comparing the FY 2013 results to the FY 2012 findings, the following changes are notable:

- For PHA-administered cases, the rent component of other income showed the largest decrease in households in error with missing verifications between FY 2012 and FY 2013, with a drop of 29 percent.
- Earned income rent error increased for the number of households in error with missing verification by seven percent within PHA-administered programs.
- In Owner-administered households, the percentage of households in error with missing verification decreased substantially for pension income (42 percent) and child care expense (27 percent) and decreased modestly in medical expense (15 percent) and other income (11 percent).

In the ***Public Housing*** program, there were minimal decreases in the verification rate for six of the seven rent components in FY 2013 when compared with FY 2012.

- Earned income verification (88 percent in FY 2012 and 83 percent in FY 2013) saw the largest decrease, followed by modest declines in other components.
- The degree to which the verifications matched Form HUD-50058 within $100 (indicating correct usage of verification data) decreased in five of the seven rent components from FY 2012 to FY 2013, with the largest decrease occurring in medical expense (from a 65 percent match to a 51 percent match).

In the ***PHA-administered Section 8*** programs, five of the seven rent components showed slight decreases in the percentages of items verified.

- The largest decrease was in asset income, which dropped from 88 percent in FY 2012 to 65 percent in FY 2013.
- There were also declines in medical expense verification, with a drop of ten percent from FY 2012 to FY 2013, as well as in earned income verification, which fell five percent in FY 2013.
- The degree to which the verifications matched Form HUD-50058 within $100 (indicating correct usage of verification data) either decreased for five of the seven rent components from FY 2012 to FY 2013.
- The largest percentage gain for verifications that matched Form HUD-50058 was evident in child care expense (from 77 percent matching in FY 2012 to 90 percent matching in FY 2013).

In the ***Owner-administered*** programs, the verification rates had a modest change in all rent components.

- Child care expense and earned income verification decreased by six percent and five percent, respectively, from FY 2012 to FY 2013.
- Other income and public assistance both showed a slight increase between the two years, with an eight percent rise in other income and a three percent rise in public assistance from FY 2012 to FY 2013.
- The degree to which the verification matched Form HUD-50059 within $100 (indicating correct usage of verification data) increased or stayed the same for five of the seven rent components.
- Asset income and child care expense showed decreases in the matched rate, falling $10 and $11, respectively, from FY 2012 to FY 2013; medical expenses stayed the same.

Comparisons across program types for FY 2013 showed that pension income, medical expenses, earned income, and asset income were the most frequently verified rent components. The least verified rent components were other income and public assistance. Across program types, earned income and other income verified showed the lowest percentage match between Form HUD-50058/50059 and file documents for that rent component.

Tenant File Verification Compared with QC Error. Errors identified through the QC process were investigated to determine whether they were associated with sources of income and expenses. Exhibit IV-21 presents the percentage of households with QC error for which verification was missing in the tenant file. Each error is presented by rent component. The data indicate that missing verification in both PHA- and Owner-administered programs continues to be strongly associated with households that have QC error. This was observed for every rent component for both the PHA- and Owner-administered programs. However, for some of these components the number of households in error was relatively small; therefore, the estimates may vary substantially from year to year and may not be reliable.

Exhibit IV-21
QC Error Households with Missing Verification in the Tenant File

Rent Component	Form HUD-50058				Form HUD-50059			
	Percent of Households with QC Error		Percent of Households with QC Errors and Missing Verification		Percent of Households with QC Error		Percent of Households with QC Errors and Missing Verification	
	FY 2012	FY 2013	FY 2012	FY 2013	FY 2012	FY 2013	FY 2012	FY 2013
Earned Income	11%	8%	49%	56%	7%	4%	48%	45%
Pensions	10%	7%	46%	32%	14%	8%	60%	18%
Public Assistance	3%	2%	61%	59%	1%	1%	79%	71%
Other Income	5%	5%	72%	43%	3%	3%	69%	58%
Asset Income	2%	1%	74%	50%	3%	3%	60%	55%
Child Care Expense	2%	1%	77%	54%	<1%*	1%	100%	73%
Disability Expense	<1%*	<1%*	100%	100%	<1%*	<1%*	—	100%
Medical Expense	6%	4%	82%	66%	12%	9%	83%	68%
No Component Error	74%	80%			76%	81%		

Source: Tables 16a and 16b, Appendix C
* Cell sizes for these estimates are small; therefore, these estimates may not be reliable.

Summary of Form HUD-50058/50059 Errors. Exhibits IV-22a and IV-22b provide a summary of the errors identified from Form HUD-50058/50059. These included consistency errors, calculation errors, and overdue recertifications.

Note: Exhibit IV-22a excludes MTW cases, as these cases do not have Form HUD-50058/50059 recalculated rent error, and Exhibit IV-22b shows all cases with QC Rent error. Both exhibits show the percentage of households in error; the average dollar error; and the standard errors for both households with recalculated Form HUD-50058/50059 error (i.e., error determined using only Form HUD-50058/50059) and households with QC Rent error. This information is provided for households with error by each error type.

Beginning with the FY 2005 study, transcription error for any household was added to the source table, and the data that were described as an unduplicated count of Form HUD-50058/50059 error have been revised to an unduplicated count of any type of administrative error.

- Exhibit IV-22b shows that several individual types of Form HUD-50058/50059 errors were not closely associated with QC Rent error, such as allowance calculation, income calculation, and other calculation errors.
- Forms HUD-50058/50059 with only transcription errors were associated with QC Rent error in 83 percent of households.
- Any type of administrative error, which includes transcription, consistency, calculation, or overdue recertifications, was associated with QC Rent error in 89 percent of the households. This increase is primarily due to the small number of households with income calculation error, resulting in estimates with variances that are rather large from year to year.

- When compared to FY 2012, there is an upward trend in the percentage of households in error for both recalculated Form HUD-50058/50059 and for households with QC Rent error and the average dollars in error have increased.
- The highest average dollar error increase for recalculated Form HUD-50058/50059 pertains to other calculation error and overdue recertifications; both were $1 in FY 2012, compared to $38 and $50, respectively, in FY 2013.

This increase, however, is primarily due to a relatively small number of households in error in the previous year, which can result in extremely variable and potentially unreliable estimates from year to year.

- In addition, the average dollar error for households with any recalculated Form HUD 50058/50059 error was $36.
- In contrast, the average dollar error for households with QC Rent error was $47.

These values support the assertion that an administrative error on Form HUD-50058/50059 is not necessarily associated with a QC Rent error.

To understand the reason for the change in the average dollar error for households with recalculated Form HUD-50058/50059 error, it is important to review how this number is calculated. The number is the average dollar rent error for all cases with error in the category identified in the row header (based on recalculated Form HUD-50058/50059 rent error, not QC Rent error). So, for example, although the average rent error dollars for households with income calculation error is $82, because many of these cases have a large rent error (which may have nothing to do with the allowances) and the number of cases with income calculation error is small (6% of households in error), the average dollar error is large.

Exhibit IV-22a
Form HUD-50058/50059 Administrative Error: Percent of Households, Average Dollars in Error (Non-Moving to Work Households)

Error Type Based on Form HUD-50058/50059 Recalculation	Non-MTW Households with Recalculated Form HUD-50058/50059 Error			
	Percent of Households in Error	Standard Error of Percent	Average Dollar Error	Standard Error of Mean
Households with Transcription Error	53%	7.8%	$42	$13.53
Households with Consistency Error	18%	4.9%	$54	$23.10
Households with Allowance Calculation Error	7%	2.8%	$57	$13.00
Households with Income Calculation Error	6%	2.7%	$82	$61.96
Households with Other Calculation Error	8%	2.7%	$38	$12.82
Overdue Recertifications	4%	2.6%	$50	$17.35
Unduplicated Count, Any Type of Administrative Error	56%	7.8%	$42	$12.72
Total Households	**100%**		**$36**	**$8.93**

Note: Data exclude MTW households; MTW cases do not have Form HUD-50058/50059 recalculated rent error.
Source: Table 17a, Appendix C

Exhibit IV-22b
Form HUD-50058/50059 Administrative Error: Percent of Households, Average Dollars in Error (Households with QC Rent Error)

Error Type Based on Form HUD-50058/50059 Recalculation	Households with QC Rent Error			
	Percent of Households in Error	Standard Error of Percent	Average Dollar Error	Standard Error of Mean
Households with Transcription Error	83%	2.4%	$46	$4.18
Households with Consistency Error	23%	1.7%	$32	$4.92
Households with Allowance Calculation Error	4%	0.8%	$68	$35.15
Households with Income Calculation Error	3%	0.8%	$33	$11.34
Households with Other Calculation Error	6%	1.3%	$99	$21.68
Overdue Recertifications	3%	0.9%	$163	$47.51
Unduplicated Count, Any Type of Administrative Error	89%	1.8%	$47	$4.56
Total Households	**100%**		**$47**	**$4.04**

Source: Table 17b, Appendix C

Summary of Administrative Errors. As outlined in the study objectives, calculation errors, consistency errors, transcription errors, failure to recertify on time, and failure to apply allowances appropriately produce administrative errors.

Exhibit IV-23 shows the Gross Rent Error and Net Rent Error for households with each type of administrative error. Starting in FY 2005, two major changes were made to this exhibit. First, the category of consistency errors was added to illustrate inconsistencies found within Form HUD-50058/50059. Second, the findings are now based on QC error rather than recalculated Form HUD-50058/50059 error.

Exhibit IV-23
Administrative Error: Percent of Households Average Dollars in Error for All Households

Error Type	Percent of Households in Error	Gross Rent Error		Net Rent Error	
		Average Dollars in Error	Standard Error of Mean	Average Dollars in Error	Standard Error of Mean
Households with Transcription Error	47%	$19	$2.03	-$3	$2.00
Households with Consistency Error	19%	$9	$1.42	$0	$1.34
Households with Allowance Calculation Error	2%	$35	$17.50	$7	$21.06
Households with Income Calculation Error	3%	$9	$3.45	-$3	$3.15
Households with Other Calculation Error	4%	$35	$8.31	-$2	$13.61
Overdue Recertifications	1%	$77	$24.74	$20	$38.49
Unduplicated Count, Any Type of Administrative Error	56%	$18	$1.78	-$3	$1.62
Total Households	**100%**	**$11**	**$0.95**	**-$2**	**$0.93**

Source: Table 18, Appendix C

- The percentage of households in error was generally comparable to FY 2012 for all error types.
- Gross Rent Error and Net Rent Error calculated from specific types of error were similar to FY 2012 values for six of the seven categories.
- Overdue recertifications had large differences in error amounts due to the small number of overdue cases.

E. Occupancy Standards

Exhibit IV-24a presents a summary of the analysis that determined whether households are assigned units with the correct number of bedrooms. It shows the percentage of households by actual number of bedrooms and correct number of bedrooms according to the guidelines used in the study. Note that the guidelines used in this study are generally acceptable HUD guidelines. All programs allow exceptions to HUD's rules. For example, the PHA-administered Section 8 Voucher program sometimes allows households to rent units with fewer or more bedrooms than specified by the guidelines.

- Fifteen percent of all households occupied a unit with too many or too few bedrooms in FY 2013, compared to 16 percent in FY 2012.
- Thirteen percent of Public Housing households were over- or under-housed in FY 2013.
- Twenty-one percent of PHA-administered Section 8 program households were under- or over-housed in FY 2013.
- Six percent of Owner-administered households were under- or over-housed in FY 2013.

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

Number of Bedrooms	PHA-Administered				Owner-Administered		Total	
	Public Housing		Section 8					
	FY 2012	FY 2013	FY 2012	FY 2013	FY 2012	FY 2013	FY 2012	FY 2013
0	94%	97%	100%	100%	98%	98%	97%	98%
1	100%	99%	99%	100%	100%	100%	100%	100%
2	74%	79%	72%	69%	81%	86%	74%	75%
3	80%	85%	75%	80%	88%	88%	78%	83%
4	52%	61%	52%	45%	39%	37%	51%	49%
All Units	83%	87%	78%	79%	93%	94%	84%	85%

Source: Table 19, Appendix C

Exhibits IV-24b and IV-24c show the percentage of households that met these guidelines for each bedroom size for FY 2012 and FY 2013, respectively. The shaded cells indicate the percentage of households that fell within study guidelines.

Exhibit IV-24b
Percentage of All Households in FY 2012 by Number of Bedrooms and Number of Household Members

Number of Bedrooms	FY 2012 Number of Household Members							
	1	2	3	4	5	6	7	8+
0	97%	3%						
1	91%	8%	<1%			<1%		
2	25%	49%	18%	7%	<1%	<1%		
3	8%	13%	35%	28%	11%	3%	<1%	1%
4	3%	3%	13%	27%	23%	10%	12%	9%
5+	8%	4%	22%	10%	10%	20%	8%	20%

Source: Table 19a, Appendix D of the HUDQC Final Report for FY 2012, delivered on October 18, 2013

Exhibit IV-24c
Percentage of All Households in FY 2013 by Number of Bedrooms and Number of Household Members

Number of Bedrooms	FY 2013 Number of Household Members							
	1	2	3	4	5	6	7	8+
0	98%	2%						
1	90%	10%	<1%					
2	23%	48%	21%	6%	2%			
3	5%	11%	36%	28%	13%	6%	2%	<1%
4	6%	8%	11%	25%	23%	15%	6%	7%
5+		10%	4%	9%	14%		19%	45%

Source: Table 19a, Appendix C

F. Rent Reasonableness

The PHA-administered Section 8 program assists low-income families in obtaining housing in the private market. A PHA responsible for administering the program must not approve a lease until the housing authority has determined that the initial rent paid to the owner is a reasonable amount. The PHA must also determine whether the rent to the owner is reasonable in comparison to rent for other comparable unassisted units.

Rent reasonableness is an important factor in determining participant subsidies and is critical for effective, PHA-administered, Section 8 program operations. If a PHA approves rents that are too high, limited government funds are wasted and it may inadvertently raise private market rents. If PHAs approve rents that are low compared to the private market, landlords may only participate with their lowest cost, lowest quality units or not rent out their units at all to program participants. Furthermore, approval of lower rent amounts may inappropriately restrict where assisted tenants may live. HUD regulations require PHAs to conduct a rent reasonableness determination before units are leased, before rent increases are granted to owners, and when Fair Market Rents (FMRs) decrease by at least 5 percent. Our analysis examines whether PHAs fulfilled the requirement for

documenting rent reasonableness determinations, but does not investigate whether rents were in fact reasonable.

Methodology. We surveyed PHAs administering the Section 8 Voucher program in our study. This year, 140 projects[29] in our study fall into this category. The projects were asked about their standard rent reasonableness processes, and file documentation from the project's household sample were reviewed.

We instructed field interviewers to review tenant files for 763 Voucher households in order to locate the documents supporting the rent reasonableness certification. For 69 new certifications,[30] field interviewers reviewed the file for the initial rent reasonableness certification and recorded the date it was conducted. For the 694 annual recertifications we reviewed, field interviewers were asked to ascertain when the current rent to the owner became effective and to locate the relevant supporting rent reasonableness documentation. If this documentation (relative to the date the rent to the owner became effective) was not found, field interviewers were asked to search for any rent reasonableness certification in the file and enter the date of certification. The owner's rent certification on the Request for Tenancy Approval form was considered a certification of rent reasonableness.

Findings Pertaining to Rent Reasonableness Methods Used by PHAs. The most common method of determining rent reasonableness is the unit-to-unit comparison (see Exhibit IV-25). Sixty-nine percent of the housing authorities that responded reported using unit-to-unit comparison as the predominant method for their rent reasonableness determination. The unit-to-unit method is similar to the standard real estate appraisal technique of comparing a unit to similar private, unassisted units in the same general location. Rent amounts are sometimes modified for differences in unit characteristics (e.g., size, age, amenities, housing services, maintenance, utilities).

Exhibit IV-25
PHAs by Predominant Rent Reasonableness Method*

Method	FY 2011		FY 2012		FY 2013	
	Number	Percent	Number	Percent	Number	Percent
Unit-to-unit Comparison	83	59%	83	59%	96	69%
Unit-to-market Comparison	22	16%	22	16%	21	15%
Point System	23	16%	23	16%	17	12%
Other or Rent Control	4	3%	4	3%	6	4%
No Single Predominant Method	7	5%	7	5%	0	-
No Information	1	1%	1	1%	0	-
Total	**140**	**100%**	**140**	**100%**	**140**	**100%**

* Data in this exhibit are not weighted.

[29] For purposes of this study, a project for the Section 8 Voucher program is defined as a PHA/county combination. Therefore, if a PHA administers vouchers in more than one county, that PHA could be represented in this study by more than one project.

[30] Beginning in FY 2007, portability move-ins were classified as annual recertifications. In FY 2006, they were categorized as new admissions.

The unit-to-market comparison approach estimates the average and/or range of "market" rents for units with similar characteristics in the private, unassisted market. Fifteen percent of housing authorities reported primarily using this method. Valuation adjustments are based on typical units in the private market. Twelve percent of housing authorities indicated that their primary method of making rent reasonableness determinations was based on a point system. Using this system, units are assigned points based on their condition and attributes, and comparisons are made to unassisted units.

We asked PHA staff to identify only the primary method used to determine whether rents to owners were comparable to the private market, rather than enter a percentage use of various methods. When asked to identify a single predominant method, most PHAs selected only one. No PHAs selected "no single method predominates" in FY 2013, compared to 4 percent in FY 2012. PHAs were also asked whether they used a software program and/or an outside contractor to determine whether the rent to owner was reasonable. Eighty-nine of the 140 voucher projects (64 percent) use rent reasonableness software. GoSection8.com remained the most commonly used software vendor, cited by 35 projects in FY 2013 and by 30 programs in FY 2012, followed by Nelrod EZ Reasonable Rent Determination, used by 7 projects in FY 2013, and 7 in FY 2012. Fewer PHAs reported using software developed in house: 5 in FY 2013 compared with 10 in FY 2012.

Findings Pertaining to Rent Reasonableness Documentation Found in Tenant Files for New Admissions and Annual Recertifications. In FY 2013, 91 percent of new admission files contained rent reasonableness documents, up from 81 percent in both FY 2012 and down from 94 percent in FY 2011 (see Exhibit IV-26a). Annual recertifications require rent reasonableness documents only when owners increase rental rates. We examined case files to determine when the current rent to owner first became effective and reviewed the file for the rent reasonableness documentation specific to that rent determination. If no rent reasonableness documentation was found within this specific timeframe, we reviewed any rent reasonableness documentation in the file. In FY 2013, 82 percent of these case files had certified rent reasonableness documents, compared to 76 percent in FY 2012 and 78 percent in FY 2011 (see Exhibit IV-26a).

Exhibit IV-26a
Rent Reasonableness Documentation for New Admissions and Annual Recertifications*

Status	FY 2011		FY 2012		FY 2013	
	New Admissions	Recertifications	New Admissions	Recertifications	New Admissions	Recertifications
Determination Documented	94%	78%	81%	76%	91%	82%
No Determination Documented	6%	22%	19%	24%	9%	18%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

* Data in this exhibit are weighted.

The absence of rent reasonableness documentation does not necessarily indicate a determination was not completed, only that it was not properly documented. Of new admission files that had

documentation, 50 percent contained a statement signed by the PHA staff member certifying that the rent is reasonable. For recertifications with rent reasonableness documentation, 54 percent contained a statement signed by the PHA staff member certifying that the rent is reasonable (see Exhibit IV-26b).

Exhibit IV-26b
Type of Rent Reasonableness Documentation for New Admissions and Annual Recertifications*

Type of Documentation	FY 2011		FY 2012		FY 2013	
	New Admissions	Recertifications	New Admissions	Recertifications	New Admissions	Recertifications
A Signed Statement Certifying the Rent is Reasonable	57%	52%	55%	48%	50%	54%
Comparable Units Documented by the Property Owner in Section 12a of HUD 52517	10%	7%	12%	11%	14%	10%
Comparable Units Documented on Other Documents	29%	35%	31%	34%	33%	30%
Any Other Reference to Rent Reasonableness	3%	6%	3%	7%	3%	5%
Total	**100%**	**100%**	**100%****	**100%**	**100%**	**100%**

* Data in this exhibit are weighted.
** Numbers may not total to 100 percent because of rounding.

HUD requires that rent reasonableness determinations be conducted before signing the contract and lease. The timeliness of the rent reasonableness determination was evaluated by comparing the lease date (depending on the type of transaction, the lease date is the effective date of the current contract rent or the lease start date) with the rent reasonable certification date in the case file. Since the PHA is required to conduct a rent reasonableness assessment when the contract rent is increased by the owner, the current contract rent is compared with the previous rent amount to determine when and whether there was a change in the contract rent. These data are used to determine whether there was a timely rent reasonableness assignment. Exhibit IV-27 provides a summary of how the date of the rent reasonableness documentation relates to the initial lease date or contract rent change date for those households where a reference to the rent reasonableness determination was found in the file.

Exhibit IV-27
Timing of Most Recent Rent Reasonableness Determination—
New Admissions and Annual Recertifications*

Determination: Certification Chronology	FY 2011		FY 2012		FY 2013	
	New Admissions	Recertifications	New Admissions	Recertifications	New Admissions	Recertifications
More than 4 Months Before Lease Date	3%	17%	5%	18%	7%	40%
Up to 4 Months Before Lease Date	87%	73%	90%	69%	82%	50%
Up to 2 Months After Lease Date	5%	3%	5%	5%	10%	3%
Greater than 2 Months After Lease Date	3%	3%	1%	4%	0%	2%
Date Missing	1%	5%	0%	4%	2%	5%
Total	**100%**	**100%**	**100%****	**100%**	**100%**	**100%**

* Data in this exhibit are weighted.
** Numbers may not total to 100 percent because of rounding.

If the effective date of the lease with the current contract rent occurred prior to the date of the rent reasonableness documentation, rent reasonableness may not have been considered as a factor in approving the unit's rent. In FY 2013, ICF changed methodology slightly, as discussed in Section II, and we collected the date the rent was in effect. This explains the greater number of cases with certifications occurring more than 4 months before the lease date. The percentage of rent reasonable determinations made after the rent had been established as part of the initial lease agreement increased from 6 percent in FY 2012 to 10 percent in FY 2013 for new admissions. For annual recertifications in FY 2013, the percentage of rent reasonable documentation dated after the effective date of a lease decreased from the previous study year. Five percent in FY 2013 compared to 9 percent in FY 2012.

Conclusion. PHAs are not fully documenting rent reasonableness determinations as required by HUD regulations, and a large percentage of existing rent determinations have been made on the basis of less formal means of evaluating rents. Timely reviews decreased in FY 2013 compared to FY 2012 for both new admissions and recertification transactions. The proportion of cases lacking rent reasonableness decreased compared to FY 2012. Nineteen percent of new admissions and 24 percent of annual recertification transactions lacked a rent reasonableness document in 2012, compared to 9 percent and 18 percent, respectively, in FY 2013. These findings may be attributed in part to PIH 2003-12, issued May 16, 2003, which supports a more simplified rent reasonable determination process. PIH 2003-12 states that a PHA need not consider all nine criteria cited in 24 C.F.R. 982.507(b) to fully comply with the regulation. It justifies less formal methods of rent determination, stating that "each PHA should use appropriate and practical procedures for determining rental values in the local market."

G. Utility Allowance Analysis

As part of the FY 2013 HUDQC Study, ICF conducted two separate analyses on the utility allowances provided to households through the PHA-administered Section 8 program. For the first analysis, we focused on whether there was documentation in the tenant file indicating how the utility allowance amount used in rent determination was calculated, and whether those documents were used correctly in calculating the utility allowance amounts. For the second analysis, we focused on identifying discrepancies between the utility allowance on the Form HUD-50058 and the appropriate utility allowance as listed on a PHA staff-provided utility allowance schedule. These schedules often varied within a county by unit type, effective date of recertification, and location.

Documentation of Utilities and Utility Allowance Values. We asked PHAs to provide information about the forms that were used to identify and calculate the utility allowance, and to provide the utility allowance schedules that were used for actions effective in FY 2013. In addition, we asked field interviewers to copy documents showing calculation of utility allowances found in tenant files at the PHA office.

The ICF team selected 140 distinct PHA-administered Section 8 projects for our study sample. These Housing Choice Voucher projects, administered by 124 housing authorities (several of these housing authorities administered programs in multiple counties), participated in the FY 2013 HUDQC Study. According to information provided at the PHA level by 124 projects, 35 percent of the projects used Form HUD-52667 (Schedule of Allowances for Tenant-Furnished Utilities) as the official source for identifying the utilities for which the households were responsible. This is a change from previous years, when Form HUD-52517 (Request for Tenancy Approval) was the most common identification document. In FY 2013, 27 percent of households used Form HUD-52517 for identification purposes, down from 46 percent in FY 2012. The most common response selected for calculating the utility allowance value was Form HUD-52667 (Schedule of Allowances for Tenant-Furnished Utilities) in FY 2013. This form was also the most common source of utility allowance value in FY 2012. In Exhibit IV-28a we provide information on the type of documents used as the official source for identifying utilities for which the households were responsible, and the type of documents used to calculate the value of the utilities paid by the tenants.

Exhibit IV-28a
Types of Documents Used by PHAs to Identify Utilities and Calculate the Utility Allowance Value*

Document Used	Identifying Utilities				Calculating the Utility Allowance Value			
	FY 2012		FY 2013		FY 2012		FY 2013	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Form HUD-52517 (Request for Tenancy Approval)	69	46%	34	27%	18	13%	0	-
Form HUD-52641 (HAP Contract)	32	22%	30	24%	7	5%	2	2%
Form HUD-52667 (Allowance Schedule)	21	14%	44	35%	102	70%	107	76%
Other (lease, reports, comparisons, etc.)	19	13%	5	4%	12	8%	13	89%
Various combinations of above	10	7%	11	9%	6	4%	120	-
Total**	**151**	**100%**	**124**	**100%****	**145**	**100%**	**134**	**100%****

*Data in this exhibit are not weighted.
**Totals may not add up to 100% due to rounding.

Comparison of Form HUD-50058 Utility Allowance Values to Worksheets Found in the Household File. Seven hundred and ninety-nine (799) households from the PHA-administered Section 8 Voucher program were selected for this study. Field interviewers were able to locate worksheets or other documents indicating how the utility allowance was calculated for 686 households (86%).

For each household with utility allowance documentation available, we compared the utility allowance amount from the Form HUD-50058 to the amount on the utility allowance worksheet obtained from the tenant file. For 631 households (92%), the Form HUD-50058 utility allowance amount matched the worksheet amount. For 3 percent of the households, the worksheet provided was for the incorrect period of time or was missing critical information. For these 24 households, we could not determine whether the utility allowance amount used in the rent calculation was correct. In the remaining 4 percent of the households, there were discrepancies between the amounts on the worksheet and on the Form HUD-50058. We provide a summary in Exhibit IV-28b of the findings from comparing the utility allowance listed on the Form HUD-50058 and the amount on worksheets found in tenant files.

Exhibit IV-28b
Comparison of Utility Allowance on the Form HUD-50058 to the Utility Allowance Worksheet*

Outcome	Number	Percent
Form HUD-50058 (AC) amount matched with worksheet amount	631	92%
Worksheet in file for incorrect period of time or is missing critical information	24	3%
Discrepancy due to mathematical error or other clerical errors	10	1%
Discrepancy—Unable to determine reasons	21	3%
Total	**686**	**99%****

*Data in this exhibit are not weighted.
**Totals may not add up to 100% due to rounding.

Comparison of Form HUD-50058 Utility Allowance Values to the Correct (QC) Utility Allowance Value. The ICF team calculated the QC utility allowance amount in two steps. In the first step, we identified the utilities for which the tenants were responsible by using documents—usually PHA utility allowance worksheets—found in tenant files that indicated those specific utilities. In the second step, we mapped the identified household's specific utilities onto the utility allowance schedule and summed the total to determine the QC allowance amount.

We matched the utility allowance amount on Form HUD-50058 to the QC utility allowance amount. We were unable to calculate the QC utility allowance in 1 percent of the cases (11 households) because worksheets were not available; consequently, the specific utilities paid by the household could not be identified. Furthermore, we were unable to calculate the QC utility allowance in 4 percent of the cases because the worksheets in the files did not include specific utilities or other critical information needed for QC allowance calculation. Another 11 percent could not be calculated due to the appropriate utility allowance schedule being unavailable. Exhibit IV-28c differentiates between the cases in which we were able to calculate the QC allowance amount and lists the reasons and number of cases where we were unable to calculate the QC utility allowance amount.

Exhibit IV-28c
Availability of All Information to Enable QC Utility Allowance Calculation*

Outcome	QC UA Amount Calculated	Number	Percent
Appropriate worksheet and schedule available	Yes	645	83%
UA worksheet or other comparable document not available	No	11	1%
Appropriate UA schedule not available	No	87	11%
Worksheet was missing critical information	No	33	4%
Total		**776**	**99%****

*Data in this exhibit are not weighted.
**Totals may not add up to 100% due to rounding.

We calculated the QC utility allowance amounts for 645 cases and then compared the QC utility allowance to the Form HUD-50058 utility allowance amounts. In 93 percent of these households, Form HUD-50058 and the QC utility allowance values matched. We categorized the remaining 7 percent of cases where the values did not match into two broad categories: administrative error or unknown (i.e., we were unable to determine the reason for the discrepancy in utility allowance amounts). We present the findings from this analysis in Exhibit IV-28d.

Exhibit IV-28d
QC Utility Allowance Compared to Form HUD-50058 Utility Allowance*

Outcome	Number	Percent
QC UA matched amount on Form HUD-50058	597	93%
Discrepancy due to math error/transfer error	19	3%
Discrepancy—Unable to determine reasons	29	4%
Total	**645**	**100%**

*Data in this exhibit are not weighted.
Note: The QC rent that is calculated for this study uses the utility allowance amount from Form HUD-50058 and not the QC allowance amount that was calculated for this comparison.

H. Payment Standard Analysis

As part of the FY 2013 HUDQC study, ICF conducted a special analysis to determine whether PHAs are using the correct payment standard amount. This special analysis is independent of the rent calculation error findings presented in another section in this chapter, and it did not affect rent calculation determinations. The payment standard analysis consisted of three parts:

(1) The payment standard on Form HUD-50058 was compared to the payment standard schedules provided by the PHA

(2) The payment standard on Form HUD-50058 was compared to the Fair Market Rent (FMR) for the appropriate geographical area

(3) The payment standards were compared to the FMRs to ensure that they fell between 90 percent and 110 percent of FMR for each project

The findings from these comparisons are presented below.

Background. Payment standards are used in the PHA-administered Section 8 Voucher program to determine the tenant's portion of the rent to owner. Payment standards must be kept current and set between 90 percent and 110 percent of the FMR. If a PHA does not ensure that its payment standards are within this range or if program administrators fail to apply the current payment standards, this will result in errors in tenant rent determinations.

PHAs can apply payment standards incorrectly in a variety of ways that will result in errors in tenant rent. A PHA may have several payment standards for different geographic areas with complex borders, sometimes making it difficult to select the correct payment standard for any given address within the jurisdiction. Also, a household's payment standard amount is the lower of the payment standard based on family size or the payment standard for the size of the unit leased; program administrators could forget to use the payment standard based on family size if the household chooses to rent a smaller unit size than the amount their voucher size provided.

Other potential areas for error include whether a PHA has been authorized to use FMRs based on the 50th percentile of the rents in the area; whether the PHA has been authorized to use Success Rate Payment Standards based on the 50th percentile of rents; and whether the PHA continues to be eligible for these higher subsidy standards. Moreover, PHAs are allowed to change a household's payment standard only at the time of the annual recertification or before the household moves to a new address. Thus, even if a change in the family composition requires an interim recertification with several family members moving in or out, the payment standard used to determine the rent should not be changed at the interim recertification. Yet, despite the complexity of payment standard guidelines, most of the errors found in this review were not due to this reason.

Comparison of the Payment Standard on Form HUD-50058 with the Payment Standard Schedules Provided by the PHA. For the first analysis, we compared the payment standard on Form HUD-50058 (the actual, or AC payment standard) with the payment standard schedule (the quality control, or QC payment standard) provided by the PHA. For all voucher households in the study, we selected the appropriate QC payment standard and compared it with the AC payment

standard. We selected the QC payment standard from the schedules provided by the PHA on the basis of:

- The lower of either the number of bedrooms in the unit or the number of authorized bedrooms for the household on the voucher
- The Effective Date of Action
- The determination and application of any special exception to payment standard guidelines provided by the PHA staff

For every household where the AC and QC payment standard did not match, we placed a call to the PHA staff for clarification and, when appropriate, we collected payment standard schedules for previous years. Discussions with projects regarding determination of the QC payment standard uncovered a host of other issues that required consideration when selecting the QC payment standard. The types of complications included the following:

- Some PHAs used the previous (higher) payment standard amount for the first recertification after a decrease in the payment standard amount. Exceptions for special circumstances, such as living in a house with additional amenities or setting the payment standard to the gross rent for Enhanced Vouchers, were granted to some households;
- There were higher payment standards for Exception Rent Areas;
- Some PHAs used payment standards from the initial housing authority for port-in households, with the understanding the rates would be adjusted at the next annual reexamination;
- Some PHAs had software systems that identified the lessor of gross rent or the payment standard to populate the payment standard field on Form HUD-50058.

The study included 799 PHA-administered Section 8 Voucher households. For the majority (80%) of the households, the AC payment standard matched the QC payment standard. There were 162 (20%) households with discrepant payment standards; 78 (48%) of the households with discrepant payment standards were elderly or disabled households. Elderly and disabled households are identified separately because they are often entitled to individual exemptions to the payment standard rules. We attributed discrepancies to one of seven common reasons, as listed in Exhibit IV-29a. The most typical reason for a discrepancy between the AC and QC payment standard was that the project staff used the incorrect payment standard schedule. Also, the use of either the incorrect number of bedrooms or household members accounted for a cumulative 6 percent of the discrepancies found. Exhibit IV-29a summarizes the number and percent of households where the QC and AC payment standard did not match by the reason for the discrepancy.

Exhibit IV-29a
Number and Percent of Households with Payment Standard Discrepancies*

Reason	Number of Households (Elderly/Disabled)	Number of Households (Non-Elderly/Disabled)	Percent of Households with Discrepancies
Used incorrect number of bedrooms/household members	5	5	6%
Used incorrect payment standard schedule	22	23	28%
Used FMR rent instead of the payment standard amount	4	4	5%
Used gross rent instead of the payment standard amount	7	4	7%
Project staff made a typographical error	14	8	14%
Project based voucher: No payment standard (Section 11 filled out)	7	8	10%
Other reasons—overdue recertification, used FMR rather than payment standard, typographic error, enhanced voucher	19	30	30%
Total	**78**	**84**	**100%**

*Data provided in this exhibit are not weighted.

Comparison of the Payment Standard on Form HUD-50058 to the Fair Market Rent for the Appropriate Geographic Area. In the second analysis, we compared the payment standard on Form HUD-50058 to the FMRs for the appropriate geographic area. Correct payment standards could not be determined for 205 out of the 799 households. Exhibit IV-29b summarizes the number and percent of households by the relationship of the payment standard to the acceptable FMR. The table is based on data for the 594 cases where we were able to determine correct payment standards. The payment standard for 534 of the remaining households (90%) fell within the 90 percent to 110 percent FMR band; 47 of the households (8%) that fell outside of the 90 percent to 110 percent band used an amount that exceeded 110 percent of the FMR, and 13 of the households (2%) used an amount that was less than 90 percent of the FMR.

Exhibit IV-29b
Payment Standard Compared With the Fair Market Rent*

Characteristic	Fair Market Rent			Percent of Cases Outside the 90% to 110% Band
	Under 90%	90%–110%	Over 110%	
Non-elderly or disabled	4	299	19	4%
Elderly or disabled	9	235	28	6%
Total	**13**	**534**	**47**	**11%**

*Data provided in this exhibit are not weighted.

The analysis of cases that fell outside the 90 percent to 110 percent FMR band revealed that 11 percent of cases fell outside the FMR band for five general reasons: (1) the incorrect number of bedrooms or household members was used; (2) the incorrect payment standard schedule was used; (3) gross rent was used instead of the payment standard; (4) project staff made a typographical

error; (5) or other reasons. Exhibit IV-29c summarizes the number and percent of households that fall outside the 90 percent to 110 percent FMR band by category.

Exhibit IV-29c
Details of Cases Falling Outside 90%–110% of the Fair Market Rent*

Reason	Fair Market Rent		Percent of Cases Outside the 90% to 110% Band
	Under 90%	Over 110%	
Used incorrect number of bedrooms or household members	3	3	10%
Used incorrect payment standard schedule	0	3	5%
Used gross rent instead of the payment standard	2	3	8%
Project staff made a typographical error	2	5	12%
Other Reasons—overdue recertification, used 105 % of FMR, software limitations, original payment standard over 110 %, unable to determine a reason for the discrepancy	6	30	61%
Used Enhanced Rate for Disabled/Elderly Tenant	0	2	3%
Total	**13**	**46**	**100%****

*Data provided in this exhibit are not weighted.
**Totals may not add up to due to rounding.

Comparison of the FY 2012 to the FY 2013 Payment Standard Analysis Results. We conducted the same payment standard analysis for the FY 2012 study. Of the 799 PHA-administered Section 8 Voucher households in the FY 2013 study, the AC and the QC payment standard matched for 506 (63%) of the households, compared to 668 (84%) in FY 2012. Also, 60 (8%) of the households had payment standards that did not fall within the 90 percent to 110 percent FMR band. Of those 60 households, one case was an Enhanced Voucher and granted an exemption. Therefore, a total of 8 percent of the PHA-administered Section 8 Voucher households included in the FY 2013 did not meet HUD's payment standard requirements, the same percentage as in the FY 2012 study. Exhibit IV-29d summarizes the results from the FY 2012 and FY 2013 payment standard analysis.

Exhibit IV-29d
Comparison of the FY 2012 to FY 2013 Payment Standard Analysis*

Characteristic	FY 2012		FY 2013	
	Number	Percent	Number	Percent
PHA-administered Section 8 Voucher sample	799	100%	799	100%
Households where the AC and QC payment standard did not match	131	16%	293	37%
Households where the AC payment standard did not meet the 90% to 110% FMR threshold	64	8%	60	8%
Households that were not exempt from the 90% to 110% FMR threshold and did not meet HUD's payment standard requirements	63**	8%	59	7%

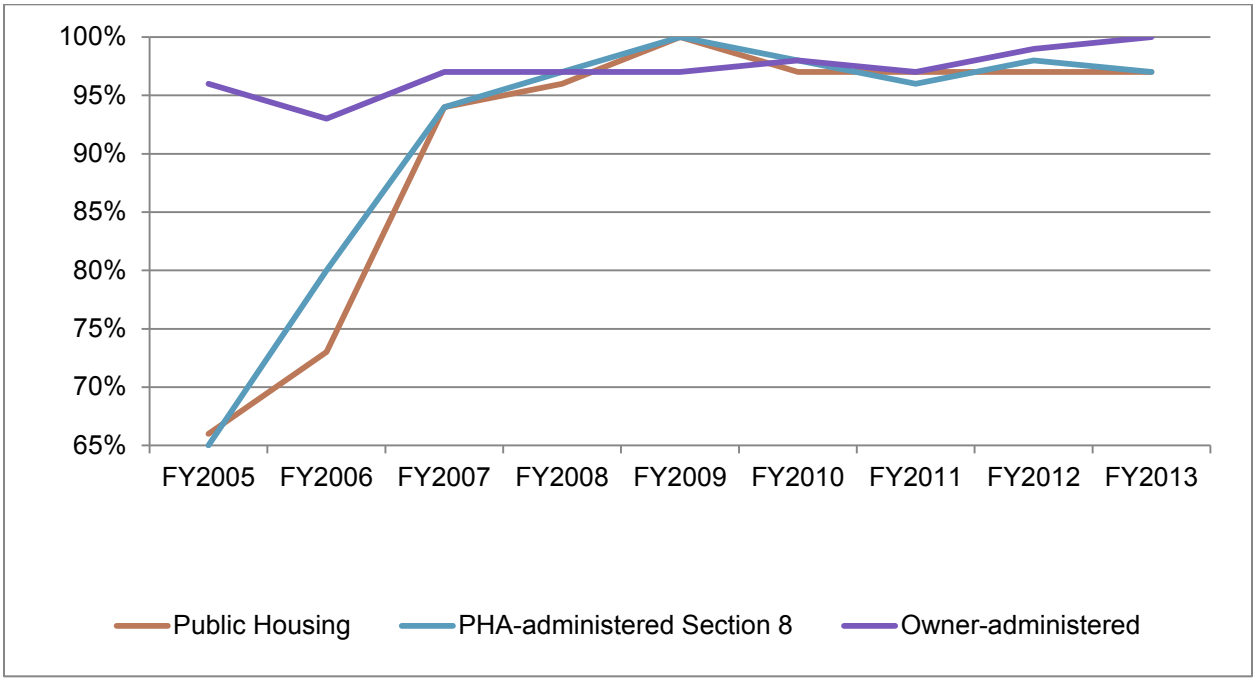
*Data provided in this exhibit are not weighted.
**One case was not included in this count because it was an Enhanced Voucher.

I. PIC/TRACS Analysis

In FY 2013, HUD provided PIC/TRACS data for all sampled households in the HUDQC Study with transaction data present within the FY 2013 study period. Specifically, head of household data were provided for all actions and updates from November 1, 2012, to October 31, 2013, even if the specific study effective date and type of action did not match, resulting in multiple observations per household. The households included in the QC study were matched against these PIC/TRACS data using identifying information (a combination of the Social Security number, name, and date of birth) for each head of household in the study sample. However, since multiple PIC/TRACS observations were provided for each head of household, an additional effort was made to better match ICF's household sample to PIC/TRACS data. In addition to the match described above, we compared household data obtained during the HUDQC study to PIC/TRACS data with the following certification information: program type, type of action, and effective date. Lastly, if duplicate observations for each head of household still remained, the transaction with the closest PIC/TRACS update date following the certification effective date was selected.

Utilizing this improved matching technique, 2,295 of the 2,402 households in the study, or about 96 percent, were fully represented by both head of household identifying information and certification data. This matching rate was a slight decrease from the previous rate of 97 percent in FY 2012, but was still an increase from FY 2011 and FY 2010, in which 70 and 71 percent of households, respectively, were fully represented by a match on both identifying information and certification data. Despite the improved matching rate from historical years, most of the PIC/TRACS analysis for this report was based on the broader match using identifying information to maintain consistency with past years. Using these criteria, PIC records were found for 97 percent of the households in PHA-administered projects, while TRACS records were found for nearly 100 percent of the households in Owner-administered projects. Of the 2,402 households sampled, 2,358 households (or 98%) were successfully matched with PIC/TRACS. Figure IV-4 identifies the change in percentage of households in which PIC/TRACS was present over time, as identified in the HUDQC Study, beginning in FY 2005. PHA-administered percentages have increased since FY 2005, while Owner-administered percentages have remained fairly steady over time.

Figure IV-4
PIC/TRACS Data Present by Program Type for All Households Over Time



Analysis was conducted to compare the average dollars in Gross Rent Error for households that had records in PIC/TRACS with those that did not. Exhibit IV-30a provides the percentage of households in each of the three program types by whether or not data for the household were available in PIC/TRACS (present or absent), and the average dollars in gross error based on all households in the study. Exhibit IV-30b provides the same information, but only for those households that had rent error. These exhibits illustrate that the rate for which PIC/TRACS data were present was comparable between all households, and only those households with rent error.

Exhibit IV-30a
PIC/TRACS Data by Program Type and Average Gross Dollars in Error for All Households*

Administration Type	PIC/TRACS Present		PIC/TRACS Absent	
	Percent of Households	Average Dollars in Error	Percent of Households	Average Dollars in Error
Public Housing	97%	$13	3%	$18
PHA-administered Section 8	97%	$12	3%	$36
Total PHA-administered	*97%*	*$12*	*3%*	*$30*
Total Owner-administered*	100%	$6	<1%	$2
Total	**98%**	**$10**	**2%**	**$29**

* Data provided in this exhibit are weighted.
** Rounding may result in totals not equal to 100 percent.

