Quality Control for Rental Assistance Subsidy Determinations

Final Report for FY 2011

October 8, 2012

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Prepared for:
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Department of Housing and Urban Development
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EXECUTIVE SUMMARY

The Department of Housing and Urban Development (HUD) Quality Control for Rental Assistance Subsidy Determinations (HUDQC) studies provide national estimates of the extent, severity, costs, and sources of rent errors in tenant subsidies for the Public and Indian Housing (PIH)-administered Public Housing, PHA-administered Section 8 Housing Choice Voucher and Moderate Rehabilitation programs; and the Office of Housing-administered Section 8, Section 202 and Section 811 Project Rental Assistance Contracts (PRAC) and Section 202/162 Project Assistance Contracts (PAC) programs. These programs account for nearly all of HUD's current housing assistance outlays administered by the Offices of Housing and Public and Indian Housing, 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. This study does not involve an audit of individual Public Housing Authorities (PHAs) or projects, nor does it monitor the implementation of housing programs. Its focus is on identifying households where an error was made when calculating the amount of the household's rent and providing nationally representative findings related to those errors.

The errors we evaluated in this study affect the rent contributions tenants should have been charged. The findings presented in this report are a result of data collected from February 2012 through May 2012 for actions taken by PHA and project staff during Federal fiscal year (FY) 2011 (October 2010 through September 2011). These findings show that 75 percent of households nationally paid the correct amount of rent in FY 2011. In 13 percent of the cases, households paid too much rent and in an additional 12 percent of the cases the 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., rent plus utilities), with HUD providing the balance of the rental payment. New program applicants are required to provide certain information on household characteristics, income, assets, and expenses that is used to determine their rent due. Existing tenants must recertify this information annually and also, in some circumstances, when there are significant changes in household 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 HUD's over- or underpayment of housing assistance.

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. Ten studies have been conducted to identify program administrator income and rent determination error. In addition to the 2000 study, studies were conducted in FYs 2003 through 2011. The study referenced in this report covers FY 2011 and updates the FY 2010 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 this Income Match study will be published as a separate report. The balance of this report relates solely to program administrator income and rent determination error.

For purposes of this study, "error" is defined as any rent calculation or eligibility determination that differs from what would have occurred if the PHA or other program administrator had followed all HUD income certification and rent calculation requirements during the income certification or annual recertification conducted in FY 2011. 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. 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 making sure those households who are eligible for the program are receiving the correct subsidy, rather than reducing the amount of 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 resources to provide HUD, PHAs, and owners with the written policy guidelines, training, standardized forms, and ongoing monitoring needed to assure the programs are administered correctly. HUD's objective of providing the right subsidies to the right families is a worthy one that this study supports.

A. Methodology

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

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

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

A random sample of four households was selected for most projects, but more tenants were selected from unusually large projects. The final study data set includes responses from 2,404 households.

Out-of-Scope Projects. Certain projects were excluded from the study due to their different eligibility and rent calculation rules, including Owner-administered RAP/SUP projects and

Moving-to-Work (MTW) in Public Housing and Voucher program types. Universe files requested from HUD either excluded out-of-scope projects or were identified by HUD for easy removal.

Weighting. Population counts per program were provided by HUD to compile the weights. In studies since FY 2004, due to the difference in their eligibility and rent calculation rules Owner-administered RAP/SUP projects and Moving-to-Work projects in Public Housing and Voucher programs were excluded from the population totals.

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

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 58 field interviewers, and selecting the project and tenant sample. Field interviewers obtained data from tenant files and interviewed tenants using computer-assisted personal interviewing (CAPI) 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 headquarters.

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 HUD Forms 50058 or 50059 that was calculated by the project staff). A discrepancy of $5 or less between the actual and QC rent 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 2011 tenant files, tenant interview, and income verification data indicates that[1]

- Seventy-five percent of all households paid the correct amount of rent within $5 (62% paid exactly the right amount);
- Twelve percent of all households paid over $5 less than they should have (with an average error of $72 per month);
- Thirteen percent of all households paid over $5 more than they should have (with an average error of $35 per month).

[1] Totals may not add up to 100% due to rounding.

Rent Error Estimates by Program Type. The rate of rent underpayments was highest, at 15 percent, in the PHA–administered Section 8 program, followed by the Public Housing program with an 11 percent error, and the Owner-administered program with 9 percent error. The PHA–administered Section 8 program also had the highest overpayment rate of 16 percent followed by Public Housing at 10 percent and the Owner-administered program at 10 percent. 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%	10%
PHA-Administered Section 8	15%	16%
Owner-Administered	9%	10%
Total	**12%**	**13%**

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

- **Rent underpayments of approximately $469.5 million annually (up from $362 million in FY 2010).** For tenants who paid less monthly rent than they should pay (12%), the average monthly underpayment was $73. For purposes of generalization, total underpayment errors spread across all households (including those with no error and overpayment error) produces a program-wide average monthly underpayment error of $9.00 ($108 annually). Multiplying and weighting the $108 by the approximately 4.3 million units represented by the study sample results in an overall annual underpayment dollar error of approximately $469.5 million per year.
- **Rent overpayments of approximately $225.7 million annually (down from $288 million in FY 2010).** For tenants who paid more monthly rent than they should pay (13%), the average monthly overpayment was $34. When this error is spread across all households it produces an average monthly overpayment of $4.33 ($52 annually). Multiplying and weighting the $52 by the approximately 4.3 million assisted housing units represented by the study sample results in an overall annual overpayment dollar error of approximately $225.7 million per year.
- **Aggregate net rent error of $240.5 million annually.** When combined, the average gross rent error per case is $13.33 ($9.00 + $4.33). Over- and underpayment errors partly offset each other; the net overall average monthly rent error is -$4.67 (-$9.00 + $4.33). 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

[2] National annual totals in the text and exhibits are calculated using exact values and weighted. While 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 are rounded to the nearest integer for formatting purposes.

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 $240.3 million per year ($469.5 million–$225.7 million).

Subsidy over- and underpayment dollars are summarized in Exhibit ES-2. 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	$73 (12% of cases)	$34 (13% of cases)
Average Monthly per Tenant Error Across all Households	$9	$4
Total Annual Program Errors[3]	$469.5 million	$225.7 million
Total Annual Errors —95% Confidence Interval)	**$366.7-$572.2 million**	**$149.4-$302.1 million**

Exhibit ES-3 provides estimates of program administrator error by program type. These data respond to study Objectives 3 (i.e., estimate national-level net costs for total errors and major error types), 8 (i.e, provide information on the extent to which errors are concentrated in projects and programs), and 11 (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 $1,000's)

	Subsidy Overpayments	Subsidy Underpayments	Net Erroneous Payments	Gross Erroneous Payments
Public Housing	$105,455	$34,430	$71,025	$139,885
PHA-Administered Section 8	$287,835	$148,320	$139,575	$436,155
Total PHA-Administered	$393,290	$182,751	$210,539	$576,041
Owner-Administered	$76,179	$42,989	$33,190	$119,168
Total	**$469,470**	**$225,739**	**$243,731**	**$695,209**
95% Confidence Interval	**±$102,727**	**±$76,364**	**±$144,731**	**±$108,728**

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

Comparison with Prior Studies. Nine prior studies (2000 baseline and the FYs 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010) estimated erroneous payments attributed to program administrator rent calculation and processing errors using the same methodology, sampling procedures, and sample sizes as this FY 2011 study. The 2000 "Quality Control for Rental Assistance Subsidy Determinations" study was published as a final report in June 2001. The FY 2003 final report—Quality Control for Rental Assistance Subsidies Determinations—was completed in August 2004. The FY 2004, 2005, 2006, 2007, 2008, and 2009 final reports were completed in July 2005, October 2006, October 2007, October 2008, October 2009, October 2010, and September 2011 respectively. While the FY 2003 and FY 2004 studies demonstrated significant reductions in erroneous payments attributed to program administrator income and rent determinations, the FY 2005 findings indicated a smaller reduction in the gross dollars in erroneous payments that did not represent a statistically significant decrease from FY 2004. The FY 2006 study indicated a small increase in the gross dollars in erroneous payments, which also did not represent a statistically significant difference. The FY 2007 study once again indicated a decrease in gross dollars in erroneous payments with significant reductions in PHA-administered programs.

Comparing average dollar error in FY 2011 to FY 2010, there was no significant change in average dollar error overall and for each administration type from FY 2010 to FY 2011. While the estimate for total gross dollar error increased from FY 2010 to FY 2011, the increase may be due to an increase in the population and not due to an increase in error[4]. When comparing dollar error from year to year, it is advised to compare average dollar error, which is not impacted by changes in population. In addition, estimates may vary slightly from year to year based on the sample. Exhibit ES-4 presents a comparison of the gross erroneous payments for the QC studies from 2000 to FY 2011. Figure ES-1 graphically shows the progression of gross erroneous payments over time.

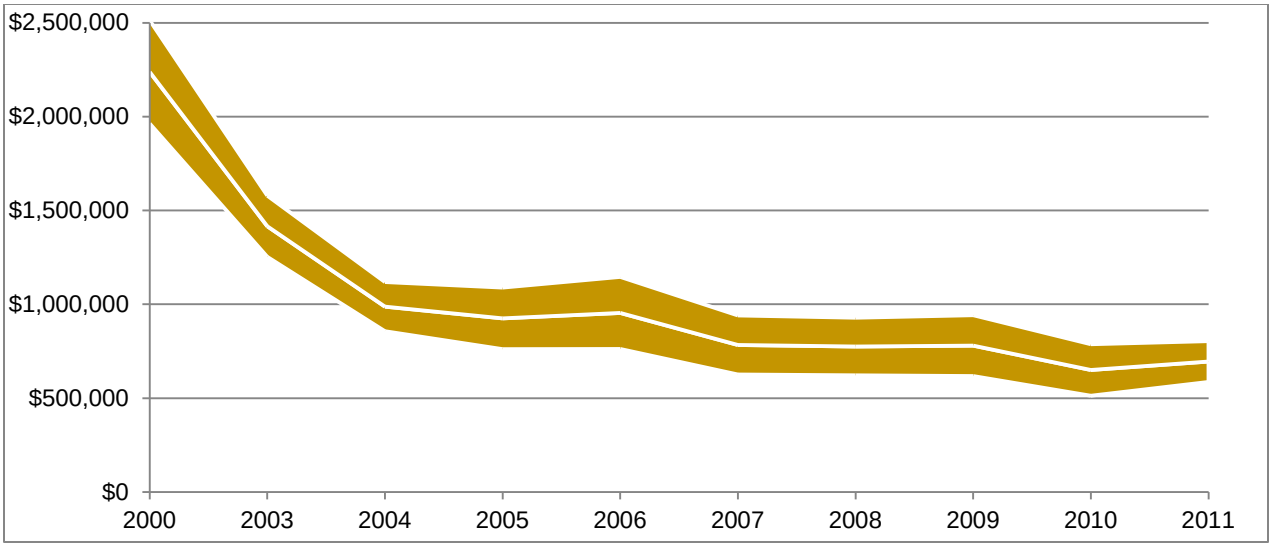
[4] In FY 2011, the population totals were updated based on the FY 2011 frame. The new population totals excluded Moving-to-Work PHAs and increased from around 4.1 million assisted housing units to around 4.3 million. Please refer to *Chapter 2: The Sample* and *Appendix B* for more details regarding this change.

Exhibit ES-4
Comparative FY 2000 through FY 2011 Gross Erroneous Payments*

Gross Erroneous Payments (in $1,000's)	Administration Type				Total
	Public Housing	PHA-Administered Section 8	Total PHA-Administered	Owner-Administered	
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 ±$192,000
FY 2005	$220,464	$456,240	$676,704	$248,580	$925,232^ ±$164,000
FY 2004	$242,076	$521,220	$763,292	$224,460	$987,744^ (±$131,000)
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 2011	76.78%	60.22%	66.00%	77.90%	68.89%

* Gross Rent Error is the sum of the absolute value of positive and negative rent error. ^ Numbers may not add exactly due to rounding.

Figure ES-1
Comparative FY 2000 through FY 2011 Gross Erroneous Payments over Time (in 1,000s)



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 purposes of this study, administrative errors are analyzed separately from specific component errors.

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

- Consistency errors—errors in logical conformity between elements within the 50058 or 50059 Forms
- Calculation errors—arithmetic errors within subsections of the 50058 or 50059 Forms
- Transcription errors—errors in transferring information from documentation in the tenant file to the 50058 or 50059 Forms
- 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/allowance components are 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 Objectives 2 (i.e., identify the dollar costs of the various types of errors) and 6 (i.e., determine the apparent cause of significant rent 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 Forms 50058 and 50059. For tenants for whom data are submitted (and corrected if required), these systems virtually eliminate rent determination calculation errors for the items included on the forms. However, not all cases are reported and some cases returned to program sponsors for correction are ignored or are changed in HUD systems but not actually implemented.

Overdue Recertifications. HUD requires that every household be recertified annually. About one percent of households had overdue recertifications in FY 2011, which was about the same as in FY 2010.

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 provide new procedures for obtaining and using verification. FY 2011 was the first fiscal year where the new HUD verification guidelines applied. The new guidelines were implemented by HUD at the end of

FY 2010. It was expected that these new guidelines would result in reduced errors in the future, and the number of cases in error has decreased from FY 2010.

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. Some program sponsors do a much better job than others in achieving third-party compliance with written verification. The QC study shows that it is reasonable to expect all program sponsors to have as high a success rate as the current high performers. The study also shows that there is significant room for improvement in using the verification data obtained.

Component Errors. Incorrect income and allowance amounts were by far the most significant sources of error in determining rents, while about 3 percent of households with rent errors did not have an income or expense component error. Earned income (32%), pensions (16%), other income (16%) and medical allowances (15%) continued to have the greatest percentage of households in error. Exhibit ES-5 shows the frequency of the most serious component errors and the average dollar amount for each type. The percentage of households represents the households with any rent component error where the specified rent component was responsible for the largest error. The Average Dollar Amount represents the average dollar amount for the specified rent component for households where the specified component was responsible for the largest error. For comparison purposes, findings from FY 2010 are provided in parentheses. Note that while the percentage of households with component errors has increased for some components such as other income and public assistance, the average dollar amount of component error has decreased for these components.