As presented in Exhibit IV-30b, the average dollars in Gross Rent Error for PHA-administered projects was higher for households in error when PIC/TRACS data were absent ($169) than when PIC/TRACS data were present ($51). More specifically, the largest difference in average gross

error dollars was found for PHA-administered Section 8 households, with and without PIC/TRACS data present ($50 and $232, respectively). However, because the number of cases absent from PIC/TRACS is relatively low, these estimates are less reliable and more volatile from year to year. This year, 99 percent of Owner-administered households in error had PIC/TRACS data present, a slight decrease from FY 2012 (100 percent) and a slight increase from FY 2011 and FY 2010 (97 and 98 percent, respectively).

Exhibit IV-30b
PIC/TRACS Data by Program Type and Average Gross Dollars in Error for Households in Error*

Administration Type	PIC/TRACS Present		PIC/TRACS Absent	
	Percent of Households	Average Dollars in Error	Percent of Households	Average Dollars in Error
Public Housing	98%	$54	3%	$81
PHA-administered Section 8	98%	$50	2%	$232
Total PHA-administered	*98%*	*$51*	*2%*	*$169*
Total Owner-administered	99%	$33	1%	$6
Total	**98%****	**$46**	**2%**	**$153**

* Data provided in this exhibit are weighted.
** Rounding may result in totals not equal to 100 percent.

Exhibit IV-30c presents the percentage of households and average dollars in error for households matched/not matched with PIC/TRACS by payment type. Although the percentage of underpayment, overpayment, and proper payment are similar, both where PIC/TRACS was present and where it was absent, there was a large difference in overpayment amounts (i.e., $41 average overpayment error when PIC/TRACS data could be matched, compared to $176 overpayment error when PIC/TRACS data were not matched). Similarly (though of smaller magnitude), for households with underpayments, average dollars in error were greater when PIC/TRACS was absent than when it was present (i.e., $132 compared to $51). However, because there are fewer cases where PIC/TRACS data were absent, the average dollars in error amounts can vary substantially from year to year.

Exhibit IV-30c
Average Gross Dollars in Error by Payment Type and PIC/TRACS Data*

Payment Type	PIC/TRACS Present		PIC/TRACS Absent	
	Percent of Households	Average Dollars in Error**	Percent of Households	Average Dollars in Error**
Underpayment	12%	$51	10%	$132
Overpayment	11%	$41	9%	$176
Proper payment	78%	N/A	81%	N/A
Total***	**100%*****	**$11**	**100%**	**$29**

* Data provided in this exhibit are weighted.
** Average dollar error per under- and overpayment subgroups.
***Numbers may not total to 100 percent because of rounding.

Exhibit IV-30d examines net and gross errors by program type and whether there was a PIC/TRACS match. This exhibit illustrates the importance of reviewing net error and gross error separately, as their average dollar errors are substantially different.

Exhibit IV-30d
Average Net and Gross Dollars in Error by Administration Type and PIC/TRACS Data for All Households*

Administration Type	Average Net Rent Error		Average Gross Rent Error	
	PIC/TRACS Present	PIC/TRACS Absent	PIC/TRACS Present	PIC/TRACS Absent
Public Housing	-$2	-$15	$13	$18
PHA-administered Section 8	-$2	$12	$12	$36
Total PHA-administered	*-$2*	*$3*	*$12*	*$30*
Total Owner-administered	-$1	-$2	$6	$2
Total	**-$2**	**$3**	**$10**	**$29**

Data provided in this exhibit are weighted.

For households in which PIC/TRACS data matched on specific study effective date and type of action (2,295 of 2,402 households), further analysis was conducted to determine whether certain key variables matched. The key variables included gross income, net income, and tenant rent for MTW households, along with gross income, net income, total tenant payment, and tenant rent for non-MTW households.[31] Exhibit IV-30e provides the percentage of households in which the data gathered through the QC process matched those in PIC/TRACS.

Exhibit IV-30e
Percentage of Matched and Non-Matched Dollar Amounts for Key Variables Matching Variables from the Form HUD-50058/50059 and PIC/TRACS*

Match Status	Gross Income		Net Income		Total Tenant Payment**		Tenant Rent	
	PIC	TRACS	PIC	TRACS	PIC	TRACS	PIC	TRACS
No Match	3.5%	2.0%	3.9%	2.5%	5.6%	10.3%	24.4%	35.6%
Match	96.5%	98.0%	96.1%	97.5%	94.4%	89.7%	75.6%	64.4%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

* Data provided in this exhibit are weighted.
** Note: Results exclude MTW households.

[31] MTW Form HUD-50058 and the corresponding PIC database do not have a field for total tenant payment and, therefore, the key variable could not be analyzed for MTW households.

J. Project Staff Questionnaire Analysis

The purpose of the PSQ, a self-administered, Web-based questionnaire, is to obtain project-level information concerning the characteristics and processes that enable PHA/project staff to precisely calculate rent during certification transactions, including both initial/move-in and annual certifications. PHAs and project staff identified as the point of contact for the FY 2013 study were surveyed on topics related to PHA/project characteristics, certification staff training and development, and performance management during the study period of November 1, 2012, to October 31, 2013. The results were analyzed separately for the three major program types: Public Housing, PHA-administered Section 8, and Owner-administered programs.

A brief summary of the key findings from this analysis is presented below. A more detailed summary of the PSQ information can be found in Appendix E.

1. PHA/Project Characteristics. The PSQ surveyed respondents on PHA/project characteristics that may help explain differences in error rates. Questions in this section included questions about the number and types of staff, number of project units/tenants and certifications conducted, staff work experience, certification staff work assignments and workload, and staff use of software and computer technology. The findings of this section show the following:

- The average PHA/project had about 13 employees and served an average of 1,106 households during the study period. It is worth noting that each of the PHAs/projects differed markedly in average size. PHA-administered Section 8 projects averaged 26 employees and administered rental assistance to 3,628 households, Public Housing projects had an average of 12 employees and served 515 units on average, and Owner-administered projects averaged 5 employees with 117 rental assistance units.
- PHAs/projects reported an average of seven certification staff members with more than one year of certification experience at the project. The percentage of PHAs/projects in the study that had at least one staff member leave during the study period was 25 percent. On average, PHAs/projects had three certification staff leave the PHA/project during the study period.
- The most frequently used case assignment method for employees working with certifications was assignment by transaction type (e.g. initial certifications, annual recertifications, moves, and interims), followed by random assignment based on staff availability. Twenty-one percent of PHAs/projects distributed certification work by transaction type, and 17 percent distributed cases randomly. A majority of respondents in PHA-administered Section 8 and Public Housing reported that average workload for certification staff was high, with a majority of respondents in Owner-administered projects reporting that workload was not too low or too high. Three percent or less of respondents in all program types reported low average certification staff workload.
- During the study period, private companies were reported as having performed certification activities in Owner-administered programs at the highest rate (10.1 percent), followed by PHA-administered Section 8 (6.7 percent) and Public Housing (3.2 percent). Eighty-nine percent of all programs responded that they were not outsourcing certification activities to outside organizations.

- Automated systems and computer software continue to play an increasingly integral part in PHAs'/projects' daily tasks. During the study period, almost all PHAs/projects used computers and computer software when performing various certification and other administrative tasks (97 percent). Of those PHAs/projects, 95 percent used computer software to store household data from previous Form HUD-50058/50059, and 88 percent used software to submit data to PIC/TRACS.
- The most common use of computer systems was printing letters to tenants (98 percent), followed by printing Form HUD-50058/50059 (95 percent); calculating income, expenses, or allowances (95 percent); and recording tenant demographics (92 percent). Fifty-four percent of respondents stated that they used computer systems to keep track of pending verification documents, and 39 percent reported that they stored verification documents electronically. FY 2013 saw an increase in the use of computer systems to conduct interviews with tenants. In FY 2012, only about 20 percent of PHAs/projects indicated that they used a software program for assistance with interviews, compared to 32 percent in FY 2013.

2. Training and Development. The PSQ collected information on an array of topics regarding the training and development provided to new and experienced certification staff, including the nature and extent of rent calculation training, implementation of rent calculation policies, and certification staff work practices.

- Sixty-two percent of Public Housing projects reported having a training department or staff trainer for certification staff, compared to 66 percent in PHA-administered Section 8 and 73 percent of Owner-administered projects. The average number of hours of training received by a newly hired certification staff member decreased to 55 hours per staff member in FY 2013, compared to an average of 65 hours of training in FY 2012 and an average of 89 hours of training in FY 2011.[32]
- Most PHAs/projects trained new certification staff members by providing them with policies and procedural guides to read independently and having them shadow more experienced staff members (93 percent and 90 percent, respectively). During the study period, PHAs/projects reported that a typical new certification employee spent an average of 44 hours self-training with manuals and 120 hours shadowing experienced staff.
- More than 93 percent of PHAs/projects trained a typical new certification employee in EIV reports and EIV security and in calculating fixed income sources, earned income sources, and deductions. On average, PHAs/projects dedicated more than 20 hours to training a new certification staff member on how to interview tenants and calculate earned income sources.
- Nearly all PHAs/projects trained a typical experienced staff member by providing policies and procedural guides to read (90 percent), while approximately 50 percent also used in-house or outsourced classroom training and shadowing or mentoring by other experienced staff. A typical experienced certification staff member in the Owner-administered program spent an average of 30 hours training on the job with other experienced staff, compared to an average of 41 hours in Public Housing and 64 hours in PHA-administered Section 8.

[32] Training hour averages for FY 2012, FY 2011, and FY 2010 were calculated as the average for new (re)certification staff and reassigned staff because of a change in the question for FY 2013.

- PHAs/projects most frequently endorsed training an experienced certification staff member on the topics of EIV reports and EIV security and on deduction calculations (88 percent and 71 percent, respectively). Owner-administered projects appeared to have the most training hours on average (7.5 hours) for experienced staff on this topic, while Public Housing spent the most training hours (29.3 hours) on interviewing tenants. PHA-administered Section 8 programs provided the most training for experienced staff on the topic of calculating earned income sources (14.2 hours).
- Twenty-two percent of PHAs/projects implemented a new rent calculation policy immediately after a PIH Notice or Housing Notice was issued, and 73 percent implemented a new rent calculation policy in 30 days or less on average. In January 2013, PIH Notice 2013-03 (HA)[33] was issued, affecting Public Housing, Moderate Rehabilitation, and Housing Choice Voucher programs. These programs reported that the primary method used to notify certification staff about the policy change was providing a paper or electronic copy of the notice or discussing the policy with staff in a meeting (63 percent for each). Fifteen percent of Public Housing respondents stated that there was no discussion of this policy with staff, and they did not receive a notice of the policy, compared to only four percent of PHA-administered Section 8 projects responding in the same way to the question about PIH Notice 2013-03 (HA).
- Certification staff work behaviors were overwhelmingly rated as average or above. Ninety-seven percent of PHAs/projects rated their certification staff as either organized or very organized when working on certification activities. Ratings of the quality of time management of certification staff found that 95 percent of PHAs/projects reported staff as having either good or very good time management skills, and 77 percent of PHAs/projects rated staff as paying a lot of attention to detail.

3. Performance Management. The PSQ also collected information regarding performance management of certification activities and QC reviews. Questions addressed the timing of reviews, methods used to select cases for review, type of information reviewed for QC, prevalence of various types of rent calculation errors, and performance feedback methods and timing.

- Ninety-two percent of PHAs/projects reviewed move-in and annual certifications as a QC measure, with 44 percent of certifications being reviewed on average. In determining which cases to select for review, PHAs/projects most frequently randomly selected files for QC review and conducted the reviews prior to Form HUD-50058/50059 approval (69 percent and 26 percent, respectively).
- Twenty-eight percent of PHAs/projects reported that they reviewed not only move-in and annual certifications, but all tenant files during QC, a slight increase from FY 2012, when only 25 percent of PHAs/projects reviewed all cases. Of the PHAs/projects that did not check all tenant files, 83 percent cited random selection of cases for QC reviews. By program type, 17 percent of PHA-administered Section 8 projects selected all cases for QC

[33] The PIH Notice 2013-03 (HA) allows PHAs to verify income using actual past income and allows households with less than $5,000 in assets to self-certify their asset amount and asset income amount. It also allows PHAs to conduct streamlined reexaminations for elderly/disabled families with fixed income and to establish a payment standard of no more than 120 percent of Fair Market Rent as a reasonable accommodation.

review, compared to 28 percent for Public Housing and 36 percent for Owner-administered sites.

- Seventy-four percent of PHAs/projects had a dedicated QC staff member to monitor tenant files. Most often, PHAs/projects had a team leader or supervisor conducting QC checks (79 percent), averaging 322 file reviews during the study period.
- For those PHAs/projects that conducted dedicated QC reviews, more than 90 percent had reviewers check tenant files for proper core household documentation, presence of verification documents, and correct income and medical expense calculations. Three percent or less of PHAs/projects reported that verification, income calculation, expense calculation, or human errors were made often or very often by certification staff. Human errors, characterized as errors related to attention to detail and late recertification transactions, were sometimes made by staff (23 percent and 24 percent, respectively).
- In order to provide performance feedback to staff regarding errors found during the QC process, PHAs/projects overwhelmingly required that the certification staff member who made the error be responsible for making file corrections (83 percent), frequently had one-on-one conversations with staff to discuss quality control findings (69 percent), and provided monthly rent calculation performance feedback to staff (29 percent).
- Late recertification transactions (53 percent), verification of income assets and expenses (41 percent), earned income calculation (41 percent), and tenant file documentation (41 percent) were most frequently monitored during QC reviews, while 24 percent of all PHAs/projects do not monitor any certification errors. The majority of PHAs/projects, however, had error mitigation strategies in place; 71 percent had a formal or informal goal-setting process related to rent calculations for certification staff, and 80 percent required certification staff to review a household's previous Form HUD-50058/50059 before beginning a new certification transaction (compared to 84 percent for Owner-administered respondents and 78 percent for both Public Housing and PHA-administered Section 8 respondents).

K. Multivariate Analysis

The FY 2013 HUDQC multivariate modeling followed the conceptual and analytical approaches used in previous years. The analysis identified patterns in which rent errors related to project and household variables, particularly involving project-caused errors such as transcription error and overdue recertification errors and their association with Gross Rent Error. These findings were essentially similar to those reported in prior years' analyses with the exception—that differences among program types were not found to be statistically significant with regard to Gross Rent Error, subsidy overpayment, and subsidy underpayment, net other project and household effects. (See Appendix F for more information on the Multivariate Analysis.)

Project-Caused Errors. Project-caused errors accounted for a large proportion of Gross Rent Error, controlling for other effects. Of the project-caused errors, transcription errors, overdue recertification errors, and the rate of items without third-party written verification predicted a higher gross error, which has been consistently found in prior analyses. Transcription error was a source of both high subsidy overpayment and underpayment as well. The rate of items with

transcription error related to higher overpayment and underpayment, and transcription error was found in households with and without associated rent error.

Also, we found that transcription errors contributed to both subsidy overpayment and underpayment. The two subsidy errors together would appear as a modest negative effect on overall Gross Rent Error. However, further examination is needed to better understand the relationship between the two subsidy payment errors and their effect on Gross Rent Error. The major findings on effects of project-caused errors were comparable with those from previous years' analyses (i.e., FY 2008–FY 2012), underscoring the importance of reducing project-caused errors, particularly transcription errors and overdue recertification, to minimize improper payment.

Household Characteristics. Household background variables were strong predictors of Gross Rent Error, subsidy overpayment and underpayment. Variables indicative of complex financial conditions and income strongly predicted higher rent errors. The relationship between household financial or sociodemographic variables and rent error is highly consistent across models and years, a finding which indicates that PHA/project staff should emphasize quality control of these cases.

Project Characteristics and Practices. The impact of project characteristics and project practices on improper payments remained elusive within the current data analysis. Most key indicators of project resources, staff capacity, training, certification procedures, computer application, and a broad array of quality control efforts were not found to be statistically significant and no substantial relationships were found with rent error measures. Of the numerous project practices examined, a few emerged as somewhat predictive of rent error, after controlling for all the modeled factors. Projects that trained experienced staff on how to conduct household interviews had lower rent error; whereas those that trained experienced staff on how to process the Form HUD-50058/50059 showed modestly higher rent error. The training given to experienced staff on the Form HUD-50058/50059 should be standardized to ensure that it is as successful as the other types of training given to experienced project staff. Staff self-perceived propensity for errors in rent calculation was also found to be predictive of rent error. As project management and practices are considered significant factors for reducing improper payment, continued in-depth analysis with improved measurement of project features in the Project Staff Questionnaire is needed to reveal the connections between PHA/project practices and rent error.

The three housing programs were not substantially different in rent error after we considered project and household variables. This finding suggests that targeting a particular program type for strengthening financial integrity may not be as effective as targeting specific problems underlying rent errors across all program types, for example, reducing project-caused mistakes in processing (re)certification.

Project-caused errors in certification processing accounted for the most rent error variance. Such errors can lead to overpayment, underpayment or both. Reducing project-caused errors should be a priority for reducing the rate of improper payment.

Underpayment and overpayment seem to relate to different issues and may require different strategies to remedy. Projects with a dedicated QC department or staff and projects with certifications that were reviewed by OIG auditors were found to have higher underpayment but not overpayment.

Future research is needed to further refine the measurement of project-caused errors to allow more meaningful quantification of the relationships among project errors and their unique and joint effects on rent error. This future research need calls for a better understanding of the nature of each type of project error and the underlying processes that lead to the error. Through clear conceptualization and solid measurement of project errors, we may be able to improve the analysis of project-caused errors to generate actionable information.

Access to HUD's expansive databases could also further enrich ICF's future analysis, as they contain a wealth of data that could be useful in targeting the source of rent error more precisely.

L. The 20 Largest PHAs Study

The 20 Largest PHAs Study aims to provide additional information about the 20 largest PHAs. Included in this study were the 18 largest PHAs and the 2 largest State PHAs in the project-level sample selected for the HUDQC Study. There were 32 households selected from most PHAs, with the exception of RQ005, which had 52 households; NY005, which had 176; MD002, which had 24; and IL002, which had 31. The study of the 20 largest PHAs ultimately included a total of 795 households.

Most PHAs represented both Public Housing and PHA-administered Section 8 households. MA901, NY904, and NY110 only represented PHA-administered Section 8 households, and RQ005 only represented Public Housing households. Weights for the 20 Largest PHAs Study were not calculated, and as a result all data presented in the exhibits in this section that pertain to the 20 largest PHAs are not weighted.[34]

Administrative Error. Exhibit IV-31a provides the percentage of households that had overdue recertification and transcription errors and the percentage of income and expense items that were verified by PHA staff using both written third-party verification only and verbal or written third-party verification, documentation, or EIV/UIV. These types of administrative errors were examined because they are typically associated with overall Gross Rent Error and Net Rent Error.

[34] For a more detailed discussion regarding weighting for the 20 Largest PHAs Study, please refer to Appendix B.

Exhibit IV-31a
Administrative Errors in the 20 Largest PHAs

PHA	Number of Households	Overdue Recertification Error	Transcription Error	Percent of Verified Items	
				Third-Party Verbal or In-Writing, Documentation, or EIV/UIV	Third-Party In-Writing
CA002	32	—	38%	87%	2%
CA004	32	—	62%	88%	10%
CA059	32	—	38%	93%	2%
CA063	32	—	41%	85%	2%
CA108	32	3%	34%	91%	2%
DC001	32	3%	38%	93%	29%
FL005	32	—	41%	86%	12%
IL002	31	—	13%	95%	17%
IL025	32	—	28%	87%	18%
MA901	32	—	53%	79%	2%
MD002	24	12%	33%	82%	8%
MI901	32	—	44%	80%	7%
MN002	32	6%	34%	69%	10%
NY005	176	8%	74%	88%	16%
NY110	32	12%	56%	69%	4%
NY904	32	3%	69%	44%	0%
OH003	32	—	12%	93%	14%
PA002	32	—	66%	82%	0%
RQ005	52	—	38%	79%	31%
TX005	36	—	36%	79%	10%
Total	**799**	**7%**	**42%**	**82%**	**10%**
QC Study Total*	**2,402**	**1%**	**49%**	**88%**	**14%**

Note: Data in this exhibit for the 20 largest PHAs are not weighted (see Appendix B), though QC study total data are weighted

- Compared to all QC study PHAs selected, the 20 largest PHAs had a slightly higher percentage of overdue recertification errors (1 percent and 7 percent, respectively) and a slightly lower transcription error rate (49 percent and 42 percent, respectively).
- Overdue recertification errors were relatively scarce, with a notable exception being NY110 and MD002, where 12 percent of households within each PHA had overdue recertification transactions.
- While most of the 20 largest PHAs had slightly lower transcription error percentages than the QC study mean, NY904 and NY005 had markedly higher transcription error

percentages than the QC study mean (69 percent and 74 percent of households, respectively).

- OH003 had the lowest percentage of households with transcription error, at 12 percent.
- Additionally, the 20 largest PHAs verified items using third-party verbal or in-writing, documentation, or EIV/UIV at a slightly lower rate than the QC study overall, at 82 percent compared to 88 percent.
- Items were verified using third-party verbal or in-writing, documentation or EIV/UIV by IL002 for 95 percent of households, whereas NY904 used these methods in 44 percent of households.
- The 20 largest PHAs verified items using only third-party in-writing verification, slightly less than the PHAs in the QC study overall (10 percent and 14 percent, respectively).
- RQ005 verified items using only third-party in-writing verification at the greatest rate (31 percent), while NY904 and PA002 did not use this method (0 percent).

Payment Error. Exhibit IV-31b provides payment error information. This exhibit includes proper payments, underpayments and overpayments of tenant rents, and the mean Gross Rent Errors by PHA.

- Compared to PHAs in our QC study as a whole, the 20 largest PHAs had a slightly lower percentage of households with proper payments (78 percent and 71 percent, respectively), as well as a higher average gross dollar error (about $30 for the 20 largest PHAs versus about $11 for the QC study).
- The PHA with the highest percentage of proper payments was IL002, which had proper payments for 94 percent of households.
- OH003 had the lowest average gross dollar error, at $3.16.

Exhibit IV-31b
Dollar Rent Errors in the 20 Largest PHAs

PHA	Underpayment	Proper Payment	Overpayment	Average Gross Dollar Error
CA002	9%	81%	9%	$7.50
CA004	6%	78%	16%	$38.72
CA059	6%	78%	16%	$15.47
CA063	13%	56%	31%	$22.59
CA108	13%	88%	0%	$19.25
DC001	28%	50%	22%	$89.03
FL005	16%	72%	13%	$18.31
IL002	7%	94%	0%	$7.45
IL025	6%	88%	6%	$4.00
MA901	41%	53%	6%	$116.62
MD002	8%	79%	13%	$24.92
MI901	9%	78%	13%	$6.31
MN002	25%	63%	13%	$33.87
NY005	10%	77%	13%	$19.31
NY110	13%	59%	28%	$28.44
NY904	38%	41%	22%	$114.28
OH003	16%	84%	0%	$3.16
PA002	19%	38%	44%	$58.00
RQ005	6%	54%	40%	$13.73
TX005	14%	86%	0%	$23.83
Total/Average	**14%**	**71%**	**15%**	**$30.31**
QC Study Total/Average	**12%**	**78%**	**11%**	**$10.73**

Note: Data in this exhibit for the 20 largest PHAs are not weighted (see Appendix B), though QC study total data are weighted

In FY 2013, a smaller proportion of proper payments seemed to lead to a higher average gross dollar error within the PHA.

- The PHA with the lowest percentage of proper payments was PA002, with 38 percent of households, and the average gross dollar error for PA002 was $58, nearly twice the average across the 20 largest PHAs.
- Alternatively, the PHA with the lowest average gross dollar amount, OH003 ($3.16), had a higher rate of proper payments than the average across the 20 largest PHAs, at 84 percent.

These results imply that when the percentage of proper payments increases, the average gross dollar error may decrease. Consequently, policies that increase proper payment rates may have some effect on decreasing rent errors (and vice versa). These seemingly related problems may sometimes require different approaches targeted to specific PHAs.

V. RECOMMENDATIONS

The HUDQC Study was originally conducted in 2000 and has been conducted on an annual basis since the FY 2003 review. A major goal of the study is to provide a snapshot of HUD national improper payment error. However, another important objective is to understand the causes of error and identify policies that reduce improper payments. As we executed the study, we identified general areas that could be improved in PHA/project rent calculation; we present these insights in this chapter of the report. Section A outlines general policy recommendations that could potentially reduce administrative error and tenant misreporting of income.

In addition to program recommendations, we examined how the QC studies can be improved. Each year, changes and improvements are made in the execution of the study to achieve aims such as increased efficiency, reduced burden on project staff and households, and a better understanding of program practices and discretionary policies. Section B provides recommendations for improving the data collection process and the quality of the data used in the analysis of improper payments.

A. Recommended Policy Actions

It should be noted that the study was not designed to provide recommendations regarding program policies and procedures. However, findings from the study suggest general actions that should be continued or policies that should be considered to maintain or improve PHA/project performance in rent determination. As previously discussed, the errors associated with HUD programs included in this study decreased substantially in FY 2013. Whether this decrease was due to specific HUD policies, changes in local program administration, or other factors in the arena of affordable housing is not entirely certain. Below we present recommendations that may improve administrative error rates in HUD programs, based on insights we have gathered during the study:

1. **Continue Requiring the Use of EIV Reports.** HUD should continue to require the use of EIV information in the process of rent determination. Data that are systematically collected from the National Database of New Hires and SSA provide a strong method of identifying specific sources of income information. The study shows that the majority of subsidy errors are associated with earned income. HUD may also want to consider forming relationships with State programs, organizations, and companies to collect other data not currently captured by the EIV system. Although EIV provides a uniform and efficient method of verifying income sources that lessens the burden on program administrators, caution must be exercised when using information from the system. The data are extremely helpful in identifying unreported sources of income, but they are not current and sometimes contain errors (including instances of identity theft and incorrect identification of disability status). HUD's EIV requirement should be coupled with policies aimed at addressing the challenges of using EIV for verification.
2. **Perform Onsite Review of Rent Calculation.** HUD should continue onsite monitoring of program administration and PHA/Owners should be held accountable for implementing HUD regulations and calculating rent accurately. Onsite monitoring that includes reviews at both the local and Federal levels is essential to improving accountability. PHA/Owners with excessive errors should be required to develop corrective action plans and show improvement

within specified time periods. Improved HUD monitoring was likely a key factor in reducing subsidy error between the 2000 study and the current study.

We recommend that HUD require PHA/Owners to perform their own QC reviews on income determinations and rent calculations. Agencies that have aggressively sought to improve the performance of their programs have demonstrated success in this area, and one of the most frequently used error-reduction strategies includes the establishment of internal QC review procedures. Based on the PSQ survey, it appears that programs that conduct QC on all their transactions have a significantly lower rent determination error rate than programs that do not perform QC on all their files. Of course, a comprehensive approach may not be feasible, given limited staffing resources, but even a review of a small percentage of transactions may be beneficial in supporting the reduction of rent determination error.

In addition to internal agency reviews, HUD regional offices can support field offices by conducting a secondary review of transactions. This review would provide HUD Federal staff with more on-the-ground insights into the issues and challenges faced by local program administrators. In addition, this approach would demonstrate HUD's concern regarding program integrity and improper payments, thereby focusing PHA/Owner attention on accurately determining tenant income and rent.

3. **Reduce Additional and New Program Requirements.** Federal laws, regulations, and HUD requirements should be simplified and reduced, to the extent possible. The current statutory environment poses substantial obstacles to efficient, accurate income and rent calculations. It includes requirements that may be well-intentioned and have potentially desirable impacts but that, taken as a whole, make the income and rent determination process more challenging. HUD has sought to issue guidance on virtually all aspects of current income and rent determination requirements, but some of the provisions create unintended administrative complexity. Because of the size of the administrative organizations and their ability to respond to policy changes, special and temporary provisions aimed at reducing administrative burden or simplifying policies, although developed with the best intent, can create more work to implement with little improvement. Examples of this include the requirement to review student status and the use of the past-income provision to determine income.
4. **Implement Biennial Certifications for Some Tenant Populations.** HUD should consider requiring some reexaminations to be completed less frequently than annually for certain populations. PIH Notice 2013-03(HA), which was issued on January 22, 2013, addressed this option for elderly/disabled households, but on a temporary basis; HUD should consider implementing this policy on a permanent basis. With the time saved by this policy change, PHA/project staff could spend more time conducting required reexaminations, following up on suspected cases of fraud, and conducting more internal reviews of tenant files.
5. **Create an Online Community to Share Best Practices and Tools.** HUD should provide PHA/Owners with an online venue to support the sharing of best practices for its assisted housing programs. A Web-based resource could facilitate communication between HUD and program administrators regarding identifying ways to improve and address challenges related to proposed policies. Comprehensive supporting documents, including forms for

interviewing tenants, obtaining verification, and determining rent, could be posted to the site for download. Manuals and training materials describing how to implement requirements and accurately calculate rent could also be available electronically, with online webcasts providing an additional training resource for local program offices.

HUD experts and local housing staff should be given the opportunity to work together to develop tools and systems to reduce rent error. Many local PHA/Owners have already developed forms, training materials, manuals, automated systems, and monitoring processes that enable them to provide accurate, efficient service to their tenants. HUD should create a platform for organizations to learn from each other.

B. Modifying the Quality Control Study

In addition to providing general program recommendations to improve error rates, we endeavored to improve the QC study that provides the estimates of the error rates. The current methodology used by ICF to conduct the quality control study is based on meeting established study objectives and builds on insights from previous studies. The following recommendations serve to expand the utility of the data collected, support HUD's research goals, and improve the overall efficiency of ongoing quality control studies:

1. **Update Measurements of Improper Payment Associated with Billing Error.** HUD should conduct billing error studies to obtain a more accurate assessment of improper payments. In the *FY 2012 HUD Agency Financial Report*, billing error estimates are based on FY 2004 data for the Public Housing program and FY 2009 data for Owner-administered programs. Current error estimates could be obtained by conducting primary data collection or by using statistical modeling to update the existing data. However, an updated study would provide HUD with a better assessment of billing error associated with rental assistance programs in order to understand one of the main contributors to improper payments. The information from these billing studies could strengthen financial management controls so that HUD can better detect and prevent improper payments.
2. **Incorporate Additional Objectives in the HUDQC Study.** Data collected through the HUDQC Study provide details that are not available through other HUD sources (e.g., PIC/TRACS) that could be used to track trends such as the extent to which income and expense items are verified or the number of sources of employment income for a particular household or household member. Furthermore, because a statistically valid nationwide sample of projects and households is created for the study, other HUD-related topics could be investigated using the HUDQC Study's research mechanisms and data collection processes. The rental integrity monitoring (RIM) review validation, identified in the July 2013 issuance of the HUD Research Roadmap for FY 2014–FY 2018, is a task that could be incorporated into the HUDQC Study's data collection process. Additional topics could include a review of the changing demographics of HUD tenants, participant satisfaction surveys, and a more in-depth review and evaluation of MTW programs.
3. **Conduct a Utility Allowance Comparison Study.** In response to tightening budgets and overall concerns with energy efficiency, HUD should undertake a study to better understand utility costs and consumption in subsidized housing. HUD should consider

conducting an in-depth quality control study of how utility allowance values are calculated and used in rent calculation. This study could involve collecting data from utility companies regarding utility usage for a given fiscal year and comparing actual consumption with the utility allowance subsidy calculated by program administrators. The investigation could also include an evaluation of the HUD Utility Schedule Model and its ability to accurately estimate utility costs for assisted housing participants.

4. **Learn More About PHA/Project Policies and Practices.** Each PHA establishes its own policies, procedures, and forms for collecting information that is ultimately used to calculate tenant rent. The differences in these practices should have some (possibly major) impact on rent error, yet the analysis of the project practices and characteristics collected by the PSQ does not demonstrate the expected impact. We recommend conducting focus groups, interviews, and discussions with program administrators to identify additional PHA/project-level factors that may impact error. This information could be used to revise the PSQ to include questions focused on the specific practices expected to influence errors. The analysis of more detailed, project-level data would assist in this process.

5. **Continue Performing the HUDQC Study.** The HUDQC Study provides a consistent ongoing method to monitor, manage, and improve HUD rent determination processes. The ongoing evaluation of HUD rental housing assistance programs is essential to program management and improvement, and rigorous research is important for understanding how well HUD programs are reaching their goals for the communities served. The primary objective of the HUDQC Study is to measure rent calculation and improper payment error; however, the study also gives HUD the opportunity to learn more about methods to reduce rent calculation errors and better manage current and changing conditions at PHAs/projects. Annual evaluations facilitate more accurate, cross-year comparisons of rent errors. They also allow data collection and data analysis staff to develop specific expertise in HUD policy areas, supporting the development of tailored solutions for improving data quality.

Appendix A: Rent Calculations

APPENDIX A: RENT CALCULATIONS

1. Public Housing

a. Obtain the Total Tenant Payment (TTP).

b. Determine whether the family includes any ineligible noncitizens. IF YES, **continue.** IF NO, **go to d.**

c. Determine whether the family includes any citizens or eligible noncitizens. IF YES, **go to #6 (continuation of assistance).** IF NO, **go to #7 (temporary deferral).**

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

d. Determine whether the tenant selected Flat Rent. IF NO, **go to e.** IF YES, **the QC RENT equals the Flat Rent. Go to g.**

e. Obtain the Utility Allowance.

f. The amount of the tenant's rent (QC RENT) is the lower of: a. (TTP) minus e. (Utility Allowance), or the Flat Rent.[35]

g. Determine whether any additional Moving to Work rent calculation policies apply. IF YES, **recalculate the tenant's rent (QC RENT) according to the policy outlined in the PHA ACOP, Administrative Plan, or Other Policy Guidance Documents; continue.** IF NO, **continue.**

h. Determine whether the QC RENT equals the ACTUAL RENT. IF YES, **no error.** IF NO, **dollar error.**

2. Section 8 Voucher Program

a. Obtain TTP.

b. Obtain the Gross Rent.

c. Obtain Utility Allowance.

d. Determine whether a. (TTP) is greater than b. (Gross Rent). IF YES, **set TTP to Gross Rent.** IF NO, **TTP is equal to a.**

e. Obtain Payment Standard[36] (the Payment Standard is based on the lower of the Unit [actual] Bedroom Size and Family [eligible] Bedroom Size).

f. Obtain the household's Adjusted Monthly Income.

g. Subtract e. (Payment Standard) from b. (Gross Rent). If the Payment Standard is higher than the Gross Rent, use 0.

h. Add d. (TTP) to g. (Gross Rent minus Payment Standard).

[35] If there is no Flat Rent, the QC RENT will be the lower of the Ceiling Rent or a. (TTP) minus e. (Utility Allowance) to determine the dollar amount of error. If there is also no Ceiling Rent, the QC RENT will be a. (TTP) minus e. (Utility Allowance).

[36] For Project-Based Vouchers, the Payment Standard equals the Gross Rent.

i. Determine whether this is the initial occupancy for this dwelling unit. (Item 12b on the Form HUD-50058 is yes). IF YES, **continue.** IF NO, **the Family Share is equal to h. Go to l.**

j. Calculate 40 percent of the f. (household's Adjusted Monthly Income).

k. Determine whether j. (40 percent of Adjusted Monthly Income) is equal to or greater than h. (TTP plus Gross Rent minus Payment Standard). IF YES, **the Family Share equals h; continue.** IF NO, **procedural error. Family Share is equal to h; continue.**

l. Determine whether the family includes any ineligible noncitizens. IF YES, **continue.** IF NO, **go to n.**

m. Determine whether the family includes any citizens or eligible noncitizens. IF YES, **go to #6 (continuation of assistance).** IF NO, **go to #7 (temporary deferral).**

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

n. Subtract c. (Utility Allowance) from the h. (Family Share). This is the QC RENT.

o. Determine whether any additional Moving to Work rent calculation policies apply. IF YES, **recalculate the tenant's rent (QC RENT) according to the policy outlined in the PHA ACOP, Administrative Plan, or Other Policy Guidance Documents; continue.** IF NO, **continue.**

p. Determine whether the QC RENT equals the ACTUAL RENT. IF YES, **no error.** IF NO, **dollar error.**

3. Section 8 Enhanced Voucher

a. Determine whether household is receiving an Enhanced Voucher. IF YES, **continue.** IF NO, **use #2 (the regular Section 8 Voucher formula).**

b. Obtain the TTP.

c. Obtain the Gross Rent.

d. Determine the lesser of b. (TTP) or c. (Gross Rent).

e. Determine whether the family includes any ineligible noncitizens. IF YES, **continue.** IF NO, **go to g.**

f. Determine whether the family includes any citizens or eligible noncitizens. IF YES, **go to #6 (continuation of assistance).** IF NO, **go to #7 (temporary deferral).**

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

g. Obtain the Utility Allowance.

h. Subtract g. (Utility Allowance) from d. (the lesser of TTP or Gross Rent). This is the Family Rent to Owner (QC RENT).

i. Determine whether any additional Moving to Work rent calculation policies apply. IF YES, **recalculate the tenant's rent (QC RENT) according to the policy outlined**

in the PHA ACOP, Administrative Plan, or Other Policy Guidance Documents; continue. IF NO, **continue.**

j. Determine whether the QC RENT equals the ACTUAL RENT. IF YES, **no error.** IF NO, **dollar error.**

4. Project-Based Section 8, Section 202, Section 811, Section 8 Moderate Rehabilitation

a. Obtain the Gross Rent (Gross Rent equals the Contract Rent plus the Utility Allowance).

b. Obtain the TTP.

c. Determine whether the family includes any ineligible noncitizens. IF YES, **continue.** IF NO, **go to e.**

d. Determine whether the family includes any citizens or eligible noncitizens. IF YES, **go to #6 (continuation of assistance).** IF NO, **go to #7 (temporary deferral).**

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

e. Obtain the Utility Allowance.

f. Determine whether Subsidy Type on Form HUD-50059 = PRAC. IF NO, **continue.** IF YES, **go to h.**

g. Subtract e. (Utility Allowance) from b. (TTP) or a. (Gross Rent), whichever is lower. This is the QC RENT. **Go to i.**

h. Subtract e. (Utility Allowance) from b. (TTP). This is the QC RENT.

i. Determine whether the QC RENT equals the ACTUAL RENT. IF YES, **no error.** IF NO, **dollar error.**

5. Manufactured Home Space Rental for Section 8 Vouchers

a. Obtain the Rent to Owner.

b. Obtain the owner maintenance and management charges for the space.

c. Obtain the Utility Allowance.

d. Add together a. (Rent to Owner), b. (owner maintenance and management charges), and c. (utility allowance). This is the Space Rent.

e. Obtain the TTP.

f. Obtain the Payment Standard.

g. Subtract f. (Payment Standard) from d. (Space Rent). If Space Rent is less than the Payment Standard, use 0.

h. Add e. (TTP) to g. (the amount by which the Space Rent exceeds the Payment Standard). This is the Family Share.

i. Determine whether this is the initial occupancy for this dwelling unit. (Item 12b on the Form HUD-50058). IF YES, **continue.** IF NO, **the Family Share equals h. Go to m.**

j. Obtain the household's Adjusted Monthly Income.

k. Calculate 40 percent of the household's Adjusted Monthly Income.

l. Determine whether k. (40 percent of Adjusted Monthly Income) is equal to or greater than h. (TTP plus Space Rent minus Payment Standard). IF YES, **the Family Share is equal to h.; go to m.** IF NO, **procedural error. The family is not entitled to assistance in this unit.**

m. Determine whether the family includes any ineligible noncitizens. IF YES, **continue.** IF NO, **go to o.**

n. Determine whether the family includes any citizens or eligible noncitizens. IF YES, **go to #6 (continuation of assistance).** IF NO, **go to #7 (temporary deferral).**

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

o. Subtract c. (Utility Allowance) from h. (Family Share) to determine Tenant Rent to Owner (QC RENT).

p. Determine whether any additional Moving to Work rent calculation policies apply. IF YES, **recalculate the tenant's rent (QC RENT) according to the policy outlined in the PHA ACOP, Administrative Plan, or Other Policy Guidance Documents; continue.** IF NO, **continue.**

q. Determine whether the QC RENT equals the ACTUAL RENT. IF YES, **no error.** IF NO, **dollar error.**

Special Calculations for Household with Ineligible Noncitizens

6. Continuation of Assistance

a. Determine whether the family was receiving assistance on June 19, 1995. IF YES, **continue.** IF NO, **the FAMILY is eligible for prorated assistance; go to #8 (proration formula for Public Housing).**

b. Determine whether the FAMILY head or spouse is a citizen or eligible noncitizen. IF YES, **continue.** IF NO, **the FAMILY is eligible for prorated assistance; go to #8 (proration formula for Public Housing).**

c. Determine whether the FAMILY includes any ineligible members other than the head, spouse, and child or parent of the head or spouse. IF NO, **continue.** IF YES, **the FAMILY is eligible for prorated assistance; go to #8 (proration formula for Public Housing).**

d. Determine whether the FAMILY was granted continuation of assistance before November 29, 1996. IF YES, **the FAMILY is eligible for full continuation of assistance. Return to MARKER for the appropriate program type.** IF NO, **the FAMILY is eligible for prorated assistance; go to #8 (proration formula for Public Housing).**

7. Temporary Deferral of Termination of Assistance

a. Determine whether Temporary Deferral of Termination of Assistance has been granted. IF YES, **continue.** IF NO, **go to c.**

b. Determine whether 18 months have passed since Temporary Deferral was granted. IF YES, **continue.** IF NO, **the Family continues to be eligible for Temporary Deferral of Termination of Assistance; return to MARKER for the appropriate program type.**

c. Determine whether the FAMILY includes a refugee under Section 207 of the Immigration and Naturalization Act or an individual seeking asylum under Section 208 of that Act. IF NO, **continue.** IF YES, **the Family is entitled to ongoing Deferral of Termination of Assistance; go to MARKER for the appropriate program type.**

d. Determine whether the FAMILY was receiving assistance on June 19, 1995. IF NO, **continue.** IF YES, **the Family is eligible for Temporary Deferral of Termination of Assistance; go to MARKER for the appropriate program type.**

e. Determine whether the FAMILY is exercising its hearing rights (waiting for a decision from INS or Public Housing Authority [PHA]/Owner appeal). IF NO, **continue.** IF YES, **go to MARKER for the appropriate program type.**

f. Determine whether the PHA is making reasonable efforts to evict. IF YES, **go to MARKER for the appropriate program type.** IF NO, **procedural error, HOUSEHOLD IS INELIGIBLE.**

8. Proration Formula for Public Housing

a. Determine whether this is a Public Housing case. IF YES, **continue.** IF NO, **go to #9 (proration formula for all Section 8 programs).**

b. Determine the number of FAMILY members.

c. Determine the number of eligible FAMILY members.

d. Obtain the TTP.

e. Obtain the 95th percentile of Gross Rents for similarly sized Public Housing units in order to determine the Public Housing maximum rent.[37]

f. Determine whether the Family pays a Flat Rent. IF YES, **continue.** IF NO, **go to i.**

g. Obtain the Flat Rent.

h. If g. (Flat Rent) is greater than or equal to e. (Maximum Rent), there is no prorated rent. Use the Flat Rent; **go to n.** If g. (Flat Rent) is less than the e. (Maximum Rent), subtract the Flat Rent from the Maximum Rent. This is the Family's Maximum Subsidy. **Go to j.**

i. Subtract d. (TTP) from e. (Maximum Rent) to determine Maximum Subsidy.

j. Divide h. or i. (Maximum Subsidy) by b. (number of FAMILY members) and multiply by c. (number of eligible FAMILY members) to determine the Eligible Subsidy for the FAMILY.

[37] If Maximum Rent is not available, Fair Market Rent is used as a substitution for Maximum Rent.

k. Subtract j. (Eligible Subsidy) from e. (Maximum Rent) to obtain the prorated TTP.

l. Obtain the Utility Allowance.

m. The amount of the tenant's rent (QC RENT) is k. (prorated TTP) minus l. (Utility Allowance).

n. Determine whether any additional Moving to Work rent calculation policies apply. IF YES, **recalculate the tenant's rent (QC RENT) according to the policy outlined in the PHA ACOP, Administrative Plan, or Other Policy Guidance Documents; continue.** IF NO, **continue.**

o. Determine whether the QC RENT equals the ACTUAL RENT. IF YES, **no error.** IF NO, **dollar error.**

9. Proration Formula for All Section 8 Programs

a. Obtain the Rent to Owner (Voucher).

b. Obtain the Utility Allowance.

c. Obtain the Gross Rent.
Voucher: Gross Rent = Rent to Owner plus the Utility Allowance.
Owner-administered: Gross Rent= Contract Rent plus the Utility Allowance.

d. Obtain the TTP.

e. Obtain the Payment Standard (Voucher).

f. Obtain the Housing Assistance Payment (HAP).
Owner-administered: HAP = Gross Rent minus TTP.
Voucher: HAP = Gross Rent or Payment Standard (whichever is less) minus the TTP.
Enhanced Voucher: HAP = Gross Rent minus the Payment Standard.

g. Record the number of FAMILY members.

h. Record the number of eligible FAMILY members.

i. Divide f. (HAP) by g. (total number of FAMILY members), and then multiply the result by h. (number of eligible FAMILY members) to obtain the prorated HAP.

j. Determine if Manufactured Home Space Rental. IF NO, **continue.** IF YES, **return to MARKER for the appropriate program type.**

k. Subtract i. (prorated HAP) from c. (Gross Rent) to obtain the prorated Family Share.

l. Subtract b. (Utility Allowance) from k. (prorated Family Share) to determine the prorated QC RENT.

m. *For PHA-administered Projects ONLY:* Determine whether any additional Moving to Work rent calculation policies apply. IF YES, **recalculate the tenant's prorated rent (QC RENT) according to the policy outlined in the PHA ACOP, Administrative Plan, or Other Policy Guidance Documents; continue.** IF NO, **continue.**

n. Determine whether the QC RENT equals the ACTUAL RENT. IF YES, **no error.** IF NO, **dollar error.**

Appendix B: Weighting Procedure

APPENDIX B: WEIGHTING PROCEDURE

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

Study Population. The universe of the HUD Quality Control for Rental Assistance Subsidy Determination Study included all projects and households located in the continental United States, Alaska, Hawaii, and Puerto Rico. In FY 2013, Moving to Work (MTW) Pubic Housing Authorities (PHAs) were included in the study population.

The following programs were included in the sample:

- PHA-administered Public Housing (Public Housing)
- PHA-administered Section 8 (PHA-administered Section 8)
  - Moderate Rehabilitation
  - Housing Choice Voucher (HCV) program
- Office of Housing-administered projects (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 initial universe files used to draw the sample occasionally reflected out-of-date or incorrect information, including out-of-scope projects such as demolished projects, projects undergoing renovation, projects that were no longer assisted, projects that had merged or split, and other special circumstances. Many of these projects were identified prior to drawing the sample; however, others were identified later during data collection. Depending on the circumstance of those identified during data collection, sampling decisions were made to either replace the project, to subselect the project, or to make adjustments during weighting. The use of replacement for out-of-scope projects complicated the sample weight calculations. The determination of an actual probability of selection for these replacements was impossible to make. A sampling weight that is proportional to what the probability would have been had the project been selected originally was used as a reasonable estimate.

Population Totals. In FY 2012, the population counts used to produce the weights were updated from those used in FY 2011. As programs may grow or shrink over time, it is desirable to update population counts for each study. Estimates of total dollar amounts and estimates of the proportion of the population represented by each program type run the risk of not being representative of the current population if the population counts are outdated or if the population changes significantly. Due to the inclusion of the MTW PHAs in FY 2012, the nature of the population itself had changed. Because the FY 2011 population totals and sample did not include the MTW population,

using them to produce FY 2012 weights would exclude the MTW population from the analysis and estimates without excluding them from the sample.

For FY 2013, the same population counts as those used in FY 2012 were used to produce the weights. The use of the same population counts from year to year has increased the comparability of gross dollar estimates; any change from year to year would not have been due to a change in the number of households in the program, but to an actual change in the average gross dollar error or percentage of households. Estimates of averages and percentages within program types have the advantage of being comparable regardless of changes in population counts from year to year. This approach of using the same population counts for multiple study years was used for FY 2005 through FY 2010 to allow for comparability across years.

The table below provides the population totals by program type for the FY 2012 and FY 2013 studies. Of the 384,036 additional units served by these programs in FY 2012, compared to FY 2011, 377,213 were a result of the addition of the MTW program in the sample frame.

Exhibit B-1
Population Totals Used for Weighting by Program Type

Administration Type	FY 2012 & FY 2013 Population
Public Housing, non-MTW	1,040,708
Public Housing, MTW	114,088
PHA-administered Section 8, non-MTW	1,935,597
PHA-administered Section 8, MTW	263,125
Owner-administered	1,378,158
Total	**4,731,676**

Weighting Methodology. The procedure to determine the final weights involved several steps, including calculating the project weight (w_1); calculating the household weight (w_3); accounting for ineligible households (f_e); accounting for nonresponding households (f_n); poststratifying (f_p); and, finally, trimming the weights.

1. Calculating the Project Weight (w_1). The first step to determine the final weights was calculating the project weight by compiling the sampling probabilities calculated during the cluster and project sampling and the initial data collection process. These probabilities were then used to calculate each project's probability of selection. The probability of selection of a project was the product of the following:

1) The probability of selection of the cluster (p_1)

2) The probability of selection of the subcluster if the cluster was divided (p_2)

3) The probability of selection of the project from its respective cluster (p_3)

Each cluster was sampled with probabilities proportional to size. The measure of size used was the number of households adjusted to obtain equal expectation for the three major types of programs in the study. The number of households of each program in a cluster was multiplied by an inflation factor to make all three numbers equal. The probability of selection of the cluster (p_1) was calculated in three steps. First, the proportion of the households in each of the three programs in a particular cluster was obtained. These proportions were defined as the number of households in each program within a cluster divided by the number nationwide (program's population count). The three proportions in each cluster were then averaged and finally multiplied by 60, the number of clusters to be selected nationwide.

In some instances, clusters were geographically too large to collect data in a cost-effective manner. To accommodate this logistical problem, clusters were divided into two or more subclusters or smaller geographic areas. A subcluster was then sampled from the group of subclusters using probabilities proportional to size. This resulted in the same probability that would have ensued had the division taken place before drawing the sample, or the probability of selection of the subcluster (p_2). If the cluster was not divided into smaller clusters, then the subcluster probability of selection was one. The formula to calculate the project weight was:

$$\left(w_1 = \frac{1}{minimum[p_1, 1] \times minimum[p_2, 1] \times minimum[p_3, 1]}\right)$$

Clusters with probabilities greater than one could have been selected more than once (Sampling with Minimal Replacement). These clusters were certainty clusters, meaning that their selection into the sample was guaranteed. For the purposes of calculating the project weight, the certainty clusters' probability of selection was set to one.

The probability of selection of a project from its respective cluster (p_3) was calculated in two steps. First, the number of households in a program type within a project was divided by the total number of households in a program type within the project's cluster. This proportion was then multiplied by the number of projects in a program type to be selected from the cluster. The PHA-administered Section 8 projects could have had a probability greater than one for sampling purposes (meaning they could be sampled more than once). However, for the other two major program types, if the calculated probability exceeded one, it was set to one and all the other probabilities were readjusted so that they added to the allocation for the program in the cluster. For weighting purposes, probabilities greater than one among PHA-administered Section 8 projects were set to one.

2. Calculating the Household Weight (w_3). The second step to determine the final weights was to calculate the household weight. To calculate the household weight, the number of households in the project (N_p) and the number of households sampled from the project (n_p) were identified. The household probability of selection within the sampled project was the number of sampled households divided by the number of households in the project (p_4):

$$\left(p_4 = \left(\frac{n_p}{N_p}\right)\right)$$

The household within project weight (w_2) was the inverse of the probability of selecting the household within the sampled project:

$$\left(w_2 = \frac{1}{p_4}\right)$$

The household base weight (w_3) was the product of the project weight and the household within project weight:

$$(w_3 = w_1 \times w_2)$$

3. Account for Ineligible Households (f_e). The third step in the weighting process was to account for ineligible households within the sampled project. To do this the number of eligible sampled households $\left(n_{p_e}\right)$ out of all the households sampled was needed. Then the ratio of eligible household over sampled households, or the eligibility factor, was calculated (f_e):

$$f_e = \frac{n_{p_e}}{n_p}$$

The eligibility-adjusted household weight (w_4) was the household base weight multiplied by the eligibility factor:

$$(w_4 = w_3 \times f_e)$$

4. Account for Nonresponding Households (f_n). The fourth step in the weighting process was to account for nonresponding households within the sampled project. To do this, the number of eligible households, the number of responding households (n_{p_r}) and the eligibility adjusted household weight was needed. The sum of the eligibility adjusted household weights for all eligible households in the project and the sum of eligibility adjusted household weights for only the responding households in a project was then calculated. A nonresponse adjustment factor (f_n) was calculated as:

$$f_n = \frac{\sum_{n_{p_e}} w_4}{\sum_{n_{p_r}} w_4}$$

The nonresponse, adjusted household weight (w_5) was the eligibility-adjusted household weight multiplied by the nonresponse adjustment factor:

$$(w_5 = w_4 \times f_n)$$

5. Poststratification (f_p). The fifth step in the weighting process was poststratification. The sample was designed to obtain similar numbers of households in each of the following three program types:

1) Public Housing projects

2) PHA-administered Section 8 projects

3) Owner-administered projects

Population totals for each of the programs were obtained from the FY 2013 sampling frame; however, the sampling frame totals did not correspond exactly to these population totals and required adjustments. The weights were adjusted to sum to the known external population totals, so the sum of the weights would have been the same had a different sample been selected. In the past, this was due partially to special circumstances, such as the exclusion of geographic areas affected by the 2005 hurricanes and the Owner-administered projects from Alaska excluded from the frame but included during the weighting process. In FY 2013, Alaska was included in the frame but was not selected.

To poststratify the weights, the nonresponse adjusted household weights within program type were summed to estimate the population totals from the HUD sample. For example, the sum of weights for all Owner-administered households in the sample is an estimate of the total number of Owner-administered households in the nation. A poststratification factor (f_p) was calculated by dividing the known external population totals ($N_{program\ type}$) by the estimated population totals from the HUD sample ($\sum_{program\ type} w_5$):

$$f_p = \frac{N_{program\ type}}{\sum_{program\ type} w_5}$$

A poststratification factor was calculated for each program type. This factor was then multiplied to the household weight within each program type, ensuring the sum of the household weights by program type is the same as the external population totals.

6. Trimming the Weights. The final step was the trimming of the weights. Weights more than three times the median weight were set to three times the median weight and all the weights were readjusted. Large weights usually resulted from incorrect frame information.

Effective Sample Size Due to Weighting. In FY 2013, the weights led to an effective sample size (because of the weighting) of 766 (down from an actual size of 799) for the Owner-administered projects, 711 for the Public Housing projects (down from 804), and 721 for the PHA-administered Section 8 projects (down from 799). The effective sample size is the size of a random sample which would yield confidence intervals of the same size as the current sample. The effective sample size will often be smaller than the actual sample, partly because of clustering and partly because of weighting.

Variance Estimation. Standard errors were obtained for a number of estimates using a delete-a-group Jackknife procedure. This was implemented by using 20 replicate groups and creating 20 sets of replicate weights. This procedure is available starting with SAS 9.2 and is considered more robust with respect to design characteristics than the Taylor Series method (Kott, 1998).

The 20 Largest PHAs Weighting. As in previous studies, the data for the 20 largest PHAs sample were not weighted. The sample is approximately a self-weighting sample. The term *self-weighting* refers to a sample where all units being sampled (in this case households) have the same weight, assuming that the frame is accurate and that a 100 percent response is achieved.

A self-weighting sample has several advantages, including:

- Permitting more precise estimates for the 20 largest PHAs. To the extent that the sample departs from equal weights, the design effect will increase, causing correspondingly less precise estimates.
- Permitting unweighted modeling involving the 20 largest PHAs. Such models are less expensive to produce and the results allow a more straightforward interpretation.
- Facilitating reporting because unweighted means and proportions for the sample will be estimates of the same means and proportions for the population, and the reporting of both a weighted and an unweighted mean will not confuse the reader.

Reference

Kott, P. S. (1998). Using the Delete-a-Group Jackknife Variance Estimator in Practice. *Proceedings of the Annual Meeting of the American Statistical Association, Section on Survey Research Methods* (pp. 763–768). Alexandria, VA: American Statistical Association.

Appendix C: Source Tables

Source Tables Based on Quality Control Data

HUDQC FY 2013
Table 1a. Verification of QC Rent Components
Third-Party Verbal or in Writing, Documentation, or EIV/UIV

Rent Component	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	61	(4.2%)	69	(4.8%)	1,310	(91.0%)
Pension, Etc.	5	(0.2%)	50	(1.8%)	2,734	(98.0%)
Public Assistance	18	(3.9%)			451	(96.1%)
Other Income	89	(9.1%)	33	(3.4%)	856	(87.5%)
Asset Income	10	(2.3%)	40	(9.2%)	388	(88.5%)
Child Care Expense	17	(9.4%)			167	(90.6%)
Disability Expense	3	(27.8%)			7	(72.2%)
Medical Expense	24	(2.0%)	55	(4.5%)	1,142	(93.5%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 1b. Verification of QC Rent Components
Third Party in Writing

Rent Component	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	940	(63.6%)	96	(6.5%)	442	(29.9%)
Pension, Etc.	2,256	(80.6%)	251	(9.0%)	291	(10.4%)
Public Assistance	412	(78.1%)	4	(0.8%)	111	(21.0%)
Other Income	823	(75.6%)	50	(4.6%)	216	(19.8%)
Asset Income	144	(32.2%)	111	(25.0%)	191	(42.8%)
Child Care Expense	115	(62.5%)			69	(37.5%)
Disability Expense	5	(57.5%)			4	(42.5%)
Medical Expense	338	(27.7%)	339	(27.7%)	544	(44.6%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 1c. Verification of QC Rent Components
Third Party in Writing or EIV/UIV

Rent Component	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	864	(58.4%)	100	(6.8%)	515	(34.8%)
Pension, Etc.	609	(21.8%)	395	(14.1%)	1,793	(64.1%)
Public Assistance	337	(63.9%)	4	(0.8%)	186	(35.3%)
Other Income	693	(63.7%)	58	(5.3%)	338	(31.0%)
Asset Income	144	(32.2%)	111	(25.0%)	191	(42.8%)
Child Care Expense	115	(62.5%)			69	(37.5%)
Disability Expense	5	(57.5%)			4	(42.5%)
Medical Expense	300	(24.6%)	330	(27.0%)	591	(48.4%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 1d. Verification of QC Rent Components
Third Party Verbal

Rent Component	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	1,464	(99.0%)	3	(0.2%)	11	(0.8%)
Pension, Etc.	2,791	(99.7%)	7	(0.3%)		
Public Assistance	514	(97.5%)	4	(0.8%)	9	(1.7%)
Other Income	1,070	(98.2%)	5	(0.5%)	14	(1.3%)
Asset Income	437	(97.9%)	9	(2.1%)		
Child Care Expense	178	(96.6%)			6	(3.4%)
Disability Expense	9	(100.0%)				
Medical Expense	1,194	(97.8%)	27	(2.2%)		

2014.09.16 [Weighted]

HUDQC FY 2013
Table 1e. Verification of QC Rent Components
Documentation

Rent Component	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	657	(44.4%)	108	(7.3%)	714	(48.3%)
Pension, Etc.	1,848	(66.0%)	365	(13.0%)	586	(20.9%)
Public Assistance	275	(52.2%)			252	(47.8%)
Other Income	569	(52.3%)	57	(5.2%)	463	(42.5%)
Asset Income	228	(51.2%)	110	(24.6%)	108	(24.2%)
Child Care Expense	93	(50.3%)			92	(49.7%)
Disability Expense	6	(70.3%)			3	(29.7%)
Medical Expense	658	(53.9%)	298	(24.4%)	265	(21.7%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 1f. Verification of QC Rent Components
EIV (Enterprise Income Verification)

Rent Component	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	1,467	(99.2%)	5	(0.4%)	6	(0.4%)
Pension, Etc.	1,030	(36.8%)	389	(13.9%)	1,379	(49.3%)
Public Assistance	527	(100.0%)				
Other Income	1,084	(99.5%)	3	(0.3%)	3	(0.2%)
Asset Income	446	(100.0%)				
Child Care Expense	185	(100.0%)				
Disability Expense	9	(100.0%)				
Medical Expense	1,156	(94.6%)	38	(3.1%)	28	(2.3%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 1g. Verification of QC Rent Components
UIV (Upfront Income Verification)

Rent Component	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	1,361	(94.6%)	23	(1.6%)	55	(3.8%)
Pension, Etc.	2,765	(99.1%)	24	(0.9%)		
Public Assistance	394	(84.0%)			75	(16.0%)
Other Income	846	(86.5%)	17	(1.7%)	115	(11.8%)
Medical Expense					3	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 2. Percent of Households by Payment Type and Program Type

Program Type		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
PHA-administered	Public Housing	123	(10.6%)	(22.2%)	884	(76.6%)	(24.0%)	148	(12.9%)	(29.8%)	1,155	(100.0%)	(24.4%)
	Section 8	290	(13.2%)	(52.4%)	1,689	(76.8%)	(45.9%)	220	(10.0%)	(44.0%)	2,199	(100.0%)	(46.5%)
	Total	412	(12.3%)	(74.6%)	2,573	(76.7%)	(69.9%)	368	(11.0%)	(73.6%)	3,354	(100.0%)	(70.9%)
Owner-administered	Owner-administered	141	(10.2%)	(25.4%)	1,106	(80.2%)	(30.1%)	132	(9.6%)	(26.4%)	1,378	(100.0%)	(29.1%)
	Total	141	(10.2%)	(25.4%)	1,106	(80.2%)	(30.1%)	132	(9.6%)	(26.4%)	1,378	(100.0%)	(29.1%)
Total		553	(11.7%)	(100.0)	3,679	(77.8%)	(100.0%)	500	(10.6%)	(100.0%)	4,732	(100.0%)	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 2(S). Percent of Households by Payment Type and Program Type
(Proper Payment Based on Exact Match of Actual and QC Rent)

Program Type		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
PHA-administered	Public Housing	159	(13.8%)	(20.4%)	770	(66.7%)	(25.0%)	225	(19.5%)	(25.9%)	1,155	(100.0%)	(24.4%)
	Section 8	420	(19.1%)	(53.9%)	1,368	(62.2%)	(44.4%)	410	(18.7%)	(47.1%)	2,199	(100.0%)	(46.5%)
	Total	580	(17.3%)	(74.4%)	2,139	(63.8%)	(69.4%)	635	(18.9%)	(73.0%)	3,354	(100.0%)	(70.9%)
Owner-administered	Owner-administered	200	(14.5%)	(25.6%)	943	(68.4%)	(30.6%)	235	(17.1%)	(27.0%)	1,378	(100.0%)	(29.1%)
	Total	200	(14.5%)	(25.6%)	943	(68.4%)	(30.6%)	235	(17.1%)	(27.0%)	1,378	(100.0%)	(29.1%)
Total		779	(16.5%)	(100.0%)	3,082	(65.1%)	(100.0%)	870	(18.4%)	(100.0%)	4,732	(100.0%)	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 3. Dollar Rent Error by Program Type

Program Type		Actual Rent (Monthly)				QC Rent (Monthly)				Gross Rent Error (Monthly)			
		# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount
PHA-administered	Public Housing	1,155	(24.4%)	311,108	269.40	1,155	(24.4%)	313,516	271.39	1,155	(24.4%)	14,826	12.84
	Section 8	2,199	(46.5%)	514,115	233.82	2,199	(46.5%)	517,767	235.49	2,199	(46.5%)	27,024	12.29
	Total	3,354	(70.9%)	825,222	246.08	3,354	(70.9%)	831,283	247.88	3,354	(70.9%)	41,850	12.48
Owner-administered	Owner-administered	1,378	(29.1%)	285,555	207.20	1,378	(29.1%)	286,757	208.07	1,378	(29.1%)	8,802	6.39
	Total	1,378	(29.1%)	285,555	207.20	1,378	(29.1%)	286,757	208.07	1,378	(29.1%)	8,802	6.39
Total		4,732	(100.0%)	1,110,777	234.75	4,732	(100.0%)	1,118,040	236.29	4,732	(100.0%)	50,652	10.70

2014.09.16 [Weighted]

HUDQC FY 2013
Table 4. Dollar Error Amount by Payment Type and Program Type

Program Type		Underpayment (Monthly)				Overpayment (Monthly)				QC Rent (Monthly)			
		# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount
PHA-administered	Public Housing	123	(22.2%)	8,637	70.36	148	(29.6%)	6,189	41.83	1,155	(24.4%)	313,516	271.39
	Section 8	290	(52.4%)	15,323	52.92	220	(44.0%)	11,702	53.15	2,199	(46.5%)	517,767	235.49
	Total	412	(74.6%)	23,960	58.11	368	(73.6%)	17,890	48.60	3,354	(70.9%)	831,283	247.88
Owner-administered	Owner-administered	141	(25.4%)	5,004	35.61	132	(26.4%)	3,798	28.83	1,378	(29.1%)	286,757	208.07
	Total	141	(25.4%)	5,004	35.61	132	(26.4%)	3,798	28.83	1,378	(29.1%)	286,757	208.07
Total		553	(100.0%)	28,964	52.39	500	(100.0%)	21,689	43.39	4,732	(100.0%)	1,118,040	236.29

2014.09.16 [Weighted]

HUDQC FY 2013
Table 4(S). Dollar Error Amount by Payment Type and Program Type
(Proper Payment Based on Exact Match of Actual and QC Rent)

Program Type		Underpayment (Monthly)				Overpayment (Monthly)				QC Rent (Monthly)			
		# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount
PHA-administered	Public Housing	159	(20.4%)	8,732	54.87	225	(25.9%)	6,324	28.08	1,155	(24.4%)	313,516	271.49
	Section 8	420	(53.9%)	15,648	37.22	410	(47.1%)	11,996	29.25	2,199	(46.5%)	517,767	235.49
	Total	580	(74.4%)	24,380	42.07	635	(73.0%)	18,319	28.83	3,354	(70.9%)	831,283	247.88
Owner-administered	Owner-administered	200	(25.6%)	5,166	25.84	235	(27.0%)	3,964	16.87	1,378	(29.1%)	286,757	208.07
	Total	200	(25.6%)	5,166	25.84	235	(27.0%)	3,964	16.87	1,378	(29.1%)	286,757	208.07
Total		779	(100.0%)	29,546	37.91	870	(100.0%)	22,284	25.60	4,732	(100.0%)	1,118,040	236.29

2014.09.16 [Weighted]

HUDQC FY 2013
Table 5. Gross and Net Rent Error by Program Type

Program Type		Gross Rent Error (Monthly)				Net Rent Error (Monthly)				QC Rent (Monthly)			
		# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount
PHA-administered	Public Housing	1,155	(24.4%)	14,826	12.84	1,155	(24.4%)	-2,448	-2.12	1,155	(24.4%)	313,516	271.49
	Section 8	2,199	(46.5%)	27,024	12.29	2,199	(46.5%)	-3,621	-1.65	2,199	(46.5%)	517,767	235.49
	Total	3,354	(70.9%)	41,850	12.48	3,354	(70.9%)	-6,069	-1.81	3,354	(70.9%)	831,283	247.88
Owner-administered	Owner-administered	1,378	(29.1%)	8,802	6.39	1,378	(29.1%)	-1,206	-0.87	1,378	(29.1%)	286,757	208.07
	Total	1,378	(29.1%)	8,802	6.39	1,378	(29.1%)	-1,206	-0.87	1,378	(29.1%)	286,757	208.07
Total		4,732	(100.0%)	50,652	10.70	4,732	(100.0%)	-7,275	-1.54	4,732	(100.0%)	1,118,040	236.29

2014.09.16 [Weighted]

HUDQC FY 2013
Table 5(S). Gross and Net Rent Error by Program Type
(Proper Payment Based on Exact Match of Actual and QC Rent)

Program Type		Gross Rent Error (Monthly)				Net Rent Error (Monthly)				QC Rent (Monthly)			
		# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount
PHA-administered	Public Housing	1,155	(24.4%)	15,055	13.04	1,155	(24.4%)	-2,408	-2.09	1,155	(24.4%)	313,516	271.49
	Section 8	2,199	(46.5%)	27,644	12.57	2,199	(46.5%)	-3,653	-1.66	2,199	(46.5%)	517,767	235.49
	Total	3,354	(70.9%)	42,699	12.73	3,354	(70.9%)	-6,061	-1.81	3,354	(70.9%)	831,283	247.88
Owner-administered	Owner-administered	1,378	(29.1%)	9,131	6.63	1,378	(29.1%)	-1,202	-0.87	1,378	(29.1%)	286,757	208.07
	Total	1,378	(29.1%)	9,131	6.63	1,378	(29.1%)	-1,202	-0.87	1,378	(29.1%)	286,757	208.07
Total		4,732	(100.0%)	51,830	10.95	4,732	(100.0%)	-7,262	-1.53	4,732	(100.0%)	1,118,040	236.29

2014.09.16 [Weighted]

HUDQC FY 2013

Table 6. Certifications and Recertifications by Administration Type

Program Type		Certifications			Recertifications/Non-Overdue			Recertifications/Overdue			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
PHA-administered	Public Housing	98	(8.5%)	(22.8%)	1,028	(89.0%)	(24.3%)	28	(2.4%)	(45.2%)	1,155	(100.0%)	(24.4%)
	Section 8	156	(7.1%)	(36.2%)	2,010	(91.4%)	(47.4%)	32	(1.5%)	(51.8%)	2,199	(100.0%)	(46.5%)
	Total	254	(7.6%)	(59.0%)	3,039	(90.6%)	(71.7%)	60	(1.8%)	(96.9%)	3,354	(100.0%)	(70.9%)
Owner-administered	Owner-administered	177	(12.8%)	(41.0%)	1,199	(87.0%)	(28.3%)	2	(0.1%)	(3.1%)	1,378	(100.0%)	(29.1%)
	Total	177	(12.8%)	(41.0%)	1,199	(87.0%)	(28.3%)	2	(0.1%)	(3.1%)	1,378	(100.0%)	(29.1%)
Total		431	(9.1%)	(100.0%)	4,238	(89.6%)	(100.0%)	62	(1.3%)	(100.0%)	4,732	(100.0%)	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013

Table 7. Percent of Newly Certified Households Meeting Certification Criteria

Certification Criteria	Met Criterion		Did Not Meet Criterion	
	# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households
Citizenship	431	(100.0%)		
Social Security Number	410	(95.2%)	21	(4.8%)
Consent Form	405	(94.0%)	26	(6.0%)
Low and Very Low Income	431	(100.0%)		
Meets All Eligibility Criteria	389	(90.3%)	42	(9.7%)

2014.09.16 [Weighted]

HUDQC FY 2013

Table 7b. Percent of Newly Certified Households Meeting Certification Criteria by Program Type

Certification Criteria		Met Criterion		Did Not Meet Criterion	
		# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households
Public Housing	Citizenship	98	(100.0%)		
	Social Security Number	96	(97.2%)	3	(2.8%)
	Consent Form	88	(88.9%)	11	(11.1%)
	Low and Very Low Income	98	(100.0%)		
	Meets All Eligibility Criteria	85	(86.1%)	14	(13.9%)
PHA-administered Section 8	Citizenship	156	(100.0%)		
	Social Security Number	151	(96.7%)	5	(3.3%)
	Consent Form	143	(91.7%)	13	(8.3%)
	Low and Very Low Income	156	(100.0%)		
	Meets All Eligibility Criteria	141	(90.2%)	15	(9.8%)
Owner-administered	Citizenship	177	(100.0%)		
	Social Security Number	164	(92.6%)	13	(7.4%)
	Consent Form	175	(98.9%)	2	(1.1%)
	Low and Very Low Income	177	(100.0%)		
	Meets All Eligibility Criteria	164	(92.6%)	13	(7.4%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 8. Dollar Error Amount by Payment Type and Case Type

Case Type		Underpayment (Monthly)				Overpayment (Monthly)				QC Rent (Monthly)			
		# of Cases (in 1,000s)	Col. % of Cases	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount	# of Cases (in 1,000s)	Col. % of Cases	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount	# of Cases (in 1,000s)	Col. % of Cases	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount
Certification	Total	59	(10.7%)	4,105	69.17	56	(11.2%)	2,497	44.78	431	(9.1%)	69,633	161.46
Recertification	Non-Overdue	478	(86.4%)	23,107	48.38	431	(86.2%)	16,170	37.54	4,238	(89.6%)	1,032,044	243.52
	Overdue	16	(2.9%)	1,752	110.28	13	(2.7%)	3,022	226.24	62	(1.3%)	16,363	262.28
	Total	493	(89.3%)	24,859	50.37	444	(88.8%)	19,192	43.22	4,300	(90.9%)	1,048,407	243.79
Total		553	(100.0%)	28,964	52.39	500	(100.0%)	21,689	43.39	4,732	(100.0%)	1,118,040	236.29

2014.09.16 [Weighted]

HUDQC FY 2013
Table 8(S). Dollar Error Amount by Payment Type and Case Type
(Proper Payment Based on Exact Match of Actual and QC Rent)

Case Type		Underpayment (Monthly)				Overpayment (Monthly)				QC Rent (Monthly)			
		# of Cases (in 1,000s)	Col. % of Cases	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount	# of Cases (in 1,000s)	Col. % of Cases	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount	# of Cases (in 1,000s)	Col. % of Cases	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount
Certification	Total	77	(9.9%)	4,149	53.70	83	(9.6%)	2,557	30.74	431	(9.1%)	69,633	161.46
Recertification	Non-Overdue	674	(86.5%)	23,599	35.01	770	(88.5%)	16,701	21.68	4,238	(89.6%)	1,032,044	243.52
	Overdue	28	(3.6%)	1,798	64.10	17	(2.0%)	3,026	178.15	62	(1.3%)	16,363	262.28
	Total	702	(90.1%)	25,397	36.17	787	(90.4%)	19,726	25.06	4,300	(90.9%)	1,048,407	243.79
Total		779	(100.0%)	29,546	37.91	870	(100.0%)	22,284	25.60	4,732	(100.0%)	1,118,040	236.29

2014.09.16 [Weighted]

HUDQC FY 2013
Table 9. Largest Component Error for Households With Rent Error (Annual Dollars)

Rent Component	# of Households (in 1,000s)	Col. % of Households	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount
Earned Income	280	(26.6%)	1,233,677	4,410
Pension, Etc.	181	(17.2%)	287,990	1,594
Public Assistance	49	(4.7%)	162,038	3,289
Other Income	159	(15.1%)	461,419	2,905
Asset Income	38	(3.6%)	28,100	733
Dependent Allowance	41	(3.9%)	20,838	512
Elderly Household Allowance	40	(3.8%)	16,128	400
Child Care Allowance	16	(1.5%)	29,817	1,879
Disability Allowance	2	(0.2%)	3,656	1,900
Medical Allowance	181	(17.2%)	155,927	863
No Error	66	(6.3%)	0	0
Total	1,053	(100.0%)	2,399,589	2,280

2014.09.16 [Weighted]

HUDQC FY 2013
Table 10. Total and Largest Dollar Error by Program Type for Households With Rent Errors

Program Type		Total Dollar In Error				Largest Dollar Error			
		# of Cases (in 1,000s)	Col. % of Cases	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount	# of Cases (in 1,000s)	Col. % of Cases	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount
PHA-administered	Public Housing	271	(25.7%)	898,531	3,319.36	271	(25.7%)	765,126	2,826.53
	Section 8	510	(48.4%)	1,460,505	2,865.35	510	(48.4%)	1,236,552	2,425.98
	Total	780	(74.1%)	2,359,036	3,022.83	780	(74.1%)	2,001,678	2,564.92
Owner-administered	Owner-administered	272	(25.9%)	463,825	1,703.57	272	(25.9%)	397,911	1,461.47
	Total	272	(25.9%)	463,825	1,703.57	272	(25.9%)	397,911	1,461.47
Total		1,053	(100.0%)	2,822,861	2,681.61	1,053	(100.0%)	2,299,589	2,279.52

2014.09.16 [Weighted]

HUDQC FY 2013
Table 11. QC Rent Components by Payment Type and Administration Type

Rent Component		PHA-administered			Owner-administered			Total		
		# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases
Underpayment	Earned Income	155	(4.6%)	(87.7%)	22	(1.6%)	(12.3%)	176	(3.7%)	(100.0%)
	Pension, Etc.	141	(4.2%)	(69.3%)	62	(4.5%)	(30.7%)	203	(4.3%)	(100.0%)
	Public Assistance	28	(0.8%)	(74.5%)	10	(0.7%)	(25.5%)	38	(0.8%)	(100.0%)
	Other Income	107	(3.2%)	(78.8%)	29	(2.1%)	(21.2%)	136	(2.9%)	(100.0%)
	Asset Income	17	(0.5%)	(46.3%)	19	(1.4%)	(53.7%)	36	(0.8%)	(100.0%)
	Dependent Allowance	24	(0.7%)	(94.0%)	2	(0.1%)	(6.0%)	26	(0.5%)	(100.0%)
	Elderly Household Allowance	16	(0.5%)	(83.5%)	3	(0.2%)	(16.5%)	19	(0.4%)	(100.0%)
	Child Care Allowance	3	(0.1%)	(35.0%)	5	(0.4%)	(65.0%)	7	(0.2%)	(100.0%)
	Disability Allowance									
	Medical Allowance	55	(1.6%)	(46.8%)	62	(4.5%)	(53.2%)	117	(2.5%)	(100.0%)
	No Error	28	(0.8%)	(89.6%)	3	(0.2%)	(10.4%)	31	(0.7%)	(100.0%)
Proper Payment	Earned Income	268	(8.0%)	(91.9%)	24	(1.7%)	(8.1%)	292	(6.2%)	(100.0%)
	Pension, Etc.	465	(13.9%)	(64.7%)	254	(18.4%)	(35.3%)	719	(15.2%)	(100.0%)
	Public Assistance	48	(1.4%)	(70.1%)	21	(1.5%)	(29.9%)	69	(1.5%)	(100.0%)
	Other Income	175	(5.2%)	(77.1%)	52	(3.8%)	(23.0%)	227	(4.8%)	(100.0%)
	Asset Income	101	(3.0%)	(59.9%)	68	(4.9%)	(40.1%)	169	(3.6%)	(100.0%)
	Dependent Allowance	38	(1.1%)	(100.0%)				38	(0.8%)	(100.0%)
	Elderly Household Allowance	55	(1.6%)	(94.1%)	3	(0.2%)	(5.9%)	58	(1.2%)	(100.0%)
	Child Care Allowance	10	(0.3%)	(100.0%)				10	(0.2%)	(100.0%)
	Disability Allowance	4	(0.1%)	(100.0%)				4	(0.1%)	(100.0%)
	Medical Allowance	155	(4.6%)	(45.2%)	188	(13.7%)	(54.8%)	344	(7.3%)	(100.0%)
	No Error	1,614	(48.1%)	(70.4%)	678	(49.2%)	(29.6%)	2,292	(48.4%)	(100.0%)

HUDQC FY 2013
Table 11. QC Rent Components by Payment Type and Administration Type (continued)

Rent Component		PHA-administered			Owner-administered			Total		
		# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases
Overpayment	Earned Income	124	(3.7%)	(82.0%)	27	(2.0%)	(18.0%)	152	(3.2%)	(100.0%)
	Pension, Etc.	85	(2.5%)	(64.0%)	48	(3.5%)	(36.0%)	133	(2.8%)	(100.0%)
	Public Assistance	29	(0.9%)	(85.4%)	5	(0.4%)	(14.6%)	34	(0.7%)	(100.0%)
	Other Income	67	(2.0%)	(88.6%)	9	(0.6%)	(11.2%)	76	(1.6%)	(100.0%)
	Asset Income	28	(0.8%)	(59.1%)	19	(1.4%)	(40.9%)	47	(1.0%)	(100.0%)
	Dependent Allowance	24	(0.7%)	(74.3%)	8	(.6%)	(25.7%)	32	(0.7%)	(100.0%)
	Elderly Household Allowance	35	(1.0%)	(66.0%)	18	(1.3%)	(34.0%)	53	(1.1%)	(100.0%)
	Child Care Allowance	18	(0.5%)	(91.5%)	2	(0.1%)	(8.5%)	20	(0.4%)	(100.0%)
	Disability Allowance				2	(0.1%)	(100.0%)	2	(0.0%)	(100.0%)
	Medical Allowance	72	(2.2%)	(56.8%)	55	(4.0%)	(43.2%)	127	(2.7%)	(100.0%)
	No Error	35	(1.1%)	(100.0%)				35	(0.7%)	(100.0%)
Total with Rent Error Calculation		3,354	(100.0%)	(70.9%)	1,378	(100.0%)	(29.1%)	4,732	(100.0%)	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 12a. Elderly/Disabled Allowances

Allowances	Non-Elderly/Disabled Household			Elderly/Disabled Household			Total		
	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases
No Allowance	2,124	(99.6%)	(100.0%)				2,124	(44.9%)	(100.0%)
Incorrect Allowance	9	(0.4%)	(6.6%)	121	(4.7%)	(93.4%)	130	(2.7%)	(100.0%)
Correct Allowance				2,478	(95.3%)	(100.0%)	2,478	(52.4%)	(100.0%)
Total	2,132	(100.0%)	(45.1%)	2,600	(100.0%)	(54.9%)	4,732	(100.0%)	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 12b. Dependent Allowances

Allowances	Households Without Dependent(s)			Households With Dependent(s)			Total		
	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases
No Allowance	2,614	(99.7%)	(100.0%)				2,614	(55.2%)	(100.0%)
Incorrect Allowance	8	(0.3%)	(8.5%)	88	(4.2%)	(91.5%)	96	(2.0%)	(100.0%)
Correct Allowance				2,022	(95.8%)	(100.0%)	2,022	(42.7%)	(100.0%)
Total	2,622	(100.0%)	(55.4%)	2,109	(100.0%)	(44.6%)	4,732	(100.0%)	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 13. Calculation Errors on Form HUD-50058/50059

Items	Form HUD-50058		Form HUD-50059		Total	
	# of Errors	# of Households (in 1,000s)	# of Errors	# of Households (in 1,000s)	# of Errors	# of Households (in 1,000s)
Household Composition	203	198			203	198
Net Family Assets and Income	430	304	147	72	577	376
Allowances and Adjusted Income	1,705	1,438			1,705	1,438
Family Rent and Subsidy Information	512	329			512	329

2014.09.16 [Weighted]

HUDQC FY 2013
Table 14. Consistency Errors on Form HUD-50058/50059

Items	Form HUD-50058		Form HUD-50059		Total	
	# of Errors	# of Households (in 1,000s)	# of Errors	# of Households (in 1,000s)	# of Errors	# of Households (in 1,000s)
General Information	51	51	152	108	203	159
Household Composition	239	123	347	301	586	425
Net Family Assets and Income	149	100			149	100
Allowances and Adjusted Income	261	255			261	255
Family Rent and Subsidy Information	113	113	8	8	121	121

2014.09.16 [Weighted]

HUDQC FY 2013
Table 15a. Verification of Form HUD-50058/50059 Rent Components
Third-Party Verbal or in Writing, Documentation, or EIV

Rent Component	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	212	(14.5%)	323	(22.0%)	930	(63.5%)	1,465	(100.0%)
Pension, Etc.	101	(3.6%)	334	(11.9%)	2,360	(84.4%)	2,795	(100.0%)
Public Assistance	90	(17.3%)	47	(8.9%)	386	(73.8%)	523	(100.0%)
Other Income	255	(23.9%)	193	(18.1%)	619	(58.0%)	1,066	(100.0%)
Asset Income	57	(13.3%)	56	(13.1%)	318	(73.6%)	431	(100.0%)
Child Care Expense	20	(11.7%)	10	(5.9%)	143	(82.3%)	174	(100.0%)
Disability Expense	3	(48.4%)	3	(51.6%)			5	(100.0%)
Medical Expense	102	(10.8%)	198	(20.9%)	648	(68.3%)	948	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 15b. Verification of Form HUD-50058/50059 Rent Components
Third Party in Writing

Rent Component	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	1,117	(76.2%)	69	(4.7%)	280	(19.1%)	1,465	(100.0%)
Pension, Etc.	2,761	(98.8%)	8	(0.3%)	26	(0.9%)	2,795	(100.0%)
Public Assistance	447	(85.4%)			76	(14.6%)	523	(100.0%)
Other Income	912	(85.5%)	19	(1.8%)	136	(12.7%)	1,066	(100.0%)
Asset Income	260	(60.4%)	13	(2.9%)	158	(36.6%)	431	(100.0%)
Child Care Expense	122	(70.4%)	2	(1.0%)	50	(28.6%)	174	(100.0%)
Disability Expense	5	(100.0%)					5	(100.0%)
Medical Expense	846	(89.2%)	10	(1.0%)	93	(9.8%)	948	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 15c. Verification of Form HUD-50058/50059 Rent Components
Third Party in Writing or EIV/UIV

Rent Component	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	1,038	(70.9%)	106	(7.2%)	321	(21.9%)	1,465	(100.0%)
Pension, Etc.	1,163	(41.6%)	137	(4.9%)	1,495	(53.5%)	2,795	(100.0%)
Public Assistance	368	(70.3%)	16	(3.0%)	139	(26.6%)	523	(100.0%)
Other Income	788	(73.9%)	47	(4.4%)	231	(21.6%)	1,066	(100.0%)
Asset Income	260	(60.4%)	13	(2.9%)	158	(36.6%)	431	(100.0%)
Child Care Expense	122	(70.4%)	2	(1.0%)	50	(28.6%)	174	(100.0%)
Disability Expense	5	(100.0%)					5	(100.0%)
Medical Expense	708	(74.6%)	46	(4.8%)	195	(20.6%)	948	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 15d. Verification of Form HUD-50058/50059 Rent Components
Third Party Verbal

Rent Component	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	1,454	(99.2%)			11	(0.8%)	1,465	(100.0%)
Pension, Etc.	2,795	(100.0%)					2,795	(100.0%)
Public Assistance	512	(97.8%)			11	(2.2%)	523	(100.0%)
Other Income	1,051	(98.5%)	3	(0.3%)	13	(1.2%)	1,066	(100.0%)
Asset Income	431	(100.0%)					431	(100.0%)
Child Care Expense	167	(96.4%)			6	(3.6%)	174	(100.0%)
Disability Expense	5	(100.0%)					5	(100.0%)
Medical Expense	945	(99.7%)			3	(0.3%)	948	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 15e. Verification of Form HUD-50058/50059 Rent Components
Documentation

Rent Component	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	686	(46.8%)	199	(13.6%)	580	(39.6%)	1,465	(100.0%)
Pension, Etc.	2,031	(72.7%)	98	(3.5%)	666	(23.8%)	2,795	(100.0%)
Public Assistance	259	(49.5%)	31	(5.9%)	233	(44.6%)	523	(100.0%)
Other Income	580	(54.4%)	133	(12.5%)	353	(33.1%)	1,066	(100.0%)
Asset Income	286	(66.3%)	34	(8.0%)	111	(25.7%)	431	(100.0%)
Child Care Expense	78	(45.0%)	9	(4.9%)	87	(50.1%)	174	(100.0%)
Disability Expense	3	(48.4%)	3	(51.6%)			5	(100.0%)
Medical Expense	551	(58.1%)	108	(11.4%)	289	(30.5%)	948	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 15f. Verification of Form HUD-50058/50059 Rent Components
EIV (Enterprise Income Verification)