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

Rent Component	Percentage of Households	Annual Average Dollar Amount
Earned Income	32% (27%)	$3,881 ($3,162)
Pensions	16% (17%)	$2,923 ($2,021)
Other Income	16% (17%)	$3,118 ($2,173)
Public Assistance	8% (7%)	$1,906 ($1,915)
Asset Income	2% (2%)	$613 ($2,535)
Medical Allowance	15% (22%)	$832 ($1,308)
Child Care Allowance	3% (3%)	$2,237 ($1,263)
Dependent Allowance	3% (4%)	$580 ($517)
Elderly/Disabled Allowance	2% (2%)	$400 ($400)
No Rent Component Error	3% (<1%)	$0
Total	**100%**	**$2,594 ($2,067)***

* The sum of the dollars associated with the largest component in error divided by the number of households with that error.
Note: FY 2010 findings are provided in parentheses. The cell size for elderly/disabled allowance is small, thus 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. Currently, monthly error of less than $5 is ignored due to rounding. An increase in the error threshold of $5 to $10 would result in an increase in proper payments by

about 5 percent, as well as a decrease in the estimate for gross dollar error by about $20.9 million. Based on the distribution of household error, most rent errors are within $100 per month, or $1,200 per year. While at the individual household level the gross error may seem insignificant, cumulatively the errors can result in a large amount of gross dollar error. While an increase in the error threshold to $100 per month would result in 97 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 1,000's)

	Percentages of Households			Dollar Error Amount			
Monthly Error	Rent Underpayment	Proper Payment	Rent Overpayment	Rent Underpayment	Rent Overpayment	Gross Error	Net Error
Exact Match	17.6%	61.8%	20.6%	$475,519	$239,388	$714,908	-$236,131
Within $5	12.4%	74.9%	12.7%	$468,636	$229,294	$697,930	-$239,341
Within $10	10.4%	80.1%	9.5%	$460,872	$216,173	$677,045	-$244,698
Within $15	8.9%	83.9%	7.2%	$450,129	$201,303	$651,432	-$248,826
Within $25	7.1%	87.9%	5.0%	$431,191	$178,539	$609,730	-$252,653
Within $50	4.7%	93.0%	2.4%	$384,774	$128,704	$513,478	-$256,070
Within $100	2.6%	96.6%	0.7%	$311,221	$72,151	$383,372	-$239,070

D. Additional Findings

Eligibility of Newly Certified Households. A separate analysis of newly certified households (13%) was conducted to determine if these households were eligible for HUD housing assistance. Eighty-nine percent of these households met all the eligibility criteria compared to 95 percent in FY 2010. All certified households in the sample were income-eligible on the basis of the QC income determination.

One percent of the newly certified households failed to document Social Security numbers for one or more family members and 9 percent lacked the signed consent forms needed to authorize verification of income and assets (for each member of the household at least 18 years of age). All households had the signed declaration forms or evidence accepted as proof of citizenship. These findings respond to study Objective 9 (i.e., estimate the percentage of newly certified tenants who were incorrectly determined eligible for program admission).

Occupancy Standards. Study Objective 7 asks for the extent to which households are over- or underhoused relative to HUD's occupancy standards. Fourteen percent of all households occupied a unit with too many or too few bedrooms in FY 2011, according to the guidelines used for this study. Historically, the percent of households in units with the correct number of bedrooms according to study guidelines are as follows: FY 2004—88%; FY 2005—87%; FY 2006—86%; FY 2007—85%; FY 2008—87%; FY 2009—86%; FY 2010—85%; FY 2011—86%.

Rent Reasonableness. Study Objective 10 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-four percent of new admission files contained rent reasonableness documents, as did 78 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. About 99% of the PHAs in the study used unit-to-unit rent comparison, unit-to-market rent comparison, or a point system when determining if the rent was reasonable. For the remaining 1% there was either no information available, the PHA used some other method of determining rent reasonableness, or the units were subject to rent control.

Utility Allowances. For PHA-administered Section 8 Voucher households, the utility allowances found on the 50058 Forms 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, 89 percent of the utility allowance values matched. For the second comparison, 92 percent of the values matched. However, the fact that the values did not match does not necessarily mean the utility allowance found on the 50058 Form 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 the 50058 Form 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, 81 percent of the payment standards matched. For the second comparison, 95 percent of the payment standards found on the 50058 Form 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, the fact that the payment standards did not match does not necessarily mean the incorrect payment standard was used when calculating the amount of the tenant rent.

50058/50059 Form Rent Calculation Error. The tenant rent was calculated using only data on the 50058/50059 Forms to determine the relationship between errors detected using the 50058/50059 Forms and total rent errors found in the study (in response to study Objective 4). When using only the 50058/50059 Form data to calculate rent, errors were found in 7 percent of the households. This is clearly different then the QC error calculation where errors were found in 25 percent of the households. In addition, error was found in both the 50058/50059 Form and QC calculation in only 2 percent of the households.

PIC/TRACS Comparison. The 2,404 households in the study were matched to the PIC/TRACS databases to respond to study Objective 14. Ninety-seven percent of the Owner-administered households were found in TRACS and 96 percent of households were found in PIC. The average net and gross dollars in error was higher for households where PIC/TRACS data was absent.

Automated Rent Calculation Systems. Study Objective 12 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. In response to study Objective 8 (i.e., provide information on the extent to which errors are concentrated in projects and programs), data were collected from PHA/project staff via a structured survey. Multivariate analyses were conducted to explore whether project characteristics or practices contributed to administrative or rent error. The results showed that project-caused errors accounted for a large proportion of gross rent error. Of the project-caused errors, transcription errors, overdue recertification errors, the rate of items with transcription error, and the rate of items without third-party written verification predicted higher gross error. Household background variables such as variables indicative of complex financial conditions and income strongly also predicted higher rent errors. The basic results were comparable with those from previous years' analyses (FY 2008–FY 2010), underscoring the importance of reducing project-made errors, particularly transcription errors and overdue recertification in minimizing rent errors. The relationships between household financial and demographic variables and rent errors were also highly consistent across models and years, a finding suggesting robust and continuing tenant risk factors with which housing projects must cope.

E. HUD Initiatives: 2000–2011

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:

- A Rental Housing Integrity Improvement Program (RHIIP) committee, headed by the Office of the Chief Financial Officer with representatives from the other affected Offices, was formed to coordinate and monitor corrective actions. The committee meets to review progress, and identify and resolve impediments to progress in reducing errors.
- The Offices of Housing and Public and Indian Housing developed and issued new handbooks and instructional material that detailed all current HUD program requirements and standardized them to the extent possible without regulatory or statutory change. These 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 Offices of Housing and Public and Indian Housing substantially increased training efforts and held a number of national and regional training sessions. This contrasts with a less activist role in the 1980s and 1990s.
- The Offices of Housing and Public and Indian Housing 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 on agency compliance.

  - The Office of Public and Indian Housing 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/or 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 gives it access to the U.S. Department of Health and Human Services (HHS) National Directory of New Hires (NDNH) income and wage database for income matching purposes. It 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 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 Offices of Housing and Public and Indian Housing 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 family 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 under the age of six.

HUD's performance goals, which were developed in consultation with the Office of Management and Budget (OMB), 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 has since further decreased error. 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 indicates that its 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

The progress when comparing the 2000 findings to the FY 2011 results is impressive. In fact from FY 2010 to FY 2011 alone there was a statistically significant rise in the percentage of assisted households who pay the correct rent (67–75%). However, the gross erroneous payments remain essentially unchanged from FY 2010. On the basis of the current study's results, the following

approaches to further reduce income and rent determination error rates by program administrators are recommended:

- HUD should continue its plans to use the HHS New Hires income matching database. However, access to the New Hires income matching database by itself will not result in a reduction in error. PHA/project staff must use this information to assist them in resolving discrepancies between reported information in the New Hires income matching database and tenant-reported information.
- HUD should continue expanding support of the occupancy function and conducting outreach campaigns to PHAs and owners informing them of the Department's occupancy-related resources.
- HUD should continue to provide PHAs and owners with the forms, training, and other tools required to determine rent correctly and to assist them in resolving discrepancies. Changes in policy should be reported to PHAs and owners in a timely fashion with the guidance, and local trainings conducted wherever possible in order to implement those changes in an accurate manner. HUD should consider creating a handbook that combines or cross references the rules and regulations for all rental assistance programs administered by HUD. The Earned Income Disregard is one example of a difficult rule where PHA/owners would benefit from clearer guidelines and training materials.
- HUD should continue to implement and expand the scope and depth of its on-site monitoring program by utilizing experienced, knowledgeable HUD staff, or competent contract staff. PHAs and owners should be held accountable for implementing HUD regulations and calculating rent accurately.
- Federal laws, regulations, and HUD requirements should be simplified to the extent possible.
- HUD should consider implementing policy that allows reexaminations, for selected populations, to be completed less often than annually.

In addition, the quality control studies could be modified to supplement the findings from this study and identify options for reducing error in the future. The following are possible methods to achieve this goal:

- Consider conducting a remote data collection with national estimates and a larger number of households per project, where PHAs/projects mail copies of the tenant file to study headquarters. Eliminating a field data collection would eliminate the need to travel and the costs associated with travel, allowing for a stratified sample that would increase the precision of the national estimates, as well as potentially provide better project-level information.
- Collect more information regarding PHA/project policies and practices. Each PHA establishes its own policies, procedures, and forms for collecting the information that is ultimately used to calculate tenant rent. The differentiation in these practices may have some (possibly major) impact on the rent error, yet the analysis of the project practices and characteristics collected in the Project Staff Questionnaire designed for this study do not demonstrate the expected impact. Focus groups and cognitive interviewing could be used to

identify additional PHA/project-level factors that may impact error. This additional information could be used to revise the Project Staff Questionnaire to include questions focused on the specific practices expected to influence errors.

- Gather information to document the outcome of the HUD quality control studies. Overall, the HUDQC studies indicate that both the percent of errors and dollars associated with those errors have decreased in the last eight years. However, there is no information on changes in tenant behavior related to the identification and reduction of error. To really understand the overall impact of the quality control studies on subsidy funding, additional information is needed regarding both the tenants receiving the subsidies and the PHAs/projects administering the housing benefits.
- Expand contractor access to verification obtained through Social Security Administration and National Directory of New Hires data. Despite increasing rates of third-party verification, a substantial proportion of tenant income and expenses are not being verified. This is especially important given the study results indicate a significant relationship between third-party verification and certain types of income and rent errors. Expanded access to Federal databases would allow the contractor to investigate discrepancies between information on the 50058/50059 Form and the tenant file.
- Continue to investigate PIC/TRACS data for sampling and other purposes. Ideally PIC/TRACS data would be used to select the quality control sample and provide the actual data used by the PHA/project staff when calculating rent (in place of abstracting 50058/50059 Form data from the tenant file). However, to do this the data must be available for the specific period of time covered by the study.
- Continue the HUD quality control studies as a regular, ongoing effort to monitor and manage HUD rent determination processes. Ongoing evaluation of the subsidy programs administered by HUD is essential to the management of those programs. Although the primary goal of these studies is to measure rent errors, the studies also give HUD the opportunity to learn more about alternatives to reducing rent errors and better management of current and changing conditions at PHAs/projects.

I. INTRODUCTION

A. Purpose of the Quality Control for Rental Assistance Subsidy Determinations Study (HUDQC) for FY 2011

The purpose of this study is to provide national estimates of rent subsidy errors for the U.S. Department of Housing and Urban Development's (HUD's) Public and Indian Housing (PIH)-administered Public Housing (Public Housing), PHA-administered Section 8 Housing Choice Voucher and Moderate Rehabilitation programs (PHA-administered Section 8); and the Office of Housing-administered Section 8, Section 202 PRAC, Section 811 PRAC, and Section 202/162 PAC programs (Owner-administered). Rent subsidy errors occur during the tenant certification and annual recertification processes, and this study examines the extent, costs, and sources of these subsidy errors.[5] For the purpose of this study, "error" is defined as any rent calculation or eligibility determination that differs from what would have occurred if the PHA/owner had followed all of HUD's income certification and rent calculation requirements. This study focuses on (re)certifications conducted during Federal FY 2011. HUD identified 17 study objectives related to types of errors and cost issues; this report addresses 15 of those objectives. Objective 15 refers to the Income Match Study whose findings were published in a separate report. The 17th objective addresses billing errors in Multifamily Housing Programs. This study was not conducted for FY 2011. The analysis also identifies errors in assigning appropriate size units to households and certain procedural errors in the eligibility and rent determination process. In addition, some special analyses were conducted as part of this work. Utility Allowances, Payment Standards and Rent Reasonableness practices used by the PHAs administering the Section 8 Voucher program were evaluated, providing estimates of error for the 20 largest PHAs included in the quality control study.

B. Background of the Study

This study is the tenth in a series of studies designed to identify current HUD eligibility, income, and rent determination regulations, translate these regulations into survey instruments, develop an error detection system, and provide nationally representative estimates of rent subsidy errors. The past six studies also included an additional income match of Social Security benefit data. The results of previous studies were published as follows:

- The final report for the first study, conducted by Macro International, Inc. (Macro), and KRA Corporation (KRA) was published in April 1996 (data were collected in 1992).
- The final report for the second study, conducted by Macro,[6] was published in June 2001 (data were collected in 2000).

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

[6] From May 1999 through December 2006, Macro International Inc. was a wholly owned subsidiary of Opinion Research Corporation (ORC) and conducted business under the name ORC Macro.

- The final report for the third study, also conducted by Macro and which covered the first half of FY 2003, was published in April 2004. Following the collection of data for the second half of FY 2003, a follow-up report was written and published in August 2004.
- The final report for the fourth study, conducted by Macro, was published in July 2005 (data were collected in 2004).
- The final report for the fifth study, conducted by Macro, was published in October 2006 (data were collected in 2006).
- The final report of the sixth study, conducted by Macro, was published in October 2007 (data were collected in 2007).
- The final report of the seventh study, conducted by Macro, was published in October 2008 (data were collected in 2008).
- The final report of the eighth study, conducted by ICF Macro[7], was published in October 2009 (data were collected in 2009).
- The final report of the ninth study, conducted by ICF Macro, was published in October 2010 (data were collected in 2009 and 2010).
- The final report of the 10th study, conducted by ICF Macro, was published in September 2011 (data were collected in 2010 and 2011).

Work on the current project began in October 2011. Tasks completed before data collection included designing the research and survey methodology, compiling HUD's regulations for the programs included in the study (Public Housing, PHA-administered Section 8, and Owner-administered), and automating the data collection process. Data were collected from a nationally representative sample of HUD-assisted housing projects and project residents whose (re)certifications were conducted from November 2010 through October 2011.

C. Organization of This Report

This report is organized as follows:

- Section I: Introduction
- Section II: Methodology
- Section III: Study Objectives and Analytic Methods
- Section IV: Findings
- Section V: Recommendations
- Appendices
  - Appendix A: Rent Calculations

[7] In March 2009, Macro International Inc. was acquired by ICF International. It operated as a wholly owned subsidiary under the name ICF Macro until fall 2011. Today, ICF Macro has been fully integrated and now operates under the name ICF International (ICF).

- Appendix B: Weighting Procedures
- Appendix C: Source Tables
- Appendix D: Consistency and Calculation Errors
- Appendix E: Project Staff Questionnaire Analysis
- Appendix F: Multivariate Analysis

D. Definitions of Key Terms

Definitions of key terms used throughout this report are listed below:

- **Actual Rent**—the tenant rent listed on the 50058 or 50059 Form
- **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 50058 or 50059 Form
- **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 50058 or 50059 Form
- **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 over- and underpayments
- **(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, and overpayment
- **Program Type**—Public Housing, Section 8 Housing Choice Voucher, Section 8 Moderate Rehabilitation, Section 8 project-based, Section 202 PRAC, Section 811 PRAC, and Section 202/162 PAC

- **Quality Control Month**—the month in which the PHA/owner completed the rent calculation
- **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 50058 or 50059 Form
- **(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

Using the *Code of Federal Regulations* and official HUD handbooks and notices, all HUD rules relevant to the determination of rent were consolidated into a set of HUD requirements. These requirements were used 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 allow a uniform manner of data collection. A complete list of standards used in this study can be found in the *Data Collection Standards for the FY 2011 HUDQC Study, Quality Control for Rental Assistance Subsidy Determinations.*[8]

B. The Sample

The initial sampling design called for a nationally representative sample of 600 projects with four households randomly selected from each project, equaling 2,400 households. Projects were selected with probabilities proportional to size (PPS), but projects whose size exceeded the sampling interval were selected for 8, 12 or more households in the project and were counted as more than one project for purposes 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 due to their different eligibility and rent calculation rules, including Owner-administered RAP/SUP projects and Moving-to-Work in Public Housing and PHA-administered Section 8 program types. Universe files requested from HUD either excluded out-of-scope projects, or were identified for easy removal. Because some large projects were selected multiple times, the study sample included 544 distinct projects in 58 geographic areas across the United States and Puerto Rico. We sampled 200 projects from each major program type.[9] In addition, data were collected for four households in one additional Public Housing project. This additional project was added to the sample to ensure that given any unexpected circumstances, the sample would include a minimum of 2,400 households. The final data set includes responses from 2,404 households in the 544 projects.