Rent Component	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	1,452	(99.1%)	13	(0.9%)			1,465	(100.0%)
Pension, Etc.	1,275	(45.6%)	114	(4.1%)	1,406	(50.3%)	2,795	(100.0%)
Public Assistance	523	(100.0%)					523	(100.0%)
Other Income	1,064	(99.7%)	1	(0.1%)	2	(0.1%)	1,066	(100.0%)
Asset Income	431	(100.0%)					431	(100.0%)
Child Care Expense	174	(100.0%)					174	(100.0%)
Disability Expense	5	(100.0%)					5	(100.0%)
Medical Expense	843	(88.9%)	28	(3.0%)	77	(8.1%)	948	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 15g. Verification of Form HUD-50058/50059 Rent Components
UIV (Upfront Income Verification)

Rent Component	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	1,403	(95.8%)	23	(1.6%)	38	(2.6%)	1,465	(100.0%)
Pension, Etc.	2,792	(99.9%)	1	(0.1%)	1	(0.1%)	2,795	(100.0%)
Public Assistance	444	(85.0%)	16	(3.0%)	63	(12.0%)	523	(100.0%)
Other Income	950	(89.1%)	25	(2.3%)	92	(8.6%)	1,066	(100.0%)
Asset Income	431	(100.0%)					431	(100.0%)
Child Care Expense	174	(100.0%)					174	(100.0%)
Disability Expense	5	(100.0%)					5	(100.0%)
Medical Expense	942	(99.4%)	3	(0.3%)	3	(0.3%)	948	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 15h. Verification of Form HUD-50058/50059 Rent Components
Third-Party Verbal or in Writing, Documentation, or EIV

Rent Component by Program Type		No Verification		Verification				Total	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Public Housing	Earned Income	72	(17.4%)	126	(30.5%)	215	(52.1%)	414	(100.0%)
	Pension, Etc.	42	(6.7%)	87	(13.7%)	503	(79.6%)	633	(100.0%)
	Public Assistance	28	(21.5%)	18	(13.9%)	85	(64.6%)	132	(100.0%)
	Other Income	93	(37.3%)	41	(16.5%)	116	(46.2%)	251	(100.0%)
	Asset Income	13	(17.9%)	8	(10.5%)	52	(71.6%)	73	(100.0%)
	Child Care Expense	12	(34.4%)	3	(9.3%)	19	(56.3%)	34	(100.0%)
	Medical Expense	25	(14.0%)	64	(35.1%)	92	(50.9%)	182	(100.0%)
PHA-administered Section 8	Earned Income	107	(13.2%)	158	(19.4%)	546	(67.3%)	812	(100.0%)
	Pension, Etc.	38	(3.2%)	143	(11.8%)	1,027	(85.0%)	1,208	(100.0%)
	Public Assistance	36	(13.4%)	27	(10.0%)	209	(76.7%)	272	(100.0%)
	Other Income	112	(19.6%)	118	(20.8%)	340	(59.6%)	570	(100.0%)
	Asset Income	17	(16.8%)	18	(18.0%)	66	(65.2%)	101	(100.0%)
	Child Care Expense	5	(4.6%)	5	(5.1%)	95	(90.3%)	105	(100.0%)
	Disability Expense	3	(48.4%)	3	(51.6%)			5	(100.0%)
	Medical Expense	46	(17.5%)	60	(22.5%)	159	(60.0%)	266	(100.0%)
Owner-administered	Earned Income	33	(13.6%)	39	(16.4%)	168	(70.0%)	240	(100.0%)
	Pension, Etc.	21	(2.2%)	104	(10.9%)	829	(86.9%)	953	(100.0%)
	Public Assistance	26	(21.6%)	1	(1.1%)	92	(77.3%)	119	(100.0%)
	Other Income	49	(20.1%)	33	(13.3%)	163	(66.5%)	245	(100.0%)
	Asset Income	27	(10.6%)	30	(11.8%)	199	(77.6%)	257	(100.0%)
	Child Care Expense	4	(11.1%)	2	(5.1%)	29	(83.8%)	35	(100.0%)
	Medical Expense	30	(6.0%)	75	(14.9%)	396	(79.1%)	501	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 15i. Verification of Form HUD-50058/50059 Rent Components
Third Party in Writing

Rent Component by Program Type		Verification						Total	
		No Verification		Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Public Housing	Earned Income	289	(69.9%)	31	(7.5%)	94	(22.7%)	414	(100.0%)
	Pension, Etc.	629	(99.5%)			3	(0.5%)	633	(100.0%)
	Public Assistance	111	(84.3%)			21	(15.7%)	132	(100.0%)
	Other Income	224	(89.3%)	10	(4.0%)	17	(6.7%)	251	(100.0%)
	Asset Income	48	(66.0%)			25	(34.0%)	73	(100.0%)
	Child Care Expense	26	(76.3%)			8	(23.7%)	34	(100.0%)
	Medical Expense	176	(96.9%)	3	(1.7%)	2	(1.4%)	182	(100.0%)
PHA-administered Section 8	Earned Income	692	(85.3%)	25	(3.1%)	94	(11.6%)	812	(100.0%)
	Pension, Etc.	1,186	(98.2%)	8	(0.6%)	14	(1.2%)	1,208	(100.0%)
	Public Assistance	259	(94.9%)			14	(5.1%)	272	(100.0%)
	Other Income	507	(89.0%)	5	(0.9%)	58	(10.1%)	570	(100.0%)
	Asset Income	83	(81.5%)	3	(2.6%)	16	(15.9%)	101	(100.0%)
	Child Care Expense	80	(76.1%)			25	(23.9%)	105	(100.0%)
	Disability Expense	5	(100.0%)					5	(100.0%)
	Medical Expense	247	(92.9%)			19	(7.1%)	266	(100.0%)
Owner-administered	Earned Income	136	(56.6%)	12	(5.2%)	92	(38.3%)	240	(100.0%)
	Pension, Etc.	945	(99.1%)			9	(0.9%)	953	(100.0%)
	Public Assistance	77	(64.7%)			42	(35.3%)	119	(100.0%)
	Other Income	181	(73.6%)	4	(1.5%)	61	(24.9%)	245	(100.0%)
	Asset Income	130	(50.5%)	10	(3.9%)	117	(45.6%)	257	(100.0%)
	Child Care Expense	16	(47.2%)	2	(5.1%)	17	(47.8%)	35	(100.0%)
	Medical Expense	423	(84.4%)	7	(1.3%)	71	(14.3%)	501	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 15j. Verification of Form HUD-50058/50059 Rent Components
Third Party in Writing or EIV/UIV

Rent Component by Program Type		Verification						Total	
		No Verification		Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Public Housing	Earned Income	265	(64.1%)	51	(12.2%)	98	(23.7%)	414	(100.0%)
	Pension, Etc.	310	(49.0%)	36	(5.7%)	286	(45.2%)	633	(100.0%)
	Public Assistance	81	(61.5%)	5	(3.9%)	46	(34.6%)	132	(100.0%)
	Other Income	189	(75.3%)	20	(7.9%)	42	(16.7%)	251	(100.0%)
	Asset Income	48	(66.0%)			25	(34.0%)	73	(100.0%)
	Child Care Expense	26	(76.3%)			8	(23.7%)	34	(100.0%)
	Medical Expense	133	(73.2%)	24	(13.4%)	24	(13.4%)	182	(100.0%)
PHA-administered Section 8	Earned Income	650	(80.0%)	40	(4.9%)	122	(15.1%)	812	(100.0%)
	Pension, Etc.	433	(35.8%)	64	(5.3%)	712	(58.9%)	1,208	(100.0%)
	Public Assistance	215	(78.9%)	11	(4.0%)	47	(17.1%)	272	(100.0%)
	Other Income	432	(75.8%)	22	(3.9%)	116	(20.3%)	570	(100.0%)
	Asset Income	83	(81.5%)	3	(2.6%)	16	(15.9%)	101	(100.0%)
	Child Care Expense	80	(76.1%)			25	(23.9%)	105	(100.0%)
	Disability Expense	5	(100.0%)					5	(100.0%)
	Medical Expense	219	(82.3%)	7	(2.8%)	40	(14.9%)	266	(100.0%)
Owner-administered	Earned Income	124	(51.6%)	15	(6.5%)	101	(41.9%)	240	(100.0%)
	Pension, Etc.	420	(44.0%)	36	(3.8%)	497	(52.1%)	953	(100.0%)
	Public Assistance	72	(60.5%)			47	(39.5%)	119	(100.0%)
	Other Income	167	(68.2%)	5	(2.2%)	73	(29.6%)	245	(100.0%)
	Asset Income	130	(50.5%)	10	(3.9%)	117	(45.6%)	257	(100.0%)
	Child Care Expense	16	(47.2%)	2	(5.1%)	17	(47.8%)	35	(100.0%)
	Medical Expense	356	(71.1%)	14	(2.8%)	131	(26.2%)	501	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 15k. Verification of Form HUD-50058/50059 Rent Components
Third-Party Verbal

Rent Component by Program Type		Verification						Total	
		No Verification		Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Public Housing	Earned Income	408	(98.7%)			5	(1.3%)	414	(100.0%)
	Pension, Etc.	633	(100.0%)					633	(100.0%)
	Public Assistance	131	(99.0%)			1	(1.0%)	132	(100.0%)
	Other Income	248	(98.9%)			3	(1.1%)	251	(100.0%)
	Asset Income	73	(100.0%)					73	(100.0%)
	Child Care Expense	31	(91.8%)			3	(8.2%)	34	(100.0%)
	Medical Expense	182	(100.0%)					182	(100.0%)
PHA-administered Section 8	Earned Income	809	(99.6%)			3	(0.4%)	812	(100.0%)
	Pension, Etc.	1,208	(100.0%)					1,208	(100.0%)
	Public Assistance	262	(96.3%)			10	(3.7%)	272	(100.0%)
	Other Income	565	(99.0%)	3	(0.5%)	3	(0.5%)	570	(100.0%)
	Asset Income	101	(100.0%)					101	(100.0%)
	Child Care Expense	103	(97.9%)			2	(2.1%)	105	(100.0%)
	Disability Expense	5	(100.0%)					5	(100.0%)
	Medical Expense	263	(98.9%)			3	(1.1%)	266	(100.0%)
Owner-administered	Earned Income	237	(98.7%)			3	(1.3%)	240	(100.0%)
	Pension, Etc.	953	(100.0%)					953	(100.0%)
	Public Assistance	119	(100.0%)					119	(100.0%)
	Other Income	238	(97.1%)			7	(2.9%)	245	(100.0%)
	Asset Income	257	(100.0%)					257	(100.0%)
	Child Care Expense	33	(96.4%)			1	(3.6%)	35	(100.0%)
	Medical Expense	501	(100.0%)					501	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 15l. Verification of Form HUD-50058/50059 Rent Components Documentation

Rent Component by Program Type		No Verification		Verification				Total	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Public Housing	Earned Income	242	(58.6%)	68	(16.5%)	103	(24.9%)	414	(100.0%)
	Pension, Etc.	425	(67.2%)	30	(4.7%)	178	(28.1%)	633	(100.0%)
	Public Assistance	80	(60.9%)	13	(10.0%)	38	(29.0%)	132	(100.0%)
	Other Income	165	(65.8%)	22	(8.6%)	64	(25.6%)	251	(100.0%)
	Asset Income	46	(63.1%)	6	(8.6%)	21	(28.3%)	73	(100.0%)
	Child Care Expense	23	(66.2%)	3	(9.3%)	8	(24.4%)	34	(100.0%)
	Medical Expense	92	(50.6%)	29	(16.2%)	60	(33.2%)	182	(100.0%)
PHA-administered Section 8	Earned Income	286	(35.3%)	110	(13.6%)	415	(51.1%)	812	(100.0%)
	Pension, Etc.	926	(76.6%)	38	(3.2%)	244	(20.2%)	1,208	(100.0%)
	Public Assistance	104	(38.2%)	16	(6.0%)	152	(55.8%)	272	(100.0%)
	Other Income	273	(47.9%)	88	(15.4%)	209	(36.7%)	570	(100.0%)
	Asset Income	41	(40.6%)	14	(14.2%)	46	(45.3%)	101	(100.0%)
	Child Care Expense	32	(30.6%)	5	(5.1%)	67	(64.3%)	105	(100.0%)
	Disability Expense	3	(48.4%)	3	(51.6%)			5	(100.0%)
	Medical Expense	122	(46.0%)	48	(18.2%)	95	(35.8%)	266	(100.0%)
Owner-administered	Earned Income	158	(65.7%)	21	(8.6%)	62	(25.6%)	240	(100.0%)
	Pension, Etc.	679	(71.3%)	30	(3.1%)	244	(25.6%)	953	(100.0%)
	Public Assistance	74	(62.5%)	1	(1.1%)	43	(36.4%)	119	(100.0%)
	Other Income	142	(57.8%)	24	(9.7%)	80	(32.6%)	245	(100.0%)
	Asset Income	199	(77.4%)	14	(5.3%)	44	(17.3%)	257	(100.0%)
	Child Care Expense	23	(67.5%)			11	(32.5%)	35	(100.0%)
	Medical Expense	337	(67.2%)	30	(6.1%)	134	(26.7%)	501	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 15m. Verification of Form HUD-50058/50059 Rent Components
EIV (Enterprise Income Verification)

Rent Component by Program Type		Verification						Total	
		No Verification		Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Public Housing	Earned Income	404	(97.8%)	9	(2.2%)			414	(100.0%)
	Pension, Etc.	323	(51.1%)	33	(5.2%)	276	(43.7%)	633	(100.0%)
	Public Assistance	132	(100.0%)					132	(100.0%)
	Other Income	248	(98.9%)	1	(0.4%)	2	(0.6%)	251	(100.0%)
	Asset Income	73	(100.0%)					73	(100.0%)
	Child Care Expense	34	(100.0%)					34	(100.0%)
	Medical Expense	140	(77.3%)	19	(10.7%)	22	(12.0%)	182	(100.0%)
PHA-administered Section 8	Earned Income	809	(99.7%)	2	(0.3%)			812	(100.0%)
	Pension, Etc.	480	(39.7%)	53	(4.4%)	675	(55.9%)	1,208	(100.0%)
	Public Assistance	272	(100.0%)					272	(100.0%)
	Other Income	570	(100.0%)					570	(100.0%)
	Asset Income	101	(100.0%)					101	(100.0%)
	Child Care Expense	105	(100.0%)					105	(100.0%)
	Disability Expense	5	(100.0%)					5	(100.0%)
	Medical Expense	243	(91.3%)	5	(1.8%)	18	(6.9%)	266	(100.0%)
Owner-administered	Earned Income	238	(99.4%)	1	(0.6%)			240	(100.0%)
	Pension, Etc.	471	(49.4%)	28	(2.9%)	454	(47.6%)	953	(100.0%)
	Public Assistance	119	(100.0%)					119	(100.0%)
	Other Income	245	(100.0%)					245	(100.0%)
	Asset Income	257	(100.0%)					257	(100.0%)
	Child Care Expense	35	(100.0%)					35	(100.0%)
	Medical Expense	460	(91.8%)	4	(0.8%)	37	(7.4%)	501	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 15n. Verification of Form HUD-50058/50059 Rent Components
UIV (Upfront Income Verification)

Rent Component by Program Type		Verification						Total	
		No Verification		Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Public Housing	Earned Income	401	(97.1%)	9	(2.3%)	3	(0.7%)	414	(100.0%)
	Pension, Etc.	630	(99.5%)	1	(0.2%)	1	(0.2%)	633	(100.0%)
	Public Assistance	102	(77.2%)	5	(3.9%)	25	(18.9%)	132	(100.0%)
	Other Income	219	(87.2%)	9	(3.4%)	24	(9.4%)	251	(100.0%)
	Asset Income	73	(100.0%)					73	(100.0%)
	Child Care Expense	34	(100.0%)					34	(100.0%)
	Medical Expense	182	(100.0%)					182	(100.0%)
PHA-administered Section 8	Earned Income	771	(95.0%)	12	(1.5%)	28	(3.5%)	812	(100.0%)
	Pension, Etc.	1,208	(100.0%)					1,208	(100.0%)
	Public Assistance	229	(84.0%)	11	(4.0%)	33	(12.1%)	272	(100.0%)
	Other Income	498	(87.3%)	14	(2.5%)	58	(10.2%)	570	(100.0%)
	Asset Income	101	(100.0%)					101	(100.0%)
	Child Care Expense	105	(100.0%)					105	(100.0%)
	Disability Expense	5	(100.0%)					5	(100.0%)
	Medical Expense	262	(98.5%)	3	(1.0%)	1	(0.5%)	266	(100.0%)
Owner-administered	Earned Income	231	(96.3%)	2	(0.7%)	7	(3.0%)	240	(100.0%)
	Pension, Etc.	953	(100.0%)					953	(100.0%)
	Public Assistance	114	(95.8%)			5	(4.2%)	119	(100.0%)
	Other Income	233	(95.2%)	2	(0.7%)	10	(4.1%)	245	(100.0%)
	Asset Income	257	(100.0%)					257	(100.0%)
	Child Care Expense	35	(100.0%)					35	(100.0%)
	Medical Expense	499	(99.6%)			2	(0.4%)	501	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013

Table 16a. QC Rent Component for Households With QC Rent Error (>$5)

Rent Component		Form HUD-50058		Form HUD-50059		Total	
		# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households
Earned Income	No Error	3,074	(91.7%)	1,329	(96.4%)	4,404	(93.1%)
	With Error	279	(8.3%)	49	(3.6%)	328	(6.9%)
Pension, Etc.	No Error	3,128	(93.3%)	1,268	(92.0%)	4,396	(92.9%)
	With Error	226	(6.7%)	110	(8.0%)	336	(7.1%)
Public Assistance	No Error	3,296	(98.3%)	1,363	(98.9%)	4,660	(98.5%)
	With Error	57	(1.7%)	15	(1.1%)	72	(1.5%)
Other Income	No Error	3,179	(94.8%)	1,341	(97.3%)	4,519	(95.5%)
	With Error	175	(5.2%)	38	(2.7%)	212	(4.5%)
Asset Income	No Error	3,309	(98.7%)	1,340	(97.2%)	4,649	(98.2%)
	With Error	44	(1.3%)	39	(2.8%)	83	(1.8%)
Child Care Expense	No Error	3,333	(99.4%)	1,372	(99.5%)	4,705	(99.4%)
	With Error	21	(0.6%)	7	(0.5%)	27	(0.6%)
Disability Expense	No Error	3,351	(99.9%)	1,374	(99.7%)	4,725	(99.9%)
	With Error	3	(0.1%)	4	(0.3%)	6	(0.1%)
Medical Expense	No Error	3,205	(95.6%)	1,260	(91.4%)	4,465	(94.4%)
	With Error	148	(4.4%)	119	(8.6%)	267	(5.6%)
All Components	No Error	2,686	(80.1%)	1,121	(81.4%)	3,807	(80.5%)
	With Error	668	(19.9%)	257	(18.6%)	925	(19.5%)
Total		3,354	(100.0%)	1,378	(100.0%)	4,732	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013

Table 16b. QC Error Households With Missing Verification in Tenant File

Rent Component		Form HUD-50058		Form HUD-50059		Total	
		# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households
Earned Income	Verified	124	(44.5%)	27	(54.8%)	151	(46.0%)
	Not Verified	155	(55.5%)	22	(45.2%)	177	(54.0%)
Pension, Etc.	Verified	154	(68.2%)	91	(82.5%)	245	(72.9%)
	Not Verified	72	(31.8%)	19	(17.5%)	91	(27.1%)
Public Assistance	Verified	24	(41.1%)	4	(28.9%)	28	(38.6%)
	Not Verified	34	(58.9%)	10	(71.1%)	44	(61.4%)
Other Income	Verified	100	(57.2%)	16	(42.1%)	116	(54.5%)
	Not Verified	75	(42.8%)	22	(57.9%)	97	(45.5%)
Asset Income	Verified	22	(49.8%)	18	(45.5%)	40	(47.8%)
	Not Verified	22	(50.2%)	21	(54.5%)	43	(52.2%)
Child Care Expense	Verified	9	(45.9%)	2	(27.1%)	11	(41.4%)
	Not Verified	11	(54.1%)	5	(72.9%)	16	(58.6%)
Disability Expense	Not Verified	3	(100.0%)	4	(100.0%)	6	(100.0%)
Medical Expense	Verified	51	(34.2%)	38	(31.7%)	88	(33.0%)
	Not Verified	98	(65.8%)	81	(68.3%)	179	(67.0%)

2014.09.16 [Weighted]

HUDQC FY 2013

Table 17a. Administrative Error: Number and Percent of Households, Average Dollars in Error For Non-MTW Households With Recalculated Form HUD-50058/50059 Rent Error by Administrative Error Type

Error Type	Non-MTW Households with Recalculated Form HUD-50058/50059 Rent Error		
	# of Households in Error	% of Households in Error	Average Gross Dollar Error
Transcription Error	123	(52.8%)	41.92
No Transcription Error	109	(47.2%)	29.29
Consistency Error	43	(18.4%)	53.95
No Consistency Error	189	(81.6%)	31.89
Allowances Calculation Error	16	(6.9%)	56.66
No Allowances Calculation Error	216	(93.1%)	34.43
Income Calculation Error	15	(6.4%)	82.18
No Income Calculation Error	217	(93.6%)	32.81
Other Calculation Error	18	(7.8%)	38.19
No Other Calculation Error	214	(92.2%)	35.77
Overdue Recertification	10	(4.1%)	50.37
On-time Recertification	195	(83.9%)	36.54
Certification	28	(12.0%)	26.99
Any Administrative/Procedural Error	129	(55.8%)	41.62
No Administrative/Procedural Error	103	(44.2%)	28.82
Total Households	232	(100.0%)	35.96

Note: Data presented above exclude Moving to Work households.

2014.09.16 [Weighted]

HUDQC FY 2013
Table 17b. Administrative Error: Number and Percent of Households, Average Dollars in Error For Households With QC Rent Error by Administrative Error Type

Error Type	Households with QC Rent Error		
	# of Households in Error	% of Households in Error	Average Gross Dollar Error
Transcription Error	909	(83.4%)	46.41
No Transcription Error	181	(16.6%)	47.94
Consistency Error	252	(23.2%)	32.32
No Consistency Error	837	(76.8%)	50.99
Allowances Calculation Error	47	(4.3%)	68.06
No Allowances Calculation Error	1,042	(95.7%)	45.70
Income Calculation Error	37	(3.4%)	32.77
No Income Calculation Error	1,053	(96.6%)	47.15
Other Calculation Error	69	(6.3%)	99.41
No Other Calculation Error	1,021	(93.7%)	43.12
Overdue Recertification	29	(2.7%)	163.25
On-time Recertification	939	(86.2%)	41.99
Certification	121	(11.1%)	54.72
Any Administrative/Procedural Error	964	(88.5%)	47.38
No Administrative/Procedural Error	125	(11.5%)	41.16
Total Households	1,089	(100.0%)	46.66

2014.09.16 [Weighted]

HUDQC FY 2013
Table 18. Administrative Error: Number and Percent of Households, Average Dollars in Error For All Households by Administrative Error Type

Error Type	Gross QC Rent Error			Net QC Rent Error		
	# of Households	% of Households	Average Dollar Error	# of Households	% of Households	Average Dollar Error
Transcription Error	2,217	(46.9%)	19.38	2,217	(46.9%)	-3.23
No Transcription Error	2,515	(53.1%)	3.53	2,515	(53.1%)	-0.04
Consistency Error	912	(19.3%)	9.21	912	(19.3%)	-0.27
No Consistency Error	3,819	(80.7%)	11.37	3,819	(80.7%)	-1.84
Allowances Calculation Error	93	(2.0%)	34.62	93	(2.0%)	6.81
No Allowances Calculation Error	4,639	(98.0%)	10.48	4,639	(98.0%)	-1.70
Income Calculation Error	145	(3.1%)	8.56	145	(3.1%)	-3.50
No Income Calculation Error	4,586	(96.9%)	11.03	4,586	(96.9%)	-1.47
Other Calculation Error	197	(4.2%)	34.92	197	(4.2%)	-1.91
No Other Calculation Error	4,535	(95.8%)	9.91	4,535	(95.8%)	-1.52
Overdue Recertification	62	(1.3%)	77.32	62	(1.3%)	19.67
On-time Recertification	4,238	(89.6%)	9.51	4,238	(89.6%)	-1.63
Certification	431	(9.1%)	15.55	431	(9.1%)	-3.69
Any Administrative/Procedural Error	2,629	(55.6%)	17.70	2,629	(55.6%)	-2.65
No Administrative/Procedural Error	2,103	(44.4%)	2.52	2,103	(44.4%)	-0.14
Total	4,732	(100.0%)	10.95	4,732	(100.0%)	-1.53

2014.09.16 [Weighted]

HUDQC FY 2013
Table 19. Occupancy Standards on Form HUD-50058/50059

Number of Bedrooms by Occupancy Standard		Public Housing		PHA-administered Section 8		Owner-administered		Total	
		# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households
Under-Housed	0	2	(3.4%)			2	(2.2%)	4	(1.7%)
	1	3	(0.9%)	2	(0.3%)			5	(0.3%)
	2	3	(0.9%)	16	(1.9%)	4	(1.2%)	23	(1.5%)
	3	5	(1.8%)	12	(1.8%)	3	(2.2%)	20	(1.9%)
	4	1	(1.9%)	3	(2.7%)			4	(2.0%)
	5+			9	(40.7%)			9	(30.0%)
	All Units	14	(1.3%)	41	(1.9%)	9	(0.7%)	65	(1.4%)
Correct	0	70	(96.6%)	91	(100.0%)	84	(97.8%)	245	(98.3%)
	1	348	(99.1%)	503	(99.7%)	782	(100.0%)	1,633	(99.7%)
	2	283	(79.0%)	564	(69.0%)	277	(86.2%)	1,125	(75.1%)
	3	221	(85.1%)	526	(80.1%)	139	(88.2%)	886	(82.5%)
	4	36	(60.5%)	46	(45.0%)	10	(37.0%)	92	(48.8%)
	5+	3	(42.0%)	7	(33.9%)			10	(33.9%)
	All Units	961	(86.8%)	1,737	(79.2%)	1,292	(94.0%)	3,990	(85.3%)
Over-Housed	2	72	(20.2%)	238	(29.1%)	41	(12.6%)	351	(23.4%)
	3	34	(13.0%)	119	(18.1%)	15	(9.6%)	168	(15.6%)
	4	22	(37.6%)	53	(52.3%)	17	(63.0%)	92	(49.1%)
	5+	4	(58.0%)	5	(25.4%)	1	(100.0%)	10	(36.1%)
	All Units	132	(11.9%)	416	(18.9%)	74	(5.4%)	621	(13.3%)

2014.09.16 [Weighted]

HUDQC FY 2013
Table 19a. Frequency and Percent of All Households
by Number of Bedrooms and Number of Household Members

Number of Bedrooms	Number of Household Members																					
	1		2		3		4		5		6		7		8		9		10		11	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
0	245	98.3%	4	1.7%																		
1	1476	90.1%	157	9.6%	5	0.3%																
2	351	23.4%	713	47.6%	317	21.2%	95	6.3%	23	1.5%												
3	54	5.1%	113	10.5%	386	35.9%	299	27.9%	141	13.1%	60	5.6%	17	1.6%	3	0.3%						
4	11	5.9%	14	7.5%	21	11.0%	46	24.7%	44	23.2%	28	14.7%	12	6.4%	8	4.5%	4	2.0%				
5+			3	10.0%	1	3.9%	3	8.7%	4	13.5%			6	19.0%	3	8.8%			2	6.2%	9	30.0%

2014.09.16 [Weighted]

Source Tables Based on Tenant File Data

HUDQC FY 2013 [Tenant File]
Table 2. Percent of Households by Payment Type and Program Type

Program Type		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
PHA-administered	Public Housing	124	(10.7%)	(22.0%)	900	(78.0%)	(24.4%)	131	(11.3%)	(27.5%)	1,155	(100.0%)	(24.4%)
	Section 8	312	(14.2%)	(55.3%)	1,662	(75.6%)	(45.0%)	225	(10.2%)	(47.4%)	2,199	(100.0%)	(46.5%)
	Total	436	(13.0%)	(77.3%)	2,563	(76.4%)	(69.4%)	355	(10.6%)	(74.9%)	3,354	(100.0%)	(70.9%)
Owner-administered	Owner-administered	128	(9.3%)	(22.7%)	1,131	(82.1%)	(30.6%)	119	(8.6%)	(25.1%)	1,378	(100.0%)	(29.1%)
	Total	128	(9.3%)	(22.7%)	1,131	(82.1%)	(30.6%)	119	(8.6%)	(25.1%)	1,378	(100.0%)	(29.1%)
Total		563	(11.9%)	(100.0%)	3,694	(78.1%)	(100.0%)	474	(10.0%)	(100.0%)	4,732	(100.0%)	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013 [Tenant File]
Table 2(S). Percent of Households by Payment Type and Program Type
(Proper Payment Based on Exact Match of Actual and DC Rent)

Program Type		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
PHA-administered	Public Housing	164	(14.2%)	(21.1%)	791	(68.5%)	(25.1%)	200	(17.3%)	(24.9%)	1,155	(100.0%)	(24.4%)
	Section 8	433	(19.7%)	(55.8%)	1,363	(62.0%)	(43.3%)	402	(18.3%)	(50.0%)	2,199	(100.0%)	(46.5%)
	Total	596	(17.8%)	(76.9%)	2,154	(64.2%)	(68.4%)	603	(18.0%)	(74.9%)	3,354	(100.0%)	(70.9%)
Owner-administered	Owner-administered	179	(13.0%)	(23.1%)	998	(72.4%)	(31.6%)	202	(14.6%)	(25.1%)	1,378	(100.0%)	(29.1%)
	Total	179	(13.0%)	(23.1%)	998	(72.4%)	(31.6%)	202	(14.6%)	(25.1%)	1,378	(100.0%)	(29.1%)
Total		775	(16.4%)	(100.0%)	3,152	(66.6%)	(100.0%)	804	(17.0%)	(100.0%)	4,732	(100.0%)	(100.0%)

2014.09.16 [Weighted]

HUDQC FY 2013 [Tenant File]
Table 3. Dollar Rent Error by Program Type

Program Type		Actual Rent (Monthly)				DC Rent (Monthly)				Gross Rent Error (Monthly)			
		# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount
PHA-administered	Public Housing	1,155	(24.4%)	311,108	269.40	1,155	(24.4%)	309,746	268.23	1,155	(24.4%)	12,685	10.98
	Section 8	2,199	(46.5%)	514,115	233.82	2,199	(46.5%)	510,730	232.28	2,199	(46.5%)	38,427	17.48
	Total	3,354	(70.9%)	825,222	246.08	3,354	(70.9%)	820,476	244.66	3,354	(70.9%)	51,112	15.24
Owner-administered	Owner-administered	1,378	(29.1%)	285,555	207.20	1,378	(29.1%)	283,907	206.00	1,378	(29.1%)	10,378	7.53
	Total	1,378	(29.1%)	285,555	207.20	1,378	(29.1%)	283,907	206.00	1,378	(29.1%)	10,378	7.53
Total		4,732	(100.0%)	1,110,777	234.75	4,732	(100.0%)	1,104,383	233.40	4,732	(100.0%)	61,490	13.00

2014.09.16 [Weighted]

HUDQC FY 2013 [Tenant File]
Table 4. Dollar Error Amount by Payment Type and Program Type

Program Type		Underpayment (Monthly)				Overpayment (Monthly)				DC Rent (Monthly)			
		# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount
PHA-administered	Public Housing	124	(22.0%)	5,662	45.69	131	(27.5%)	7,023	53.81	1,155	(24.4%)	309,746	268.23
	Section 8	312	(55.3%)	17,504	56.14	225	(47.4%)	20,923	93.17	2,199	(46.5%)	510,730	232.28
	Total	436	(77.3%)	23,166	53.17	355	(74.9%)	27,946	78.70	3,354	(70.9%)	820,476	244.66
Owner-administered	Owner-administered	128	(22.7%)	4,348	34.03	119	(25.1%)	6,030	50.62	1,378	(29.1%)	283,907	206.00
	Total	128	(22.7%)	4,348	34.03	119	(25.1%)	6,030	50.62	1,378	(29.1%)	283,907	206.00
Total		563	(100.0%)	27,513	48.83	474	(100.0%)	33,976	71.65	4,732	(100.0%)	1,104,383	233.40

2014.09.16 [Weighted]

HUDQC FY 2013 [Tenant File]
Table 4(S). Dollar Error Amount by Payment Type and Program Type
(Proper Payment Based on Exact Match of Actual and DC Rent)

Program Type		Underpayment (Monthly)				Overpayment (Monthly)				DC Rent (Monthly)			
		# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount
PHA-administered	Public Housing	164	(21.1%)	5,772	35.29	200	(24.9%)	7,134	35.63	1,155	(24.4%)	309,746	268.23
	Section 8	433	(55.8%)	17,813	41.16	402	(50.0%)	21,198	52.67	2,199	(46.5%)	510,730	232.28
	Total	596	(76.9%)	23,585	39.55	603	(74.9%)	28,332	47.01	3,354	(70.9%)	820,476	244.66
Owner-administered	Owner-administered	179	(23.1%)	4,513	25.25	202	(25.1%)	6,161	30.53	1,378	(29.1%)	283,907	206.00
	Total	179	(23.1%)	4,513	25.25	202	(25.1%)	6,161	30.53	1,378	(29.1%)	283,907	206.00
Total		775	(100.0%)	28,098	36.25	804	(100.0%)	34,493	42.88	4,732	(100.0%)	1,104,383	233.40

2014.09.16 [Weighted]

HUDQC FY 2013 [Tenant File]
Table 5. Gross and Net Rent Error by Program Type

Program Type		Gross Rent Error (Monthly)				Net Rent Error (Monthly)				DC Rent (Monthly)			
		# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount
PHA-administered	Public Housing	1,155	(24.4%)	12,685	10.98	1,155	(24.4%)	1,361	1.18	1,155	(24.4%)	309,746	268.23
	Section 8	2,199	(46.5%)	38,427	17.48	2,199	(46.5%)	3,419	1.56	2,199	(46.5%)	510,730	232.28
	Total	3,354	(70.9%)	51,112	15.24	3,354	(70.9%)	4,780	1.43	3,354	(70.9%)	820,476	244.66
Owner-administered	Owner-administered	1,378	(29.1%)	10,378	7.53	1,378	(29.1%)	1,683	1.22	1,378	(29.1%)	283,907	206.00
	Total	1,378	(29.1%)	10,378	7.53	1,378	(29.1%)	1,683	1.22	1,378	(29.1%)	283,907	206.00
Total		4,732	(100.0%)	61,490	13.00	4,732	(100.0%)	6,463	1.37	4,732	(100.0%)	1,104,383	233.40

2014.09.16 [Weighted]

HUDQC FY 2013 [Tenant File]
Table 5(S). Gross and Net Rent Error by Program Type
(Proper Payment Based on Exact Match of Actual and DC Rent)

Program Type		Gross Rent Error (Monthly)				Net Rent Error (Monthly)				DC Rent (Monthly)			
		# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount
PHA-administered	Public Housing	1,155	(24.4%)	12,906	11.18	1,155	(24.4%)	1,362	1.18	1,155	(24.4%)	309,746	268.23
	Section 8	2,199	(46.5%)	39,010	17.74	2,199	(46.5%)	3,385	1.54	2,199	(46.5%)	510,730	232.28
	Total	3,354	(70.9%)	51,916	15.48	3,354	(70.9%)	4,747	1.42	3,354	(70.9%)	820,476	244.66
Owner-administered	Owner-administered	1,378	(29.1%)	10,675	7.75	1,378	(29.1%)	1,648	1.20	1,378	(29.1%)	283,907	206.00
	Total	1,378	(29.1%)	10,675	7.75	1,378	(29.1%)	1,648	1.20	1,378	(29.1%)	283,907	206.00
Total		4,732	(100.0%)	62,591	13.23	4,732	(100.0%)	6,395	1.35	4,732	(100.0%)	1,104,383	233.40

2014.09.16 [Weighted]

Appendix D: Consistency and Calculation Errors

APPENDIX D: CONSISTENCY AND CALCULATION ERRORS

Form HUD-50058—Consistency Errors

Form HUD-50058 Item		Error
General Information		
1c.	Program	Must equal P, CE, VO, or MR
2a.	Type of Action	Must equal 1 through 15
2b.	Effective Date of Action	Cannot be earlier than Date of Admission to the Program (2h)
Household Composition		
3g.	Sex	Must equal M or F
3h.	Relationship	Must equal H, S, K, F, Y, E, L, or A
3i.	Citizenship	Must equal EC, EN, IN, PV
3k.	Race	Must equal 1 through 5
3m.	Ethnicity	Must equal 1 or 2
3u.	Family Subsidy Status	Must equal C, E, F, P
3v.	Effective Date	Should not be blank if 3u equals C
Net Family Assets and Income		
6a.	Family Member No.	Must equal a number used in Section 3. Household
7a.	Family Member No.	Must equal a number used in Section 3. Household
7b.	Income Code	Must equal B, F, HA, M, W, G, IW, T, P, S, SS, C, E, I, N, or U
8a.	Total Annual Income	Must equal Total Annual Income recorded in 7i
8i.	Earnings Made Possible by Disability Assistance Expense	Must be ≤ the sum of Dollars per Year (7d) for Income Codes (7b) HA, F, W, B, or M
Allowances and Adjusted Income		
8h.	Maximum Disability Allowance	Should only be completed if any member is disabled
8j.	Allowable Disability Assistance Expense	• Should be ≤ Maximum Disability Allowance (8h) • Should be 0 if Medical/Disability Threshold (8f) is > Maximum Disability Allowance (8h) • Should be 0 or blank if Maximum Disability Allowance (8h) is 0 or blank
8k.	Total Medical Expenses	Should only be completed if the head, spouse, or co-head is 62 or over, or disabled; otherwise it should be blank
8n.	Medical/Disability Assistance Allowance	• Should equal Total Annual Disability Assistance and Medical Expense (8m) minus Medical/Disability Threshold (8f) if Allowable Disability Expense (8j) is blank or if the Total Annual Unreimbursed Disability Assistance Expense (8g) is less than the Medical/Disability Threshold (8f) • Should equal Total Annual Disability Assistance and Medical Expense (8m) if Total Annual Unreimbursed Disability Assistance Expense (8g) and Allowable Disability Expense (8j) is ≥ Medical/Disability Threshold (8f)
8p.	Elderly/Disabled Allowance	Should be $400 if head, spouse or co-head is 62 or over, or disabled; otherwise it should be 0 or blank
8s.	Dependent Allowance	Must be completed if the household contains a member under age 18, disabled, or a full-time student (excluding the head, spouse, foster child or adult, or live-in attendant)

Form HUD-50058—Consistency Errors (continued)

Form HUD-50058 Item		Error
8t.	Yearly Child Care Cost That Is Not Reimbursed (Child Care Allowance)	Should only be completed if any member is less than 13 years old
Family Rent and Subsidy Information		
10a. 11q. 12r. 13j. 14s.	TTP (Public Housing and Turnkey III) TTP (Section 8: Project Based Certificates and Vouchers) TTP (Housing Choice Vouchers: Tenant Based Vouchers) TTP (Section 8: Moderate Rehabilitation [Mod Rehab]) TTP (Manufactured Home Owner Renting the Space)	Items 10a, 11q, 12r, 13j, or 14s must equal TTP (9j) or be blank
Rent Calculations (item numbers include 10a. through 14ag.)		• If Program (1c) = P: ▪ TTP (10a), must be completed ▪ Flat Rent (10b), Tenant Rent (10f), or Mixed Family Tenant Rent (10s) must be completed ▪ Sections 11 through 14 must be blank • If Program (1c) = VO or C: ▪ Section 11 or 12 must be completed ▪ Tenant Rent (11s or 12k) or Mixed Family Tenant Rent (11ak, or 12ai) must be completed ▪ Sections 10, 13, and 14 must be blank • If Program (1c) = MR: ▪ Contract Rent to Owner must be completed ▪ Tenant Rent (13k) or Mixed Family Tenant Rent (13x) must be completed ▪ Sections 10, 11, 12, and 14 must be blank

Form HUD-50058 MTW*—Consistency Errors

Form HUD-50058 MTW Item		Error
General Information		
1c.	Program	Must equal P, PR, or T
2a.	Type of Action	Must equal 1 through 15
2b.	Effective Date of Action	Cannot be earlier than Date of Admission to the Program (2h)
Household Composition		
3g.	Sex	Must equal M or F
3h.	Relationship	Must equal H, S, K, F, Y, E, L, or A
3i.	Citizenship	Must equal EC, EN, IN, PV
3k.	Race	Must equal 1 through 5
3m.	Ethnicity	Must equal 1 or 2
3u.	Family Subsidy Status	Must equal C, E, F, P
3v.	Eligibility Effective Date	Should not be blank if 3u equals C

Form HUD-50058 MTW*—Consistency Errors (continued)

Form HUD-50058 MTW Item	Error
Net Family Assets and Income	
18a. Family Member No.	Must equal a number used in Section 3. MTW Household
19a. Family Member No.	Must equal a number used in Section 3. MTW Household
19b. Income Code	Must equal B, F, HA, M, W, G, IW, T, P, S, SS, C, E, I, N, U, or X

*For the purpose of the study, we implemented a Moving to Work (MTW) exception if a case was flagged as using the Form HUD-50058 MTW. As a result, there were 46 MTW cases (representing 14 projects) that did not use the Form HUD-50058 MTW but did adhere to MTW policies. There were no non-MTW cases that used the Form HUD-50058 MTW.

Form HUD-50059—Consistency Errors

Form HUD-50059 Item	Error
General Information	
2. Subsidy Type	Must equal 1 through 9
13. Effective Date	Cannot be earlier than Date Tenant Moved into Project (16)
18. Certification Type	Must equal 1 through 5
19. Action Processed	Must equal 1 through 4, or blank
40. Race of Head of Household	Must equal 1 through 4
41. Ethnicity of Head of Household	Must equal 1 or 2
Household Composition	
39. Sex	Must equal M or F
44. Special Status Code	Must equal E, S, H, F, I, J, or blank; should be E if Age > 61
46. Eligibility Code (Citizenship)	Must equal EC, EN, IC, IN, IP, PV, or XX
Net Family Assets and Income	
66. Member No.—Income Info 75. Member No.—Asset Info	Should not be greater than the total number of members listed in item 34 (Family Member Number)
Allowances and Adjusted Income	
97. Deduction for Dependents	Must be completed if Number of Dependents (55) is greater than 0
98. Child Care Expense (work) 99. Child Care Expense (school)	Should only be completed if any member is less than 13 years old
102. Disability Allowance	• Should be ≤ Disability Expenses (101) • Should be 0 if 3% of Annual Income (100) is > Total Disability Assistance Expenses (101) • Should be 0 or blank if Total Disability Expenses (101) is 0 or blank
103. Total Medical Expenses	Should only be completed if the Special Status Code (43) for the head or spouse or co-head = H or E, or if the head, spouse, or co-head is age 62 years old or older
105. Elderly Household Allowance	Should be $400 if the Special Status Code (43) for the head or spouse or co-head = H or E; otherwise it should be 0 or blank
Family Rent and Subsidy Information	
109. Tenant Rent	Should equal the maximum of TTP (108) minus the Utility Allowance (32) or 0, or be blank if the Utility Reimbursement (110) > 0
110. Utility Reimbursement	Should be blank if Item 32 < Item 108

Form HUD-50058—Calculation Errors

Form HUD-50058 Item		Error Calculation
Household Composition		
3f.	Age	Must equal the age calculated based on Date of Birth (3e) and Effective Date of Action (2b)
8q.	Number of Dependents	Must equal the number of household members under 18, with a disability, or a full-time student (other than head, spouse co-head, foster child/adult, or live-in aide)
Net Family Assets and Income		
6f.	Total Asset Value	Must equal the sum of all values in Cash Value of Asset (6d)
6i.	Imputed Asset Income	Must equal Total Cash Value of Asset (6f) times the Passbook Rate (6h) if Total Value of Assets (6f) is > $5,000. If Total Value of Assets (6f) is ≤ $5,000 Imputed Asset Income (6i) = 0
6j.	Income from Asset	Must equal the larger of Total Anticipated Income (6g) or Imputed Asset Income (6i)
7g.	Total Non-Asset Income	Must equal the sum of all values in Income After Exclusions (7f)
7i.	Total Annual Income	Must equal Final Asset Income (6j) + Total Income Other Than Assets (7g)
Allowances and Adjusted Income		
8e.	Total Permissible Deductions	Must equal the sum of all values in Amount of Permissible Deduction (8d)
8f.	3% of Annual Income	Must equal 3% * Total Annual Income (8a)
8h.	Disability Allowance	Must equal Total Annual Unreimbursed Disability Assistance Expense (8g) minus Medical/Disability Threshold (8f) if there is a disabled household member and an earned income greater than or equal to the disability expense
8n.	Medical Allowance	Must equal Total Annual Disability Assistance and Medical Expense (8m) minus Medical/Disability Threshold (8f) if Allowable Disability Assistance Expense (8j) is blank or Total Annual Unreimbursed Disability Assistance Expense (8g) is less than Medical/Disability Threshold (8f); or equal Total Annual Disability Assistance and Medical Expense (8m) if Total Annual Unreimbursed Disability Assistance Expense (8g) and Allowable Disability Assistance Expense (8j) is ≥ Medical/Disability Threshold (8f); if the head, spouse, or co-head is elderly or disabled
8p.	Elderly/Disabled Allowance	Must equal $400 if head, spouse, or co-head is elderly or disabled
8s.	Dependent Allowance	Must equal Number of Dependents (8q) * $480
8t.	Child Care Costs	Must be 0 or blank if no household member is under age 13
8x.	Total Allowance	Must equal Total Permissible Deductions (8e) + Medical / Disability Assistance Allowance (8n) + Elderly / Disability Allowance (8p) + Dependent Allowance (8s) + Total Annual Unreimbursed Childcare Costs (8t) + Total Annual Travel Cost to Work/School (8u)
8y.	Adjusted Annual Income	Must equal Total Annual Income (8a) minus Total Allowances (8x)
Family Rent and Subsidy Information		
9j.	Total Tenant Payment	Must equal the highest of TTP if Based on Annual Income (9c), TTP if Based on Adjusted Annual Income (9f), Welfare Rent (9g), Minimum Rent (9h), or Enhanced Voucher Minimum Rent (9i)
12p.	Gross Rent	Must equal Rent to Owner (12k) + Utility Allowance (12m)
Tenant Rent (item number varies by program)		Tenant Rent must equal the recalculated tenant rent based on the Rent Calculation rules provided in Appendix A

Note: With the exception of tenant rent, negative numbers are always converted to 0.

Form HUD-50058 MTW—Calculation Errors

Form HUD-50058 MTW Item		Error Calculation
Household Composition		
3f.	Age	Must equal the age calculated based on Date of Birth (3e) and Effective Date of Action (2b)
Net Family Assets and Income		
18f.	Total Asset Value	Must equal the sum of all values in Cash Value of Asset (18d)
18i.	Imputed Asset Income	Must equal Total Cash Value of Asset (18f) times the Passbook Rate (18h) if Total Value of Assets (18f) is > $5,000. If Total Value of Assets (18f) is ≤ $5,000 Imputed Asset Income (18i) = 0
18j.	Income from Asset	Must equal the larger of Total Anticipated Income (18g) or Imputed Asset Income (18i)
19h.	Total Non-Asset Income	Must equal the sum of all values in Income After Exclusions (19f)
19i.	Total Annual Income	Must equal Final Asset Income (18j) + Total Income Other Than Assets (19h)
Allowances and Adjusted Income		
19k.	Adjusted Annual Income	Must equal Total Annual Income (19i) minus Total Deductions (19j)
Family Rent and Subsidy Information		
21k.	Gross Rent	Must equal Rent to Owner (21i) + Utility Allowance/estimate (21j)

Note: With the exception of tenant rent, negative numbers are always converted to 0.

Form HUD-50059—Calculation Errors

Form HUD-50059 Item		Error Calculation
Household Composition		
48.	Age	Must equal the age calculated based on Date of Birth (42) and Effective Date of Action (13)
53.	Number of Family Members	Must equal the number of family members listed
54.	Number of Non-family Members	Must equal the number of family members listed with a relationship code of “L” or “F”
55.	Number of Dependents	Must equal the number of household members under 18, with a disability, or a full-time student (other than head, spouse co-head, foster child/adult, or live-in aide)
Net Family Assets and Income		
81.	Total Asset Value	Must equal the sum of the asset values in Cash Value of Assets (78)
82.	Actual Income From Asset	Must equal the sum of the income values in Actual Yearly Income From Assets (79)
84.	Imputed Asset Income	Must equal Total Asset Value (81) * 2%, if Total Value of Assets is > $5,000
70.	Earned Income Sum	Must equal the sum of income values (in item 68) for items with codes B, F, M, or W in Income Type Code (67)
71.	Pension Income Sum	Must equal the sum of the income values (in item 68) for items with codes PE, SI, or SS in Income Type Code (67)
72.	Public Assistance Income Sum	Must equal the sum of the income values (in item 68) for items with codes TA or G in Income Type Code (67)
73.	Other Income Sum	Must equal the sum of the income values (in item 68) for items with codes CS, I, N, or U in Income Type Code (67)

Form HUD-50059 Form—Calculation Errors (continued)

Form HUD-50059 Item		Error Calculation
74.	Total Non-Asset Income	Must equal Earned Income Sum (70) + Pension Income Sum (71) + Public Assistance Income Sum (72) + Other Income Sum (73)
85.	Asset Income	Must equal the greater of Imputed Asset Income (84) or Actual Income from Asset (82)
86.	Total Annual Income	Must equal Total Non-Asset Income (74) + Income from Asset (85)
Allowances and Adjusted Income		
97.	Dependent Allowance	Must equal Number of Dependents (55) * $480
98. 99.	Child Care Expense (work) Child Care Expense (school)	Must be 0 or blank if no household member is under age 13
100.	3% of Annual Income	Must equal Total Annual Income (86) * .03
102.	Disability Allowance	Must equal Total Disability Expenses (101) minus 3% of Annual Income (100) if there is a disabled household member and if there is earned income greater than or equal to the disability expense
104.	Medical Allowance	Must equal Total Medical Expenses (103) minus 3% of Annual Income (100) if Total Disability Expense (101) = 0; or if (Disability Deduction (102) = 0, then Medical Deduction (104) = Total Medical Expenses (103) + Total Disability Expenses (101) - 3% of Annual Income (86), if the head, spouse, or co-head is elderly or disabled
105.	Elderly Household Allowance	Must equal $400 if head, spouse, or co-head is elderly or disabled
106.	Total Allowance	Must equal Deduction for Dependents (97) + Child Care Expense Allowance (98 + 99) + Allowance for Disability Expenses (101) + Deduction for Medical Expenses (104) + Elderly Family Deduction (105)
107.	Adjusted Annual Income	Must equal Total Annual Income (86) minus Total Allowances (106)
Family Rent and Subsidy Information		
33.	Gross Rent	Must equal Contract Rent (31) + Utility Allowance (32)
108.	Total Tenant Payment	Must equal the higher of 30% of Adjusted Income (107), 10% of Total Annual Income (86), Welfare Rent (112), or $25 (Minimum Rent)
109.	Tenant Rent	Tenant Rent must equal the recalculated tenant rent based on the Rent Calculation rules provided in Appendix A

Note: With the exception of tenant rent, negative numbers are always converted to 0.

Appendix E: Project Staff Questionnaire Descriptive Analysis

APPENDIX E: PROJECT STAFF QUESTIONNAIRE DESCRIPTIVE ANALYSIS

The Project Staff Questionnaire (PSQ) was designed to obtain project-level information concerning the characteristics and processes that enable PHA and project staff to precisely calculate rent during certification transactions, including both initial/move-in and annual certifications. The questionnaire aimed to identify structural procedures, standards, and policies that may not support accurate rent determination in order to uncover potential areas of improvement. The PSQ is a self-administered questionnaire sent to managers and executive directors of PHAs/projects included in the FY 2013 study.

A. Methodology

The PSQ was administered as a Web questionnaire using a survey package called Select Survey. In April 2014, ICF staff contacted PHAs/projects via e-mail with instructions on how to access and complete the survey. Until the end of May 2014, follow-up e-mails and telephone calls were made to PHAs/projects, reminding staff to complete the PSQ survey. ICF also requested assistance from HUD to encourage some of the nonresponsive PHAs/projects to complete the questionnaire. Overall, these efforts led to a response rate of 94.6 percent; 513 out of 542 PHAs/projects completed the PSQ. After data collection, ICF staff examined the data to confirm the completeness and validity of responses. PSQs containing questionable responses or skip patterns were individually investigated and all of the data issues were resolved. Further, the PSQ responses were analyzed separately for three major program types: Public Housing (201 projects), PHA-administered Section 8 (141 projects), and Owner-administered projects (200 projects). This analysis was conducted using SPSS 20.

The content of the FY 2013 PSQ differed from that of the FY 2012 survey. It maintained a combination of open-ended and closed-ended questions, but ranked-response questions were eliminated in favor of "select all that apply" responses. The survey inquired more extensively about training and development, performance management, and quality control procedures than previous years. In addition, the survey specifically asked respondents to answer questions regarding conditions beginning November 1, 2012 and ending October 31, 2013, the study period for FY 2013. The results presented in this report reflect this study period, which is a noteworthy change from previous PSQ surveys, where the study period was simply defined as "over the past 12 months" and did not necessarily reflect the fiscal year being reviewed for the QC study.

B. Results

The results of the PSQ survey are presented in three sections, corresponding to sections in the survey.

1. **PHA/Project Characteristics:** The PSQ surveyed respondents on PHA/project characteristics that may help to explain differences in error rates. This section included questions regarding the number and types of staff, number of project units/tenants and certifications conducted, staff work experience, staff work assignments and workload, and staff use of software and computer technology related to certification tasks.

2. **Training and Development:** The second section of the survey gathered information about the nature and extent of rent calculation training for new and experienced certification staff, procedures for implementing new policies related to rent calculation, and certification staff work practices.
3. **Performance Management:** The PSQ also inquired about various aspects of performance management of certification activities and quality control (QC) reviews. Questions related to the timing of reviews, methods used to select cases for review, the type of certification information reviewed for QC, the prevalence of various types of rent calculation errors, and performance feedback methods and timing.

1. PHA/Project Characteristics

Type and Number of Staff

Beginning in FY 2008, the PSQ collected information from projects about whether or not they could provide information about the administration of rental assistance in the project specifically selected for the QC study review. Some PHAs/projects cannot provide information about practices for a specific project because PHA/project staff work across multiple counties or across a number of assisted housing units, beyond the site or county selected for QC review. In FY 2013, organizations that could not provide information specific to a project but provided information regarding their entire organization indicated that they employed an average of 38 staff members that supported an average total of 3,396 units/households (see Exhibit E-1a). These organizations reported an average ratio of 145 assisted units/households per total staff. PHA-administered Section 8 projects had the highest ratio of units per total staff in the entire organization at 232, Owner-administered projects had the smallest ratio at 18, and Public Housing projects were in the middle with an average of 39 units per total staff in the organization.

In FY 2013, PHAs and management companies that could provide information regarding a specific project had an average of 13 employees (see Exhibit E-1a). PHA-administered Section 8 projects had an average of 26 employees, followed by Public Housing with 12 employees, and Owner-administered projects with 5 employees. On average, about 1,106 units were supported by these PHA/project staff across all three program types over a 12-month period, with an average ratio of 77 units per total staff. PHA-administered Section 8 projects had the highest ratio of units per total staff at 144, Owner-administered projects had the smallest ratio at 37, and Public Housing had an average of 76 units per total staff.

In addition to the general ratio of employed staff to units/households served, the PSQ gathered information about the certification staff members who performed move-in and annual certifications, the QC of certification transactions, and the supervision of other certification staff at the PHA/project. In FY 2013, the average PHA/project had 9 certification staff members that conducted an average of 1,108 move-in/initial and annual certifications over a 12-month period (see Exhibit E-1a). PHA-administered Section 8 projects had the highest average number of certification staff at 23, but these sites also performed the most work overall, with an average of 3,451 certifications completed during the study period. Owner-administered projects had the smallest average with 4 staff who managed 116 certifications, while Public Housing projects had an average of 5 certification staff and 429 certifications conducted in FY 2013.

Exhibit E-1a: Average Number of Staff and Certifications, by Program Type

Average Number of Staff and Average Number of Certifications Performed	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
Entire Organizations				
Total Number of Staff the Entire Organization Employs	7.0	62.0	3.7	37.5
Total Number of Assisted Units Supported by These Staff	263.0	5,875.5	46.0	3,395.7
Units per Entire Organization Staff Ratio	39.2	231.9	17.6	144.6
Individual Projects				
Total Number of Staff the Individual Project Employs	12.2	25.9	5.2	12.7
Total Number of Assisted Units Supported by These Staff	514.6	3,628.2	116.6	1,106.2
Units per Individual Project Staff Ratio	75.6	144.1	36.9	77.0
Entire Organizations and Individual Projects				
Number of Certification Staff that Work at the PHA/Project	5.0	23.2	3.8	9.3
Number of Move-in and Annual Certifications Conducted Over a 12-Month Period	429.0	3,451.0	116.1	1,107.7

Note: Averages were calculated based on the number of PHAs/projects that responded to the specific items.

Experienced Certification Staff and Certification Staff Turnover

The PSQ collected information about the number of experienced certification staff at the PHA/project. In the survey, experienced certification staff is defined as certification staff members with more than 1 year of certification experience at the project. PHA-administered Section 8 projects reported having 21 experienced staff, while Public Housing had an average of 3 experienced certification staff, and Owner-administered projects had 2 experienced staff during the study period (see Exhibit E-1b).

PHAs/projects were also asked about the rate of certification staff turnover. Twenty-five percent of PHAs/projects in the study indicated that they had staff turnover of at least one certification employee from November 1, 2012 to October 31, 2013 (see Exhibit E-1b). For PHAs/projects overall, there was an average turnover of three certification staff during the study period. PHA-administered Section 8 projects were most likely to have certification staff turnover during the study period (35%) and to report the largest turnover (4 certification staff). Owner-administered projects were least likely to have certification staff turnover (18%) and reported the smallest turnover (1 certification staff). Twenty-four percent of Public Housing projects had some turnover with an average of 2 certification staff leaving the project in FY 2013.

Exhibit E-1b: Experienced Certification Staff and Staff Turnover, by Program Type

Average Number of Certification Staff	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
Experienced Certification Staff				
Certification Staff With More Than One Year of Experience	3.0	20.9	2.0	7.4
Certification Staff Turnover				
PHAs/Projects with One or More Certification Staff that Stopped Working on Certification Activities	24.2%	35.1%	18.0%	24.8%
Average Number of Certification Staff that Stopped Working on Certification Activities*	1.6	4.4	1.4	2.6

Note: Averages and percentages were calculated based on the number of PHAs/projects that responded to the specific items.
* Averages were calculated based on the PHAs/projects that had staff turnover.

Certification Staff Assignments and Workload

The FY 2013 PSQ asked PHAs/projects to explain how work was assigned to certification staff. The most frequently employed methods for dividing work were by certification transaction type (21%) and by random assignment of cases based on staff availability (17%) (see Exhibit E-1c). Case assignments by certification activity type and assignments based on tenant last name were methods with the least amount of reported use (11% and 8%, respectively), while there was almost no reported work assigned by household characteristics (<1%). Although the question provided a variety of case assignments methods, nearly half of PHAs/projects reported that they use a case assignment method other than those provided in the survey (42%).

Exhibit E-1c: Certification Staff Case Assignment Methods, by Program Type

Certification Staff Case Assignment Methods	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
By Transaction Type (i.e. Some Staff Work on Move-Ins Only, Some Staff Work on Annual Certifications Only, Some Work on Interims and Transfers Only, etc.)	20.5%	23.1%	18.5%	20.5%
Random Assignment Based on Staff Availability	19.5%	12.7%	18.5%	17.3%
By Activity Type (i.e. Some Certification Staff Perform Interviews and Send Out Initial Third-Party Verifications, While Other Staff Perform Rent Calculations and Data Enter Form HUD-50058/50059)	13.2%	3.7%	13.8%	10.9%
Alphabetical By Tenant Last Name (e.g. Households with a Last Name that Starts with Any Letter Between “A” Through “E” Belong to One Certification Staff/Staff Team)	0.5%	29.9%	0.0%	8.0%
By Household Characteristic (i.e. More Complicated Cases Go to Particular Staff)	0.5%	0.0%	0.5%	0.4%
Other Assignment Method Not Listed	44.7%	30.6%	47.6%	42.1%

Note: Percentages were calculated based on the number of PHAs/projects that responded to the specific items.

A look at project-level breakdowns indicates that PHA-administered Section 8 projects were considerably more likely to assign work alphabetically by tenant last name (30%), while no Owner-administered projects and less than one percent of Public Housing projects relied on this method (see Exhibit E-1c). Public Housing projects were most likely to randomly assign cases based on staff availability (20%). Owner-administered projects were most likely to use a case assignment method other than the options provided in the survey (48%).

In addition to methods of assigning work, PHAs/projects were asked to comment on the average workload for certification staff at the project. The results of responses show that certification staff are almost evenly divided between having either a manageable workload that is neither too low nor too high (51%) or a high workload (47%) on average, indicating that over 97 percent of PHAs/projects typically have a moderate to high workload (see Exhibit E-1d). With respect to program type, Owner-administered projects were most likely to report a manageable workload (63%) from November 1, 2012 to October 31, 2013, while PHA-administered Section 8 projects were least likely to have steady workloads (40%). PHA-administered Section 8 projects were most susceptible to heavy workloads (57%), followed closely by Public Housing projects (53%).

Exhibit E-1d: Certification Staff Average Workload, by Program Type

Certification Staff Average Workload	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
The Workload was High	52.6%	56.7%	34.9%	47.2%
The Workload was Not Too Low or Too High	45.3%	40.3%	63.0%	50.5%
The Workload was Low	1.1%	3.0%	1.1%	1.6%

Note: Percentages were calculated based on the number of PHAs/projects that responded to the specific item.

Organizations Contracted to Perform Certification Activities

Despite the moderate to heavy workloads experienced by certification staff, a large majority of PHAs/projects (89%) indicated that they do not outsource certification activities to outside organizations (see Exhibit E-1e). The small portion of projects that did have a certification contractor in the past year was most likely to hire a private company to handle certifications (7%), instead of government administration (3%) or nonprofit entity (1%). With respect to program type, Public Housing projects were least likely to use a contractor, with 94 percent of projects performing certifications themselves. Owner-administered projects were most likely to hire an outside organization for certifications (13%), compared to Public Housing or PHA-administered Section 8. When Owner-administered sites chose to contract out certification activities, they chose private companies (10%) over government or nonprofit entities (both 2%) (see Exhibit E-1e).

Exhibit E-1e: Organizations Contracted to Perform Certification Activities, by Program Type

Organizations Contracted to Perform Certifications	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
PHA/Project Does Not Contract Out Certification Activities	93.7%	85.8%	85.7%	88.7%
Private Company	3.2%	6.7%	10.1%	6.6%
Government	2.1%	4.5%	1.6%	2.5%
Nonprofit Organization	0.0%	3.0%	1.6%	1.4%

Note: Percentages were calculated for PHAs/projects that responded to the specific item.

Utilization and Capabilities of Computer Software in the Certification Process

Automated systems and computer software continue to play an integral part in a PHA/project's daily tasks. PHAs/projects were asked to describe for which tasks certification staff used computer systems. Virtually all of the PHAs/projects (at least 92% for all tasks) reported using computers to print letters to tenants, to print Form HUD-50058/50059, to calculate rent, income, expenses, and allowances, and to record demographic information about residents (see Exhibit E-1f). The majority also acknowledged using computer software to input certification interview information (74%), to record other types of statistics (71%), to determine certification dates/appointments (66%), and to keep track of pending verification documents (54%). There was an increase, from FY 2012, in the use of computer systems to conduct interviews with tenants. In FY 2012, about 20 percent of the PHAs/projects indicated they used a software program for assistance with interviews, in FY 2013 it was 32 percent.

Exhibit E-1f: Use of Computer Systems for Key Tasks, by Program Type

Use of Computer Systems	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
Printing Letters to Tenants	98.9%	97.8%	96.3%	97.7%
Printing Form HUD-50058/50059	93.7%	96.3%	96.3%	95.3%
Calculating Income, Expenses, and Allowances	95.3%	97.8%	93.1%	95.1%
Recording Tenant Age, Ethnicity, Family Size, or Other Demographics	91.6%	96.3%	90.5%	92.4%
Inputting Certification Interview or Application Responses	73.7%	80.6%	70.4%	74.3%
Keeping Other Types of Statistics	71.1%	75.4%	68.3%	71.2%
Determining Certification Appointment Dates	66.8%	69.4%	61.9%	65.7%
Keeping Track of Pending Verification Documents	51.1%	57.5%	53.4%	53.6%
Storing Electronic Verification Documents	34.2%	43.3%	39.7%	38.6%
Conducting Rent Reasonableness Comparisons	24.2%	79.9%	22.2%	38.0%
Conducting Computer-Assisted Interviews with Tenants	33.2%	31.3%	31.7%	32.2%

Note: Percentages were calculated for PHAs/projects that responded to the specific items.

Less than half of PHAs/projects reported using computer systems to store electronic copies of verification documents (39%), to conduct rent reasonableness comparisons (38%), or to conduct computer-assisted interviews with tenants (32%). It is worth noting that the PHA-administered Section 8 projects were the most likely, compared to other program types, to record tenant demographics (96%), to keep other types of statistics (75%), and to input certification interview responses (81%) in a computer system.

In addition to the tasks above, 97 percent of PHAs/projects indicated that they have used computer software to help calculate tenant rent (see Exhibit E-1g). Of that 97 percent, a great portion reported that their software was capable of assisting staff by storing household-specific information from previous Form HUD-50058/50059 (95%), submitting data to PIC/TRACS (88%), annualizing individual sources of income/expenses (87%), and containing pre-loaded information that identifies the appropriate payment standard or utility allowance (84%). Additionally, 43 percent of PHAs/projects reported that their software was limited in its capabilities by requiring users to enter Form HUD-50058/50059 after its manual completion.

Project-level results show that PHA-administered Section 8 and Owner-administered projects were nearly equally likely to report using software that is capable of submitting data to PIC/TRACS (93% and 94%, respectively); conversely, only 79 percent of Public Housing projects had software with this ability.

Exhibit E-1g: Functionalities of Computer Software, by Program Type

Tasks Performed Using Computer Software	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
Certification Staff Use Computer Software to Help Calculate Tenant Rent	94.2%	99.3%	97.4%	96.7%
Functionalities				
Stores Household-Specific Information from Previous Form HUD-50058/50059s and Allows Updating with Current Information*	93.3%	97.7%	95.1%	95.2%
Submits Data to PIC/TRACS*	78.8%	93.2%	93.5%	88.1%
Annualizes Individual Sources of Income/Expenses When Information is Entered*	85.5%	89.5%	87.0%	87.1%
Contains Pre-Loaded Information that Identifies the Appropriate Payment Standard/Utility Allowance for Each Household Based on Information Entered*	77.1%	89.5%	85.3%	83.5%
User Must Enter Form HUD-50058/50059 Data After its Manual Completion*	44.1%	35.3%	46.2%	42.5%

Note: Percentages were calculated for PHAs/projects that responded to the specific item.
* Percentages were calculated based on PHAs/projects that indicated using computer software to help calculate rent.

2. Training and Development

Certification Staff Training and Development

The PSQ collected information about the amount and type of training provided to certification staff during the study period. Sixty-seven percent of PHAs/projects reported having a training department or staff trainer that provided guidance to staff working on rent calculation activities, with more Owner-administered programs having this (73%) than either Public Housing (62%) or PHA-administered Section 8 (66%) (see Exhibit E-2a). The average number of hours of training provided to each new certification staff member varied greatly by program type, with Owner-administered programs provided the least number of training hours (36), followed by Public Housing (54), and PHA-administered Section 8 who provided an average of 82 hours of training for new certification staff. The overall average for all program types (55 hours of training) is the lowest in the last 4 years; 65 average hours were provided to staff in FY 2012, 89 hours on average in FY 2011, and about 85 training hours in FY 2010.[38]

Exhibit E-2a: Presence of Training Staff in PHA/Project and Average Training Hours for Certification Staff, by Program Type

Training Staff Present in PHA/Project and Average Training Hours for Certification Staff	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
Training Department				
PHA/Project has a Training Department or Staff Trainer for Certification Staff	61.6%	65.7%	73.0%	66.9%
Training Hours				
Average Number of Training Hours Before Staff Can Perform Rent Calculations Unassisted	53.8	81.7	35.8	54.5

Note: Percentages and averages were calculated for PHAs/projects that responded to the specific item

PHAs/projects were asked to explain in further detail the number of training hours typically provided to one certification staff member. PHAs/projects reported the approximate number of rent calculation training hours a typical new staff member is provided via various training methods (see Exhibit E-2b). The reported hours were used to calculate the average percentage of PHAs/projects that have utilized the various methods during the study period, where zero hours indicated that the method was not utilized. They included reading policies and procedural guides on their own (93%), shadowing or mentorship with experienced staff (90%), classroom-style training administered in-house (67%), and classroom-style training administered by an outside organization (61%).

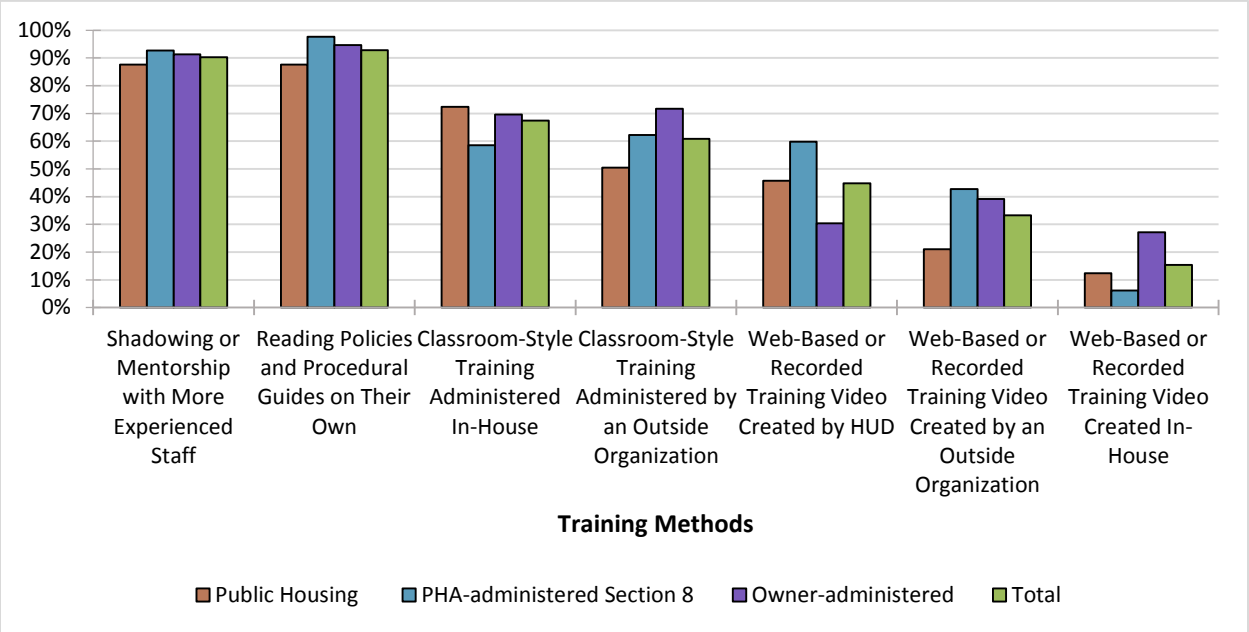
In past years, PHAs/projects were asked to rank the three most frequently used training methods so that percentages of training utilization within each PHA/project could be calculated. In FY 2013, any training hours reported for the various methods indicated utilization. The calculated percentages for FY 2013 imply there was a marked increase in PHA/project reliance on self-training to train new certification staff compared to FY 2012 (54% in FY 2012). The data also suggest increased use of shadowing and mentoring with experienced staff and of classroom-style

[38] Training hour averages for FY 2012, FY 2011, and FY 2010 were calculated as the average for new (re)certification staff and reassigned staff due to a change in the question for FY 2013.

training at an outside organization (81% and 48% in FY 2012, respectively). Reliance on Web-based and recorded training appears to have remained relatively stable between years.

In FY 2013, nearly all PHA-administered Section 8 projects prepared new certification employees by having them read policies and procedural guides (98%) or shadow experienced staff (93%). PHA-administered Section 8 projects are also slightly more likely to use Web-based and recorded videos created by HUD or created by an outside organization (60% and 43%, respectively) (see Exhibit E-2b). Public Housing projects were mostly likely to train staff in-house in the classroom (72%), while Owner-administered projects were most likely to send staff to classroom training at an outside organization (72%) and to provide in-house Web-based and recorded training videos (27%).

Exhibit E2-b: Methods Used to Train New Certification Staff, by Program Type



Note: Percentages calculated for those PHAs/projects that had new certification staff in FY 2013.

Although most PHAs/projects relied on new staff to self-train by reading policies and procedural guides, an average of only 44 total hours per staff member was spent on this training method (see Exhibit E-2c). PHAs/projects dedicated the most training hours to shadowing and mentorship with more experienced staff, with an average of approximately 120 hours for each new certification staff member from November 1, 2012 to October 31, 2013. New staff also averaged 3 hours or less of Web-based and recorded training of all types during this time period.

Exhibit E-2c: Average Training Hours Per Training Method for New Certification Staff, by Program Type

Training Methods for New Staff	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
Shadowing or Mentorship with More Experienced Staff	126.2	185.5	54.9	120.1
Reading Policies and Procedural Guides on Their Own	20.0	102.1	20.9	44.4
Classroom-Style Training Administered In-House	35.7	16.3	10.8	21.8
Classroom-Style Training Administered by an Outside Organization	11.6	18.9	10.6	13.4
Web-Based or Recorded Training Video Created by HUD	3.6	4.0	2.4	3.3
Web-Based or Recorded Training Video Created by an Outside Organization	3.2	4.0	3.0	3.4
Web-Based or Recorded Training Video Created In-House	2.1	0.2	1.6	1.4

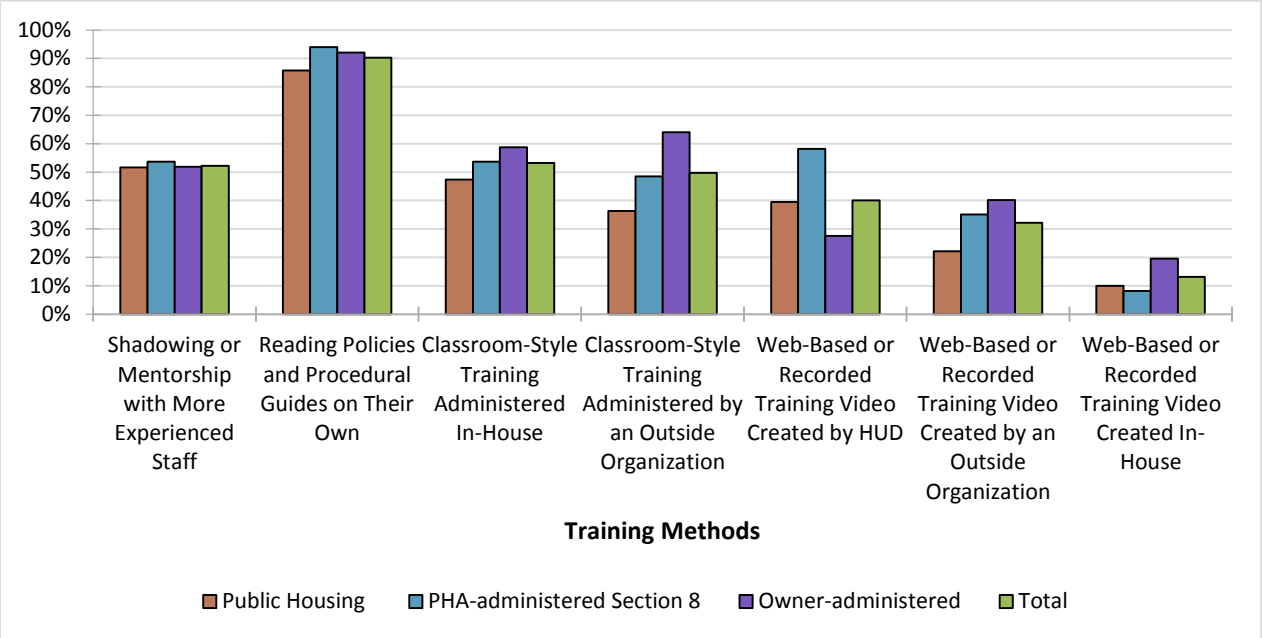
Note: Averages calculated for those PHAs/projects that had new certification staff in FY 2013.

PHAs/projects were also asked to report the approximate number of rent calculation training hours for a typical experienced staff member for each training method. These reported hours were used to calculate the average percentage of PHAs/projects that have used the various methods, where zero hours indicated that the method was not utilized. Similar to new certification staff, PHAs/projects were most likely to train an experienced staff member through self-training by reading policies and procedural guides on their own (90%), classroom style training administered in-house (53%), shadowing or mentorship with experienced staff (52%), and classroom-style training administered by an outside organization (50%) (see Exhibit E-2d).

Compared to FY 2012, the data imply a pronounced increase in the use of self-training for experienced staff, with only 63 percent of PHAs/projects using this method in FY 2012. There appears to be a slight decrease in the use of shadowing and mentoring with other experienced staff from the previous year (56% in FY 2012), while the use of classroom-style training by outside organizations to train experienced certification staff seems to have remained stable.

An analysis by program type found that PHA-administered Section 8 projects were most likely to provide policies and procedural guides to experienced staff for self-training (94%), to have staff shadow and be mentored by other experienced staff (54%), and to use Web-based and recorded training videos from HUD (58%) (see Exhibit E-2d). Owner-administered projects were most likely to have an experienced employee attend classroom-style training administered by an outside organization (64%). Interestingly, in FY 2013, Owner-administered projects also had the highest utilization of classroom-style training administered in-house (59%), Web-based and recorded training videos created by an outside organization (40%), and Web-based and recorded training video created in-house (20%). Conversely, Public Housing projects were least likely to utilize self-training with policies and procedural guides (86%), in-house training classes (47%), and outsourced training classes (36%).

Exhibit E-2d: Methods Used to Train Experienced Certification Staff, by Program Type



Note: Percentages were calculated for PHAs/projects that responded to the specific items.

The average number of training hours provided to an experienced certification staff member was less than that provided to a new staff member. PHAs/projects dedicated the most total training hours to shadowing and mentorship with other experienced staff, with an average of approximately 43 hours for experienced certification staff over the study period (see Exhibit E-2e). The rest of the training for experienced staff throughout the study period was comprised of an average of 36 hours of self-training and less than 10 hours in classroom-style and less than 3 hours in Web-based and recorded trainings each from November 1, 2012 to October 31, 2013.

Exhibit E-2e: Average Training Hours Per Training Method for Experienced Certification Staff, by Program Type

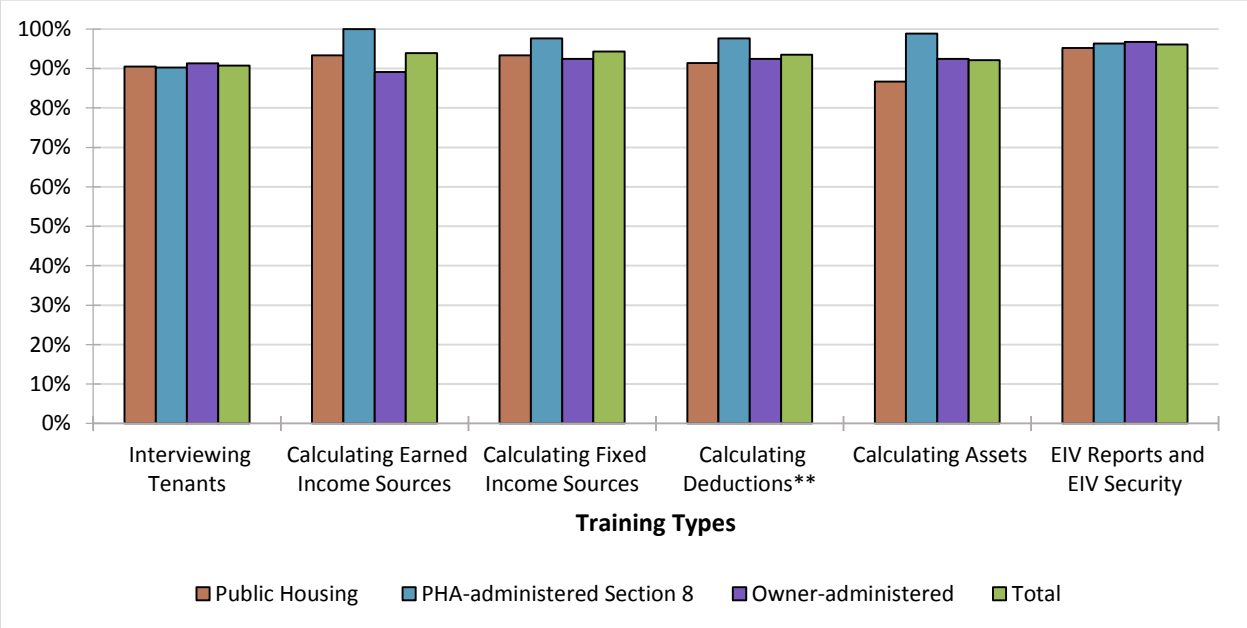
Training Methods for Experienced Staff	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
Shadowing or Mentorship with More Experienced Staff	41.1	63.5	30.2	43.0
Reading Policies and Procedural Guides on Their Own	15.5	65.0	35.7	35.9
Classroom-Style Training Administered In-House	9.4	10.2	8.2	9.2
Classroom-Style Training Administered by an Outside Organization	6.0	8.8	9.7	8.1
Web-Based or Recorded Training Video Created by HUD	2.6	3.8	1.3	2.4
Web-Based or Recorded Training Video Created by an Outside Organization	1.5	3.3	1.8	2.1
Web-Based or Recorded Training Video Created In-House	0.7	0.5	1.0	0.8

Note: Averages were calculated for PHAs/projects that responded to the specific items.

PHA/project training topics used to educate staff on conducting certifications are also important in determining activities that support proper rent calculation. PHAs/projects reported the approximate number of rent calculation training hours for a typical new and experienced staff member on various training topics. These hours were used to calculate the average percentage of PHAs/projects that provided various training topics related to certification activities from November 1, 2012 to October 31, 2013, where zero hours indicated that the training topic was not presented to certification staff. For new certification staff, virtually all (at least 90%) of PHAs/projects provided training in every topic area listed (see Exhibit E-2f). The average number of hours spent on each topic is for the most part evenly distributed among the topic areas with averages from about 12 to 24 hours during the study period (see Exhibit E-2g).

With respect to program type, PHA-administered Section 8 projects were most likely to provide training in calculating deductions, assets, fixed income sources, and earned income sources (at least 97% in each) and had the highest average number of hours spent teaching on these topics to a new certification staff member (29, 26, 28, and 31 average hours, respectively) (see Exhibit E-2g). Owner-administered projects spent the most time training a new employee on EIV reports and EIV security (13 hours on average) compared to other program types, while Public Housing projects spent the most time teaching staff about interviewing tenants (30 hours, compared to 23 hours for PHA-administered Section 8, and 16 hours for Owner-administered projects).

Exhibit E-2f: Training Topic Areas for New Certification Staff, by Program Type*



Note: Percentages calculated for those PHAs/projects that had new certification staff in FY 2013.
* Percentages were not calculated for training topic "Entering Form HUD-50058/50059" as this topic was not included in the survey for new certification staff.
** Deductions refer to medical, disability, and childcare deductions.

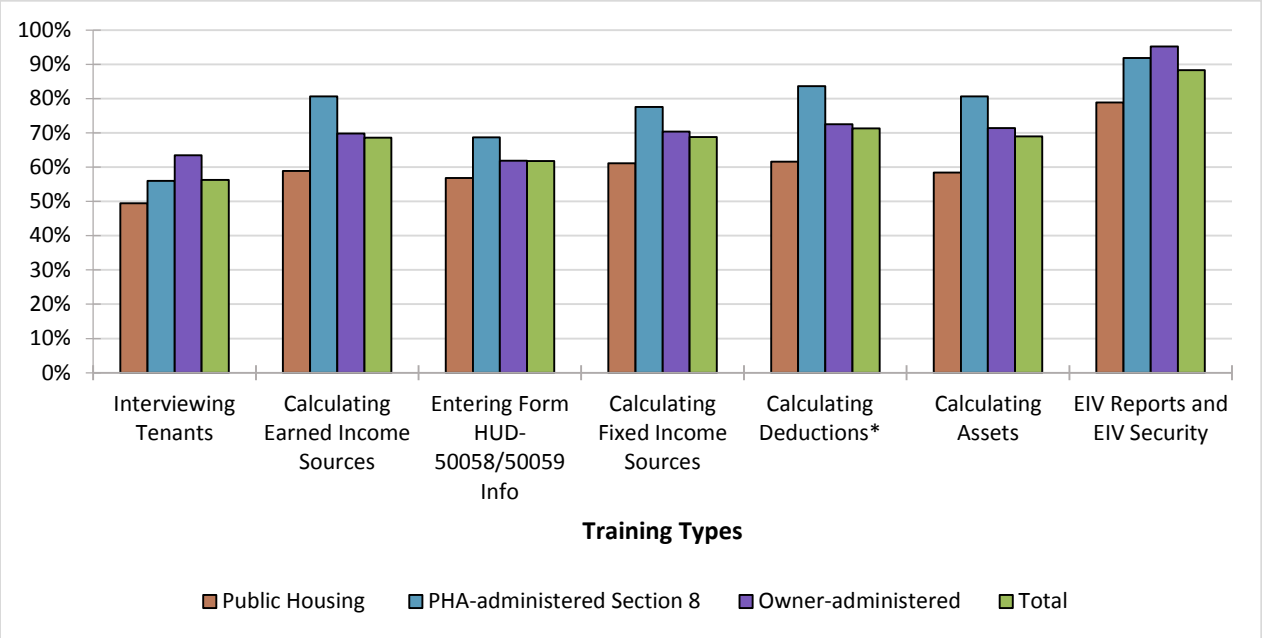
Exhibit E-2g: Average Training Hours Per Training Topic for New Certification Staff, by Program Type

Training Topics for New Staff	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
Interviewing Tenants	30.2	23.0	16.2	23.4
Calculating Earned Income Sources	20.6	31.2	13.5	21.4
Calculating Fixed Income Sources	15.2	28.0	13.6	18.4
Calculating Deductions (Medical, Disability, Childcare)	14.2	28.7	13.7	18.3
Calculating Assets	11.4	26.4	13.7	16.6
EIV Reports and EIV Security	10.3	12.2	13.4	11.9

Note: Averages calculated for those PHAs/projects that had new certification staff in FY 2013.
* Percentages were not calculated for training topic due to a data collection error.