The tenant sample was selected from all households that received assistance in Federal FY 2011. A random sample of four households was selected from most projects. An equal number of potential "replacement" households were identified as potential substitutes for when selected households did not meet the study requirements or were unavailable to be interviewed. However, as noted above, some large projects had additional households. For example, 13 PHA-administered Section 8 Voucher projects had household sample sizes of 12 or greater, including those of New York City and Los Angeles.

[8] ICF Macro unpublished report to HUD dated December 9, 2011.

[9] 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."

Once the sample for the QC Study was identified, additional projects and households were selected for the 20 largest PHAs in the QC 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 strove for eight projects per PHA with possible multiple selections for the PHA-administered Section 8 Voucher and Moderate Rehabilitation projects. The resulting sample yielded 33 new projects that were not selected for the QC Study and 272 new households. For additional information on the sampling procedures, see the *Sampling Plan for the FY 2011 HUDQC Study, Quality Control for Rental Assistance Subsidy Determinations.*[10]

Weighting. HUD provided population counts per program to enable the compilation of the weights. In studies since FY 2004, due to the difference in their eligibility and rent calculation rules, Owner-administered RAP/SUP projects and Moving-to-Work projects in Public Housing and Voucher programs were excluded from the population totals.

For the past several studies (FY 2005–FY 2010), the population totals from the June 13, 2005 request for proposal (RFP) were used as the basis for the estimate of occupied units in each of the programs. However, a comparison of the population totals used for the FY 2005 through FY 2010 studies and the FY 2011 frame population totals shows that the population changed sufficiently enough to warrant updating the population counts. Exhibit II-1 compares the population totals used for the FY 2005 through FY 2010 studies and the frame population totals used to pull the FY 2011 sample. As the exhibit shows, the population has changed substantially over the past seven years, particularly in the Public Housing program.

Exhibit II-1
Change in Population Totals over Time

Program Type	Population Totals Used for FY 2005–FY 2010 Studies (excluding RAP/SUP & MTW)	Frame Population Totals Used to Pull the FY 2011 Study Sample (excluding RAP/SUP & MTW)	Percent Increase
Public Housing	955,000	1,052,503	+10.21%
Section 8 Voucher	1,858,000	1,912,467	+2.93%
Owner-Administered	1,320,000	1,382,670	+4.75%
Total	**4,133,000**	**4,347,640**	**+5.19%**

The use of the same population counts does have the advantage that it increases comparability, so that 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 undercharged. However, programs may grow or shrink over time. While estimates of averages and percentages within program types will not be affected by different population counts, the total dollar amounts and the proportion of the population represented by each program type *is not representative of the current population*. Based on the above, and given that the previous

[10] ICF Macro unpublished report to HUD dated November 4, 2011.

population counts were seven years old, with HUD's agreement ICF updated the population counts for the FY 2011 study.

C. Data Collection

This study used a multistage data collection process to obtain all required information. Mail 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 the tenant, and requested verification for income, expense, and household composition items from third parties.[11] Tenant income, expense, allowance, and third-party verification information were 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 December 2011. Field data collection began in February 2012 and ended in early May 2012. Because PHAs/projects have varying practices, ICF designed data collection forms 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 forms used to accomplish these tasks are discussed below.

Creating the Data Collection Instruments. More than 35 data collection forms were used for this study to collect data on both the project and tenant levels. These forms were similar to those used for the previous data collection efforts, though modifications were made to many forms to improve the data collection process. Project-level forms were used to gather information to facilitate data collection, collect data elements necessary to calculate Quality Control (QC) rent, and gather information about certification and recertification practices. The tenant-level data collection forms were created to collect data and determine whether (1) there were errors in the eligibility determination, (2) the household rent was calculated correctly, and (3) units were correctly assigned according to the study standards. Each form was created by a survey research specialist and reviewed by a HUD policy expert. The Office of Management and Budget (OMB) approved all data collection forms.

Automating the Data Collection Process. This study used an enhanced version of the data collection system used in previous studies. While project-level data were collected on paper and the data entered upon receipt at ICF, data from tenant 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 HUDQC Data Collection Software (HDCS) system, was developed by a special team of ICF survey specialists and computer systems experts.[12] 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

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

[12] The base of HDCS is the CSPRO software system, which is used by the U.S. Agency for International Development (USAID) to collect demographic and health information in many countries.

corrected in the field. The system required all data to be collected in the correct order and all appropriate skip patterns to be followed.

The automated system also alerted the field interviewer if key pieces of information used to calculate rent were missing and needed to be located and documented. 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 ICF 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 headquarters staff to resolve issues or request further clarifying documents while field interviewers were still in the field.

Contacting the PHA/Project. PHA/project contact names were obtained from HUD headquarters staff. Letters 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 form 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 such items 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 requested to indicate if the selected project had been designated a "special demonstration project" by HUD. If a project answered in the affirmative to this question and this status was confirmed, the project was replaced in the study. Public Housing projects were also requested to identify any income exclusions they adopted in addition to those specified by HUD. The data requested from the PHA/project were essential in preparing interviewers to begin the process of collecting data and for the calculation of the QC rent. For these reasons, a 100 percent response rate to our request for information was necessary. Rigorous strategies were employed to ensure compliance and completeness of requested information prior to field data collection.

The data collection in the field began by asking a PHA/project staff person knowledgeable about certification and recertification procedures to complete an Internet survey. This survey requested information about local policies and procedures that could explain the rent error findings. Questions included staff training practices, verification procedures, workload of staff who conduct certifications and recertifications, quality control practices used to review the work of this staff, and optional questions for PHAs regarding their policies on interim reviews.

Hiring and Training Field Interviewers. Fifty-eight field interviewers were hired to complete the field data collection and each assigned a group of projects. Field interviewers typically lived in the same general area as the projects selected for the study. The 27 field interviewers who had not worked on the FY 2010 study attended 10-day training sessions, while 31 interviewers who completed the FY 2010 study attended a 3-day training. The 10-day training covered:

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

The three-day training sessions covered a review of the project background and data collection procedures and focused particularly on changes implemented for the FY 2011 study.

Abstracting from Tenant Files. At certification and recertification, PHAs/projects must complete either a HUD Form 50058 (for each household in Public Housing and PHA-administered Section 8 programs) or a HUD Form 50059 (for all other programs in the study). Data from the HUD Forms 50058/50059 (50058/50059 Form) were entered directly into the HUD Data Collection Software (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. If key data used in the rent calculation formula were missing from the 50058/50059 Form, the system alerted the interviewer to obtain the information from another document in the tenant file or project office. These electronic checking procedures enabled field interviewers to make immediate corrections and updates.

HDCS was designed to collect data in the same formats as the official 50058 and 50059 Forms published by HUD. New York City Public Housing Authority uses a format for the 50058 Form that differs from this standard format. However, due to the large number of NYC Public Housing and PHA-administered Section 8 Voucher cases in the study, copies of the corresponding PIC 50058 Forms for these cases were requested and used for data collection when available. In previous study years we encountered projects where the 50058 Forms differed from the official HUD format. In those cases, ICF developed paper crosswalks by examining the data elements on the atypical form and developing a plan that illustrated which fields corresponded to the standard 50058 Form. In the FY 2011 study, 15 nonstandard documents required crosswalks. These were found in four projects administered by four PHAs.

In addition to the data collected from the 50058/50059 Form, field interviewers collected data from the tenant files to document the determination of tenant eligibility and the calculation of rent. A series of documentation forms were created for this purpose. The Documentation Form data were entered directly into the HDCS system. The Documentation Form module also collected information indicating whether the income, asset, household composition, or expense information used by the PHA/owner was verified. HDCS compared data from the 50058/50059 Form with that entered into the documentation forms module and alerted the field interviewer to possible data entry errors, allowing immediate review and correction of the data while the file documents were easily accessible.

During the Documentation Form data entry phase, documents from the file were photocopied when appropriate and sent to ICF weekly. The 50058/50059 Forms, any earned income documentation, utility allowance calculation worksheets, and the most recent 9886/9887 Tenant Consent form from the file were always copied. Field interviewers were also required to photocopy file documents that provided information missing from the 50058/50059 Form that would be necessary to calculate QC rent (i.e., number of bedrooms), any Earned Income Disregard documentation in the file, and documents that support Flat Rent selection. The photocopies were used to insure the accuracy of QC rent.

Interviewing Tenants. For this study, an adult household member (preferably the head of the 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 as when the recertification was conducted. HDCS compared data from the 50058/50059 Form with that entered during the interview to alert the interviewer to possible errors.

Requesting Verification from Third-Party Sources. When there was no evidence in the tenant file that the PHA/owner verified the information used for calculating rent, or the existing verification information did not meet requirements agreed to for this study,[13] ICF requested verification from the 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 shown in the tenant 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 the third parties would be satisfied with the validity of the requests for verification. Third parties completed the forms and returned them to ICF.

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 February 2012 and May 2012 for the certification or annual recertification that occurred during FY 2011 (October 2010 through September 2011).[14] 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 is developing methodologies to ensure the collected data reflect the situation that existed at the selected point in time. For the respondent in the household interview, recalling details of life situations at a past point in time presents difficulties. This may be complicated by the fact that some respondents in this population may have unstable situations resulting from inconsistent income or changing numbers of household members. In light of this, ICF developed strategies to ensure consistent and accurate collection of data across program types, projects, and households in the study. The below section describes two of these strategies developed that were of primary importance: 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). This month represents the date the rent calculation for the certification or annual recertification (conducted in FY 2011) was completed. For most households in the Owner-administered program, the QCM is the month in which the project manager (or other

[13] For purposes of this study, verification was acceptable if it was in-writing, received from the third-party, and dated 60 days before or 30 days after the recertification was completed. In FY 2011, in response to new HUD regulations, acceptable verification could include documentation from a third-party brought in by the tenant if the documents meet specific date criteria.

[14] To account for delays between the time the work is completed by the PHA/project staff and the effective date of the recertification, actions effective in October 2011 were included in the FY 2011 study.

authorized housing project staff member) signed the 50059 Form, certifying that the information contained on the form was correct. The rent calculation date on the 50058 Form was the "date modified" printed on the form. If these pieces of information were not available on the 50058/50059 Form, the field interviewer used other documentation in the tenant file to determine when the action was taken.

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

Note: If the recertification was overdue by more than 12 months, the QCM was moved forward in 12-month intervals to a point in time within FY 2011. 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 the 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 earlier of the two dates—the rent calculation or the effective date of the action.

Third-Party Verification Rules. Occasionally the verifications found in the file for household composition, income, asset, and expense items were different than 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 the data from the right documents (i.e., those that were gathered to verify the information on the 50058/50059 Form under review) were entered into HDCS, and to apply rules fairly and consistently across all households in the study, ICF developed a set of rules defining acceptable verification. For purposes of this study, verification was considered acceptable if it was *in-writing, was received from a third-party, and was dated 60 days before or 30 days after the date the recertification was completed. Beginning in FY 2011 in response to new HUD verification regulations, third-party documentation brought in by the household which meet specific date criteria are considered acceptable.* Field interviewers were given detailed instructions on the various types of documents they were likely to find in the file and how to classify them. The date and type of verification for each household, income, and expense item was entered into HDCS during file abstraction. The HDCS system informed the interviewer if any items did not meet the verification requirements of the study. For the items that did not meet the requirements, the field interviewer requested written verification from the appropriate third-party.

E. Constructing the Analysis Files

The initial database consisted of four separate files that included: abstracted 50058 and 50059 Forms, tenant file information from the Documentation Form module, information from the household interview, and the third-party release forms. Data items were collected at both the member and household levels, with income and expense items in hourly, weekly, monthly, or annual amounts. 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/expense and household member to which it 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 50058/50059 Form errors, and occupancy standards.

F. Rent Formulae

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

1. 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
2. Ten percent of a household's gross monthly income with no allowances or expense deductions
3. The welfare rent in as-paid states (New York was the only as-paid state in this study)
4. 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 202/162 PAC programs includes Steps 1–3 above, but there is no minimum rent requirement for these programs.

There are five different rent calculations used to calculate the actual amount of the household's rent depending on the program type. For the PHA-administered Section 8 Voucher program, household-specific characteristics also affect the calculation. These five rent calculations include:

1. Public Housing
2. Section 8 Project-Based (including Moderate Rehabilitation), Sections 202 PRAC, 811 PRAC, and Section 202/162 PAC
3. Section 8 Vouchers
4. Section 8 Enhanced Vouchers (there were 10 Enhanced Voucher households in the study)
5. 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 *Gross Rent*; 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 is not capped for the Section 202 PRAC or Section 811 PRAC programs.

Additional rent calculations were necessary for households with ineligible noncitizens. Determining the correct rent for these households is a multi-part process that first determines whether the household is entitled to continued assistance or temporary deferral of termination of assistance, and then prorating the rent if appropriate. Two proration formulae were used—one for Public Housing and one for all Section 8 programs.

The algorithms for the rent calculation formulae 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 as follows:

- **Actual Rent**—This is the monthly rent indicated on the 50058/50059 Form. If this item was missing on the 50058/50059 Form, the Actual Rent was taken from another official document in the file.[15]
- **Quality Control Rent**—The monthly rent calculated by ICF using all of the verified household information.[16]

Rent error was calculated by subtracting the QC Rent from the Actual Rent. A discrepancy of $5 or less between the monthly Actual and QC Rent was not considered to be an error. The $5 window was used to allow for minor calculation and rounding errors, and to focus the 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 project files. If acceptable verification was not available from the tenant file, verification was requested from an appropriate third-party (see Section II-D for a discussion of acceptable verification). If the verification was not returned by the third-party and the tenant file did not include verification, documentation obtained during the household interview that met study requirements was used. The following special procedures were followed when calculating the QC Rent as appropriate:

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

[16] 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 tenant file or documentation obtained during the household interview meeting study requirements was used to calculate the QC rent. When calculating QC rents, codes were assigned to indicate which rents were based on verified information and those for which the income/expense information was only partially or not verified.