PHAs/projects were most likely to train experienced certification staff in EIV reports and EIV security (88%); calculating deductions (71%); and calculating earned income sources, fixed income sources, and assets (69% each) (see Exhibit E-2h). Owner-administered projects were most likely to teach on EIV reports and EIV security (95%) and interviewing tenants (64%), while PHA-administered Section 8 projects were most likely to train an experienced staff member on all other topic areas. An experienced certification staff member received approximately 7 fewer hours of training for each topic on average than a new certification staff member (see Exhibit E-2i). For all training topics, an experienced employee received 15 hours or less on average. Program specific averages found that Public Housing projects provided the highest average hours of training, with over 20 hours dedicated to interviewing tenants, calculating earned income, and entering Form HUD-50058/50059 information (29, 22, and 23 hours, respectively). Public Housing projects also provided the most training in calculating fixed income and assets to experienced certification staff (15 and 12 hours, respectively). Conversely, Owner-administered projects provided the least training to an experienced certification staff member, with less than 6 hours of training spent in nearly every topic.

Exhibit E-2h: Training Topic Areas for Experienced Certification Staff, by Program Type



Note: Percentages were calculated for PHAs/projects that responded to the specific items.
* Deductions refer to medical, disability, and childcare deductions.

Exhibit E-2i: Average Training Hours Per Training Topic for Experienced Certification Staff, by Program Type

Training Topics for Experienced Staff	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
Interviewing Tenants	29.3	10.4	4.6	15.2
Calculating Earned Income Sources	21.5	14.2	5.5	13.7
Entering Form HUD-50058/50059 Information	22.6	9.1	4.8	12.5
Calculating Fixed Income Sources	15.4	13.7	5.4	11.3
Calculating Deductions (Medical, Disability, Childcare)	13.4	14.1	5.5	10.7
Calculating Assets	12.2	9.1	5.5	8.9
EIV Reports and EIV Security	6.6	6.6	7.5	6.9

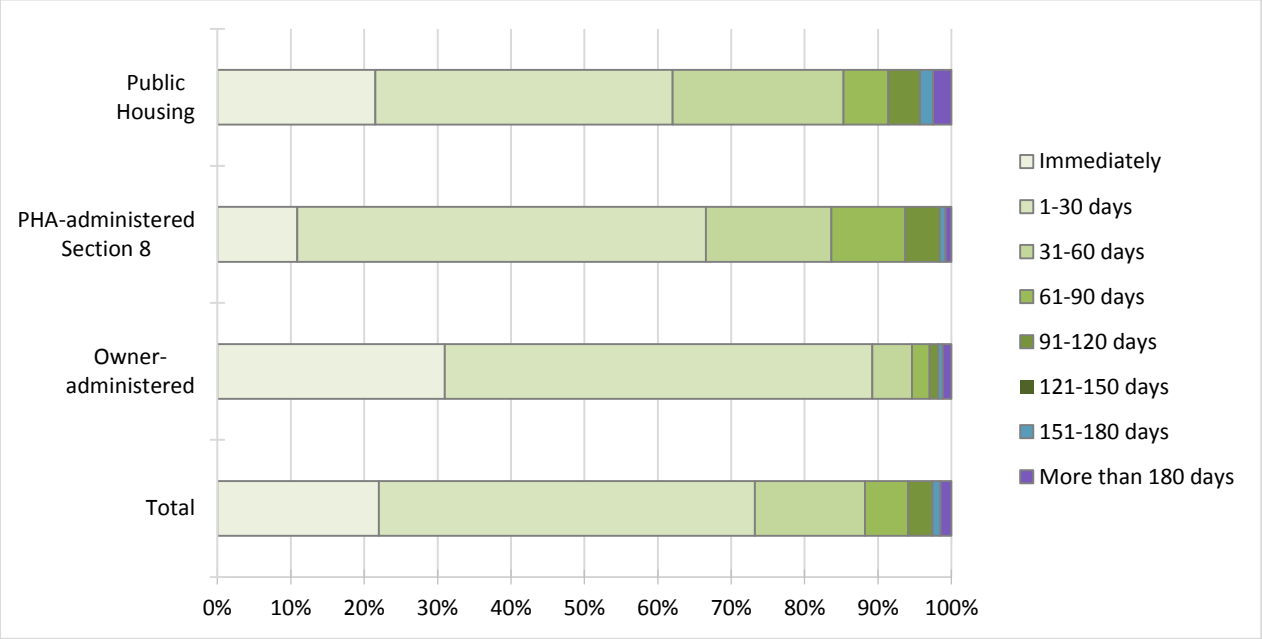
Note: Averages were calculated for PHAs/projects that responded to the specific items.

Policy Implementation

In FY 2013, the PSQ aimed to capture information from PHAs/projects regarding the average time it takes to implement a new policy related to rent calculation. Qualitative data were collected and an analysis of the responses found that the majority of PHAs/projects implement a new policy between 1–30 days once a PIH Notice or Housing Notice is issued (51%) (see Exhibit E-2j). Many PHAs/projects also stated that implementation of a new policy related to rent calculation begins immediately after issuance of a notice (22%), and only about six percent of projects reported that they take longer than 90 days to implement a new rent calculation policy.

With respect to program type, Owner-administered projects were most likely to immediately implement a new policy and most likely to have full implementation of a new policy after 30 days (31% and 89%, respectively) (see Exhibit E-2j). Public Housing projects were least likely to have new policies in place after 30 days (62%).

Exhibit E-2j: Average Implementation Time for a New Rent Calculation Policy, by Program Type



To further explore the nature of policy implementation, the PSQ asked Public Housing and PHA-administered Section 8 projects to provide information on which methods were used to inform certification staff of PIH Notice 2013-03 (HA). This notice, issued in January 2013, provided programs with the option to change adjusted income verification procedures, the option to have households self-certify assets less than $5,000, and the option to streamline fixed-income household reexaminations, among other policies. PHAs/projects were most likely to provide a paper or electronic copy of the PIH notice or hold a meeting (63% each) to alert certification staff about the new policy (see Exhibit E-2k). Forty-nine percent of PHAs/projects provided additional guidance related to the PIH notice and less than one-quarter of certification staff were notified of the new policy through an e-mail from the HUD listserv. Only 11 percent of PHAs/projects reported that they did not discuss the new policy with their staff nor did staff receive a notice of the policy.

PHA-administered Section 8 projects were most likely to provide paper or electronic copies of the notice (67%), discuss the notice with certifications staff during a meeting (81%), and provide additional guidance about the policy to staff (63%) (see Exhibit E-2k). Public Housing projects were most likely to rely on the HUD listserv to notify staff directly (26%) and were most likely to fail to discuss the policy with certification staff or to provide the PIH notice (15%). Note that since the policies outlined in the Notice were optional and intended to reduce staff workload, project staff were not required to implement or enforce any of the policies if they chose not to adhere to them.

Exhibit E-2k: Method Used to Inform Staff of PIH Notice 2013-03 (HA), by Program Type

Method Used to Inform Staff of PIH Notice 2013-03 (HA)	Program Type		Total
	Public Housing	PHA-administered Section 8	
The PIH Notice (Paper or Electronic Copy) was Provided to Staff	60.5%	67.2%	63.3%
The PIH Notice was Discussed with Certification Staff or Certification Supervisors at a Meeting	50.0%	80.6%	62.7%
Additional Procedures/Guidance Related to the PIH Notice was Provided to Staff	39.5%	62.7%	49.1%
Staff Members are Signed Up to the HUD Listserv and they Received this PIH Notice Directly	25.8%	21.6%	24.1%
There was No Discussion of This Policy with Staff and they Did Not Receive a Notice of This Policy	15.3%	3.7%	10.5%

Note: Percentages were calculated for Public Housing, Moderate Rehabilitation, and Housing Choice Voucher programs only.

Certification Staff Work Behaviors

A goal of the FY 2013 PSQ was to gain some insight into PHA/project assessments of the quality of certification staff work behaviors. Ninety-seven percent of PHAs/projects rated their certification staff as either organized or very organized when working on certification activities (see Exhibit E-2l). Owner-administered projects were most likely to rate staff as very organized (55%) PHA-administered Section 8 projects were most likely to be rated as very unorganized (1.5%).

Similarly, about 95 percent of PHAs/projects reported certification staff as having either good or very good time management (see Exhibit E-2l). As with organization, Owner-administered projects were most likely to select a rating of very good (47%), while Public Housing projects and PHA-administered Section 8 projects both were most likely to have poor time management (5% each).

Only 1 percent of PHAs/projects reported that certification staff had either little or very little to no attention to detail when working on certification activities (see Exhibit E-2l). Seventy-seven percent of PHAs/projects rated staff as having a lot of attention to detail, while 21 percent reported only some attention to detail. Following trends from the previous questions, Owner-administered projects had the highest positive ratings, with 86 percent stating that staff had a lot of attention to detail, and certification staff at PHA-administered Section 8 projects had poor ratings; they were most likely to be rated as having little attention to detail (2%).

Exhibit E-2l: Certification Staff Work Behaviors, by Program Type

Certification Staff Organization, Attention to Detail, and Quality of Time Management	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
Certification Staff Organization				
Very Organized	44.7%	48.5%	55.0%	49.5%
Organized	51.6%	48.5%	41.8%	47.2%
Unorganized	2.1%	1.5%	1.1%	1.6%
Very Unorganized	0.0%	1.5%	1.1%	0.8%
Certification Staff Quality of Time Management				
Very Good	37.9%	35.8%	46.6%	40.5%
Good	55.8%	59.7%	50.3%	54.8%
Poor	4.7%	4.5%	2.1%	3.7%
Very Poor	0.0%	0.0%	0.0%	0.0%
Certification Staff Attention to Detail				
A Lot	71.6%	71.6%	86.2%	77.0%
Some	26.3%	26.9%	11.6%	21.1%
Little	0.0%	1.5%	1.1%	0.8%
Very Little/None	0.5%	0.0%	0.0%	0.2%

Note: Percentages were calculated for PHAs/projects that responded to the specific items.

3. Performance Management

Quality Control Review and Timing of Reviews

The PSQ inquired about PHA/project practices regarding reviewing tenant files as a quality control measure. Virtually all PHA/project indicated that they reviewed move-in and annual certifications as a quality control measure (92%) (see Exhibit E-3a). PHA-administered Section 8 projects were most likely to review tenant files (99%), while Public Housing projects were the least likely to review cases (88%) for quality control. Overall, from November 1, 2012 to October 31, 2013, PHAs/projects reviewed an average of 44 percent of all move-in and annual certifications and were most likely to conduct reviews prior to the approval of Form HUD-50058/50059 (26%) or within 30 days of submitting Form HUD-50058/50059 (18%) to PIC/TRACS.

Owner-administered projects had the highest average percentage of certifications reviewed (57%), while PHA-administered Section 8 projects had the lowest percentage of certifications reviewed (25%) (see Exhibit E-3a). Furthermore, Owner-administered projects were most likely to conduct reviews prior to Form HUD-50059 approval and within 1 year of submitting Form HUD-50059 (37% and 20%, respectively) and were the least likely to review within 1 month or 3 months of Form HUD-50058/50059 submission (8% and 7%, respectively). Conversely, PHA-administered Section 8 projects were the most likely to review cases within 1 month of submitting Form HUD-50058/50059 (24%, 16%, and 19%, respectively) but were the least likely to review within 7 calendar days or within 6 months of submission (4% and 5%, respectively). Public Housing also

indicated a high rate of conducting QC reviews prior to Form HUD-50058 approval (23%), compared to other review periods.

Exhibit E-3a: Quality Control Reviews and Timing of Reviews, by Program Type

Percentage and Timing of Quality Control Reviews	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
Percentage of PHAs/Projects that Perform Quality Control Reviews of Move-in and Annual Certification transactions	87.9%	98.5%	91.0%	91.8%
Average Percentage of Move-in and Annual Certification Transactions Reviewed for Quality Control*	45.0%	24.6%	56.7%	43.6%
Primary Period Quality Control Review Was Conducted				
Prior to Form HUD-50058/50059 approval*	22.5%	18.2%	36.9%	26.4%
Within 7 calendar days of Form HUD-50058/50059 submission*	8.3%	3.8%	4.8%	5.8%
Within 30 calendar days of Form HUD-50058/50059 submission*	22.5%	23.5%	8.3%	17.7%
Within 60 calendar days of Form HUD-50058/50059 submission*	10.1%	15.9%	9.5%	11.5%
Within 3 months of Form HUD-50058/50059 submission*	11.2%	18.9%	7.1%	11.9%
Within 6 months of Form HUD-50058/50059 submission*	7.7%	4.5%	13.7%	9.0%
Within 1 year of Form HUD-50058/50059 submission*	17.8%	15.2%	19.6%	17.7%

Note: Percentages were calculated for PHAs/projects that responded to the specific items.
* Percentages were calculated for PHAs/projects that reviewed certification transactions as a quality control measure.

Selecting Cases for Review

Twenty-eight percent of PHAs/projects reported that they reviewed not only move-in and annual certifications, but all tenant files as a quality control measure (see Exhibit E-3b). This is a slight increase from FY 2012, where 25 percent of PHAs/projects reviewed all cases, but still a decrease from past years (40% in FY 2011 and 33% in FY 2010). Similar to FY 2012, Owner-administered projects were most likely to review all cases and PHA-administered Section 8 projects were least likely to do so (36% and 17%, respectively) during the study period. However, this is a slight increase from FY 2012, where 34 percent of Owner-administered projects and 12 percent of PHA-administered Section 8 projects reviewed all cases.

PHAs/projects that did not report to performing QC on all tenant files stated that they used the following methods most frequently to select cases for QC: randomly selecting cases for review, selecting move-in transactions, and selecting annual certification transactions (83%, 48%, and 42%, respectively) (See Exhibit E-3b). With respect to program type, nearly all PHA-administered Section 8 projects endorsed randomly sampling tenant files for quality control review (94%) and were most likely to check files processed by new staff (30%). Owner-administered projects were most likely to review move-in transactions (65%) than other program types, but least likely to randomly sample files for review (75%), compared to Pubic Housing (80%) and PHA-administered Section 8 (94%).

Exhibit E-3b: Methods Used by PHAs/Projects to Select Cases for Review, by Program Type

Methods Used to Select Cases for Review	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
All Transactions that were Processed were Reviewed by Another Staff Member	28.4%	17.4%	36.3%	28.1%
Files were Randomly Sampled*	80.2%	93.6%	74.8%	82.8%
Move-In Transactions were Chosen for Review*	29.8%	51.4%	65.4%	48.1%
Annual Certification Transactions were Chosen for Review*	33.9%	51.4%	41.1%	41.8%
Transfer/Move Transactions were Chosen for Review*	13.2%	34.9%	25.2%	24.0%
Interim Transactions were Chosen for Review*	19.8%	27.5%	21.5%	22.8%
Files were Chosen from New Staff*	16.5%	30.3%	5.6%	17.5%
Files were Chosen from Staff with High Error Rates or Who Seem to Have More Trouble*	9.1%	18.3%	0.0%	9.2%
Files were Chosen Based on Household Income, Asset, and Expense Characteristics*	2.5%	5.5%	5.6%	4.5%
PHA/Project Chose Another Method of Selecting Cases for Review that is Not Listed*	7.4%	4.6%	3.7%	5.3%

Note: Percentages were calculated for PHAs/projects that indicated they review tenant files as a quality control measure.
* Percentages were calculated based on PHAs/projects that indicated they did not review all (100%) tenant files.

File Reviewers

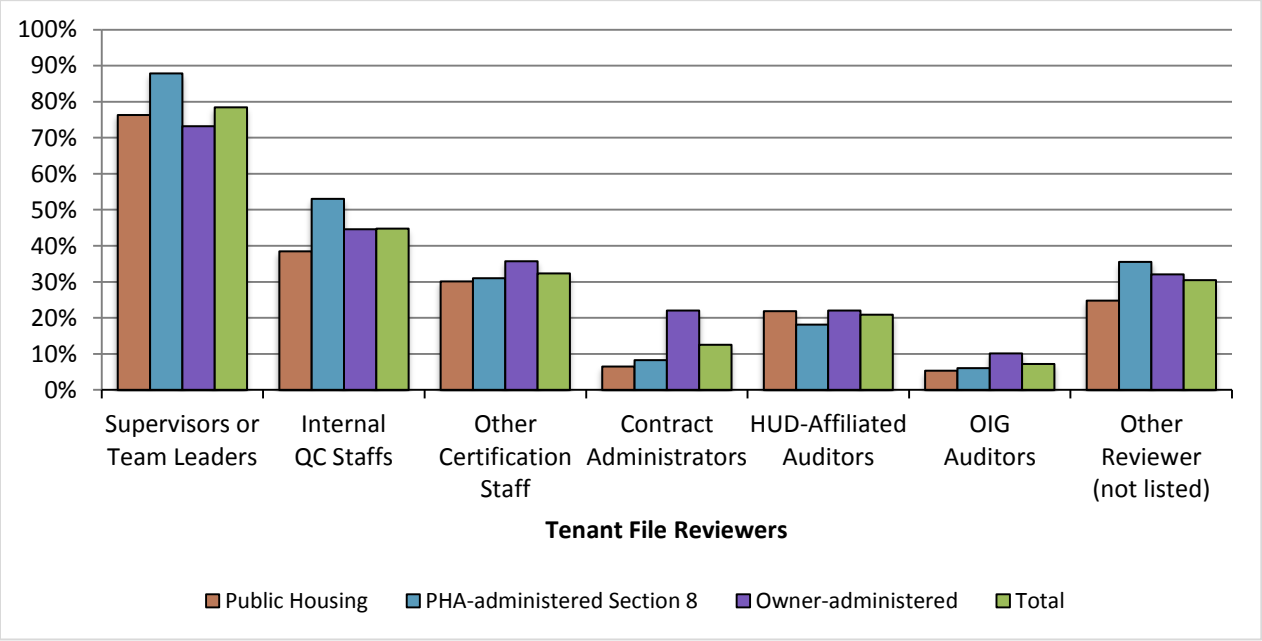
The majority of PHAs/projects indicated that they have dedicated quality control staff to review data submitted on Form HUD-50058/50059 (74%) (see Exhibit E-3c). PHA-administered Section 8 projects were most likely to have quality control staff (89%), while Public Housing projects were least likely (64%). PHAs/projects reported that during the study period, the review or monitoring of tenant files was conducted primarily by the team leader or supervisor (79%) or internal quality control staff (45%) reviewing a yearly average of 322 and 158 tenant files, respectively (see Exhibits E-3d and E-3c). PHA-administered Section 8 projects were the most likely to rely on a supervisor or dedicated internal quality control staff (88% and 53%, respectively) than other program types. Supervisors in this program reviewed an average of 965 files a year (compared to only 92 files in Public Housing and 46 files in Owner-administered programs), with internal quality control staff reviewing about 447 cases (compared to only 65 files in Public Housing and 25 files in Owner-administered programs).

Exhibit E-3c: Quality Control Staff and Average Number of Tenant Files Reviewed, by Program Type

Quality Control Staff and Files Reviewed	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
Percentage of PHAs/projects with a Dedicated Quality Control Staff	64.2%	88.8%	73.5%	74.1%
Average Number of Files Reviewed				
Supervisors or Team Leaders*	92.0	965.0	46.2	321.9
Internal Staff Reviewers/Quality Control Staffs*	64.7	447.1	24.9	158.3
Other Certification Staffs*	37.0	180.3	22.9	72.4
Contract Administrators*	2.1	7.0	5.9	4.9
HUD-Affiliated Auditors*	2.7	4.4	3.4	3.4
OIG Auditors*	0.7	4.0	1.8	2.0
Other Type of Reviewers Not Listed Above*	15.6	17.8	6.0	12.8

Note: Percentages and averages were calculated for PHAs/projects that responded to the specific items.
* Averages were calculated for the PHAs/projects that indicated that they review tenant files as a quality control measure.

Exhibit E-3d: Sources of Monitoring or Reviewing of Tenant Files, by Program Type



Note: Data presented in the figure were calculated for the PHAs/projects that indicated that they review tenant files as a quality control measure.

File Information Reviewed

For those PHAs/projects that conduct dedicated quality control reviews, over 90 percent typically check for proper household documentation, presence of verification documents, and correct income and medical expense calculation (see Exhibit E-3e). PHAs/projects were least likely to report that a general spot check of the file is performed (40%), indicating that specific file information is confirmed during quality control checks. Exhibit E-3e provides a complete

breakdown of documentation, verification, calculations, and other information categories typically checked during the quality control process. The exhibit illustrates that PHA-administered Section 8 projects are generally more likely to review file information for every file information category than other program types.

Exhibit E-3e: File Information Typically Reviewed During Quality Control, by Program Type

File Information Typically Reviewed During QC	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
Documentation				
Proper Core Household Documentation in the Tenant File	87.5%	97.0%	94.1%	92.5%
Accurate Completion Of Documentation in the Tenant File	85.8%	95.5%	87.6%	89.1%
Proper Unit Documentation in the Tenant File	63.6%	97.0%	72.4%	75.9%
Consistency of A Household's Certification/Interview Application to Tenant File Documentation	65.3%	81.1%	78.8%	74.5%
Verification				
Presence of Verification Documents in the Tenant File	88.6%	99.2%	94.7%	93.7%
Appropriate Type of Verification Documentation (Follows Verification Policy) is in the Tenant File	79.0%	90.9%	88.8%	85.8%
Verification Documents Meet Your Program's Timeframe for Acceptable Documentation	69.3%	93.2%	81.2%	80.1%
Calculations				
Correct Income Calculation	88.6%	99.2%	95.9%	94.1%
Correct Medical Expense Calculation	83.0%	98.5%	92.9%	90.8%
Correct Disability Expenses Calculation	75.6%	97.7%	82.9%	84.3%
Correct Child Care Expense Calculation	73.3%	97.7%	58.8%	74.9%
Other Information				
Properly Entered Data on the Form HUD-50058/50059	76.7%	90.2%	91.2%	85.6%
Accuracy of the Rent Adjustment or HAP Amendment Letter in the Tenant File	51.1%	93.9%	73.5%	70.9%
General Spot Check of the File is Performed	49.4%	28.8%	38.2%	39.7%
Correct Utility Allowance Amount Applied to Rent Calculation, If Applicable to Your Program Type	N/A	96.2%	N/A	96.2%
Correct Payment Standard Amount Applied to Rent Calculation, If Applicable to Your Program Type	N/A	98.5%	N/A	98.5%

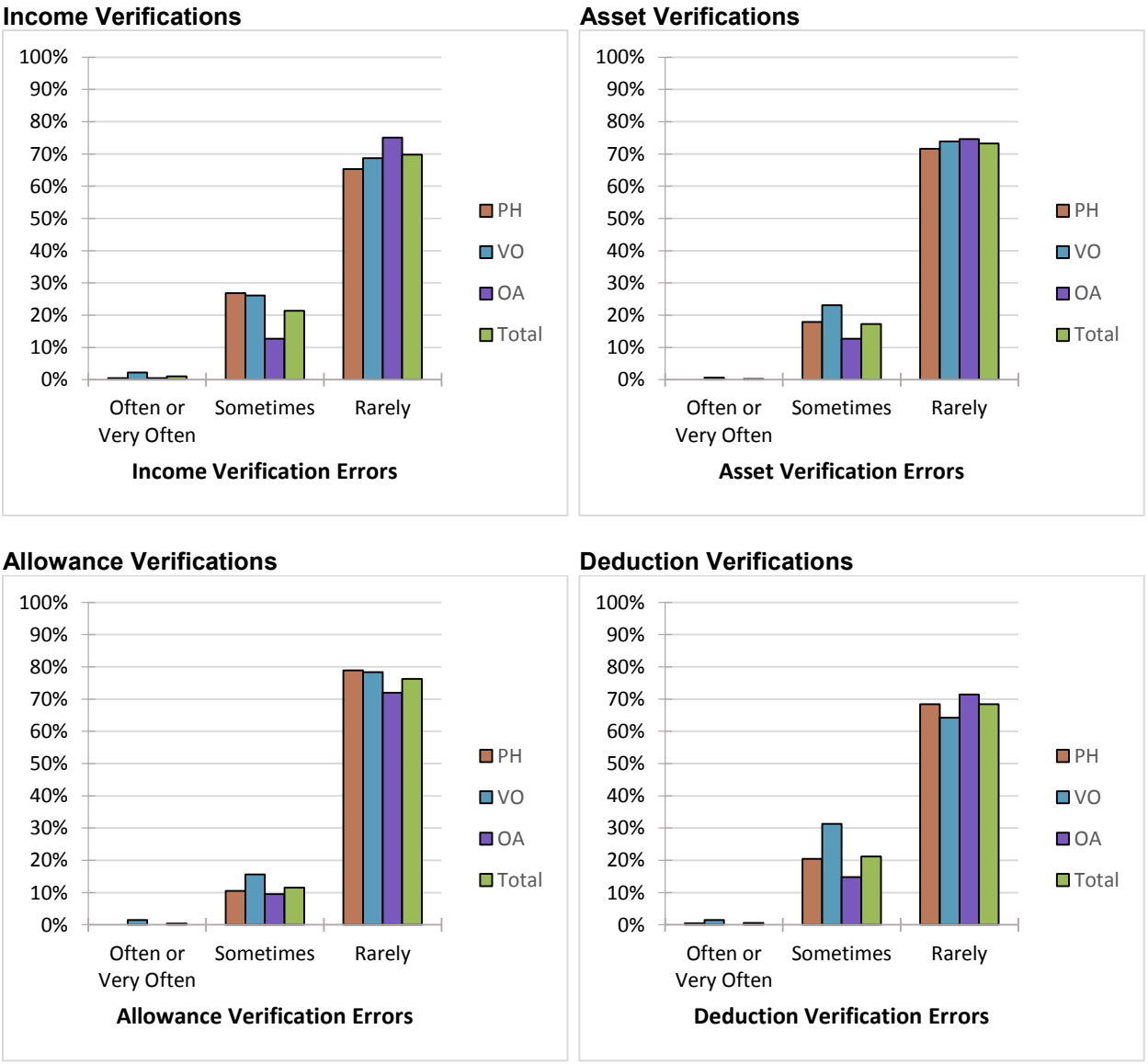
Note: Percentages were calculated for PHAs/projects that indicated they review tenant files as a quality control measure.

Prevalence of Various Types of Errors

All PHAs/projects, regardless of whether they conduct quality reviews, were asked to rate the frequency of errors made by the staff as a whole for various types of rent calculation activities during the study period. They were asked whether errors in verifications, errors in calculations, or human errors were made very often, often, sometimes, or rarely. Regarding errors related to verifications, overall less than one percent of all PHAs/projects indicated that staff often or very often make errors when performing verifications, with income verification errors rated as being

made most often (1%) (see Exhibit E-3f). Errors that were sometimes found included missing, incomplete, or incorrect verification of income and verification of deductions (i.e., medical, childcare, and disability expense) (21% each) and errors in verification of assets (17%).

Exhibit E-3f Frequency of Missing, Incomplete, or Incorrect Verifications, by Program Type
(PH = Public Housing, VO = PHA-administered Section 8, OA = Owner-administered)

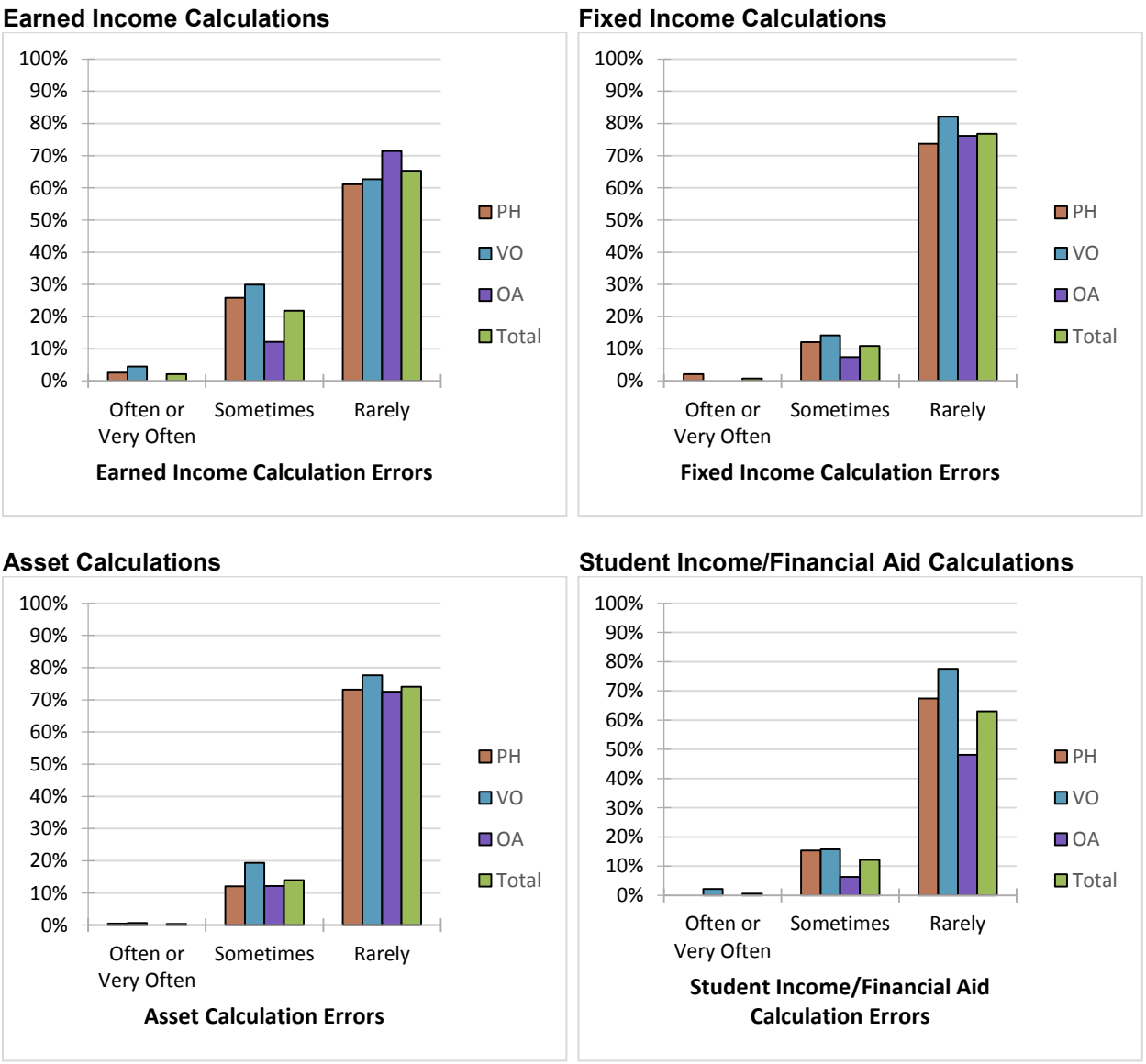


Note: Percentages were calculated for PHAs/projects that responded to the specific items.

Public Housing projects reported occasional errors found in income verification (27%), while PHA-administered Section 8 projects were most likely to report frequent income verification errors, with two percent reporting that errors are made often or very often (see Exhibit E-3f). PHA-administered Section 8 projects were also most likely to have frequent errors in verifications of deductions and allowances (2% each) and were most likely to report occasional errors in deduction, asset, and allowance verifications (31%, 23%, and 16%, respectively).

The majority of PHAs/projects (24%) identified earned income calculation errors as the highest type of error – found either sometimes or often (see Exhibit E-3g) – compared to errors found in fixed income, asset, or student income/financial aid calculation. PHA-administered Section 8 projects were the most likely to report occasional errors during income calculation for all four types of income calculation and were most likely to report frequent errors in calculating earned income and student income (5% and 2%, respectively) than other program types.

Exhibit E-3g: Frequency of Missing, Incomplete, or Incorrect Income Calculations, by Program Type
(PH = Public Housing, VO = PHA-administered Section 8, OA = Owner-administered)



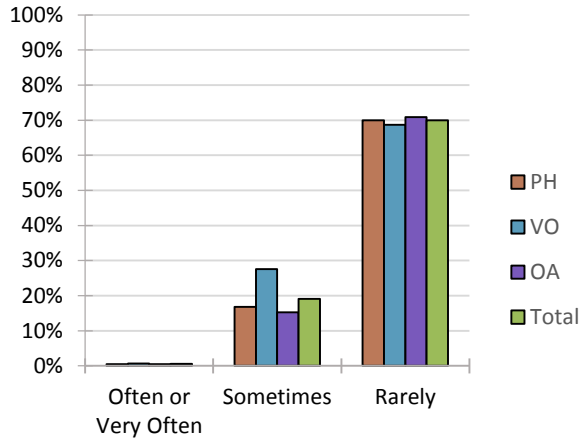
Note: Percentages were calculated for PHAs/projects that responded to the specific items.

Regarding errors related to expenses, medical expense calculations were identified as having the highest error rate, with 19 percent of PHAs/projects occasionally (sometimes) finding these errors, but overall less than one percent of all PHAs/projects indicated that staff often or very often made

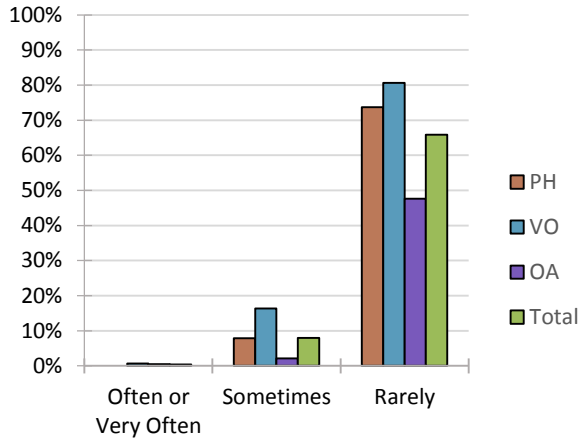
errors when performing medical, childcare, and disability expense calculations (see Exhibit E-3h). PHA-administered Section 8 projects reported the highest rate of occasional errors in childcare and medical expense calculations (16% and 28%, respectively) compared to other program types.

Exhibit E-3h: Frequency of Missing, Incomplete, or Incorrect Expense Calculations, by Program Type
(PH = Public Housing, VO = PHA-administered Section 8, OA = Owner-administered)

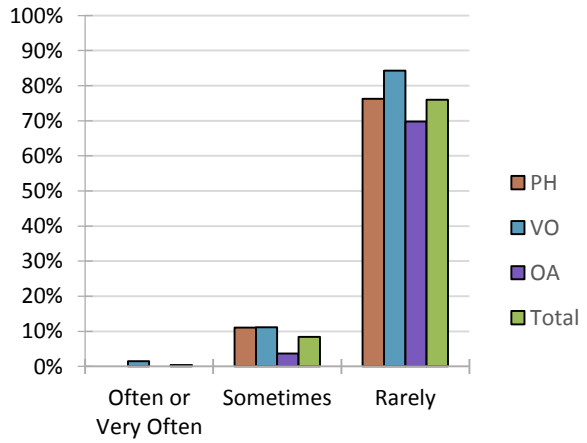
Medical Expense Calculations



Childcare Expense Calculations



Disability Expense Calculations



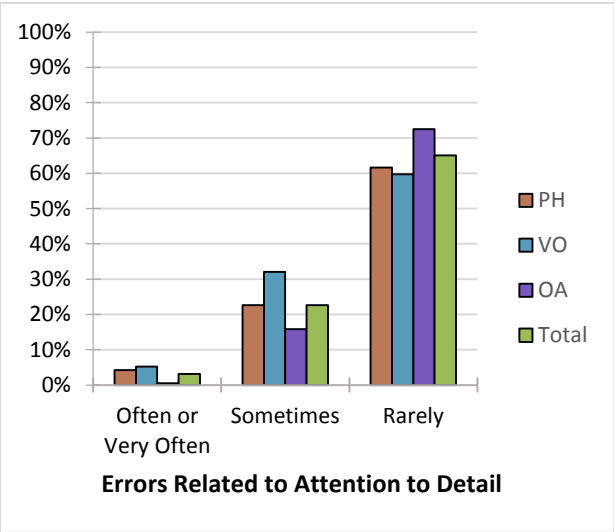
Note: Percentages were calculated for PHAs/projects that responded to the specific items.

Errors due to poor attention to detail and late annual certifications had, collectively, the highest reported occasional error rates of all rent calculation activities (23% and 24%, respectively) and the highest errors that were rated as being made often or very often (3%, each) compared to other types of errors (see Exhibit E-3i). Public Housing projects were most likely to have certification staff frequently conduct late annual certifications (4%), while PHA-administered Section 8 projects were most likely to have staff make human errors related to attention to detail (5%).

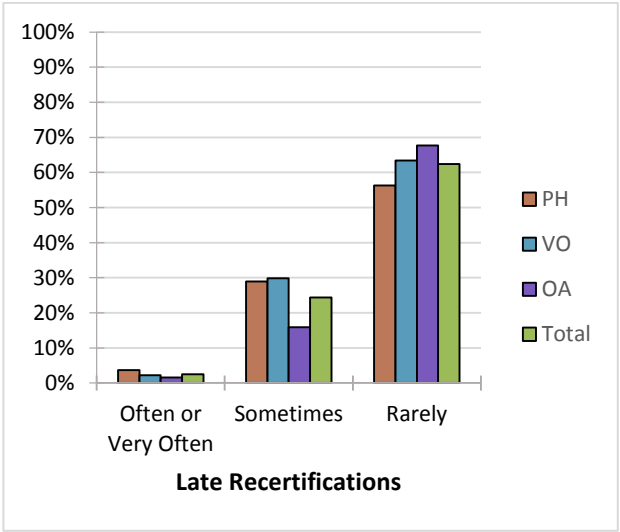
Regarding the calculation of payment standards and utility allowances, errors were made very often or often less than two percent of the time (<1% and 2%, respectively). Payment standard and utility allowance errors were identified as being made sometimes, less than ten percent of the time (8% and 7%, respectively).

Exhibit E-3i: Frequency of Other Errors, by Program Type
(PH = Public Housing, VO = PHA-administered Section 8, OA = Owner-administered)

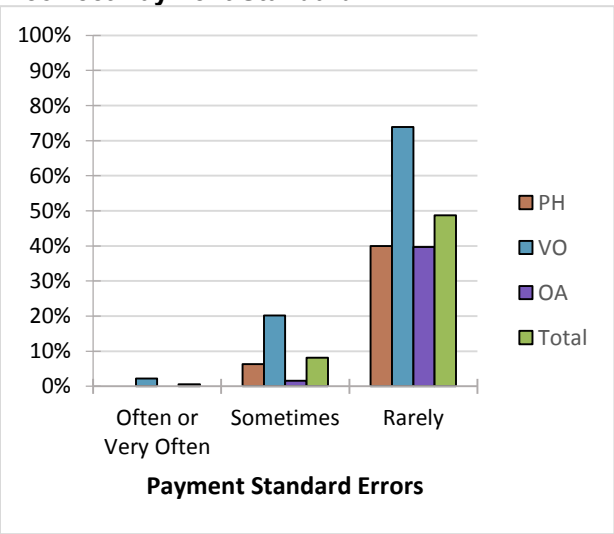
Errors Due to Poor Attention to Detail



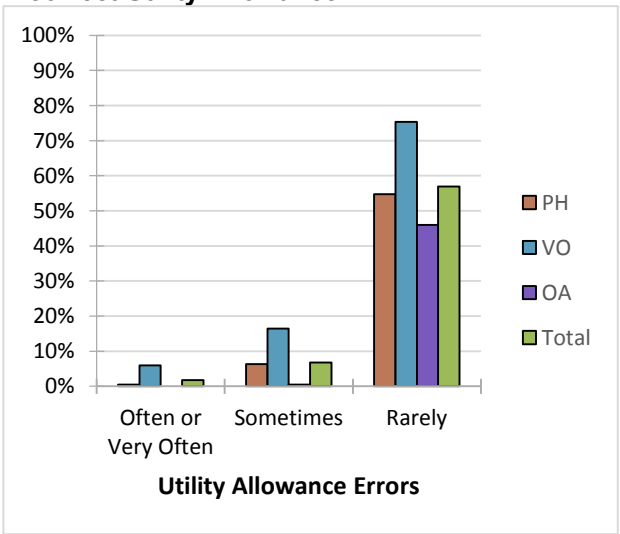
Late Annual Certification



Incorrect Payment Standard



Incorrect Utility Allowance



Note: Percentages were calculated for PHAs/projects that responded to the specific items.

Performance Feedback to Staff

In order to provide performance feedback to staff regarding errors found during quality control, PHAs/projects are most likely to have one-on-one conversations to discuss quality control findings with staff (69%) or record file errors and make that information available to certification staff (52%) (see Exhibit E-3j). Many PHAs/projects also conducted team/group meetings to discuss quality control issues (38%) and provided general reports of quality control findings to

staff (22%). For all performance feedback methods, PHA-administered Section 8 projects were most likely to use each method.

Exhibit E-3j: Methods of Feedback to Staff Regarding Errors Found During QC, by Program Type

Methods of Feedback	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
One-On-One Conversations to Discuss QC Findings (Phone or In-person)	68.9%	73.9%	66.7%	69.4%
Specific Deficiencies for Each File are Recorded and Made Available to Certification Staff	43.2%	67.2%	51.3%	52.4%
Team/Group Meetings to Discuss QC Issues	39.5%	63.4%	18.0%	37.8%
A General Report on QC Findings is Provided to All Certification Staff	21.1%	32.8%	16.4%	22.4%
Other Feedback Method Not Mentioned Above	10.0%	9.0%	9.0%	9.4%

Note: Percentages were calculated for PHAs/projects that reviewed tenant files as a quality control measure.

PHAs/projects were asked to comment on the frequency with which they provided feedback to staff on their performance in calculating rent (see Exhibit E-3k). Twenty-nine percent of PHAs/projects reported they provided monthly feedback, followed by weekly (15%), quarterly (14%), and annually (13%). Only three percent of PHAs/projects reported that they did not provide any performance feedback to staff. Public Housing projects were most likely to provide weekly feedback (20%), Owner-administered projects were most likely to provide feedback daily (13%) or annually (17%), and PHA-administered Section 8 projects were most likely to provide monthly or quarterly feedback (37% and 19%, respectively).

Exhibit E-3k: Frequency of Rent Calculation Performance Feedback to Staff, by Program Type

Frequency of Feedback to Certification Staff	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
Daily	9.5%	4.5%	12.5%	9.2%
Weekly	20.1%	14.4%	11.3%	15.4%
Monthly	29.6%	37.1%	23.2%	29.4%
Quarterly	14.8%	18.9%	8.9%	13.9%
Semi-annually	4.7%	2.3%	8.3%	5.3%
Annually	9.5%	13.6%	17.3%	13.4%
Other Time Period	8.3%	9.1%	14.3%	10.7%
Performance Feedback is Not Provided to Staff	3.6%	0.0%	4.2%	2.8%

Note: Percentages were calculated for PHAs/projects that responded to the specific items.

PHAs/projects were asked which staff were responsible for file corrections when errors were found during QC review and, overwhelmingly, the certification staff member who made the error was responsible for making the file corrections (83%), while only ten percent of PHAs/projects required the file reviewer to make the correction (see Exhibit E-3l). PHA-administered Section 8 projects were most likely to have the certification staff who made the error complete the file

corrections (92%), compared to Owner-administered projects (73%) and Public Housing projects (86%). Owner-administered projects were most likely to have the quality control reviewer correct file errors (17%), compared to other program types (6% PHA-administered Section 8 and 7% Public Housing).

Exhibit E-3l: Staff Members Responsible for File Corrections During Quality Control, by Program Type

Staff Responsible for File Corrections When Errors Were Found During Quality Control	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
The Certification Staff Who Made the Error	86.4%	92.4%	73.2%	83.4%
The Person Who Performed Quality Control of the File	7.1%	6.1%	17.3%	10.4%
Other Correction Staff Member Not Mentioned Above	1.2%	0.8%	4.2%	2.1%

Note: Percentages were calculated for PHAs/projects that reviewed certification transactions as a quality control measure.

Error Tracking and Mitigation

Regarding the specific types of errors tracked, late annual certification transactions (53%), errors in verifying income, assets, and expenses (41%), errors in earned income calculations (41%), and errors in maintaining accurate tenant file information (41%) are most frequently monitored (see Exhibit E-3m). Twenty-four percent of PHAs/projects reported that they do not track any of the provided list of certification errors.

PHA-administered Section 8 projects were most likely to track certification errors in all categories at considerably higher rates than both Public Housing and Owner-administered projects. PHA-administered Section 8 projects were also least likely to report that they do not track certification errors (8%), compared to Owner-administered projects (34%) and Public Housing projects (25%).

Exhibit E-3m: Types of Rent Calculation Errors Tracked, by Program Type

Types of Certification Errors Tracked or Recorded	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
Late Annual Certification Transactions	56.8%	70.9%	35.4%	52.6%
Errors Related to Accurate Verification of Income, Assets, and Expenses	36.3%	66.4%	28.6%	41.3%
Errors in Earned Income Calculation	38.9%	68.7%	23.8%	41.1%
Errors in Maintaining Accurate Tenant File Documentation that is Not Related to Verification Of Income, Assets, and Expenses	35.8%	67.2%	26.5%	40.5%
Errors in Medical Expense Calculation	30.0%	62.7%	29.1%	38.2%
Errors in Asset Calculation	26.8%	56.7%	23.8%	33.5%
Errors in Fixed Income Calculation	25.3%	56.7%	22.2%	32.4%
Errors in Elderly/Disability Allowance Determination	25.8%	56.0%	18.5%	31.0%
Errors in Dependent Allowance Determination	20.5%	54.5%	10.6%	25.7%
Errors in Childcare Expense Calculation	20.5%	57.5%	8.5%	25.7%
Errors in Disability Expense Calculation	19.5%	51.5%	12.2%	25.1%
None – the Project Does Not Track Any of the Above Information	24.7%	8.2%	33.9%	23.8%

Note: Percentages were calculated for PHAs/projects that responded to the specific items.

Overall, the majority of PHAs/projects, regardless of whether they conducted quality checks, had a formal or informal goal setting process in place during the study period. Seventy-one percent indicated that they had a goal-setting practice surrounding rent calculations for certification staff (see Exhibit E-3n). Furthermore, 80 percent of PHAs/projects required certification staff to review a household's previous Form HUD-50058/50059 before beginning a new certification transaction. With respect to program type, Owner-administered projects were least likely to have a goal-setting process in place but most likely to require certification staff to review the previous Form HUD-50058/50059 (61% and 84%, respectively). While neither of these strategies are formal or thorough quality control measures, implementing and enforcing these performance targets may help reduce rent calculation error.

Exhibit E-3n: Percentage of PHAs/Projects with Certification Performance Goals and Form HUD 50058/50059 Review Requirements, by Program Type

Rent Calculation Error Mitigation Strategies	Program Type			Total
	Public Housing	PHA-administered Section 8	Owner-administered	
Percentage of Certification Staff That Undergo a Formal or Informal Goal Setting Process Related to Performing Certifications	75.8%	78.4%	61.4%	71.2%
PHA/Project Requires Certification Staff to Review Household's Previous Form HUD-50058/50059 Prior to Starting New Certification Transaction	78.4%	78.4%	83.6%	80.3%

Note: Percentages were calculated for PHAs/projects that responded to the specific items.

C. Conclusion

Overall, PSQ questions regarding PHA/project characteristics, certification staff training and development, and performance management reveal a detailed, complex, and interesting picture of PHAs/projects. Demographically, there was a slight increase in the number of units/households from past years, though this was met by a slight increase in the number of certification staff. With respect to project characteristics, virtually all of the PHA/project respondents indicated that they did not contract out their certification activities. In addition, almost all of the PHAs/projects indicated that they used computer software to help calculate tenant rents and reported that the software is able to conduct a wide variety of tasks, with minimal limitations. Furthermore, almost all PHAs/projects reported conducting training of certification staff on new policies, new procedures, or new quality control operations. Similarly, virtually all of the PHAs/projects reported reviewing the previous Form HUD-50058/50059 before processing a new certification transaction. PHAs/projects rated certification staff work behavior as organized, timely, and attentive. With respect to the monitoring of certifications, almost all of the PHAs/projects indicated that they review move-in and annual certifications as a quality control measure.

There appears to be a downward trend in the average number of hours of training provided to each new certification staff member, with FY 2013 contributing the lowest average in the last 4 years. However, with respect to implementing quality control procedures, a greater number of PHAs/projects reported reviewing all tenant files than in the previous year. The PSQ also provided some specific information regarding the experiences and issues of PHAs/projects with the certification process. For instance, during the quality control monitoring of certifications, the majority of PHAs/projects reported randomly sampling files for review and, furthermore, that the most effective quality control technique was to review the files prior to Form HUD-50058/50059 approval. Overall rent calculations errors are not found very often, but the most common type of error made by certification staff were human errors caused by insufficient attention to detail.

For future HUDQC studies, it would be helpful to develop and validate additional items that specifically target potential difficulties or barriers to conducting training and managing staff performance and that collect best practices for error mitigation. Additionally, to provide a richer view of project practices to HUD, the development of questions that directly link staffing and staff performance to certification and quality control procedures is desirable. While focus groups and cognitive interviewing may be optimal in supporting the revision of the PSQ items by focusing attention on the specific circumstances and issues faced by the PHAs/projects, open-ended questions also help identify and explain these issues. Gathering detailed descriptions of these aspects of the certification process would lead to a more complete and detailed picture of the issues faced by the PHAs/projects and would provide a better link between PHA/project practices and characteristics and the estimation of payment and income errors.

Appendix F: Multivariate Analysis

APPENDIX F: MULTIVARIATE ANALYSIS

Introduction

As required under Objective 12, ICF International conducted multivariate analyses to identify project and household factors related to rent error and project-caused errors in the certification/recertification process. The multivariate analyses also aimed to address the extent to which error rates in projects that use an automated rent calculation system differ from errors in those that do not (Objective 11), and to determine whether error rates and error costs had statistically significant difference between program types (Objective 5). Multivariate analysis allows us to examine root causes of rent error and determine corrective actions that can be taken to lessen improper payment.

Using measures of project characteristics and practices combined with household variables, the multiple regression analysis sought to systematically assess the net effects of project and household variables *on the rent error and project-caused errors*.[39] To meet the study objectives, we addressed two research questions:

1. Other things being equal, what project characteristics, project practices, and household variables accounted for rent error and project-caused errors?
2. What was the effect size (or relative strength) of project characteristics, project practice features, project-caused errors, and household characteristics in accounting for Gross Rent Error?[40]

We developed two conceptual models to address the above research questions: one model examining rent errors (gross error, under- and overpayment errors) and one model examining project-caused errors. Focusing on project factors and project-caused errors in connection to rent errors, we attempted to generate useful information for HUD program improvement. Household or tenant characteristics associated with rent error were examined as well to provide information on details that complicate certification. Data obtained from our Project Staff Questionnaire was used to conduct this analysis (see Attachment 1 for information on the data imputation steps taken).

Modeling Rent Errors. The dollar amount of rent error was measured in terms of subsidy overpayment, subsidy underpayment, and Gross Rent Error. Subsidy underpayment is the dollar error caused by the household paying more than it should have (tenant overpayment); thus, HUD's contribution was less than it should have been. Subsidy overpayment, conversely, is the dollar error caused by the household's contribution being less than it should have been (tenant underpayment), and HUD's contribution being more. Gross error is the dollar amount of either overpayment or underpayment (in absolute value) for a given household (see Appendix A for

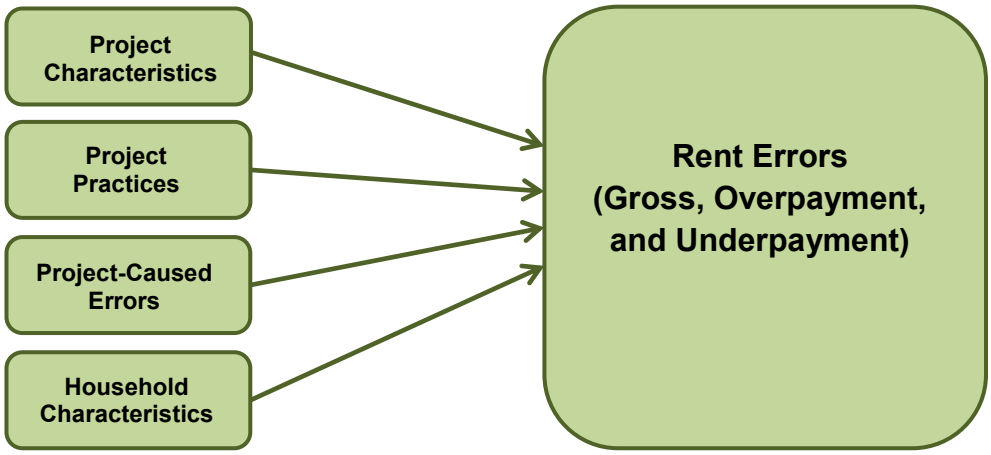
[39] The term "net effect" refers to the relationship between a given independent variable and the outcome variable, statistically controlling for other independent variables in the model. A net effect is the estimated regression coefficient *b* or slope for a given predictor in multiple regression modeling. The term does not necessarily imply a causal effect, as this cross-sectional, survey-based design does not warrant causal conclusions.

[40] Estimation of the "effect size" for predictor variables requires valid measurement of each variable, sensible model specifications, and a good model fit. In survey data analysis, however, it is always challenging to obtain accurate measures of every variable and specify models that generate robust estimates of effect sizes.

calculations of the three measures). These three measures of rent error may relate to project and household factors in different patterns, therefore it is necessary to model each rent error measure.

Hypothetically, dollar amounts of rent errors are affected by four sets of factors: (1) project characteristics, (2) project practices, (3) project-caused errors, and (4) household characteristics (see Figure F-1). Project characteristics include organizational and staffing features (e.g., program type, caseload for all staff, certification staff, experienced staff). Project practices cover different ways to assign cases (e.g., by transaction type, certification activities, or complexity levels); training hours and methods/topics for new and experienced staff; information technology (IT) applications; contracting certification to outside entities; and a set of performance management or quality control (QC) measures. QC measures range from setting performance goals, dedicating a department or personnel to QC, reviewing certification and recertification to a certain extent, to measuring staff-perceived frequency of making various errors in the process (see Attachment 2 for details of project data processing and indicator construction).

Figure F-1
Conceptual Framework for Modeling Rent Errors



The project-caused errors will be used as predictors of rent error and as the outcomes to be modeled through project variables and household characteristics. The available data, however, may not be adequate to realistically represent all potential project errors (see the Methodology section below for definitions of the error types). Not all indicators of project-caused errors were found to be important in accounting for rent errors. Some project errors were unrelated or even negatively related to the dollar amount of rent errors, due to possible overlapping or confounding effects among multiple errors and other project or household factors. We tested the available project-caused errors measurement through bivariate and regression analyses to assess their relevance in accounting for Gross Rent Error. Only those that are identified as conceptually important and empirically related to rent errors are included in the final models.

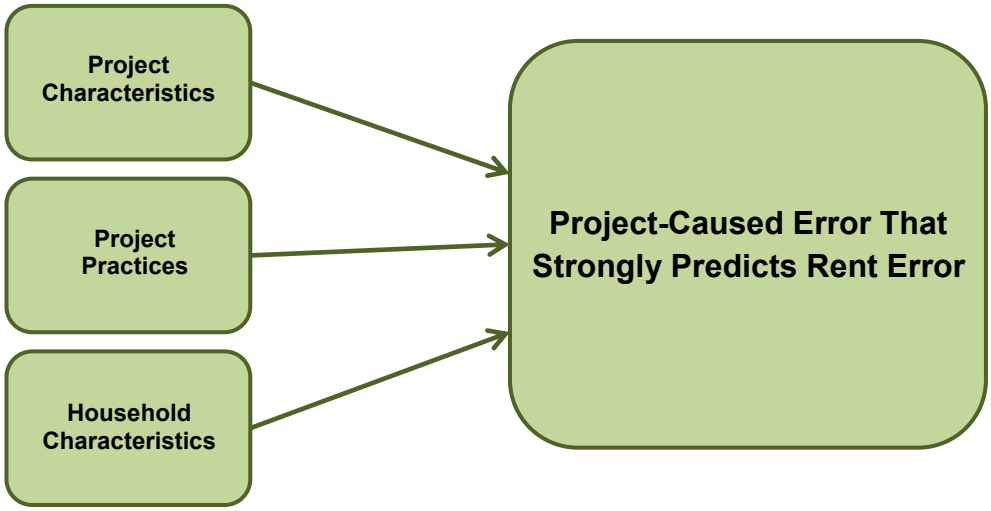
Household characteristics refer to household financial conditions and demographics. The concept and related indicators of household characteristics have been well-established in prior studies as important predictors of rent error. Household financial conditions and demographics are factors that project staff should monitor when managing cases. These variables are external factors that

would not be affected by project management or practices, but were included in the model as they have been strong predictors of rent error in previous analyses.

Modeling Project-Caused Errors. In the second conceptual model, we consider project-caused errors as the consequences of project characteristics, project practices, and household characteristics (see Figure F-2). Project-caused errors were identified through investigation of household records conducted by the field work. By default, project-caused errors are related to rent errors to a varying extent. Project-caused errors occur due to limitations in organizational resources, insufficient staff skills, a lack of rigorous quality control, and complicated household financial situations, among other problems.

Some project-caused errors were found in prior analyses to be strongly predictive of rent error, though not all at sufficient statistical significance levels—hence, only those that are found significantly related to rent errors were modeled in this study. Examining the pattern in which project and household factors account for project-caused errors may help housing management reduce such errors. However, the implication of relationships *among* project-caused errors is not clear. When project errors were defined and data coded, some of the indicators were similar, closely related, or even overlapping. Thus, in modeling a given project-cause error, we did not use other project-caused errors as predictors.

Figure F-2
Conceptual Framework for Modeling Project-Caused Errors



Data and Variables

We combined household and project data to conduct data processing; examined data quality, missing data imputation, data editing and rescaling, and derived or composite variable construction. Before testing final multiple regression models, we conducted extensive initial data analysis in iteration with data processing to examine data quality of key measures, the bivariate relationship between predictor variables and outcome variables, and issues in preliminary multiple regression models.

The household records were matched with the affiliated projects using the project identification code. The resulting data set contains 2,402 household cases affiliated with 542 projects.[41] Subsequent diagnostic analysis identified four cases as outliers, which we removed from the final modeling (see Attachment 3). The final analysis used 2,398 household records linked to 542 project records. Replicate weights were attached to each record.

The Household Data. The household survey gathered detailed information about household characteristics as well as final measure of rent errors. An algorithm was developed to recode/rescale raw data items and construct composite variables. Using the algorithm, we produced measures of the following:

- Project-caused errors
- Household financial conditions (e.g., income and expenses)
- Demographics (e.g., household size, number of bedrooms, elderly household with disabilities
- Rent error measures (gross error, subsidy under- and overpayment errors)[42]

Table 2 in Attachment 2 presents descriptive statistics of the household variables.

The Project Data. The Project Staff Questionnaire (PSQ) file contained over 200 raw data items, with many having a large number of categories that describe project characteristics and practices. Attachment 2 documents the procedures used to create project variables and presents the definitions and coding for variables selected as predictors in the models. Table 2 in Attachment 2 summarizes the descriptive statistics (mean, standard error, and 95% confidence intervals) for the selected predictors.

Methodology

Regression Diagnosis Analysis. Regression diagnostic analysis was conducted prior to multiple regression modeling to identify and remedy issues related to excessive collinearity, outliers, and other problems that distort statistical estimation (see Attachment 3 for detail).

Collinearity or multicollinearity occurs when a linear combination of explanatory variables in the model are highly correlated. Coefficient estimates tend to be unstable with large standard errors. The diagnostic results were largely comparable with earlier studies. A number of project and

[41] Of the 542 sampled projects (or project-like entities, hereafter referred to as projects) for the Project Staff Questionnaire, 29 projects failed to respond; consequently, 124 households under these projects did not have PSQ data matched. A sensitivity analysis suggested that excluding these households may introduce bias to the analysis because they differed from the rest of the sample in three key household variables. We imputed project data for the 124 household records and retained these records in the merged household and project data set. See Attachment 1 for detail.

[42] For Gross Rent Error, under- and overpayment errors, the logarithm of each dollar value was taken to tighten the variables' skewed distributions where very few cases had large dollar amount errors and many had zero error (see Attachment 2 for more information).

household predictors were found to have high multicollinearity; those that were deemed conceptually less important were excluded from analysis.

Outlier cases are data points that have an excessively large impact on regression estimates. To identify outliers, we examined residual distribution of the predicted Gross Rent Error and found records with undue influence on regression (see Attachment 3). Three measures were considered: studentized residual scores that quantify the distorting effect of outliers to estimation, the leverage that helps identify the most influential cases, and Cook's D that combines residual and leverage to assess the data points' overall unusual influence on regression. Four cases were found with values exceeding the cut-off points of all the three measures, thus were excluded from the modeling.

Intra-class correlation: With a two-level data structure where households are nested by projects, households' rent errors may be correlated strongly *within* projects. If so, the resulting model estimates with ordinary linear regression may be biased or lack precision. It would be more efficient to model rent errors with hierarchical linear technique, given that a large intraclass correlation occurs (i.e., a large proportion of the rent error variance occurs at the project level). To assess this possibility, we ran an unconditional hierarchical linear model (HLM) and found project-level variance of the log gross error was 5.8 percent of the total variance (see Attachment 4). Consistent with earlier years' analyses, the small proportion of project-level variance made it unnecessary to use the HLM technique for this study. Therefore, ordinary least square regression was used to model rent error.

Model Specification and Estimation. Multivariate analyses were conducted to account for rent errors (Gross Rent Error, subsidy overpayment, and subsidy underpayment). Regression equations were specified with the four sets of predictor variables in a procedure known as sequential modeling. In this approach, we incrementally included into the equations four sets of predictor variables: (1) project characteristics, (2) project practices, (3) project-caused errors, and (4) household characteristics. The sequential modeling allowed us to observe the changes in parameter estimates (regression coefficients and R-squared) as each group of predictor variables entered into the equation. Estimates from the four sequential models were presented for the Gross Rent Error analysis, whereas only the final model with all the selected predictors entered were presented for underpayments and overpayments.

To examine factors underlying project-caused errors, multivariate analyses were conducted using project characteristics, project practices, and household characteristics to account for each measure of project-caused errors. For binary-coded project-caused errors, logistic regression was used. For rates of transcription error, third-party verification errors, and total count of project-caused errors, linear regression techniques were used.

Unless otherwise noted, we conducted statistical analyses with the SURVEY procedures of SAS 9.3 using Jackknife delete-a-group replicate weights to adjust for design effects (see Appendix B: Weighting Procedure).

SAS SURVEYREG was used for multiple regression modeling of Gross Rent Error, overpayment, and underpayment, as well as the interval measures of project-caused errors. For modeling binary-coded project-caused errors, we used PROC SURVEYLOGISTIC. PROC MIXED was used for variance analysis of rent error at project and household levels.

For descriptive statistics, we used PROC SURVEYMEANS and PROC SURVEYFREQ. All statistics presented here were generated with sample weights and replicate weights, using the Jackknife procedure. SAS conventional procedures were only used to examine the raw data and conduct regression diagnosis.

Findings

To address the first research question of identifying predictor variables that accounted for rent error and project-caused errors, we present bivariate tabulation, regression coefficients, and related significance test statistics to establish whether or not an effect exists beyond chance (i.e., whether the effect is statistically significant).

Gross Rent Error

Descriptive statistics for the selected predictor variables were tabulated separately by two groups of households: those with and those without Gross Rent Error. This offers a preliminary view of the predictor variables differentiated by Gross Rent Error. Exhibit F-1 presents statistics of the predictor variables in the original scales[43] by the indicator of Gross Rent Error status (with or without an error of $5 or more). For statistics of the rescaled/centered predictor variables for the whole sample, see Attachment 2, Table 2.

If the estimated ranges of a given variable's mean—shown by the 95 percent confidence level—overlap for the two groups, then the predictor would be considered as significantly different by gross error status. Exhibit F-1 includes variables that showed a statistically significant differentiation by rent error status (rows denoted with an asterisk in the middle column).

Exhibit F-1
Predictor Variables Used in Modeling: Households With and Without Gross Rent Error
(Original Scales, Weighted)

	Households Without Error n = 1,859					Households With Error n = 539			
Variable Label	Mean	Standard Error	Lower 95%	Upper 95%		Mean	Standard Error	Lower 95%	Upper 95%
Project Characteristics									
Public Housing	0.240	0.005	0.229	0.250		0.255	0.016	0.222	0.289
PHA-administered Section 8	0.459	0.008	0.444	0.475		0.484	0.025	0.431	0.536
Owner-administered	0.301	0.005	0.290	0.312		0.261	0.019	0.221	0.300
Response across project	0.093	0.021	0.049	0.137		0.103	0.027	0.047	0.159
Cases per certification staff (in 100s)	1.599	0.091	1.410	1.788		1.764	0.212	1.321	2.207

[43] For dummy variables (coded 1 for a 'yes' and 0 for 'no' response), the mean are equivalent to percentage of households that had a value of 1.

Exhibit F-1
Predictor Variables Used in Modeling: Households With and Without Gross Rent Error
(Original Scales, Weighted) (Continued)

	Households Without Error n = 1,859					Households With Error n = 539			
Variable Label	Mean	Standard Error	Lower 95%	Upper 95%		Mean	Standard Error	Lower 95%	Upper 95%
Cases per experienced certification staff (in 100s)	3.277	1.046	1.094	5.459		2.611	0.448	1.676	3.546
Certification staff turnover rate	11.511	1.470	8.446	14.577		9.654	1.321	6.898	12.411
Project Practices									
Assigned case by transaction type	0.214	0.023	0.166	0.261		0.259	0.035	0.185	0.333
Assigned case by activity	0.081	0.010	0.060	0.102		0.091	0.014	0.062	0.120
Number of reported training hours for new staff	74.736	13.338	46.913	102.560		51.821	9.301	32.420	71.222
Web-based training for new staff	0.439	0.034	0.368	0.511		0.409	0.037	0.333	0.485
Interviewing households training for experienced staff	0.609	0.034	0.538	0.679		0.547	0.051	0.440	0.654
Form HUD-50058/50059 training-experienced staff	0.672	0.030	0.608	0.735		0.691	0.046	0.594	0.788
Number of activities using a computer	7.542	0.111	7.311	7.773		7.389	0.138	7.101	7.677
Contracted out to perform certifications	0.114	0.015	0.083	0.145		0.091	0.014	0.063	0.120
Staff with goal-setting process for performing certifications	0.778	0.021	0.734	0.822		0.691	0.047	0.592	0.790
Dedicated QC staff	0.814	0.018	0.777	0.851		0.819	0.019	0.779	0.859
Certification review rate	37.192	2.260	32.477	41.906		31.507	2.383	26.536	36.478
Frequency making errors	16.125	0.407	15.276	16.974		16.792	0.377	16.005	17.578
Review by supervisor/leader	0.787	0.018	0.748	0.825		0.798	0.026	0.744	0.852
Review by OIG auditor	0.067	0.013	0.040	0.093		0.123	0.033	0.054	0.192
EIV training for experienced staff in PH sites	0.111	0.012	0.086	0.136		0.125	0.015	0.094	0.155
EIV training for experienced staff	0.900	0.019	0.860	0.940		0.894	0.026	0.839	0.949

Exhibit F-1
Predictor Variables Used in Modeling: Households With and Without Gross Rent Error
(Original Scales, Weighted) (Continued)

	Households Without Error n = 1,859					Households With Error n = 539			
Variable Label	Mean	Standard Error	Lower 95%	Upper 95%		Mean	Standard Error	Lower 95%	Upper 95%
Number of cases per certification staff in PH sites	0.022	0.005	0.012	0.033		0.021	0.004	0.013	0.029
Project-Caused Errors									
Percentage of items with transcription errors	0.200	0.011	0.177	0.222	*	0.419	0.018	0.381	0.456
Percentage of items without written third-party verification	0.067	0.006	0.054	0.080	*	0.106	0.012	0.082	0.131
Total number of project errors	1.130	0.051	1.023	1.237	*	2.227	0.043	2.136	2.317
Overdue recertification error	0.009	0.003	0.004	0.015		0.028	0.010	0.008	0.048
Consistency error	0.182	0.012	0.158	0.206		0.234	0.020	0.192	0.276
Procedure error	0.217	0.012	0.192	0.241	*	0.300	0.018	0.263	0.338
Transcription error	0.364	0.020	0.323	0.406	*	0.832	0.025	0.780	0.884
Income calculation error	0.030	0.008	0.013	0.047		0.035	0.008	0.018	0.053
Any calculation error	0.063	0.012	0.037	0.089		0.117	0.017	0.082	0.152
Household Characteristics									
Number of household members	2.106	0.043	2.016	2.196	*	2.438	0.076	2.279	2.597
Total annual income $1,000	13.026	0.592	11.791	14.261		14.699	0.756	13.122	16.275
Number of bedrooms	1.816	0.044	1.724	1.908	*	2.079	0.052	1.970	2.188
Earned income	0.336	0.015	0.304	0.367	*	0.522	0.040	0.437	0.606
Other income	0.226	0.015	0.195	0.257	*	0.334	0.030	0.271	0.397
Public assistance income	0.096	0.010	0.075	0.116		0.126	0.021	0.083	0.169
Pension income	1.013	0.064	0.880	1.145		1.093	0.094	0.898	1.289
Medical expense	0.556	0.051	0.451	0.662	*	0.901	0.112	0.668	1.134
Total number of sources of income/expenses	2.470	0.120	2.220	2.720	*	3.357	0.182	2.977	3.736
Total number of allowances	1.143	0.019	1.102	1.183	*	1.335	0.037	1.258	1.412
Age of head of household	51.911	0.845	50.149	53.672		49.634	1.300	46.924	52.345
Household with elderly/disabled	0.562	0.020	0.520	0.604		0.514	0.036	0.439	0.588
Moving to Work	0.113	0.038	0.034	0.192		0.108	0.044	0.015	0.200

* The two groups differ significantly in the predictor variable ($P < .05$).
Source: HUDQC FY 2013 household-level data collection and Project Staff Questionnaire.

Multiple Regression Models. In the multiple regression analysis of the rent error, the regression coefficient estimate indicates the given predictor's relationship with the rent error, net of other predictor effects (hereafter, statements to interpret regression coefficient estimates are all qualified such that the estimated effect exists while holding other effects equal). With sequential modeling of Gross Rent Error, we specified four multiple linear regression equations to estimate the effects of four predictor groups incrementally entering the equations: (1) project characteristics, (2) project practices, (3) project-caused errors, and (4) household characteristics.

The statistics demonstrate the effects on Gross Rent Error by predictors that were entered into the equation, related effect estimate changes for the previously entered predictors, and the model fit. We included all four sets of variables representing the four constructs in the final model (model 4).

The R-squared estimate for each model demonstrates the extent to which the specified predictor variables accounted for the variance of the outcome variables. To address the second research question of assessing the *relative effect size* of predictor variable groups, we provided the effect size using Cohen's f^2 and percentages of variance accounted for by predictor groups.[44]

The estimated intercept represented a reference point for interpreting estimates of predictor effects on Gross Rent Error from each model. For example, in model 3, the intercept estimated in log scale was 0.364, equivalent to $1.44.[45] This was the expected average gross error of a "reference" group of households that had a zero value on each predictor variable in the model. For binary-coded predictors such as program type (e.g., Public Housing), the zero value represented the projects in programs other than the given one—in this case, PHA-administered Section 8 or Owner-administered programs. For project-caused errors, the zero value indicates there was not an instance of a particular error for that observation. For household-level interval predictors that were rescaled by centering,[46] the "reference" households were characterized by the mean value of a given predictor. For example, for total annual income, the centered zero value was the average annual income of the overall study population.

A coefficient estimate for a predictor, if statistically significant, represents the difference from the "reference" value in Gross Rent Error associated with this predictor. We focused on interpreting the

[44] The effect size for multiple regression analysis may be assessed by comparing the change of the R^2. Given an R^2_A value resulting from an equation with a set of independent variables A, and an R^2_{AB} value generated from an equation with the A and another set of independent variables B, Cohen's f^2 is commonly used in the context of sequential (or nested) multiple regression analyses (Cohen, 1988). The f^2 effect size measure for multiple regression is defined as:

$$f^2 = \frac{(R^2_{AB} - R^2_A)}{1 - R^2_{AB}}$$

[45] Dollar amount of the intercept is e^l, where e is a constant approximately 2.718 and l is the estimated regression intercept in log scale. To convert coefficients in log scale to dollar amount, we added the log-scale estimate of a given predictor to the intercept log scale and converted the sum of log-scale values into dollar amount. The difference between the resulting dollar amount and the intercept-equivalent dollar amount is the estimated predictor effect in dollar amount of Gross Rent Error. For example, in model 3, the difference associated with predictor "Interviewing Households Training for Experienced Staff," has a log estimate of -0.153 ($p < .05$). Other things being equal, this effect decreased the gross error (-$0.21) from the reference group's estimates ($e^{(0.364 - 0.153)} - e^{0.364} = 1.23 - 1.44 = -0.21$).

[46] Refer to Attachment 2 for more information regarding rescale of centering.

regression coefficients that were statistically significant ($p \leq 0.05$), as they represented effects that were unlikely to be due to chance.

Interpretation of Estimates. Overall, the four models used showed that, as in previous years, many project characteristics and project practices, as well as various sociodemographic household characteristics, were significantly associated with rent error.

Model 1

The first model included our intercept as well as project characteristic variables. The key findings are highlighted below:

- Owner-administered households had lower gross error (log scale -0.175), or a dollar error decrease (-$0.39), whereas Public Housing households did not appear to differ from PHA-administered Section 8 (the "reference" group).
- In the subsequent models with incrementally more predictors, the estimate for Owner-administered difference was reduced and eventually was not significant in model 4, implying that the estimated program difference was explained by household characteristics, and that Owner-administered households were less error-prone largely by virtue of their financial and demographic conditions.
- The variable cases per experienced certification staff has a significant but substantially small estimate (log scale -0.002 converted to dollar value of less than a cent). The negative value, however, suggests that every 100-fold increase of the caseload that an experienced certification staff member handles may be associated with less than one cent lower amount in rent error, other things being equal. The net effects of other project characteristics were not found to be statistically significant.

Model 2

Model 2 builds upon model 1 and includes our intercept, project characteristic variables, and project practice variables. This model revealed a number of project practice variables that were related to rent error:

- Estimates for variables interviewing households training for experienced staff and Form HUD-50058/50059 training for experienced staff were significant (log -0.217 or dollar amount -$0.60 and log 0.209 or $0.71, respectively).
- The findings suggest that households under projects that provided experienced staff with training on applicant interview had an average $0.60 lower Gross Rent Error, whereas those providing training on the Form HUD-50058/50059 processing had an average $0.71 higher Gross Rent Error.
- Both predictors remained significant in subsequent models, suggesting training for experienced staff on the two topics accounted for rent error even after taking all the other project and household factors into consideration.

- A predictor staff with goal-setting process for performing certifications was also found related to lower rent error (log -0.247 or -$0.67), indicating that setting certification performance goals had a potential for reducing error.
- Two measures of project certification review procedures (i.e., review by supervisor/leader and by OIG auditor) were both found to be related to higher rent error (log 0.153 or $0.50 and 0.352 or $1.29, respectively).
- Other categories of personnel that reviewed certifications (other certification staff, internal staff reviewer or dedicated QC staff, contract administrators, or HUD-affiliated auditors) were analyzed as well but with no significant estimates. This finding seems to imply that certification review might need personnel arrangements other than leaders and OIG auditors.

Model 3

In this third model, we added to model 2 those predictors that represented project-caused errors.

- The two added predictors indicating experienced staff training topics, specifically training on household interviewing and training on the Form HUD-50058/50059, continued to be statistically significant.
- Another project practice variable, self-perceived frequency of making errors in certification, emerged as a significant predictor of rent error (log .012 or $0.02). The estimate in dollar value appeared small due to the large range of the ordinal measurement, but this was meaningful as it confirmed the realistic assessment of certification problems by project staff.
- Another predictor, EIV training for experienced staff in Public Housing, appeared significant (log 0.300 or $0.50) and remained so in model 4. Together with the predictors of EIV training and the program type of Public Housing, the joint effect estimate implied that EIV training for experienced staff in Public Housing was associated with higher rent error, though no significant effect was found in other programs or in general.
- Model 3 also provided evidence that three indicators of project-caused errors, percentage without written verification, overdue recertification error, and transcription error were significantly and substantially related to household rent error (respectively, log 0.358 or $0.62, log 1.086 or $2.82, and log 1.108 or $2.92). This was also found to be true in our univariate analysis, discussed in Section IV.
- The first predictor estimate means that for every percentage increase in certification items without third-party written verification, one could expect a $0.62 increase of Gross Rent Error, other things being equal. The latter two predictors' effects were also large in magnitude and held on strong, even after household variables were entered into the equation in model 4.
- Overdue recertification was the rarest error: only 2.8 percent of households with rent error had this error, in contrast with transcription error, which was present for 83.2 percent of all households with rent error (see Exhibit F-1). Overdue certification is a critical problem;

once it occurs, a substantial amount of rent error would ensue with a fairly high likelihood (over 48%).[47]

- The widespread transcription error occurred among households without rent errors as well as those with rent error, albeit at a much lower rate (36.4% in contrast with 83.2%, see Exhibit F-1), and it distributed quite evenly across the three housing programs.
- It is noteworthy that project-caused *calculation error* (any incorrect calculation of income, allowance, and other items) was not found significantly related to rent error (i.e., no net effect revealed), though the estimate was negative (log -0.430 in model 3 and -0.057 in model 4). This finding was in line with prior analyses, where calculation error was shown to predict modest but statistically significant lower rent error.
- Calculation error could potentially generate either subsidy overpayment or underpayment. The two subsidy errors together would appear as a modest negative effect on gross error. Bivariate tabulations showed that allowance calculation error was associated with more underpayment than overpayment. Further analysis is needed to better understand this problem.

Remarkably, the findings for project-caused errors were quite consistent across years. Prior years' analyses have identified virtually the same indicators of project-caused errors to be predictive of rent error. Specifically, transcription errors, lack of third-party written verification, and overdue recertification have been documented as major sources of improper payment subsidies across years.

Model 4

The fourth model, or the final model, includes variables representing project characteristics, project practices, project-caused errors, and household characteristics. Therefore, household characteristic effects relating to Gross Rent Error are estimated in this model, controlling for the project variables in the equation. All other items being equal, households with complex financial conditions were likely to have higher rent error. Complex financial conditions could mean that the household would have more income sources and allowance items, including earned income, public assistance income, pension income, medical expenses, and total number of allowances, or other income (this category does not include earned income, public assistance, or pension income). Some of the key findings are highlighted below:

- Each of the above-listed household variables were significantly related to higher Gross Rent Error, with the net dollar effect ranging from $0.10 for medical expense to $0.51 for earned income. This pattern is consistent with results from earlier years.
- One exception was the total annual income estimate, which was statistically significant and quite small in magnitude but negative (log -0.016 or $0.02), implying that net of other effects in the model, household rent error tended to rise $0.02 in relation to every $1,000 increase in a household's total annual income.

[47] Overdue recertification was found to have occurred overwhelmingly with households under Public Housing and PHA-administered Section 8 projects; of the 33 error cases, only one was in an Owner-administered household.

Relative to household financial conditions, sociodemographics were not as important in predicting rent error. For the QC study, sociodemographics refer to number of bedrooms in a unit, the number of members in a household, the status of living in a Moving to Work (MTW) PHA, or the age of the head of household.

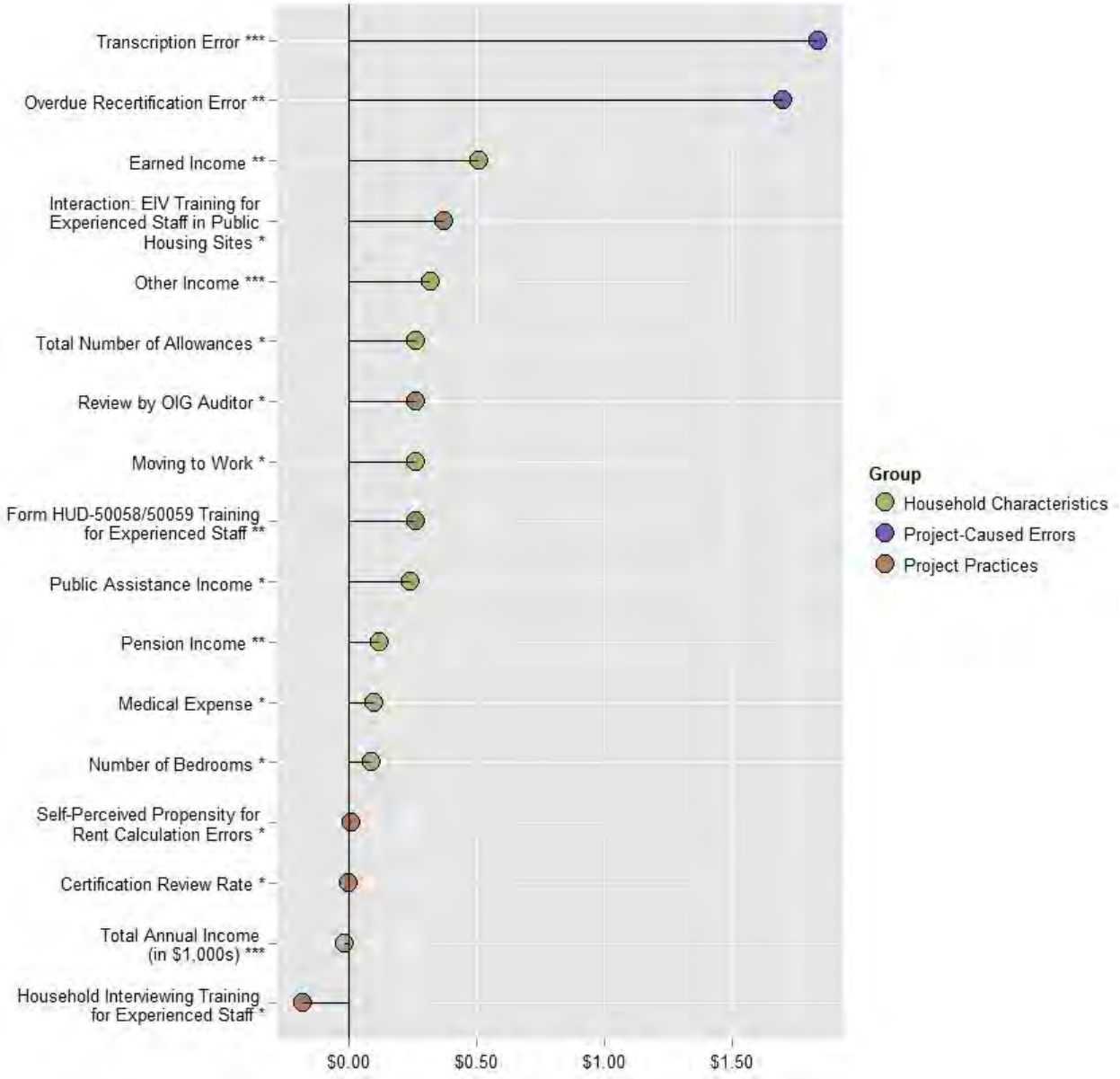
Only two of these sociodemographic variables were found to be statistically significant in model 4:

- The number of bedrooms in a unit was estimated to have a modest relation to higher rent error (log .077 or $0.09), meaning a $0.09 increase in rent error related to every one additional bedroom.
- MTW status was also found to have a modest effect on increased rent error (log 0.208 or $0.21).

In short, consistent with findings from the studies for FY 2007 through FY 2012, the current data analysis suggested that gross error was related to a number of project and household factors. Figure F-3 shows the statistically significant predictors of Gross Rent Error in the final model (model 4) and the corresponding estimated dollar effect. The most substantiated findings follow:

- Project-caused errors, particularly overdue certification and transcription errors, contributed strongly to increased gross error.
- Households that were characterized by complex financial conditions (i.e., having various income and expenses or allowances) tended to have greater Gross Rent Error.
- The self-perceived error estimate remained significant in model 4 after powerful household variables were entered, again showing that staff self-perceived propensity for errors in rent calculation was a valid predictor of rent error.

Figure F-3
Statistically Significant Predictors of Log Gross Rent Error: Multiple Regression Derived Dollar Value Net Effects from the Final Model With Design Effect Adjusted

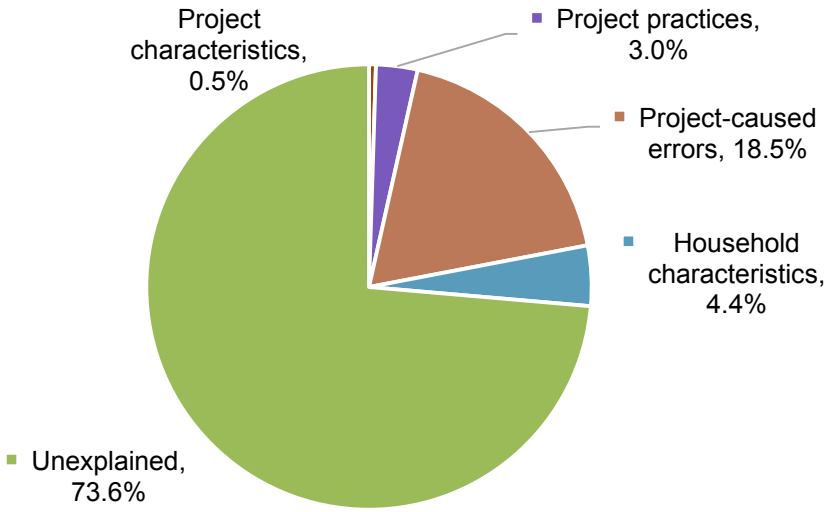


*p < .05, **p < .01, ***p < .001 (test with the null hypothesis that a coefficient = 0; a significant result indicates that the corresponding predictor is associated with the Gross Rent Error).
Estimate represents the unique effect of a given predictor, net of other effects in the model.
Source: HUDQC FY 2013 household-level data collection and Project Staff Questionnaire.

Relative Size of Effects by Variable Groups. Adding predictor variables into the sequential models incrementally accounted for the increasingly greater proportion of the variance of the Gross Rent Error (Figure F-4). The largest share was accounted for by indicators of the project-caused error (18.5%), followed by household characteristics and financial conditions (4.4%), project practices (3.0%), and project characteristics (0.5%). A total of 26.4 percent of Gross Rent Error variance was explained by all the modeled variables.

Corresponding to variance partitioning, the effect size estimates with Cohen's f^2 also show that project-caused errors represented the bulk of the effects on rent error (0.190). Measures of household characteristics also had an effect (0.051). Project characteristics and practices effects were smaller, at 0.03 and 0.012, respectively.

Figure F-4
Proportion of Variance of Gross Rent Error Accounted for by Predictor Variable Groups: Multiple Regression Analysis Adjusted for Design Effect



Source: HUDQC FY 2013 household-level data collection and Project Staff Questionnaire.