- 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 to 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.
- Welfare (TANF and Other Welfare) income, Child Support income, and Child Care expenses were treated at the household level instead of the member level so that the same source of income associated with one member (e.g., the head of household) on one form, and another member (e.g., a child) on another form would not be counted twice.
- 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 information provided by PHA/owner staff. The passbook rate for Owner-administered programs is 2 percent.
- For new certifications, the low and very low income limits were obtained from HUD's website.
- When determining the prorated rent for Public Housing households with ineligible noncitizens, if the Maximum Rent was not present on the 50058 Form, the Fair Market Rent (FMR) was used instead of the 95th percentile of Gross Rent, as the 95th percentile of Gross Rent was not available.
- The values from the 50058 Form 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 information provided by PHA staff.
- The values from the 50059 Form 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 information provided by owner staff.
- Welfare rent for the State of New York was taken from the project-level information provided by PHA staff.
- A separate verification code was used to identify verification obtained from the Enterprise Income Verification (EIV) system. When Social Security, SSI, or Black Lung benefits were verified with EIV, the verification was considered third-party in-writing. If EIV information was in the file for earned income or unemployment benefits, the dates associated with the form were examined to determine if the PHA/project staff had access to the EIV information at the time of the recertification. Copies of EIV (as well as other types of verification of earned income found in the tenant file) were sent to ICF headquarters and

reviewed by data quality specialists to prevent mistakes in calculating the QC earned income value.

- When working with Social Security and SSI benefit information obtained through the Social Security Administration (SSA) data match, sometimes discrepancies were found between that data and EIV printouts found in the tenant file. If the two sources of information were contradictory, the information found on the EIV printout (from the tenant 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 in the study standards used to determine error. All data collection procedures and analyses were developed on the basis of these study standards. Though most standards were easily implemented, several were more problematic and they complicated the data collection or analysis, as discussed below.

Anticipated Income. The amount of rent a household will pay is determined on the basis of anticipated household income and deductions for the 12 months following recertification. For households with a stable income source like 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 figured correctly at the time of recertification is very difficult when data are collected after the changes occurred. Every effort was made to treat questionable income or expenses 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. HUD regulations require the information supplied by residents at recertification to be verified by third parties (e.g., employers, the Social Security Administration, banks, medical personnel). Field interviewers obtained release forms from the households when evidence of verification was not present in the tenant's file, which were then 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 problems that prevented obtaining the correct verification. Follow-up requests for missing verification were not made in all cases due to 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 if verification was acceptable and for each matched item used in the rent calculation. Tables 1a to 1h (in Appendix C) and Exhibit IV-1 in Section IV-B present the verification rates for different rent components.

Earned Income Disregard. The regulations governing the Public Housing and the 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 about training and self-sufficiency programs during the household interview. Forty-three household members were identified as possibly entitled to an earned income disregard.

For these household members, we examined the tenant file information on the 50058 Form and the documentation forms. 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. When determining whether a household member was entitled to an earned income disregard due to unemployment, we reviewed income match data available from the National Directory of New Hires.

Of the 43 cases identified as possibly entitled to an earned income disregard, neither the PHA nor the QC calculation gave an earned income disregard. In 18 cases the PHA and the QC calculation gave an earned income disregard. In four cases the PHA gave an earned income disregard but QC did not. In three cases, the QC calculation gave an earned income disregard where the PHA did not.

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

To identify households eligible for the training program exclusions, the field interviewers documented training program information found in the tenant file and provided during the tenant interview. This information yielded 13 household members with indications of involvement in training programs. Ten of these 13 were found to be eligible for the training program income exclusion.

Permissible Deductions. Public Housing programs may adopt deductions from annual income in addition to HUD's required deductions. To make sure that the appropriate additional permissible deductions were taken into consideration when determining the adjusted annual income, we looked at two sources. First, we looked at Items 8b through 8e on the 50058 Form, which records the type and amount of permissible deductions. Second, we asked a question in the Project Specific Information request to identify additional exclusions adopted by Public Housing PHAs. We found that many PHAs use the Permissible Deduction section (items 8b through 8e) of the 50058 Form to record all kinds of information that have nothing to do with permissible deductions. Therefore, we had to rely on the Project Specific Information request to determine whether the items listed on the 50058 Form were in fact additional permissible deductions. On the basis of the information obtained through the Project Specific Information requests and the 50058 Forms, nine projects representing six PHAs identified permissible deductions. Four projects deducted a specific portion of earned income, one allowed deduction of medical from earned income, three permitted deduction of medical expense over three percent of gross income for any household and one permitted deduction of child support paid out. In two cases, permissible deductions of 10 percent of second wage earners income were applied incorrectly. Ten percent of earned income was deducted when there was only a single wage earner in each household. In four cases from two projects, permissible deductions were applied correctly.

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. There are 61 flat rent cases in the study sample. It should be noted that determining if a household is paying the flat rent is not always easy due to contradicting data within the 50058 Form. For most cases, items 2a (i.e., Flat Rent Annual Update) and 10u (i.e., Type of Rent Selected) could be used to identify whether the household is paying the flat rent instead of income-based rent. However, if these two items contradicted one another, notations from other documents in the file were taken into consideration.

Ineligible Noncitizens. HUD regulations require that rent 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. Four households with ineligible noncitizens were entitled to the continuation of full assistance. Twenty households (less than 1 percent of the households in the study) included an ineligible noncitizen.

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 due to 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.[17] The TANF benefits in 30 households were reviewed and the QC counted imputed TANF amounts in no cases where the PHA did not.

Students. The regulations governing the PHA-administered Section 8 and Owner-administered programs included in the study require that students aged 18–24 meet certain criteria. If these criteria are not met, the parent's income must be included when determining if the student meets the program's financial requirements. For households with students, field interviewers documented student enrollment and member characteristics found in the tenant file or provided during the tenant interview. These households were reviewed to determine if the student met the special student criteria as defined by HUD regulations. Twenty-nine cases were reviewed and all were determined as correctly receiving housing assistance.

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

III. STUDY OBJECTIVES AND ANALYTIC METHODS

This section presents the 17 study objectives and a brief description of the methodology used to fulfill these objectives.[18] At the end of this section Exhibit III-2 presents a chart summarizing the objectives and providing 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 types of errors and error rates in the FY 2000 through FY 2010 studies are replicated in the FY 2011 analyses. These errors include the percent 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 50058/50059 Form (Actual Rent). The following three types of dollar rent error estimates were calculated:

- **Dollar Rent Error**—This referrs to the difference between the monthly Actual Rent and the monthly QC Rent (i.e., Actual Rent minus QC Rent). A household rent is found to be in error if the difference between the Actual Rent and QC Rent is greater than $5, while "proper" rent payments reflect differences of $5 or less. Rates of exactly matching Actual 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 who 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 is this amount minus the Actual Rent.
- **Total Component Dollars in Error**—This 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.[19] 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.
- **Largest Component Dollar Error**—This statistic provides 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, pension, public assistance, other income, and assets) and the five types of deductions (i.e., medical, childcare, and

[18] For a more detailed description of the methodology, see *Analysis Plan for the FY 2011 HUDQC Study, Quality Control for Rental Assistance Subsidy Determinations,* an unpublished ICF Macro report to HUD dated December 16, 2011.

[19] 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 (.30 * CE = 12 * RE, or CE = (12/.30) * RE = (120/3) x RE = 40 * RE).

disability assistance expenses; dependent and elderly/disabled allowances). If the component with the largest error is earned income, the largest dollar error would reflect the difference between the earned income used by the PHA/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 50058/50059 Form 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 recertifications

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

Consistency errors are determined when there is a lack of logical conformity between elements within the 50058/50059 Form. 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 50058/50059 Form data with information in the tenant file. If the 50058/50059 Form data for a specific income or expense item does not match the tenant file data, a transcription error exists.

Incorrect determination of allowances and income sources are identified by taking tenant file information and comparing it with the 50058/50059 Form data. Allowance errors are detected by calculating the allowances based on the tenant file information and comparing this QC allowance with the Actual Allowance on the 50058/50059 Form. Similarly, income is calculated based on the types and amounts of income reported in the tenant file. The improper application of allowances and incorrect calculation of income are a subset of transcription errors.

Overdue recertifications 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 using the HUD 50058 and HUD 50059 Forms 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 if error found within the 50058/50059 Form can be used to predict QC error.

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

As in the previous studies, ICF provided descriptive information on the sources of discrepancies between housing file information and verified information, and described the incidence of administrative errors and their impacts. We also examined whether failure to verify sources of income and expenses contribute to QC error. Multivariate analyses using administrative errors and income components as independent variables were performed to identify how these errors affect the QC Dollar Rent Error.

Objective 7: 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.[20]

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

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.

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 8: 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 were conducted with the tenant as the unit of analysis. Tenant and PHA/project characteristics were 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 elaborate relationships between management practices and project/tenant characteristics that affect error rates.

Objective 9: 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 10: Determine the extent to which Section 8 Voucher rent comparability determinations are found in the tenant file and indicate the method used to support the determination. Determine whether voucher payment standards are within 90 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 the 50058 Form 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 11: Estimate the total positive and negative errors in terms of HUD subsidies.

Proper payments are those in which the Actual Rent equals the QC Rent. Errors can be either tenant overpayments (i.e., Actual Rent is greater than QC Rent) or tenant underpayments (i.e., Actual 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 12: Determine the extent to which error rates in projects that use an automated rent calculation system differ from errors in those that do not.

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

Objective 13: 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 provide HUD with more information for identifying projects and tenants likely to exhibit high error rates. This analysis is addressed in Appendix F.

Objective 14: Determine whether cases for which 50058/50059 Form 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.

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

All household members in the QC study will be matched with the National Directory of New Hires (NDNH) database to identify sources of earnings and unemployment compensation benefits received, but not reported, by tenants. Following the guidelines provided in the HUD Income Matching Procedures for Analyzing Income Match Data, unreported sources of income were identified along with the subsidy overpayment dollars associated with those unreported sources of income. The findings from this analysis are presented in the *Income Match Report for the FY 2011 Final Report*, dated September 14, 2012.

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

This objective is essentially a summary of Objectives 1 through 3. The percentage of households in error and the dollars associated with those households will be determined analytically and reported accordingly.

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

In FY 2011, the Multifamily Housing Program Billing Study option was not implemented.

Exhibit III-2
Summary of Study Objectives

#	Objective	Where Objective Is Addressed	
		Executive Summary	Section IV
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.	p. v, ix Exhibits 2 & 5	p. 5–7; Exhibits 3–5 p. 14–15; Exhibits 13–14
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.	p. viii–ix	p. 23; Exhibits 22–23 p. 13–14; Exhibits 12–13 p. 11; Exhibit 9
3	Estimate the national-level costs for total error and major error types.	p. v; Exhibit 3	p. 5–8; Exhibits 3–6
4	Determine the relationship between errors detectable using the HUD 50058 and HUD 50059 Forms and total errors found in the study.	p. xi	p. 18; Exhibit 18
5	Determine whether error rates and error costs have statistically significant differences from program to program.	p. v	p. 7; Exhibit 5

#	Objective	Where Objective Is Addressed	
		Executive Summary	Section IV
6	Determine the apparent cause of significant rent errors, either on a sample or a comprehensive basis, to provide HUD with information on whether the error was caused primarily by the tenant or by program sponsor staff.	p. viii–ix	p. 13–23; Exhibits 12–23
7	Determine the extent to which households are over-housed relative to HUD's occupancy standards.	p. ix	p. 24–25; Exhibits 24
8	Provide information on the extent to which errors are concentrated in projects and programs.	p. v	p. 5–8; Exhibits 3–6
9	Identify the percentage of newly certified tenants who were incorrectly determined eligible for program admission.	p. ix	p. 10; Exhibit 8
10	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.	p. ix-x	p. 26–35; Exhibits 25–29
11	Estimate the total positive and negative errors in terms of HUD subsidies.	p. v; Exhibit 3	p. 11–12; Exhibits 10–11
12	Determine the extent to which error rates in projects that use an automated rent calculation system differ from errors in those that do not.	p. xi-xii	p. 42–43
13	Determine whether other tenant or project characteristics on which data are available are correlated with higher or lower error rates.	p. xi-xii	p. 42–43
14	Determine whether cases for which 50058/50059 Form data were submitted to HUD were more or less likely to have errors than those for which data was not submitted.	p. xi	p. 36–38; Exhibits 30a-e
15	Determine the extent of errors that were due to unreporting of income by tenants.	These findings were published in a separate Draft Income Match Report dated September 14, 2012.	
16	Determine the extent of program administrator rent and income determination errors.	p. iv–v, ix; Exhibits 1–3, 5	p. 5–8; Exhibits 3–6 p. 11; Exhibit 9 p. 13–15; Exhibits 12–14 p. 21–23; Exhibits 22–23
17	Determine the extent of errors due to Multifamily Housing Program administrators billing for subsidy that did not correspond to the subsidy reported on the HUD-50019/HUD-50059A Form for a tenant household.	In FY 2011, the Multifamily Housing Program Billing Study option was not implemented.	

IV. FINDINGS

A. Overview

Analyses were conducted using weighted sample data for 2,404 households.[21] Data are presented by the three program types that were the basis for the sampling design—Public and Indian Housing (PIH)-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). Each of the major study findings, the reasons for the errors, and other background information concerning these errors are discussed below. In many of the exhibits throughout the report, the data collected during the current study (referred to as the FY 2011 data) are compared with the data collected in a previous study (referred to as the FY 2010 data). The data were collected and the analysis was completed for the FY 2010 study in calendar year 2011.

This discussion is divided into 11 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) findings related to rent reasonableness determinations, (6) utility allowance analysis, (7) payment standard analysis, (8) comparisons with PIC/TRACS data, (9) analysis of the responses received from PHA/project staff regarding PHA/project practices (based on the Project Staff Questionnaire), (10) multivariate analysis and (11) errors for the 20 Largest PHAs. The multivariate analysis is included in Appendix F. The first three parts discussed above present different types of error.

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

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

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

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

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

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 the component errors tell us which income or expense caused the error. Data supporting the 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.[22] The QC Rent was calculated using third-party verification whenever possible. If third-party verification was not available, information from the documentation forms or household questionnaire was used. The Actual Rent is the Tenant Rent from the 50058/50059 Form. As noted above, a household was considered to be correct (proper payment) if the QC Rent and the Actual Rent matched within $5. All exhibits included in this report (except Exhibit IV-2) and all tables in Appendix C define households whose Actual and QC Rents matched within $5, indicating a proper payment. This does not hold 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 the household paid less than it should have paid and that HUD's contribution was higher than it should have been. A positive number indicates a household overpayment, meaning the household paid more than it should have paid and HUD's contribution was less than it should have been.
- *Gross Rent Error* is the absolute value (i.e., the sum of the absolute value of positive and negative Rent Error) of the Dollar Rent Error for the sample as a whole or a specified group of households. The Gross Rent Error functions simply as a measure of the magnitude of the errors. The dollar amounts presented in the tables are Gross Rent Error values, unless otherwise indicated.
- *Net Rent Error* is the arithmetic value (i.e., the sum of the negative and positive values of over- and underpayments) of the rent error.
- *Error Rate* is calculated by dividing the sum of the 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 there are large numbers of eligible households on waiting lists, if a household leaves the program because it is no longer eligible for a

[22] Rent error is determined on the basis of Tenant Rent, not TTP. Error based on TTP may differ from 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.

subsidy then another household will take its place. 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 making sure those households who are eligible for the program are receiving the correct subsidy, rather than reducing the amount of 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 on-going monitoring needed to assure the programs are administered correctly.

Verification Used in Determining the QC Rent. As indicated above, a set of rules was established for 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 and expense.[23] In FY 2011, HUD issued new guidelines regarding verification. As a result, ICF modified their standards to accept documentation from a third-party bought in by the tenant if the documents met specific date criteria.[24] Exhibit IV-1 shows the percentage of each rent component that was verified by either the PHA/owner or ICF. Findings from FY 2011 are compared to findings from FY 2010.

Exhibit IV-1
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	
	2010	2011	2010	2011	2010	2011
Earned Income	93%	91%	74%	49%	9%	30%
Pensions	99%	98%	90%	80%	2%	4%
Public Assistance	90%	96%	64%	41%	18%	26%
Other Income	87%	87%	59%	32%	18%	32%
Asset Income	91%	95%	77%	53%	6%	26%
Child Care Expense	84%	90%	70%	58%	13%	24%
Medical Expense	82%	93%	54%	32%	7%	22%

Source: Tables 1a and 1b, Appendix C

The first two columns present the percentage of rent components that were verified with third-party in-writing, third-party verbal, documentation[25] or Enterprise Income Verification (EIV). For FY 2011, this column also represents Upfront Income Verification (UIV), which previously was

[23] 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 were used to calculate the QC rent. Information collected during the household interview that did not meet study specific date requirements was not used.

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

[25] Documentation means documents submitted by the family such as pay stubs or bank statements, or a statement in the file indicating the project staff viewed an acceptable verification (but there was no copy in the file).

counted as part of third-party in-writing in previous studies. For FY 2011, UIV was broken out into a separate category to help distinguish between the two. Four rent component categories increased in FY 2011 from the previous year. Verification of medical expenses increased the most from 82 percent to 93 percent, an increase of 11 percent. Verification of public assistance and child care expenses both increased 6 percent, and verification of asset income increased 4 percent. Use of other verification methods has remained little changed from FY 2010. The category third-party in-writing now only includes written third-party verification forms, which are sent directly to the third-party and completed by the third-party by hand. As the exhibit indicates, when compared to the previous study period, the use of third-party in-writing verification declined significantly for all rent components. This decline seems to be the result of the new HUD guidelines, as sending out for and obtaining third-party in-writing verification is required in fewer instances, and documentation is acceptable in more instances. The use of documentation for verification confirms these findings. While verification using third-party in-writing has decreased substantially from the previous year, the use of documentation increased substantially in almost all categories. It should be noted that since the sample size for disability expenses is so small, the findings are not reliable national estimates and not included in Exhibit IV-1.

Tables C-1c, C-1d, C-1e, C-1f, and C-1g in Appendix C provide additional verification information by rent component. They present 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 C-1c includes items verified by a third-party or EIV. Table C-1d provides data for items verified by verbal third-party information. Table C-1e provides data for items verified via tenant file documentation, Table C-1f includes items verified by EIV, and Table C-1g includes items verified by UIV.

Proper Payments. Exhibit IV-2 shows the percentage of households with proper payments by program, for households where the Actual and QC Rents matched within $5 and where the Actual and QC Rents matched exactly. At recertification, the rent was calculated correctly (within $5) in 75 percent of the households, higher than the 67 percent of households calculated correctly in FY 2010. There was an exact match of rent payment in 62 percent of households in FY 2011, compared with 55 percent in FY 2010.

Exhibit IV-2
Percent of Households with Proper Payments

Administration Type	Percent of Households Within $5			Standard Error	Percent of Households Matched Exactly			Standard Error
	2009	2010	2011	2011	2009	2010	2011	2011
Public Housing	72%	71%	79%	1.4%	59%	60%	65%	1.9%
PHA-Administered Section 8	57%	62%	68%	1.8%	47%	50%	57%	2.4%
Total PHA-Administered	*62%*	*65%*	*72%*	*1.4%*	*51%*	*54%*	*59%*	*1.9%*
Owner-Administered	64%	71%	81%	1.8%	53%	58%	67%	1.9%
Total	**63%**	**67%**	**75%**	**1.2%**	**51%**	**55%**	**62%**	**1.5%**

Source: Table 2 and 2S, Appendix C

Households with QC Rent Error. Exhibit IV-3 shows the percentage of households in error, the average dollar amount in error, and error rate by program. Twenty five percent of the households had a rent error greater than $5, lower than the 33 percent recorded in FY 2010. The average gross dollars in error, calculated by dividing the sum of the dollar amount of gross error (i.e., the sum of the absolute values of under- and overpayments) by the total number of households was $13 in FY 2011, the same average gross dollar error in FY 2010. The total gross dollar error rate, calculated by dividing the sum of the dollar amount of Gross Rent Error by the sum of the dollar amount of the QC Rent, also remained the same at 6 percent in FY 2011.

Exhibit IV-3
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	
	2010	2011	2010	2011	2010	2011
Public Housing	30%	21%	$12	$11	5%	5%
PHA-Administered Section 8	38%	32%	$15	$19	7%	8%
Total PHA-Administered	*35%*	*28%*	*$14*	*$16*	*7%*	*7%*
Owner-Administered	29%	19%	$11	$7	5%	4%
Total	**33%**	**25%**	**$13**	**$13**	**6%**	**6%**

Source: Table 2 and 5, Appendix C

Underpayment and Overpayment Households. Exhibits IV-4a and IV-4b show the percentage of households and average dollar amount of error for all households when errors of $5 or less are excluded from 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 2011, slightly lower than 16 percent in FY 2010. For FY 2011 households, the average monthly payment error is $73, higher than the mean of $47 in FY 2010 and the mean of $54 in FY 2009.

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

Administration Type	Percent of Households in Error			Average Dollar Amount of Error					
				For Underpayment Households (with errors > $5)			For All Households		
	2009	2010	2011	2009	2010	2011	2009	2010	2011
Public Housing	14%	15%	11%	$52	$45	$75	$7	$7	$8
PHA-Administered Section 8	21%	17%	15%	$56	$49	$81	$12	$8	$13
Total PHA-Administered	*19%*	*16%*	*14%*	*$55*	*$48*	*$80*	*$10*	*$8*	*$11*
Owner-Administered	16%	14%	9%	$49	$45	$50	$8	$6	$5
Total	**18%**	**16%**	**12%**	**$54**	**$47**	**$73**	**$10**	**$7**	**$9**

Source: Table 2 and 4, Appendix C

As shown in Exhibit IV-4b, 13 percent of all households paid in excess of $5 more than they should have in FY 2011, which is less than the FY 2010 percentage of 18 percent and the FY 2009 percentage of 19 percent. The average monthly overpayment for households with overpayment error is $34 in FY 2011, up slightly from $33 in FY 2010 and $32 in FY 2009.

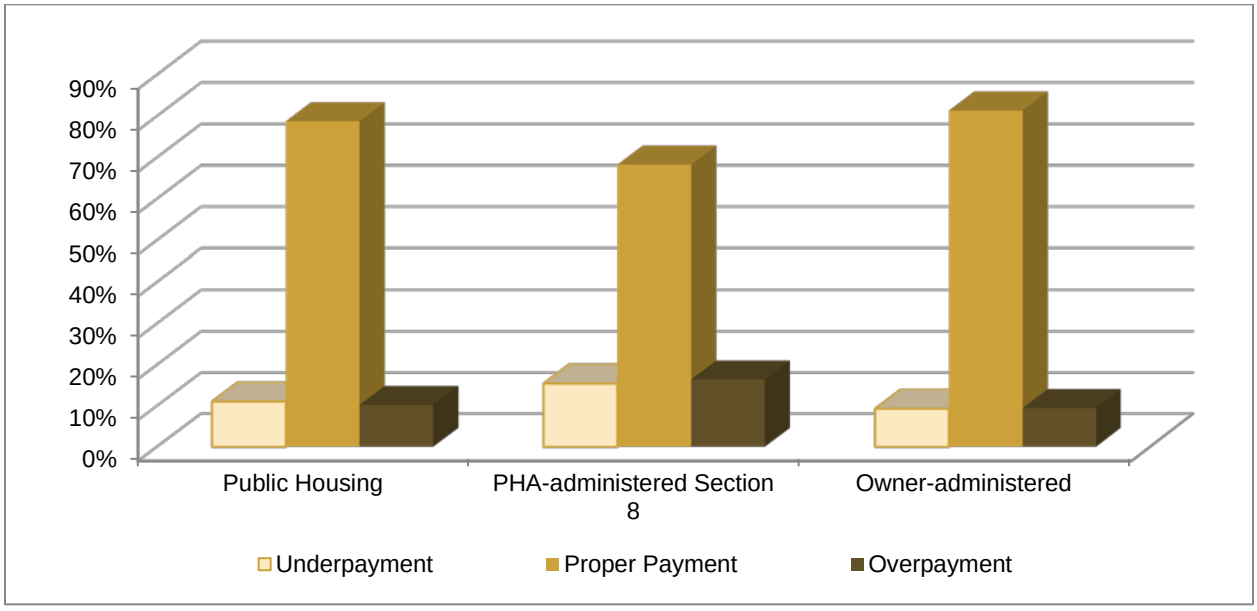
Exhibit IV-4b
Overpayment Households:
Percent of Households and Average Monthly Dollar Amount of Error

Administration Type	Percent of Households in Error			Average Dollar Amount of Error					
				For Overpayment Households (with errors > $5)			For All Households		
	2009	2010	2011	2009	2010	2011	2009	2010	2011
Public Housing	14%	14%	10%	$28	$38	$27	$4	$5	$3
PHA-Administered Section 8	21%	21%	16%	$36	$33	$39	$8	$7	$6
Total PHA-Administered	*19%*	*19%*	*14%*	*$34*	*$34*	*$36*	*$6*	*$6*	*$5*
Owner-Administered	20%	15%	10%	$27	$29	$27	$5	$4	$3
Total	**19%**	**18%**	**13%**	**$32**	**$33**	**$34**	**$6**	**$6**	**$4**

Source: Table 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. Note that the majority of cases fall in the proper payment category for all program types. 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-5 presents the gross and net average dollars in error and their associated standard error. To obtain the Gross and Net Rent Error, the dollar amount of overpayments is added to the dollar amount of underpayments, first using the absolute values for gross error, and then the arithmetic values for the net error. The net error measures the dollar cost of the errors and is -$5 (indicating a tenant underpayment) for FY 2011; the average gross dollar error is $13 for FY 2011 and represents the dollars associated with the errors (the magnitude of the errors). Gross average dollar error is higher for PHA-Administered Section 8, while Public Housing and Owner-administered programs both decreased in FY 2011. While gross average dollar error has increased for PHA-Administered Section 8, the difference is not statistically significant when compared with FY 2010.

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

Administration Type	Gross Rent Error				Net Rent Error			
	Average Dollars in Error		Standard Error		Average Dollars in Error		Standard Error	
	2010	2011	2010	2011	2010	2011	2010	2011
Public Housing	$12	$11	$0.99	$1.51	-$2	-$6	$1.45	$1.80
PHA-Administered Section 8	$15	$19	$2.04	$2.07	-$1	-$6	$2.00	$2.10
Total PHA-Administered	*$14*	*$16*	*$1.50*	*$1.40*	*-$1*	*-$6*	*$1.17*	*$1.72*
Owner-Administered	$11	$7	$1.20	$1.26	-$2	-$2	$1.14	$1.54
Total	**$13**	**$13**	**$1.35**	**$1.00**	**-$2**	**-$5**	**$0.73**	**$1.34**

Source: Table 5, Appendix C
* Difference from FY 2010 at significance p < .05

Error Rates by Program. Differences in error rates by program type were investigated and the results are summarized in Exhibit IV-6. 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). The Gross Error Rate remains higher for PHA-administered Section 8 programs than for either Public Housing or Owner-administered programs. PHA-administered Section 8 programs showed a modest increase in their gross error rate in FY 2011, increasing about 1.2 percent. The Gross Error Rate for FY 2011 decreased slightly from FY 2010 for Public Housing, and decreased 1.8 percent for Owner-administered programs. Overall, the Gross Error Rate remained about the same, decreasing very slightly, about .2 percent, from FY 2010 to FY 2011. The Net Error Rates for all programs increased 1.4 percent from -.7 percent in FY 2010 to -2.1 percent in FY 2011.

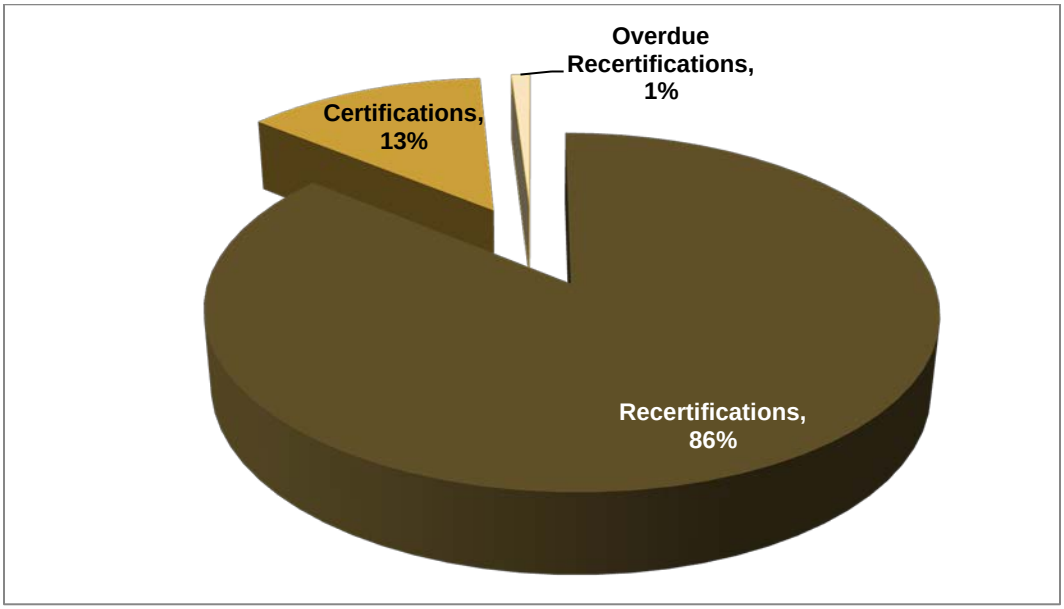
Exhibit IV-6
Gross and Net Dollar Error Rates (Monthly) for All Households

Administration Type	Error Rates			
	Gross Error Rate		Net Error Rate	
	2010	2011	2010	2011
Public Housing	5.3%	4.7%	-.7%	-2.4%
PHA-Administered Section 8	7.2%	8.4%	-.6%	-2.7%
Total PHA-Administered	*6.5%*	*7.1%*	*-.6%*	*-2.6%*
Owner-Administered	5.3%	3.5%	-.9%	-1.0%
Total	**6.2%**	**6.0%**	**-.7%**	**-2.1%**

Source: Table 5, Appendix C

Certifications/Recertifications. The sample households included both certifications (i.e., newly admitted households) and recertifications. Certifications were analyzed to determine if these households were eligible for HUD housing assistance and recertifications were analyzed to determine if they were overdue. Figure IV-2 presents the breakdown of cases by case type—certifications, recertifications, and overdue recertifications.

Figure IV-2
Case Type



Source: Table 6, Appendix C

Exhibit IV-7 shows the breakdown of the percentage of certifications, recertifications not overdue, and recertifications overdue, by program type. The exhibit indicates that in FY 2011, 86 percent of the households were timely recertifications, and 1 percent of the households were overdue recertifications, both very close to FY 2010 percentages. The findings indicate that there was a slight increase in the total percentage of certifications—from 12 percent in FY 2010 to 13 percent in FY 2011.