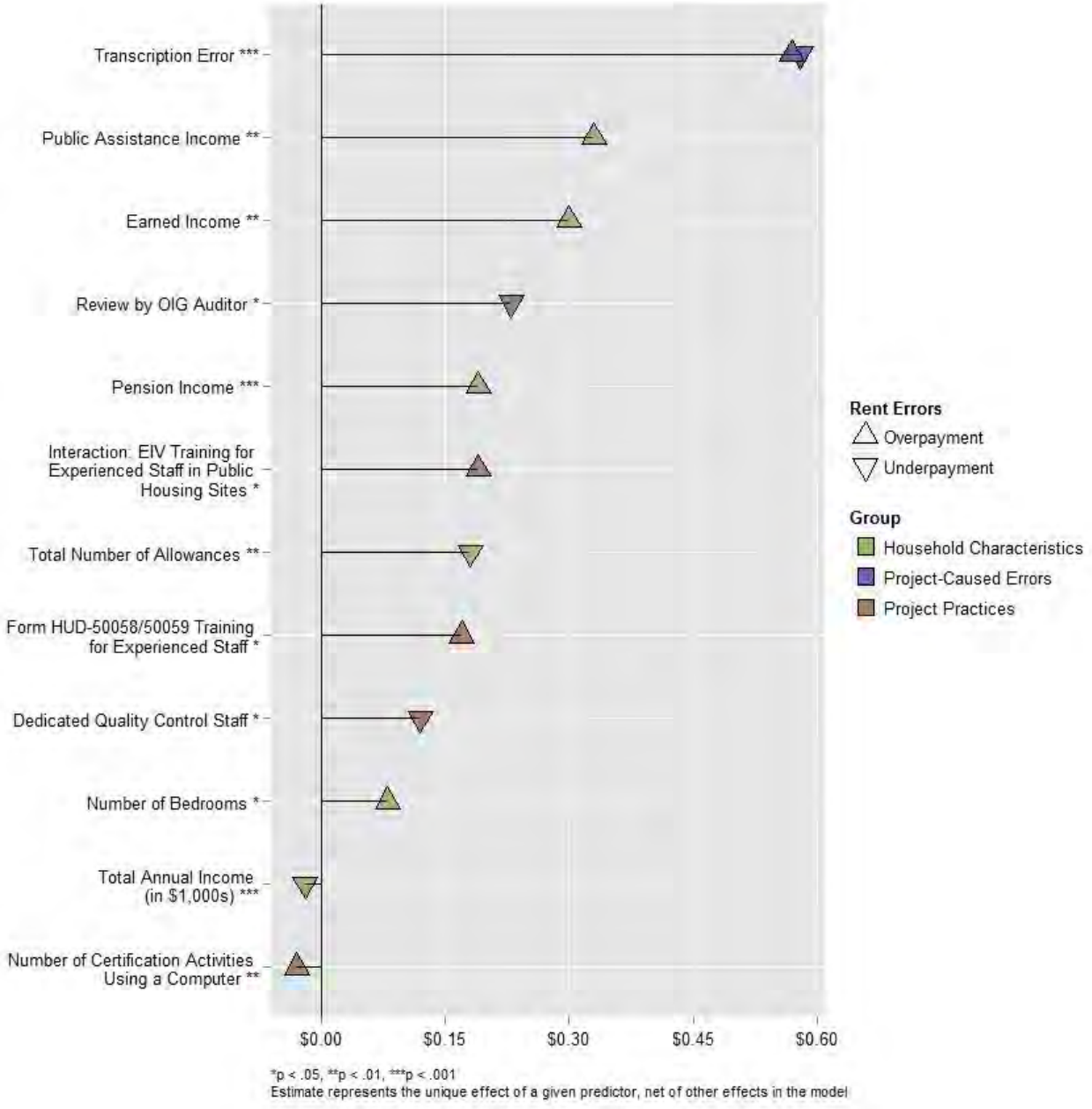
Overpayment and Underpayment

An analysis of overpayment and underpayment rent errors produced additional information that may improve program ability to deal with more specific rent errors. We estimated two equations with the same four sets of predictors as in modeling Gross Rent Error to explain overpayment and underpayment that were rescaled into a logarithm. Figure F-5 presents the statistically significant results.

The two models did not fit as well as the Gross Rent Error models. As indicated by R-squared estimates, the models account for approximately 10.8 percent (adjusted 9.1%) and 13.3 percent (adjusted 11.7%) of the total variance of underpayment and overpayment errors. The estimated intercept for the two models indicated that, for a "reference" group that had value zero on all predictor variables, the average underpayment was $1.16 and overpayment was $0.96.

Different from earlier studies, controlling for other predictors, there was no net difference by housing program type found in either underpayment or overpayment model.

Figure F-5
Statistically Significant Predictors of Log Under- and Overpayment Rent Errors: Multiple Regression Derived Dollar Value Net Effects with Design Effect Adjusted



*p < .05, **p < .01, ***p < .001 (test with the null hypothesis that a coefficient = 0; a significant result indicates that the corresponding variable(s) is associated with the dependent variable).
Estimate represents the unique effect of a given predictor, net of other effects in the model.
Source: HUDQC FY 2013 household-level data collection and Project Staff Questionnaire

Underpayment. A number of predictors of project characteristics, project practices, project-caused errors, and household background were associated with underpayment in patterns similar to those for gross error.

To account for underpayment, three project practice measures were found significant:

- Projects with a dedicated QC department or staff members tended to have more underpayment (log 0.100 or $0.12).
- Projects where certifications were reviewed by OIG auditors were prone to higher underpayment (log 0.181 or $0.23).
- A project-caused error, transcription error, appeared as a strong predictor of underpayment, with a net effect of log 0.404 or $0.58.

Household variables were not as powerful in accounting for underpayment as for Gross Rent Error, with only two measures significant:

- Household total annual income (log -0.013 or -$0.02) had a small net effect, suggesting households with higher total annual income had slightly lower underpayment error.
- Households with a greater total number of allowances tended to have higher underpayment error (0.142 or $0.18).

Though there were fewer predictors with significant estimates in this underpayment model, their relationships with underpayment seemed similar to their relationships with Gross Rent Error.

Overpayment. In modeling overpayment error, a larger number of predictors were found statistically significant:

- Of the project practice variables, households under projects that provided experienced staff with training on Form HUD-50058/50059 tended to have higher overpayment (log 0.161 or $0.17) net of other effects in the equation.
- Projects that used computers in certification activities more extensively tended to have slightly lower overpayment (log -0.029 or -$0.03).
- In Public Housing projects that gave experienced staff training on EIV, households were likely to have higher overpayment (log 0.177 or $0.19); however, this effect was not estimated for other housing programs or in general.

Only one project-caused error was significantly related to overpayment.

- Households with transcription errors had higher overpayment, with estimated log 0.463 or equivalent $0.57.
- Transcription error was the only predictor that accounted for *both* underpayment and overpayment; hence, reducing transcription error appears to be an important step to take to reduce improper payment.

The pattern in which overpayment error related to household characteristics was compatible with the pattern that Gross Rent Error related to those variables (i.e., the more complex the household's financial situations, the higher the overpayment).

- Households having earned income, public assistance income, and pension income were estimated as significant factors accounting for higher overpayment (log 0.268 or $0.30, log 0.298 or $0.33, and log 0.177 or $0.19).
- Households with more bedrooms also tended to have a modest higher overpayment (log 0.080 or $0.08).

The amount of underpayment and overpayment errors seemed to be associated with somewhat different project and household factors, with only one shared predictor: project-caused transcription error.

In addition to the transcription error, underpayment was associated with a project's case review procedures (dedicated QC entities and OIG auditors), household annual income, and allowances.

Overpayment was accounted for significantly by projects' staff training on the Form HUD-50058/50059, computer applications, and a joint effect of staff training on EIV in Public Housing projects, as well as by the complexities of household income sources (e.g., having earned, public assistance, and pension incomes). For underpayment and overpayment errors, this analysis did not reveal a conspicuous difference in the essential patterns from earlier years.

Summary of Findings

The FY 2013 HUDQC multivariate modeling followed the conceptual and analytical approaches used in previous years. The analysis identified key patterns in which rent errors related to project and household variables. Because project-caused errors are strong predictors of rent errors, the analysis also examined project and household factors that account for project-caused errors. Results from this analysis were essentially similar to those reported in previous analyses. Key findings are highlighted below.

Rent errors

Project characteristics were not found to be predictive of rent errors. Several variables initially estimated to relate to rent errors were found to be insignificant after project-caused errors and household background variables entered the equations. Even the housing program difference in rent error disappeared once other predictors entered the equations, suggesting that the bivariate differences between housing programs were due largely to the varying prevalence of project-caused errors and differences in household backgrounds.

Of numerous *project practice* indicators, a few emerged as somewhat predictive of rent error, after controlling for all the modeled factors. Projects that trained experienced staff on how to conduct household interviews had lower rent error; whereas those that trained experienced staff on how to process the Form HUD-50058/50059 showed modestly higher rent error. Staff self-perceived propensity for errors in rent calculation was also found to be predictive of rent error.

Project-caused errors accounted for the largest proportion of Gross Rent Error variance. Three indicators were most salient: (1) transcription errors, (2) overdue recertification errors, and (3) the rate of items without third-party written verification. Each predicted substantially higher rent error. Transcription error was the only project-caused error found to contribute to higher Gross Rent Error as well as both overpayment and underpayment errors.

Project-caused errors

Project characteristics appeared to have some influence on project errors.

- Net of other effects, Public Housing projects were more likely to make transcription error, overdue recertification error, or certification of items without written verification, whereas Owner-administered projects were less likely to make such errors. Other interesting effects included:
- Projects where certification staff managed heavy caseloads were more likely to make overdue recertification errors, a finding consistent with previous study findings. This certainly has implications for projects that face a staff shortage;
- Public Housing projects that provided EIV training for experienced staff had lower rates of certifications without written verification, but the effect was not found in other programs or in the overall study population.

Some *project practices* have affected the extent to which projects make errors. For example:

- Experienced certification staff training in processing Form HUD-50058/50059 seemed to have reduced overdue recertification error, and experienced certification staff training in applicant interviewing appeared to have reduced transcription error. Note that the analysis failed to find evidence that new staff training was relevant to either rent errors or project errors. This lack of evidence suggests a need for further investigation. Training for new staff has been widely established for most projects. However, training for experienced staff has not been made a requirement across projects and PHAs, hence making a difference in quality control.
- The practice of using an OIG auditor to review certifications was associated with more transcription error. This surprising finding suggests that those agencies or individuals responsible for certification review may need further investigation.

Household characteristics play a significant role in explaining project errors because household financial conditions and demographics present varying levels of challenge to certification and recertification. Over the years, the basic patterns are quite consistent and fit common sense (i.e., a household's complex financial situations raise the risk of errors in determining rent).

Some key background predictors of rent error are

- Households having a higher total annual income, higher earned income, more incomes, expenses, or allowances were more likely to have transcription error;
- Larger households (in number of members) and households in the MTW program tended to have fewer transcription errors;

- Households having earned income, other income, and more incomes or expenses had higher error rates due to lacking written verification;
- Households with higher total annual income on average had a lower error rate of lacking written verification;
- Households receiving public assistance income were more likely to have overdue recertification error.

Implications for Program Improvement

To meet the specified Objectives (5, 11, and 12), we underscored a number of implications for HUD subsidiary improper payment management.

First, the three housing programs were not substantially different in rent error after project and household variables were considered. This finding suggests that targeting a particular program type for strengthening financial integrity may not be as effective as targeting specific problems underlying rent errors across all program types, for example reducing project-caused mistakes in (re)certification processing.

Project-caused errors in certification processing accounted for the bulk of rent error variance. Such errors can lead to overpayment, underpayment or both. Reducing project-caused errors should be a priority for reducing the rate of improper payment.

Underpayment and overpayment seem to relate to different issues and may require different strategies to remedy. Projects with a dedicated QC department or staff and projects with certifications that were reviewed by OIG auditors were found to have higher underpayment but not overpayment.

Overpayment was accounted for significantly by: (1) project staff receiving training on the Form HUD-50058/50059, (2) the use of computer applications in certification tasks, (3) a joint effect of staff training on EIV in Public Housing projects, as well as (4) the complexity of household income sources.

These findings hint that different efforts are needed to minimize the two types of erroneous payments. Project-caused transcription errors, however, were related to both underpayment and overpayment, so focusing on the reduction of transcription error could lead to an overall reduction in improper payment.

Heavy caseloads were related to more overdue recertification errors, a problem that should be alleviated by relocating resources or perhaps training to increase certification staff. Training experienced staff appeared to be helpful for dealing with project-caused errors, whereas training of new staff was not found to impact the rate of rent errors or project-caused errors, as most projects provide new staff training.

Finally, the use of computer applications was not found to influence the rate of rent errors or project-caused errors, except that extensive use of computers in certification processing seemed to relate to slightly lower overpayment rates. Most projects used computer applications in at least part

of the certification process, causing an overall lack of variation. This decreased the predictive power of the use of computer applications on certification outcomes and rent error.

Future Research

Greater efforts are needed to investigate the effects of housing project characteristics and practice on improper payment. Future research is needed to fine-tune the measurement of project background, project daily operation in (re)certification and quality control, and issues involved in various human errors. This will entail improving conceptual clarity on specific challenges facing certification staff that lead to processing errors and payment errors. It will also require exploring and testing quantified measures of the constructs, such as staffing, staff training, staff competence, and the major procedures in handling (re)certification and quality control.

An extensive analysis of historic HUDQC data seems both feasible and desirable. With over a decade of data accumulated by the annual surveys, a great deal of comparable measures of improper payment errors, project background/activities, and household characteristics are available. The large amount of data would allow in-depth analyses to describe the changing patterns of these important measures and their relationships. In a broad chronological framework, historical data analysis may shed light on how much progress HUD has made in dealing with housing subsidy improper payment, and how such progress can be attributed to changes in housing program practices in relation to changes in the sociodemographic characteristics of program participants. Information yielded from historical analysis could be useful for HUD's long-term planning and program development to improve financial integrity.

Access to HUD's expansive databases could further enrich ICF's future analysis, as they contain a wealth of financial and organizational information that could be useful in targeting the source of rent error more precisely.

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Attachment 1: Imputation of Missing Data on PSQ File

Two types of missing data were imputed. First, we examined missing data for each variable that might be used for modeling. For missing data on integer or ratio variables, we replaced the missing data with means from the corresponding program type (Public Housing, Section 8 Voucher, and Owner-administered). For binary variables, the program type mean was equivalent to the proportion of projects that answered the question with 'yes' (coded as 1, and 0 for 'no'). The imputed decimal numbers were then rounded up to integer (i.e., binary coding 1 or 0). The housing program mean imputation (PMI) procedure for such sporadic missing data had little impact on the variance estimation due to very small numbers of missing cases.

We conducted the second type of imputation for households whose projects' 2013 HUDQC PSQ data were missing due to nonresponse. Even after repeated contact, 29 out of 542 sampled PHAs/projects did not respond to the 2013 PSQ. To assess potential bias of the nonresponding projects, we merged the household file with the project file, and then compared rent errors and key household characteristics between households without project data and all other households in the sample.

As designed, the original sample had 542 projects and 2,402 related households, whereas the merged data set contained 513 projects and 2,278 related households. We identified 124 household records affiliated with 29 projects that did not have the PSQ data. Comparing the means of the two groups (i.e., 124 households that had no PSQ and 2,278 households that did have PSQ data), we found three key household variables (earned income, other income, and the MTW status) in which the two groups differed significantly (see Table 1.1). Excluding the 124 cases from the modeling may bias the results due to such systematic differences in predictor variables. Therefore, we found it necessary to retain the 124 household records by imputing project data for them.

Table 1.1
Difference in Rent Errors and Household Characteristics: Households With and Without Project Data (Design Effect Adjusted)

Label	Households With Project Data Household n=2,778 Project n=513					Households Without Project Data Household n=124 Project n=29			
	Mean	Standard Error	Lower 95%	Upper 95%		Mean	Standard Error	Lower 95%	Upper 95%
Gross Error	11.256	1.081	9.391	13.121		9.921	5.534	0.376	19.466
HUD subsidy overpayment	6.551	0.837	5.108	7.994		3.836	1.640	1.006	6.665
HUD subsidy underpayment	4.490	0.614	3.432	5.549		5.957	5.498	-3.525	15.440
Number of household members-centered	0.057	0.043	-0.017	0.132		-0.176	0.179	-0.485	0.134
Total annual income of $1,000	13.511	0.577	12.516	14.505		12.203	1.409	9.773	14.634
Number of bedrooms-centered	0.062	0.041	-0.008	0.133		-0.327	0.168	-0.617	-0.037
Earned income	0.385	0.014	0.362	0.409	*	0.314	0.087	0.164	0.464
Other income	0.253	0.017	0.224	0.282	*	0.175	0.021	0.139	0.212
Public assistance income	0.101	0.010	0.084	0.119		0.132	0.047	0.051	0.214
Pension income	1.034	0.063	0.925	1.142		0.909	0.172	0.612	1.205
Medical expense	0.641	0.051	0.552	0.729		0.452	0.171	0.157	0.747
Total number of sources of income/expenses	2.690	0.118	2.487	2.894		2.192	0.263	1.738	2.646
Total number of allowances	1.190	0.017	1.160	1.219		1.080	0.088	0.928	1.232
HH head age-centered	-0.920	0.859	-2.402	0.562		1.360	2.586	-3.100	5.820
HH w/ disabled elderly	0.551	0.020	0.516	0.586		0.520	0.074	0.392	0.648
Moving To work flag	0.115	0.041	0.045	0.185	*	0.100	0.081	-0.039	0.240

*The two groups' difference is statistically significant at p< .05 level.
Source: HUDQC FY 2013 household-level data collection and Project Staff Questionnaire

We used PMI again to substitute the PSQ data for the 124 household records.[48] The resulting statistics for key measures are presented in Table 1.2. The resulting data set contains 2,402 household records nested with 542 projects. Later, in regression diagnosis, 4 household records were identified as outliers with excessive influence to regression estimation, and removed from the analysis (see Attachment 3). Thus, 2,398 household records were in the final data set for regression analysis.

[48] As documented in the HUDQC 2011 analysis, the PMI procedure generated more realistic values than did the multiple imputation procedure.

Table 1.2
Project Variable Differences After Imputation: Households With Imputed PSQ Data and Households With Original PSQ Data (Design Effect Adjusted)

Label	Households With Project Data Household n=2,778 Project n=513					Households Without Project Data Household n=124 Project n=29			
	Mean	Standard Error	Lower 95%	Upper 95%		Mean	Standard Error	Lower 95%	Upper 95%
Public Housing	0.243	0.004	0.236	0.250		0.261	0.072	0.136	0.386
Owner-administered	0.290	0.005	0.282	0.298		0.314	0.097	0.147	0.481
Cases per certification staff (in 100s)	0.012	0.111	-0.179	0.203		0.000	0.000	0.000	0.000
Cases per experienced certification staff (in 100s)	-0.066	0.876	-1.578	1.446		0.000	0.000	0.000	0.000
Certification staff turnover rate	0.481	1.351	-1.849	2.811		0.000	0.000	0.000	0.000
Assigned case by transaction type	0.235	0.022	0.197	0.274		0.000	0.000	0.000	0.000
Assigned case by activity	0.087	0.009	0.071	0.103		0.000	0.000	0.000	0.000
Number reported training hours for new staff	5.909	12.068	-14.906	26.724		0.000	0.000	0.000	0.000
Web-based training for new staff	0.432	0.033	0.376	0.489		0.425	0.090	0.269	0.580
Interviewing tenants training for experienced staff	0.587	0.038	0.521	0.653		0.739	0.072	0.614	0.864
Form HUD-50058/50059 training-experienced staff	0.659	0.034	0.601	0.718		1.000	0.000	1.000	1.000
Number of activities using a computer	7.541	0.106	7.358	7.724		7.000	0.000	7.000	7.000
Contracted out to perform certifications	0.114	0.013	0.092	0.136		0.000	0.000	0.000	0.000
Staff with goal-setting process for performing certifications	0.745	0.024	0.703	0.787		1.000	0.000	1.000	1.000
Dedicated QC staff	0.806	0.018	0.774	0.837		1.000	0.000	1.000	1.000
Certification review rate	0.434	2.290	-3.516	4.383		0.000	0.000	0.000	0.000
Frequency making errors	-0.085	0.402	-0.779	0.609		0.000	0.000	0.000	0.000
Review by supervisor/leader	0.778	0.018	0.747	0.810		1.000	0.000	1.000	1.000
Review by OIG auditor	0.083	0.017	0.054	0.113		0.000	0.000	0.000	0.000
EIV training for experienced staff in PH sites	0.121	0.012	0.100	0.142		0.000	0.000	0.000	0.000
EIV training for experienced staff	0.893	0.021	0.858	0.929		1.000	0.000	1.000	1.000
Number of cases per certification staff in PH sites	0.022	0.005	0.013	0.030		0.023	0.006	0.012	0.034

Source: HUDQC FY 2013 household-level data collection and Project Staff Questionnaire

Attachment 2: Data Editing, Recoding/Rescaling, and Measurement Testing

This attachment documents the PSQ and household data processing procedures and describes the resulting project and household predictors used in the multivariate modeling.

To consolidate the massive amounts of information collected from the PSQ and household surveys, we used descriptive, bivariate, and multiple regression statistics. Descriptive statistics were examined to filter out data items that lack variation or contain large numbers of missing cases. Bivariate statistics included comparing group means by the rent error indicator for interval/ratio measures and frequency distribution in crosstab with the rent error indicator. Large differences in group means or frequency distribution by the error indicator would suggest a predictive effect of the given variables.

Multiple regression analysis was employed to test selected predictors grouped by concepts that hypothetically predict rent errors. Note that we often used this approach iteratively because we found many predictors initially selected from bivariate tabulations to be useless in multiple regression; thus, we must explore additional alternative measures.

Project Data

Project data was obtained from the PSQ file containing 202 original data items collected from a national sample of 513 housing projects or project-equivalent entities (see Appendix E for more detail). The raw data was edited, rescaled, and bivariate comparison was used to build composite indicators of project characteristics and project practices. Initially, we selected data items if their definitions were relevant to concepts that may help explain rent errors. The original data items were tabulated and assessed in terms of sufficient variation, extent of nonresponse, and relationships with other data items for possible construction of composite indicators.

On the basis of descriptive statistics, judgments were made to exclude the following:

- Data items that were applicable only to a subgroup of projects (e.g., communication about PIH Notice 2013-03 [HA] only for Public Housing, Moderate Rehabilitation Vouchers, and Housing Choice Voucher programs);
- Items with responses that were difficult to quantify (e.g., “other” methods used in training);
- Items that lacked variation (e.g., a number of items on activities using computer and software yielded extremely high rates of positive answers, thus would have little use due to uniform responses).

Selected data items were then recoded or rescaled or combined to derive new variables. Sporadic missing data and missing data due to project nonresponse to the PSQ survey were imputed using program means (see Attachment 1).

These efforts generated over 60 derived/composite indicators and rescaled variables for testing. Of these, we selected 21 via bivariate and multiple regression analyses for final modeling. Many conceptually relevant variables were not found to have meaningful estimates related to rent error.

Breaking up statistics of project variables by binary indicator of gross error (with rent error of $5 or more versus the others), we assessed the extent to which project characteristics differed by error status and eliminated those variables that were clearly identical for the error and nonerror groups. We also tested a series of regression models, each with Gross Rent Error as the dependent variable and a different subset of independent variables representing, respectively, project staffing, staff training efforts, IT application, certification contracting, (re)certification procedures, and performance management. This regression analyses helped us to explore and identify relatively more meaningful predictors from each subset of project variables.

Project variables whose coefficient estimates were statistically significant in the testing models of Gross Rent Error were selected as predictors in the final modeling. Few project variables, however, were found to be significant. Therefore, the final selection of project variables for modeling was based upon our informed judgments of the variables' conceptual relevance to rent error, as well as empirical test results.

Specifically, in the project characteristics category, we selected variables by focusing on personnel involved in the (re)certification process, including: program type, caseload for certification staff and experienced certification staff, and staff turnover rate. Under the category of project practices, we selected variables that described three areas:

(1) Staff training hours, methods and topics;

(2) (Re)certification procedures including ways to assign cases to staff (e.g., by transaction type or potential difficult levels), contracting to outside entities, computer and software use;

(3) Performance management or quality control (QC) features, such as setting performance goals, designated QC entities/personnel, the rate at which (re)certifications were reviewed, the status of reviewers (peer certification staff, team leaders, or outside entities), and perceived frequency of making errors, among other measures.

The resulting project variables for modeling are summarized below, listed by variable labels with definitions and measurement. Table 2 (p. F-31) presents descriptive statistics for all the variables used in the final modeling.

Project Characteristics (PC) Indicators:

- PHA-administered Section 8: PHA-administered Section 8 program, binary coded 1 for PHA-administered Section 8 and 0 otherwise
- Public Housing: HUD Public Housing program, binary coded 1 for yes and 0 otherwise. (Note, with the two binary-coded program indicators, the contrast group was the Owner-administered program.)
- Cases per Certification Staff (in 100s): Ratio of the household unit number over the total number of staff members in the last 12 months (hereafter, project measures refer to a timeframe of the last 12 months), rescaled to 100 for easier presentation

- Cases per Experienced Certification Staff (in 100s): Derived ratio of the number of household units over the number of certification staff members who had experience of over 1 year, rescaled to 100
- Cases per Experienced Certification Staff (in 100s): Derived ratio in the same as above
- Certification Staff Turnover Rate: A measure of staff stability, derived by dividing the number of certification staff members who stopped working on certification activities by the number of certification staff members

Project Practice (PP) Indicators:

- Assigned Case by Transaction Type: A dummy variable with 1 coded for projects that reported assigning cases separated by certification, move-in, and interim certification and 0 for projects that did not assign cases this way
- Number Reported Training Hours for New Staff: Total number of hours of training for new
- Web-based Training for New Staff: A dummy indicator for projects that conducted Web-based or video training developed in house or by an outside entity or by HUD, with 1 for such projects and 0 for projects that did not use a Web/video approach
- Interviewing Households Training for Experienced Staff: A dummy variable with 1 for projects that conducted training on (re)certification interview of households for certification staff who had one or more years' experience and 0 for projects that did not do so
- Form HUD-50058/50059 Training-Experienced Staff: A dummy variable with 1 for projects that conducted training on processing HUD 50059/29 forms for certification staff who had 1 or more years of experience and 0 for projects that did not do so
- Number of Activities Using a Computer: The number of the specified (re)certification activities (a total of 11 activities, from computer-assisted interviewing to recording household demographic data) that were processed by computer
- Contracted out to Perform Certifications: A dummy variable with 1 for projects that contracted out certification and 0 for those that did not do so
- Staff with Goal-Setting Process for Performing Certifications: A dummy variable with 1 for projects that require staff to set up certification performance goals and 0 for those that did not do so
- Dedicated QC Staff: A dummy variable with 1 for projects that had a dedicated department or personnel for certification quality control and 0 for those that did not
- Certification Review Rate: Percentage of (re)certifications reviewed for QC purpose
- Frequency making errors: An ordinal scale measuring the overall frequency of certification errors made by staff, developed by first reversing the raw scale (1=very often, 2=often, 3=sometimes, and 4=rarely) for the 13 types of error, then summing the values on the reversed scale for the 13 error types

- Review by supervisor/leader: A dummy variable with 1 for projects where (re)certifications were reviewed by supervisors or team leaders and 0 for projects where cases were not reviewed by such leading staff
- Review by OIG auditor: A dummy variable with 1 for projects where (re)certifications were reviewed by OIG auditors and 0 for projects where cases were not reviews by an OIG auditor
- Interaction: EIV Training for Experienced Staff in PH Sites: A cross-product term indicating the joint effect of EIV training for experienced staff in Public Housing projects (i.e., the training effect on rent error only for Public Housing projects)
- EIV Training for Experienced Staff: A dummy variable with 1 for projects that provided EIV training for experienced certification staff and 0 for projects that did not do so
- Interaction: Number of Cases per Certification Staff in PH Sites: A cross-product term indicating the joint effect of certification staff caseload in Public Housing projects (i.e., the caseload effect on rent error only for Public Housing projects)

Project-Caused Error Indicators:

The measures of project-caused errors were derived from the household data file, using our data processing algorithm. Bivariate tabulations of these error measures and the Gross Rent Error indicator suggested that, as in previous analyses, of the numerous indicators of project-caused errors examined, five were relatively important in accounting for rent errors with an acceptable level of collinearity. The dummy variables (with 1 for error and 0 for without error) included overdue recertification error, consistency error, procedural error, transcription error, and calculation error.[49]

Project errors also were measured on a ratio scale, namely, the transcription error rate (the proportion of transcribed items containing transcription errors) and the verification error rate (the proportion of the verification-required items without third-party verification in writing). Finally, counting all types of project-caused errors, we created an integer measure of the overall level of project-caused errors.

Household Data

The household data set contained outcome measures of the analysis, such as dollar amount of rent errors, types of project-caused errors, and household financial conditions (e.g., income and expenses), as well as project-caused error measures discussed earlier.

Rent Error Measures. As a common practice, for monthly Gross Rent Error, subsidy overpayment, and subsidy underpayment, the logarithm of each dollar value was taken to tighten the variables' skewed distributions where very few cases had large dollar amount errors and many had zero error.

[49] Please refer to the HUDQC Final Report Sections I: Introduction and II: Methodology for definition of each type of project-caused error.

Household Characteristics. The data were edited (recoding/rescaling and consolidating raw items) to construct composite variables from the original data items. Each variable's bivariate and multivariate relationships with Gross Rent Error were examined, including all the household variables that were known to be predictive of Gross Rent Error on the basis of past HUDQC multivariate analyses (FY 2000–FY 2012).

Household variables for modeling included interval measures such as total annual income dollar amount, head of household age, number of household members, number of bedrooms, and counts of financial items that involved individual members (pension incomes, medical expenses, allowances, expenses and incomes).

Binary-coded indicators included: households with disabled elderly (aged 62 or older) member(s), earned income, public assistance income, other income, and the MTW program participation status—each coded as 0 for no and 1 for yes. To make the statistic interpretation straightforward, we rescaled three interval variables that did not contain a zero value (number of bedrooms, household size, and head of household age) by subtracting each variable's grand mean from each individual value, a rescaling process known as centering.

Data Editing/Rescaling

Data editing entailed data transformation, recoding or rescaling to derive predictors or construct composite predictors that may be used in modeling (see Table 2 for details). Essentially, the following types of data editing were conducted:

- To consolidate the information for sensible comparison, two or more data items were combined to measure the same concept. For example, for project size, counts of caseload, and staff of different sort were transformed into rates or ratio (e.g., cases per certification staff). Raw data items for different activities with frequency measures (e.g., "very often," "often," "sometimes," and "rarely" occurring different errors in certification procedure) were combined to build an overall ordinal measure of error frequency.
- Multiple categories of a given measure were sometimes combined to build binary-coded indicators that may be more predictive of the rent error (e.g., Web-based video trainings developed by different sources were combined into a binary-coded variable to indicate projects that used Web-based video training versus projects that did not use such training). Dummy coding was also used to recode multiple-category variables with 1 for the focal category and 0 for the rest (e.g., code 1 for projects where certifications were reviewed by supervisor or team leader and 0 for projects otherwise).
- Centering: For straightforward interpretation of regression estimates, interval or ratio predictors whose original scale did not contain values were centered on the grand means (i.e., minus the grand mean of the variable from each data point). Many project variables in integer or ratio scales were centered (e.g., cases per certification staff, cases per experienced certification staff, staff turn-over rate, total number of training hours, rates of cases reviewed, number of error types tracked). Also, three household variables (age of head of household, number of bedrooms, and total income) were centered. With centered scaling, the intercept of the regression model is the rent error for households that had grand mean values on the centered predictors (and 0 on other predictors). Each regression

coefficient estimates the change in rent error associated with one unit change around the grand mean of the given predictor variable.

- Rescaling for easy presentation: a number of interval or ratio variables (e.g., household total income, cases per certification staff, and cases per experienced certification staff) were converted into large units (e.g., $1,000 and 100 cases), such that the regression coefficient estimates would be presented after rounding to the third decimal point as a convention in such presentation.

Table 2.
Rescaled/Centered/Imputed Data Used in the Multivariate Analysis
(n = 2,402, Design Effect Adjusted)

Label	Mean	Standard Error	Lower 95%	Upper 95%
Rent errors				
Log of gross error	0.851	0.030	0.790	0.913
Log overpayment	0.396	0.023	0.348	0.443
Log underpayment	0.343	0.021	0.299	0.387
Binary gross error > $5	0.224	0.009	0.204	0.244
Project characteristics				
Public Housing	0.244	0.000	0.244	0.244
Owner-administered	0.291	0.000	0.291	0.291
Cases per certification staff (in 100s)	0.012	0.105	-0.207	0.231
Cases per experienced certification staff (in 100s)	-0.062	0.827	-1.788	1.663
Certification staff turn-over rate	0.456	1.280	-2.214	3.126
Project practices				
Assigned case by transaction type	0.223	0.023	0.175	0.271
Assigned case by activity	0.083	0.009	0.064	0.102
Number reported training hours for new staff	5.598	11.410	-18.202	29.398
Web-based training for new staff	0.432	0.033	0.364	0.500
Interviewing Training for experienced staff	0.595	0.036	0.519	0.670
Form HUD-50058/50059 training-experienced staff	0.677	0.032	0.610	0.744
Number of activities using a computer	7.512	0.102	7.299	7.726
Contracted out to perform certifications	0.108	0.012	0.083	0.133
Staff with goal-setting process for performing certifications	0.759	0.024	0.709	0.808
Dedicated QC staff	0.816	0.017	0.780	0.852
Certification review rate	0.411	2.168	-4.111	4.932
frequency making errors	-0.080	0.381	-0.876	0.715
Review by supervisor/leader	0.790	0.018	0.753	0.827
Review by OIG auditor	0.079	0.016	0.045	0.113
EIV training for experienced staff in PH sites	0.114	0.011	0.090	0.138

Table 2. Rescaled/Centered/Imputed Data Used in the Multivariate Analysis (n = 2,402, Design Effect Adjusted) (continued)

Label	Mean	Standard Error	Lower 95%	Upper 95%
EIV training for experienced staff	0.899	0.019	0.859	0.940
Number of cases per certification staff in PH sites	0.022	0.005	0.012	0.032
Project-caused errors				
Percentage of items with transcription errors	0.248	0.010	0.227	0.269
Percentage of items without written third-party verification	0.076	0.006	0.064	0.088
Overdue recertification error	0.013	0.003	0.006	0.020
Consistency error	0.193	0.012	0.168	0.218
Procedure error	0.234	0.011	0.211	0.258
Transcription error	0.468	0.016	0.434	0.501
Income calculation error	0.031	0.007	0.016	0.045
Any calculation error	0.074	0.012	0.050	0.099
Total number of project errors	1.372	0.041	1.286	1.458
Household Characteristics				
Number of household members	0.045	0.042	-0.043	0.133
Total annual income $1,000	13.442	0.547	12.300	14.584
Number of bedrooms	0.042	0.043	-0.048	0.132
Earned income	0.382	0.014	0.353	0.410
Other income	0.249	0.016	0.216	0.282
Public assistance income	0.103	0.010	0.082	0.124
Pension income	1.027	0.064	0.893	1.161
Medical expense	0.631	0.053	0.519	0.742
Total number of sources of income/expenses	2.664	0.119	2.415	2.913
Total number of allowances	1.184	0.019	1.144	1.224
Age of head of household	-0.800	0.889	-2.653	1.054
Household with elderly/disabled	0.549	0.022	0.504	0.594
MTW status	0.114	0.039	0.033	0.195

Source: FY 2013 HUDQC household-level data collection and Project Staff Questionnaire

Attachment 3: Regression Diagnosis: Collinearity and Outlier Identification

Collinearity

When a predictor is a linear combination of other predictors in the model, the coefficient estimates tend to be unstable with large standard errors, a problem known as collinearity or multicollinearity. We conducted regression diagnosis with household data, generating results largely comparable with earlier studies. We excluded two variables of high collinearity from the final analysis.

SAS PROC REG was used to generate collinearity diagnostic statistics (TOL, COLLIN, VIF) with the household variables as predictors and log gross error as the dependent variable. Overall, collinearity seemed moderate, with only two pairs of variables questionable: the number of household dependents versus household size and procedure error versus administrative error showed significantly high collinearity, each with a VIF greater than 10.0 and a large variance accounted for by the given component factor with high index values, according to conventional criteria of acceptable collinearity statistics. We judged household size to be conceptually more important and thus retained it in the equation. With the same rationale, we removed administrative error from analysis. It is remarkable that the collinearity pattern is highly consistent over the years.

Outliers and Influential Cases

Extreme cases with gross error values drastically different from the rest of the sample, known as outliers, may affect the model fit of least square regression functions. In this study, this problem was more likely due to a different sampling distribution of these cases than to measurement errors. We conducted residual analysis to examine the outliers and decided to remove them from analysis.

Outliers are defined as Y observations whose residuals e_i have substantially different variances $\sigma^2\{e_i\}$ from other observations. We examined the magnitude of each e_i relative to its estimated standard deviation (SD), a ratio of e_i to $s\{e_i\}$, called the studentized residual, to assess differences in the sampling errors of the residuals.

To detect outlying Y observations, we measured the ith residual e_i with the fitted regression based on all of the cases except the ith one. The reason for excluding the ith case is that if Yi is far outlying, the fitted least squares regression function based on all cases, including the ith case, may be influenced to come close to Y_i. In that event, the residual e_i will appear small and will not reveal Y_i as outlying. Excluding the ith case before the regression function is fitted, the least squares fitted value would not be influenced by the outlying Y_i observation and the residual for the ith case will then be realistically large, and therefore, more likely to disclose the outlying Y observation.

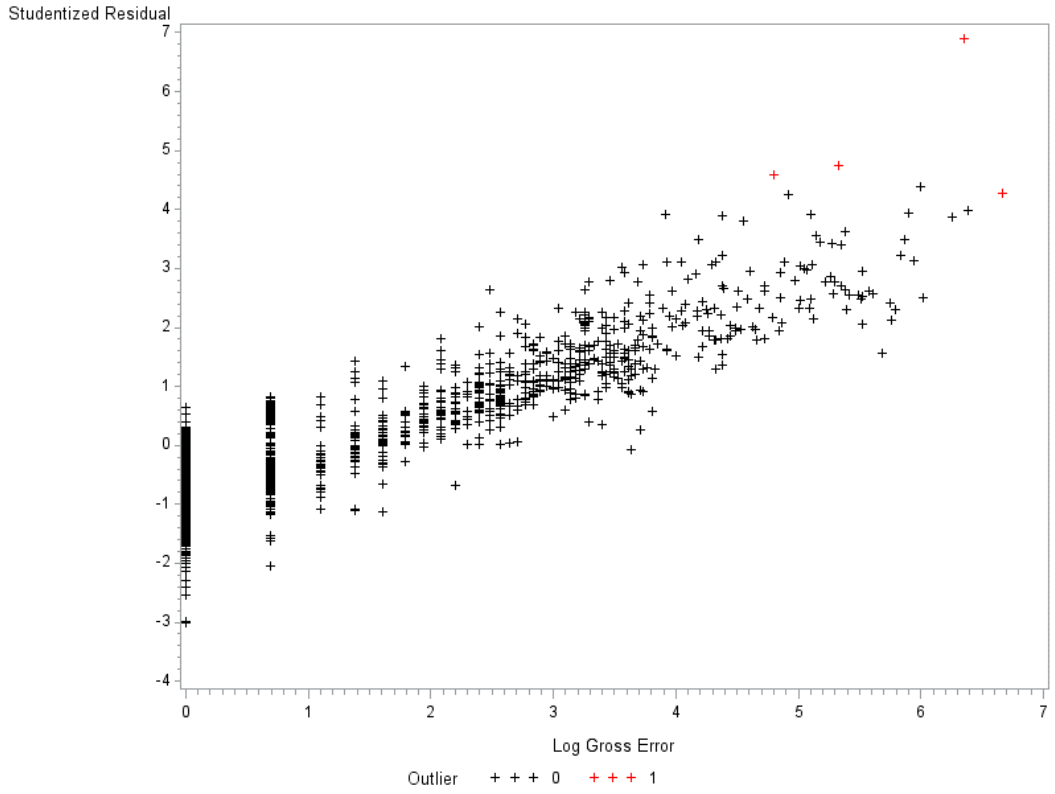
Diagnosis of outlying Y observations entailed deleting and studentizing each case's residual. Each studentized, deleted residual t_i was calculated from the residual e_i, the error sum of squares SSE, and the matrix values h_{ii}, all for the fitted regression based on the 2,402 cases in the data set. Each studentized, deleted residual t_i followed the t distribution with n-p-1 degrees of freedom.

We first defined as outliers the household records with absolute values of studentized residual greater than 4.0. This was calculated via the Bonferroni test, based on Bonferroni critical value

$t(1-\alpha/2n;\ n-p-1) = 4.0$. To further check undue bias caused by cases with excessive influence to regression modeling, we examined two statistics generated from residual analysis, known as the leverage and Cook's D. The leverage is a measure of the most influential cases on modeling. Conventionally, a point with leverage greater than (2k+2)/n may deserve a closer look, where k is the number of predictors and n is the number of cases in the sample. In this study, leverage point is (2*22+2)/2402 =0.0183. We identified four cases that were high on both studentized residual and leverage.

Cook's D combines the information from the residual and leverage to measure the overall excessiveness of influence on the regression, with values starting from zero, the higher the Cook's D, the more influential the point, with a conventional cut-off point 4/n, where n=2,402. With Cook's D and the residual and leverage, we identified the same four cases with scores higher than the respective cut-off points. Figure F-4 displays the identified outliers in the residual distribution of log Gross Rent Error.

Figure F-4
Residual Distributions of Log Gross Error and Identified Outliers: Correlation of Studentized Residual Score and Log Gross Error



* Outliers defined by studentized residual, leverage, and Cook's D.

Table 3 shows the differences in rent error measures between the outlier households and other households were large. To test the effect of excluding the four cases on the regression estimation, two models were run with and without the four outliers. The results suggested an improvement of model (R-squared and adjusted R-squared), increased as a result of dropping the outliers from

0.239 and 0.232 to 0.246 and 0.237, respectively. Thus, the final modeling excluded the four cases, with a sample of 2,398 households.

Table 3.
Measures of Subsidy Rent Errors: Outlier Households and Other Households

Household sample status	Label	Mean	Standard Error	Lower 95%	Upper 95%
Households in the final model (n = 2,398)	Gross Error	9.923	0.871	8.106	11.740
	HUD overpaid dollar amount	5.430	0.666	4.039	6.820
	HUD underpaid dollar amount	4.282	0.583	3.066	5.498
	Log of gross error	0.835	0.029	0.774	0.896
Outlier households defined by studentized residual, leverage, and Cook's D (n= 4)	Gross error	390.405	159.238	58.240	722.570
	HUD overpaid dollar amount	300.114	211.435	-140.932	741.159
	HUD underpaid dollar amount	90.291	59.402	-33.619	214.202
	Log of gross error	5.717	0.457	4.764	6.670

Source: FY 2013 HUDQC household-level data collection and Project Staff Questionnaire

Attachment 4: Proportion of Log Gross Rent Error Variance, Partitioned by Project and Household Levels: Unconditional HLM Estimates

Table 4.
Mixed Model Estimates (Household n=2,402, Project n=542)

Random effects				
Variance Components	**Estimate**	**Standard Error**	**Z Value**	***p* Level**
Project	0.156	0.032	4.86	<.0001
Residual	3.615	0.114	31.83	<.0001
Total variance	3.771			
Intra-class correlation (percent between-project variance)	5.8%			
Fixed Effect (DF=541)				
Mean log gross rental error (intercept)	0.846	0.034	25.19	<.0001

Source: HUDQC FY 2013 household-level data collection and Project Staff Questionnaire