Exhibit IV-7
Certifications and Recertifications by Administration Type

Administration Type	Certifications		Timely Recertifications		Overdue Recertifications		Row Total By Year*
	2010	2011	2010	2011	2010	2011	
Public Housing	12%	14%	86%	85%	2%	2%	100%
PHA-Administered Section 8	10%	11%	89%	87%	1%	2%	100%
Total PHA-Administered	*11%*	*12%*	*88%*	*86%*	*1%*	*2%*	*100%*
Owner-Administered	17%	15%	83%	85%	<1%	<1%	100%
Total	**12%**	**13%**	**87%**	**86%**	**1%**	**1%**	**100%**

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

Certifications. Exhibit IV-8a presents a summary of the findings related to eligibility criteria and Exhibit IV-8b shows the percentage of newly certified households meeting the certification criteria by program type.

The reviewed criteria included citizenship, Social Security number, signing the appropriate consent form, and qualifying as low income or very low income households. However, only those households that do not meet the appropriate low or very low income limit are ineligible for assistance. All households (according to the QC Rent calculation) fell within the low-income limit for total gross income.

A household met the citizenship or Social Security number criteria if there was evidence in the tenant file that the citizenship or Social Security number was verified. The data indicate that a citizenship code (indicating whether each household member was a citizen, eligible noncitizen, or ineligible noncitizen) and a Social Security number was available (from either the tenant file or the household interview) for each household member. According to the citizenship codes, no households in FY 2011 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 (for each household member) a signed declaration of U.S. citizenship or eligible immigration status; proof of age documentation; an INS card; or INS system verification of citizenship status, or documentation that the member was in process for verification or an INS hearing.

One percent of the households had at least one member for whom there was no verification of their Social Security number. To meet the Social Security number verification requirements the file must have contained (for each household member) a copy of the Social Security card or statement from the Social Security Administration verifying the Social Security number.

In 90 percent of the 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 over. Note that not meeting the Social Security number, citizenship, and consent form criteria may not mean the household was not eligible for assistance; rather, it means that the project did not follow the HUD requirements in documenting the information.

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

Certification Criteria	Met Criterion	
	2010	2011
Citizenship	100%	100%
Social Security Number	98%	99%
Consent Form	96%	90%
Low and Very Low Income	100%	100%
Meets All Eligibility Criteria	95%	89%

Source: Table 7, Appendix C

Exhibit IV-8b
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	98%	99%	99%
Consent Form	87%	92%	92%
Low and Very Low Income	98%	100%	100%
Meets All Eligibility Criteria	84%	91%	92%

Source: Table 7b, Appendix C

Underpayments and Overpayments for Certifications, Recertifications, and Overdue Recertifications. Exhibit IV-9 presents a summary of the households with overpayments and underpayments by the type of case—certification, 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, overdue recertification, or timely recertification) divided by the number of households with that payment type (for whom a QC Rent could be calculated). For example, the sum of monthly underpayment dollar amounts for new certifications ($5.8 million) was divided by the total number of certifications for whom QC Rent could be calculated (.55 million). The result is an underpayment average dollar amount of $11.

The data indicate that the amount of underpayment and overpayment average dollar error in new certifications and timely recertifications in FY 2011 range from $3 to $10 each month. As might be expected, there is a large difference in the underpayment error for overdue recertifications ($39) as well as the overpayment dollar error for overdue recertifications ($52). The estimates for overdue recertifications can vary widely from year to year due to the small number of cases.

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

Household Type	Underpayment Average Dollar Amount		Overpayment Average Dollar Amount	
	2010	2011	2010	2011
Certifications	$5	$11	$7	$3
Timely Recertifications	$7	$8	$5	$4
Overdue Recertifications	$37	$39	$46	$52
Total	**$7**	**$9**	**$6**	**$4**

Source: Table 8, Appendix C

Subsidies. The actual cost of errors to HUD is expressed in terms of subsidy payments. For purposes of this study, HUD subsidies for the PHA-administered Section 8 Voucher program equal the lower 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, and for Owner-administered programs, the subsidy is 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 pays too much rent (QC Rent < Actual Rent). A positive subsidy error occurs when the tenant pays too little rent (QC Rent > Actual Rent). These subsidy errors by program type are summarized in Exhibit IV-10a and 10b. The subsidy errors by certification status are summarized in Exhibit IV-11.

Exhibit IV-10a
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	
	2010	2011	2010	2011	2010	2011
Public Housing	14%	10%	$38	$27	$5	$3
PHA-Administered Section 8	21%	16%	$33	$39	$7	$6
Total PHA-Administered	*19%*	*14%*	*$34*	*$36*	*$6*	*$5*
Owner-Administered	15%	10%	$29	$27	$4	$3
Total	**18%**	**13%**	**$33**	**$34**	**$6**	**$4**

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

Exhibit IV-10b
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	
	2010	2011	2010	2011	2010	2011
Public Housing	15%	11%	$45	$75	$7	$8
PHA-Administered Section 8	17%	15%	$49	$81	$8	$13
Total PHA-Administered	*16%*	*14%*	*$48*	*$80*	*$8*	*$11*
Owner-Administered	14%	9%	$45	$50	$6	$5
Total	**16%**	**12%**	**$47**	**$73**	**$7**	**$9**

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

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

Household Type	Positive Subsidy Average Dollar Amount of Error		Negative Subsidy Average Dollar Amount of Error	
	2010	2011	2010	2011
Certifications	$5	$11	$7	$3
Timely Recertifications	$7	$8	$5	$4
Overdue Recertifications	$39	$38	$46	$52
Total	**$7**	**$9**	**$6**	**$4**

Source: Table 8, Appendix C
Note: Table results replicate Exhibit IV-9 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 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 off-setting errors. For example, the household presented in the chart below has earned income and child care costs with errors in both components. The total component error is $1000 ($800 + $200); however, the adjusted net income error (the amount used to determine the household's rent) is only $600.

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-12 presents each income and expense component included in the rent calculation and the percent of the households in error[26] where a certain 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 $3,881, with 32 percent of households in error where earned income is the largest component error. Other income was the next largest component with an average dollar error of $3,118, found in 16 percent of households in error. Pension income was a component of error in 16 percent of households, with an average associated dollar error of $2,923. Child care allowance had the fourth largest average dollar error, with $2,237 in errors found in 3 percent of all households in error.

Between FY 2010 and FY 2011, average dollar error amounts increased for four of the five rent components producing the highest percentage error. Medical allowance and asset income average dollar error decreased from FY 2010. The large change in asset income is a shift most likely due to the small number of households in error because of asset income.

Exhibit IV-12
Rent Components Responsible for the Largest Dollar Error for Households with Rent Error

Rent Component	Percent of Households in Error		Average Dollar Amount	
	2010	2011	2010	2011
Earned Income	27%	32%	$3,162	$3,881
Other Income	17%	16%	$2,173	$3,118
Public Assistance	7%	8%	$1,915	$1,906
Pensions	17%	16%	$2,021	$2,923
Child Care Allowance	3%	3%	$1,263	$2,237
Asset Income	2%	2%	$2,535	$613
Medical Allowance	22%	15%	$1,308	$832
Dependent Allowance	4%	3%	$517	$580
Elderly Allowance	2%	2%	$400	$400
No Rent Component Error	<1%	3%	$0	$0
Total	**100%***	**100%***	**$2,067**	**$2,594**

Source: Table 9, Appendix C
* Numbers may not add up to 100% due to rounding.

[26] The denominator in the percentage is the number of households with any component error, which was 33 percent of total households in FY 2011.

Note that for some households the rent error is not caused by one of the 10 components listed. Rather, it is caused by other arithmetic errors or using the wrong rent calculation formula. The percent of households in error changed minimally for most rent components, with the exception of Medical Allowance which decreased as a source of rent error.

Total and Largest Component Dollar Error by Program Type. Exhibit IV-13 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 increases in the Average Total Dollars in Error for all PHA-administered programs in FY 2011 with the highest gain evident for PHA-administered Section 8 programs, increasing $1074 from FY 2010 to FY 2011. Public Housing gained $311 Average Total Dollars in Error. Average Total Dollars in Error decreased only for Owner-Administered households from FY 2010 to FY 2011, with a decrease of $401. There were also increases in Average Largest Dollars in Error in PHA-Administered programs, with Section 8 programs showing an increase of $900 from FY 2010 to FY 2011.

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

Administration Type	Average Total Dollars in Error		Average Largest Dollars in Error	
	2010	2011	2010	2011
Public Housing	$2,562	$2,873	$2,038	$2,514
PHA-Administered Section 8	$2,605	$3,679	$2,109	$3,009
Total PHA-Administered	*$2,592*	*$3,464*	*$2,089*	*$2,876*
Owner-Administered	$2,265	$1,864	$2,009	$1,689
Total	**$2,501**	**$3,084**	**$2,067**	**$2,594**

Source: Table 10, Appendix C

QC Rent Components by Payment Type and Administration Type. Exhibit IV-14 shows the percentage of the total number of households with (and without) component error by component type and payment type. For example, five 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 four percent of households with overpayment rent had errors in earned income. Exhibit IV-14 also relays this data by PHA- and Owner-administered households. The exhibit indicates that earned income (9% = 5% underpayment + 4% overpayment) and pension income (7%) are the rent components with the highest percentage of error leading to improper payment, followed by medical expense (6%).

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

Rent Component	Underpayment			Proper Payment			Overpayment		
	PHA	Owner	Total	PHA	Owner	Total	PHA	Owner	Total
Earned Income	7%	3%	5%	7%	2%	6%	6%	2%	4%
Pensions	4%	3%	4%	10%	20%	13%	4%	3%	3%
Public Assistance	1%	<1%	1%	1%	<1%	1%	2%	<1%	1%
Other Income	3%	<1%	2%	4%	3%	4%	3%	2%	2%
Asset Income	1%	1%	1%	5%	6%	5%	1%	<1%	1%
Dependent Allowance	<1%	-	<1%	1%	<1%	<1%	1%	<1%	1%
Elderly/Disabled Allowance	<1%	-	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Child Care Allowance	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Disability Allowance	-	<1%	<1%	<1%	-	<1%	-	-	-
Medical Allowance	2%	4%	3%	6%	15%	8%	3%	3%	3%
No Rent Component Error	<1%	<1%	<1%	46%	49%	47%	<1%	-	<1%

Source: Table 11, Appendix C

Exhibit IV-14 also reflects component errors in proper payment households when the component dollar error results in a tenant payment error of $5 or less. Considering all component errors, not just errors which result in tenant payment error, pensions (20%), earned income (15%) and medical allowance (14%) components have the highest rates of error.

Allowances. Elderly/disabled and dependent allowances were examined to determine whether these allowances were applied correctly.[27] The findings are summarized in Exhibit IV-15. The exhibit shows the percentage of elderly/disabled and nonelderly/disabled households for which allowances were correctly or incorrectly applied. Elderly/disabled allowances were incorrectly used in one percent of all households in FY 2011. Two percent of the elderly/disabled households received an incorrect allowance, while 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 incorrect in two percent of all households. In less than one percent of the households, a dependent allowance was given to a household that did not have dependents. For the remainder of the households with dependents in error (4%), either a dependent allowance was not given when it should have been or the wrong allowance amount was given. In total, three percent of all households had an incorrect allowance in FY 2011.

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

Exhibit IV-15
Elderly/Disabled Allowances and Dependent Allowances

Allowance	Elderly Allowance			Dependent Allowance		
	Non-Elderly/ Disabled Households	Elderly/ Disabled Households	All Households	Households Without Dependents	Households With Dependents	All Households
No Allowance	100%	-	47%	100%	-	55%
Incorrect Allowance	<1%	2%	1%	<1%	4%	2%
Correct Allowance	-	98%	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 only included items that were clearly documented in the tenant file in a location other than the 50058/50059 Form. If an item was recorded on the 50058/50059 Form 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 50058/50059 Form tenant rents and tenant rents calculated solely based on file data were not, in fact, due to incorrect determinations but rather due to program sponsor failure to maintain information supporting income or expense items.

The outcome is that 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 and should be treated as 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 quality control 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-16 shows the percent 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 data indicate that the income and expense items documented in the tenant file identify about three fourths of the cases with tenant underpayments (subsidy overpayments) and over 70 percent of subsidy underpayments (tenant overpayments). The data regarding average dollar error indicate that using the tenant file information alone does not identify all the error in the rent calculation. Average dollar error resulting in subsidy underpayment (tenant overpayment) was much higher ($63) when based on tenant file data alone compared to subsidy underpayment average dollar error

using all study sources ($34). The difference in the subsidy overpayment ($76) compared to subsidy underpayment ($63), based on file documents alone, indicates there is no clear difference in PHA's handling of factors that contribute to overpayment or underpayment.

Exhibit IV-16
Findings With and Without Information Obtained from Sources Other Than the Tenant File

Error Source	Percent of Households in Error		Average Dollar Error	
	Subsidy Overpayment	Subsidy Underpayment	Subsidy Overpayment	Subsidy Underpayment
Error Based on All Income and Expense Items Identified During the Study	12%	13%	$73	$34
Error Based on Tenant File Without Income and Expense Items Identified During the Household Interview and Verification Obtained by the Contractor Through Third-Party Sources	9%	9%	$76	$63

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

Analysis of the errors on the 50058/50059 Form examined whether the errors identified using the 50058/50059 Form as a sole source of information are representative of the total errors in the program. The 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 the 50058/50059 Form. This calculation did not take into account whether dollar amounts were verified or whether the recertification was conducted on time. This analysis identified errors due to arithmetic mistakes, the incorrect use of a formula, and items that were not completed but should have been. This analysis did not identify households where items were recorded in the wrong place on the 50058/50059 Form, although improper use of a field on the 50058/50059 Form can result in a calculation error. Table C-13 in Appendix C presents the number of households with a 50058/50059 Form 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 the 50058/50059 Form. 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 C-14 in Appendix C shows the number of households with consistency errors on the 50058/50059 Form, summarized by form subsections. Appendix D lists the data items by subsection that were included in this analysis.

Exhibit IV-17 shows the percentage of households with calculation and consistency errors by 50058/50059 Form subsections. It is important to emphasize that the 50058 Form is formatted differently and has more line items of information than the 50059 Form. 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 the 50059 Form in FY 2006 and again in FY 2009. The large number of calculation errors (particularly in the Allowances and Adjusted Income section on the 50058 Forms) may be a contributing factor

to QC errors, though a calculation or consistency error does not necessarily lead to a rent error. The PHA/owner may make an error when completing one section of the form and still calculate the rent correctly.

Exhibit IV-17
Percentage of Households with Calculation and Consistency Errors

50058/50059 Form Item	Percentage of Households					
	Calculation Errors			Consistency Errors		
	50058 Form	50059 Form	Total	50058 Form	50059 Form	Total
General Information	n/a	n/a	n/a	2%	8%	4%
Household Composition	5%	3%	5%	3%	11%	6%
Net Family Assets and Income	7%	4%	6%	5%	<1%	3%
Allowances and Adjusted Income	46%	5%	33%	11%	<1%	7%
Family Rent and Subsidy Information	11%	3%	9%	2%	<1%	2%

Source: Tables 13 and 14, Appendix C

Comparison of 50058/50059 Form Errors to QC Error. A comparison was made between the rent calculation errors on the 50058/50059 Form and errors identified through the QC Rent calculation process. The purpose of this comparison was to determine if errors identified using only the 50058/50059 Form data could predict the rent errors found in a QC review. When using only the 50058/50059 Form data to calculate the Actual Rent, errors were found in 7 percent of the households in FY 2011, a small increase from the FY 2010 figure of 6 percent. The QC error calculation found errors in 25 percent of the households in FY 2011, down from 33 percent in FY 2010. The results are quite different from the individual and joint comparison methods. Error was found in both the 50058/50059 Form calculation and QC rent calculation in only 2 percent of the households. In 32 percent of the households, rent calculation error was found in either the 50058/50059 Form or the QC rent calculation, but not in both. This emphasizes that data from the 50058/50059 Form alone cannot accurately identify rent error. Exhibit IV-18 summarizes these results for FY 2010 and FY 2011.

Exhibit IV-18
50058/50059 Form Rent Calculation Error Compared with QC Rent Error

Rent Calculation	Percentage of Households Correct		Percentage of Households Incorrect	
	2010	2011	2010	2011
Using Information on the 50058/50059 Form	94%	93%	6%	7%
According to the QC Rent Calculation	67%	75%	33%	25%
Both 50058/50059 Form Calculation and QC Rent Calculation	64%	70%	3%	2%

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 the 50058/50059 Form. An error occurs when the verified amount obtained by the project is not recorded properly on the 50058/50059 Form

(and, presumably, not used correctly in the rent calculation). When determining whether a verified income or expense item matched the amount used on the 50058/50059 Form, 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 was the first fiscal year impacted by this rule. As a result, verification rates have decreased across the board when compared to FY 2010, as verification is required in fewer instances.

The table series C-15a through C-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, and documentation). These tables provide this information for each of the rent components and also by program type.

Exhibit IV-19 summarizes the findings in Table C-15a. In FY 2011, the number of households where verification was not obtained by the PHA/owner increased in all rent components. Child care expense showed the largest change in lack of verification (8 percent lacked verification in FY 2010 compared with 15 percent in FY 2011) followed by pension income which showed a 4 percent drop in verifications obtained by the PHA/owner between FY 2010 and FY 2011. Percentage of verifications found to match the 50058/50059 within $100 decreased slightly for six of the seven rent components in FY 2011.

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

Rent Component	No Project Verification		Item Verified by Project		Verification Matched 50058/50059 Form within $100	
	2010	2011	2010	2011	2010	2011
Earned Income	11%	14%	89%	86%	62%	60%
Pensions	4%	8%	96%	92%	87%	85%
Public Assistance	18%	16%	82%	84%	73%	70%
Other Income	22%	26%	78%	74%	63%	62%
Asset Income	8%	9%	92%	91%	88%	82%
Child Care Expense	8%	15%	92%	85%	73%	74%
Medical Expense	7%	10%	93%	90%	77%	74%

Source: Table 15a, Appendix C

Exhibit IV-20 shows verification results by program type, again showing the verification rate for each rent component and the proportion that matched within $100 of the 50058/50059 Form amounts. When comparing the FY 2011 results to the FY 2010 findings, the following changes are of note:

- In the *Public Housing* program, there were decreases in the verification rate for all of the seven rent components in FY 2011 when compared with FY 2010, with the largest losses

occurring in child care expense verification (87% in FY 2010 compared to 79% in FY 2011), public assistance verification (87% in FY 2010 compared with 80% in FY 2011), and pensions (97% in FY 2010 compared with 90% in FY 2011. Verification rates with decreases were also seen in earned income (from 87% in FY 2010 to 82% in FY 2011) and other income (from 77% in FY 2010 to 73% in FY 2011). The degree to which the verifications matched the 50058 Form within $100 (indicating correct usage of verification data) decreased in 6 of the 7 rent components from FY 2010 to FY 2011, with the largest decrease occurring in asset income (from an 85% match to a 79% match).

- In the *PHA-administered Section 8* programs there was a general trend to verify information slightly less from FY 2010 to FY 2011. Most rent components decreased in percentage slightly, with the exception of public assistance, which increased slightly by one percent. The degree to which the verifications matched the 50058 Form within $100 (indicating correct usage of verification data) decreased between a range of 1–11 percent for all rent components from FY 2010 to FY 2011, with the largest percent drop for verifications which matched the 50058 evident in asset income (from 85% matching in FY 2010 to 74% in FY 2011).
- In the *Owner-administered* programs, the verification rate increased for two of the seven rent components. Public assistance increased 14 percent from FY 2010 to FY 2011, while earned income increased 4 percent in the same period. Pensions, other income, child care expenses, and medical expenses all experienced slight decreases in verification, while asset income remained the same. The degree to which the verification matched the 50058 Form within $100 (indicating correct usage of verification data) increased for 4 of the 7 rent components within a range of 1 percent (other income) to 16 percent (public assistance). Pensions and medical expenses showed modest decreases in verifications matching between FY 2010 to FY 2011, while asset income remained the same.

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

Rent Component	Public Housing		PHA-Administered Section 8		Owner-Administered	
	Verified	Matched**	Verified	Matched**	Verified	Matched**
Earned Income	82% (87%)	50% (53%)	87% (91%)	59% (63%)	90% (86%)	75% (71%)
Pensions	90% (97%)	81% (87%)	93% (95%)	86% (88%)	92% (96%)	85% (87%)
Public Assistance	80% (87%)	63% (76%)	86% (85%)	72% (77%)	82% (68%)	76% (60%)
Other Income	73% (77%)	56% (61%)	79% (82%)	65% (66%)	65% (69%)	59% (58%)
Asset Income	85% (87%)	69% (85%)	90% (91%)	74% (85%)	95% (95%)	90% (90%)
Child Care Expense	79% (87%)	72% (69%)	86% (93%)	71% (71%)	93% (95%)	88% (82%)
Medical Expense	86% (88%)	61% (67%)	88% (92%)	72% (77%)	92% (96%)	79% (80%)

Source: Table 15h, Appendix C
* Findings from FY 2010 are in parentheses.
** Matched within $100

Comparing across program types in FY 2011, pension income, medical expense and asset income are the most frequently verified rent components. The least verified rent components are public assistance and other income.

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 does have a major impact on error. This was observed for every rent component for both the PHA- and Owner-administered programs.

In general, between FY 2010 and FY 2011 data from both the PHA- and Owner-administered programs show there were both increases and decreases in households where error was related to missing verification. For PHA-administered cases, earned income, public assistance, and medical expense rent components showed the largest decreases in households in error with missing verifications between FY 2010 to FY 2011 (about 20% each), while child care expenses increased the number of households in error by about 9 percent. In Owner-administered households, the percentage of households in error with missing verification decreased substantially for public assistance (17%), and earned income (9%), while the percentage of households in error for other income, asset income, and child care expenses all increased. However, for some of these components the number of households in error is relatively small, thus the estimates may vary substantially from year to year and may not be reliable. Missing verification in oOwner-administered programs continues to be strongly associated with households which have QC error.

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

	50058 Form				50059 Form			
	Households with QC Error		Households with QC Errors and Missing Verification		Households with QC Error		Households with QC Errors and Missing Verification	
Rent Component	2010	2011	2010	2011	2010	2011	2010	2011
Earned Income	14%	12%	73%	53%	6%	4%	70%	61%
Pensions	10%	8%	84%	86%	13%	6%	86%	85%
Public Assistance	3%	3%	80%	60%	3%	1%	87%	70%*
Other Income	9%	6%	70%	56%	4%	3%	78%	83%
Asset Income	4%	2%	79%	71%	6%	2%	73%	77%
Child Care Expense	2%	1%	70%	79%	<1%	<1%	86%*	100%*
Disability Expense	<1%	-	100%	-	<1%	<1%	100%	100%
Medical Expense	11%	5%	93%	74%	15%	7%	89%	75%
No Component Error	67%	74%	-	-	72%	83%	-	-

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

Summary of 50058/50059 Form Errors. Exhibit IV-22 provides a summary of the errors identified from the 50058/50059 Form. These include consistency errors, calculation errors, and overdue recertifications. The exhibit shows the percentage of households in error, the average dollar error, and the standard errors for both households with recalculated 50058/50059 Form error (i.e., error determined using only the 50058/50059 Form), and households with QC Rent error. This information is provided for households with error for each error type. Beginning with the

FY 2005 study, transcription error for any household was added to this exhibit and the data that was described as an unduplicated count of 50058/50059 Form error has been revised to an unduplicated count of any type of administrative error. The exhibit shows that most individual types of 50058/50059 Form errors are not closely associated with QC rent error. However, 50058/50059 Forms with only transcription error are associated with QC rent error in 71 percent of households, and any type of administrative error (e.g., transcription, consistency, calculation, or overdue recertifications) are associated with QC Rent Error in 77 percent of the households. This increase is primarily due to a small number of households with income calculation error, resulting in estimates whose variances are rather large from year to year.

When compared to FY 2010, there are only minor differences in percent of households in error for both recalculated 50058/50059 Forms and for households with QC rent error. However, there is a large increase in average dollar error for recalculated 50058/50059 Forms pertaining to Income Calculation Error—$38 in FY 2010 compared to $209 in FY 2011. This increase, however, is primarily due to a relatively small number of households in error, 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 50058/50059 Form error is $35. In contrast, the average dollar error for households with QC Rent error is $53. The values support the assertion that an administrative error on a 50058 or a 50059 Form 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 50058/50059 Form 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 50058/50059 Form rent error—not QC rent error). So, for example, although the average rent error dollars for households with income calculation error is $209, 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 (4% of households in error), the average dollar error is large.

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

Error Type Based on 50058/50059 Form Recalculation	Households with Recalculated 50058/9 Form Error				Households with QC Rent Error			
	Percent of Households in Error	Standard Error of Percent	Average Dollar Error	Standard Error of Mean	Percent of Households in Error	Standard Error of Percent	Average Dollar Error	Standard Error of Mean
Households with Transcription Error	38%	5.2	$36	$16.20	71%	2.4%	$55	$4.63
Households with Consistency Error	37%	5.1%	$54	$18.72	18%	2.5%	$43	$7.26
Households with Allowance Calculation Error	4%	1.6%	$33	$32.54	2%	.6%	$32	$9.23
Households with Income Calculation Error	4%	1.7%	$209	$113.42	3%	.8%	$44	$19.66
Households with Other Calculation Error	6%	2.0%	$66	$46.05	7%	1.4%	$119	$20.13
Overdue Recertifications	3%	1.6%	$51	$65.72	4%	1.2%	$127	$24.81
Unduplicated Count, Any Type of Administrative Error	57%	5.5%	$43	$16.20	77%	2.0%	$56	$4.44
Total Households	**100%**		**$35**	**$12.50**	**100%**		**$53**	**$3.50**

Source: Table 17, 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 and Net Rent Errors 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 the 50058/50059 Form. Second, the findings are now based on QC error rather than recalculated 50058/50059 Form error. The percent of households in error were generally comparable to FY 2010 for all error types, as were the average gross and net dollars in error for all error types except overdue recertifications, which had large differences in error amounts due to the small number of overdue cases.

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
Transcription Errors	38%	$27	$2.52	-$7	$3.33
Consistency Errors	20%	$10	$2.01	-$4	$1.92
Calculation Errors—Allowances	2%	$11	$4.07	< $1	$4.66
Calculation Errors—Income	3%	$15	$6.82	$8	$7.10
Calculation Errors—Other	5%	$45	$10.63	-$10	$15.83
Overdue Recertifications	1%	$92	$22.08	$13	$45.38
Any Administrative Errors	51%	$22	$2.00	-$7	$2.43
Total	**100%**	**$14**	**$1.00**	**-$5**	**$1.33**

Source: Table 18, Appendix C

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.

Fourteen percent of all households occupied a unit with too many or too few bedrooms in FY 2011, according to the guidelines used for this study. This number is down slightly from FY 2010, when 15 percent of all households occupied a unit with an incorrect number of bedrooms. 12 percent of Public Housing households, 6 percent of Owner-administered households, and 21 percent of PHA-administered Section 8 program households were over- or under-housed in FY 2011.

Exhibit IV-24a
Percentage 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					
	2010	2011	2010	2011	2010	2011	2010	2011
0	100%	100%	81%	91%	100%	96%	96%	97%
1	99%	100%	98%	99%	100%	100%	99%	99%
2	78%	80%	72%	70%	77%	80%	74%	74%
3	82%	87%	82%	81%	87%	89%	83%	83%
4	60%	69%	61%	56%	71%	63%	63%	61%
5+*	-	-	-	-	-	-	-	
All Units	86%	88%	80%	79%	92%	94%	85%	86%

Source: Table 19, Appendix C
* Cell Sizes are too small to provide reliable estimates.

Exhibits IV-24b and IV-24c show the percentage of households that met these guidelines for each bedroom size for FY 2010 and FY 2011, respectively. The shaded cells indicate the percentage of households that fall within study guidelines.

Exhibit IV-24b
Percentage of All Households in FY 2010 by Number of Bedrooms and Number of Household Members

Number of Bedrooms	FY 2010 Number of Household Members							
	1	2	3	4	5	6	7	8+
0	96%	2%	2%	-	-	-	-	-
1	93%	7%	<1%	<1%	<1%	-	-	-
2	24%	46%	22%	7%	1%	<1%	-	-
3	5%	11%	38%	28%	13%	5%	<1%	<1%
4	1%	3%	11%	22%	26%	19%	14%	4%
5			7%	29%	8%	23%	15%	18%

Source: Table 19a, Appendix C

Exhibit IV-24c
Percentage of All Households in FY 2011 by Number of Bedrooms and Number of Household Members

Number of Bedrooms	FY 2011 Number of Household Members							
	1	2	3	4	5	6	7	8+
0	97%	2%	1%	-	-	-	-	-
1	90%	9%	<1%	-	-	-	-	-
2	24%	48%	20%	7%	1%	<1%	-	-
3	4%	12%	32%	33%	12%	6%	<1%	<1%
4	2%	3%	12%	21%	31%	17%	12%	3%
5			-	9%	39%	4%	21%	27%

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. PHAs are responsible for administering the program and ensuring that the rents paid for dwellings leased by participants in the PHA-administered Section 8 program are reasonable in comparison with rental units in the private, unassisted local market. High rents can waste government funds and inadvertently raise private market rents. Rent approvals which are set too low compared to the private market lead landlords to include only lowest cost, lowest quality units and 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 decrease by at least five percent. This analysis examines whether PHAs fulfilled the requirement for documenting rent reasonableness determinations but does not investigate whether rents were in fact reasonable.

Methodology. The PHAs, administering the 140 Section 8 Voucher "projects"[28] participating in the study, were asked about their standard rent reasonableness processes and requested to provide copies of the forms that document rent reasonableness.

Field interviewers were instructed to search the tenant files for each of the 785 Voucher households in the household sample to locate the documents supporting the rent reasonableness certification. For the 89 new certifications,[29] field interviewers searched the file for the initial rent reasonableness certification and recorded its date. For the 711 annual recertifications, field interviewers were asked to ascertain when the current rent to owner became effective and to locate the relevant supporting rent reasonableness documentation. If none was found relative to date the rent to owner became effective, 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 (RFTA) form was considered a rent reasonableness certificate.

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). Fifty-nine percent of the housing authorities reported using this method as the predominant method. The unit-to-unit method is similar to the standard real estate appraisal technique of comparing a unit to similar private, unassisted units. Rent amounts are sometimes modified for differences in unit characteristics, such as size, age, amenities, housing services, maintenance, and utilities.

Exhibit IV-25
PHAs by Predominant Rent Reasonableness Method

Method	2009		2010		2011	
	Number	Percent	Number	Percent	Number	Percent
Unit-to-Unit Comparison	88	63%	104	69%	83	59%
Unit-to-Market Comparison	25	17%	19	13%	22	16%
Point System	23	16%	20	13%	23	16%
Other or Rent Control	2	4%	1	1%	4	3%
No Single Predominant Method	1	1%	7	5%	7	5%
No Information	0	0%	0	0%	1	1%
Total	**139**	**100%***	**151**	**100%***	**140**	**100%***

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

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. Sixteen percent of housing authorities reported primarily using this method. Valuation adjustments are based on typical units in the private market. Sixteen percent of housing authorities indicated that their primary

[28] 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."

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

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.

PHA/project staff were asked 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. Results remain consistent with FY 2010 as evidenced in Exhibit 26a below. When asked to identify a single predominant method, most PHA's selected only one and there was no change in selection of "no single method predominates" (5% in FY 2010 and FY 2011, up from 1% in FY 2009). PHA's were also asked whether they used a software program and/or an outside contractor to determine whether the rent to owner was reasonable. Seventy-five of the 140 voucher projects (54%) use a rent reasonableness software. *Go Section 8* remained the most commonly used software vendor, cited by 21 projects in FY 2011 and by 18 programs in FY 2010, followed by *HAPPY*, used by 12 in both FY 2011 and FY 2010. Fewer PHAs reported using in-house developed software (3 in FY 2011 compared with 8 in FY 2010).

Findings Pertaining To Rent Reasonableness Documentation Found in Tenant Files for New Admissions and Annual Recertifications. In FY 2011, 94% of new admission files contained rent reasonableness documents, the same percentage as FY 2010 and an increase from 88% in FY 2009 (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. The case file was searched for the rent reasonableness determination specific to that rent determination and if none was found, the file was searched for any rent reasonableness documentation. In FY 2011, 78% of these case files had certified rent reasonableness documents compared to 73% in FY 2010 (see Exhibit IV-26a).

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

Status	2009		2010		2011	
	New Admissions	Recertifications	New Admissions	Recertifications	New Admissions	Recertifications
Determination Documented	88%	77%	94%	73%	94%	78%
No Determination Documented	12%	23%	6%	27%	6%	22%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Data in this exhibit are weighted.

The absence of documentation does not necessarily indicate a determination was not completed; only that it was not properly documented. Of new admission files that had documentation, 57% contained a statement signed by the PHA staff certifying that the rent is reasonable. For recertifications with rent reasonableness documentation, 52% contained a statement signed by the PHA staff 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	2009		2010		2011	
	New Admissions	Re-certifications	New Admissions	Re-certifications	New Admissions	Re-certifications
A Signed Statement Certifying the Rent is Reasonable	63%	67%	69%	67%	57%	52%
Comparable Units Documented by the Property Owner in Section 12a of HUD 52517	9%	5%	5%	9%	10%	7%
Comparable Units Documented on Other Documents	20%	19%	23%	19%	29%	35%
Any Other Reference to Rent Reasonableness	8%	9%	3%	5%	3%	6%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Data in this exhibit are weighted.

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 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 QC contract rent is compared with previous rents to determine when and if there was a change in the contract rent. That is then 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 determination relates to the initial lease or lease change date for those households where 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	2009		2010		2011	
	New Admissions	Re-certifications	New Admissions	Re-certifications	New Admissions	Re-certifications
More than 4 Months Before Lease date	3%	9%	2%	7%	3%	17%
Up to 4 Months Before Lease Date	91%	78%	94%	82%	87%	73%
After Lease Date—Up to 2 Months	3%	7%	4%	4%	5%	3%
After Lease Date—Greater than 2 Months	2%	5%	0%	5%	3%	3%
Date Missing	1%	2%	1%	2%	1%	5%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Data in this exhibit are weighted.

If the lease effective date occurred prior to the date of the rent reasonableness documentation, the rent reasonableness determination may not have been instrumental for the approval of the unit's rent. The percent of rent reasonable determinations made after the rent had been established as part of the initial lease agreement increased from 4% in FY 2010 to 8% in FY 2011. For Annual Recertifications in FY 2011, fewer rent reasonable determinations were made after rents were established, (6% compared with 9% in FY 2010).

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 2011 compared to FY 2010 and the proportion of cases lacking rent reasonableness documentation is still high (6% of new admissions and 22% of annual recertifications). These findings may be partially attributable to the PIH notice issued May 16, 2003 (notice PIH 2003-12) that supports a more streamlined rent reasonable process. For example, a PHA need not consider all nine criteria cited in 24 CFR 982.507(b) to fully comply with the regulation. PIH 2003-12 also asserts that "each PHA should use appropriate and practical procedures for determining rental values in the local market." This statement may also be intended to justify less formal methods of rent determination.

G. Utility Allowance Analysis

As part of the FY 2011 HUDQC study, two separate analyses were conducted of the utility allowances provided to households through the PHA-administered Section 8 program. The first analysis 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. The second analysis focused on identifying discrepancies between the utility allowance on the 50058 Form and the appropriate utility allowance as listed on the 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. To support these analyses, PHAs were asked to provide information about the forms used to document and calculate the utility allowance, and to provide the utility allowance schedules used for actions effective in FY 2011. In addition, field interviewers were asked to copy documents showing calculation of utility allowances found in tenant files at the PHA office.

One-hundred and forty distinct PHA-administered Section 8 "projects", administered by 128 housing authorities (several of which administered the Voucher program in multiple counties) participated in the FY 2011 HUDQC study. According to information provided at the PHA level, almost half (46%) of the projects used HUD Form 52517 (Request for Tenancy Approval) as the official source for identifying the utilities for which the households were responsible. This is less than the FY 2010 HUDQC study when 49% of the projects reported using the HUD Form 52517. The number of projects using the HUD Form 52667 (Schedule of Allowances for Tenant Furnished Utilities) to calculate the value of the utilities paid by the tenants increased from 62% in FY 2010 to 67% in FY 2011. Exhibit IV-28a provides the 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			
	2010		2011		2010		2011	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
HUD Form 52517 (Request for Tenancy Approval)	69	49%	61	46%	11	8%	13	10%
HUD Form 52641 (HAP Contract)	21	15%	23	17%	4	3%	9	7%
HUD Form 52667 (Allowance Schedule)	14	10%	22	17%	88	62%	88	67%
Other (Lease, Reports, Comparisons, etc.)	16	11%	17	13%	35	25%	21	16%
Various Combinations of Above	22	15%	9	7%	4	3%	1	1%
Total	**142**	**100%**	**132**	**100%**	**142**	**101%***	**132**	**101%***

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

Seven hundred and eighty-five (785) households, assisted through the PHA-administered Section 8 Voucher program, participated in this study. Field interviewers were able to locate worksheets or other documents indicating how the utility allowance was calculated for 714 households (91%).

Comparison of 50058 Form Utility Allowance Values to Worksheets Found in the Household File. For each household with utility allowance documentation available, the utility allowance amount from the 50058 Form was matched with the amount on the utility allowance worksheet obtained from the tenant file. For 89% of the households (638 units), the 50058 Form utility allowance amount matched the worksheet amount. This included 36 households that did not have any utility expenses because either they were included in the rent or the owner paid all utilities. For 3% of the households, the worksheet provided was for the incorrect period of time or was missing critical information. Hence, we could not determine whether the utility allowance amount used in the rent calculation was correct. In the remaining 7% of the households there were discrepancies between the amount on the worksheet and the 50058 Form amount. Exhibit IV-28b provides a summary of the findings from the comparison between the utility allowance listed on the 50058 Form and the amount on the worksheets found in tenant files.

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

Outcome	Number	Percent
50058 Form (AC) Amount Matched with Worksheet (WS) Amount	638	89%
Worksheet in File for Incorrect Period of Time or is Missing Critical Information	24	3%
Discrepancy Due to Math Error or Other Clerical Errors	14	2%
Discrepancy—Unable to Determine Reasons	38	5%
Total	**714**	**100%***

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

Comparison of 50058 Form Utility Allowance Values to the Correct (QC) Utility Allowance Value. The QC utility allowance was calculated in two steps. The first step was to identify 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, the identified household's specific utilities were mapped onto the utility allowance schedule and the total summed to determine the QC allowance amount.

The utility allowance amount on the 50058 Form was matched with the QC utility allowance amount. We were unable to calculate the QC utility allowance in about 8% of the cases (64 households) because their worksheet was not available and consequently the specific utilities paid by the household could not be identified. Furthermore, we were unable to calculate the QC utility allowance in about 11% of the cases because the worksheets in the files did not include specific utilities or other critical information needed for QC allowance calculation, while another 5% could not be calculated due to the appropriate utility allowance schedule being unavailable. Exhibit IV-28c differentiates between the cases in which QC allowance amount was able to be calculated and lists the reasons and number of cases in which QC utility allowance amount was not able to be calculated.

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	589	75%
UA Worksheet or Other Comparable Document Not Available	No	64	8%
Appropriate UA Schedule Not Available	No	45	6%
Worksheet was Missing Critical Information	No	87	11%
Total		**785**	**100%**

Data in this exhibit are not weighted.

For the 589 cases in which QC utility allowance amounts were calculated, the QC utility allowance was compared to the 50058 Form utility allowance amounts. In 94% of those households, the 50058 Form and QC utility allowance values matched. The remaining (discrepant) 6% were categorized into two broad categories. Nonmatching utility allowances were categorized as either

administrative errors or unknown (i.e., we were unable to determine the reason for the discrepancy). Exhibit IV-28d presents the findings from this analysis.

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

Outcome	Number	Percent
QC UA Matched Amount on 50058 Form	543	92%
Discrepancy Due to Math Error/Transfer Error	30	5%
Discrepancy—Unable to Determine Reasons	16	3%
Total	**589**	**100%**

Data in this exhibit are not weighted.
Note: When calculating the QC rent, the utility allowance amount from the 50058 Form was used; not the QC allowance amount calculated for this exercise.

H. Payment Standard Analysis

As part of the FY 2011 HUDQC study, a special analysis was conducted to determine if PHAs are using the correct Payment Standards. This special analysis was conducted independently of the rent calculation error findings presented elsewhere in this chapter and the Payment Standard Analysis did not affect the rent calculation determinations. This analysis consisted of three parts: (1) the Payment Standard on the 50058 Form was compared to the Payment Standard schedules provided by the PHA; (2) the Payment Standard on the 50058 Form was compared to the Fair Market Rent (FMR) for the appropriate geographical area; and (3) the Payment Standards were compared to the FMRs to ensure they were between 90% and 110% for each project. The findings from these comparisons are presented below.

Background. Payment Standards are used in the PHA-administered Section 8 Voucher program when determining the tenant's portion of the rent-to-owner. They must be kept current and set between 90% and 110% of the FMR. If a PHA does not ensure that their Payment Standards are within this range or if they misunderstand how new FMRs affect their Payment Standards, this will result in errors in tenant rent determinations.

There are a variety of ways PHAs may apply Payment Standards incorrectly resulting in errors in tenant rents. 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. PHAs may also err by applying the family-size Payment Standard (i.e., the size authorized for the family as shown on the voucher) in lieu of the Payment Standard for the unit size (i.e., number of bedrooms in the unit) when the family-size is greater than the payment standard for the unit size. 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. Another complication allows PHAs to change the Payment Standard only at the time of the annual recertification or before moving 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 in determining the rent should not be changed at the interim recertification. The

complexity of the Payment Standard guidelines increases errors, but most of the errors found were not due to these complex guidelines.

Comparison of the Payment Standard on the 50058 Form to the Payment Standard Schedules Provided by the PHA. The first analysis consisted of comparing the Payment Standard on the 50058 Form (AC) to the Payment Standard schedule (QC) provided by the PHA. For all voucher households in the study, the appropriate QC Payment Standard was selected and compared to the AC Payment Standard. The selection of the QC Payment Standard from the schedules provided by the PHA was based on

- 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 exception listed on information provided by the PHA staff.

For every household where the AC and QC Payment Standard did not match, a call was placed to the PHA staff for clarification and, if appropriate, to gather Payment Standard schedules for previous years. Through these calls, other complications were often discovered and taken into consideration when selecting the QC Payment Standard. The types of complications included:

- The Payment Standards for units experienced a decrease, requiring the PHA and ICF to use the previous (higher) Payment Standard for the first recertification after the decrease. Many PHAs only sent the Payment Standards for a specific time period. Calls were made to get the historic Payment Standard Schedules.
- 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.
- Housing Authorities used higher Payment Standards for Exception Rent Areas.
- Housing Authorities used Payment Standards from a previous Housing Authority for Port-in households, understanding the rates would be adjusted at the next annual re-examination.
- Computer systems of some PHAs filled in the Payment Standard field on the 50058 Form with the lesser of the Gross Rent or the Payment Standard.

There were 785 PHA-administered Section 8 Voucher households in the study. For the majority (81%) of the households, the AC Payment Standard matched the QC Payment Standard. There were 143 households (18%) with discrepant Payment Standards. Sixty-six (46%) 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. Discrepancies were attributable to one of eight 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. Also, the use of either the incorrect number of bedrooms or household members accounted for a cumulative 9.8% 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 reason.

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
Incorrect Number of Bedrooms/Household Member Was Used	6	8	10%
Incorrect Payment Standard Schedule Was Used	14	23	26%
Fair Market Rent Was Used Instead of the Payment Standard	3	5	6%
Gross Rent was Used Instead of the Payment Standard	7	3	7%
Section 12 of the 50058 was not Completed or was Missing	1	0	1%
Project Staff Made a Typographical Error	8	9	12%
Project-Based Voucher & Premerger Certificate: No Payment Standard (Section 11 of the 50058 Filled Out)	1	4	4%
Other Reasons—Overdue Recertification, Software Limitations, 105% of FMR Used, Original Payment Standard Over 110%	26	25	36%
Total	**66**	**77**	**100%**

Data provided in this exhibit are not weighted.

Comparison of the Payment Standard on the 50058 Form to the Fair Market Rent for the Appropriate Geographic Area. The second analysis consisted of comparing the Payment Standard on the 50058 Form (AC) to the FMRs for the appropriate geographic area. Correct Payment Standards could not be determined for 35 households. The Payment Standard for 750 of the remaining households (95%) fell within the 90% to 110% FMR band; 38 of the households (5%) that fell outside of the 90% to 110% band used an amount that exceed 110% of the FMR, and 15 of the households (2%) used an amount that was less than 90% of the FMR. Exhibit IV-29b summarizes the number and percent of households by the relationship of the Payment Standard to the acceptable FMR.

Exhibit IV-29b
Number of Households Meeting Payment Standard Requirements

Characteristic	Fair Market Rent			Percent of Cases Outside the 90 to 110% Band
	Under 90%	90–110%	Over 110%	
Non-Elderly or Disabled	7	413	14	3%
Elderly or Disabled	8	299	9	2%
Payment Standard Compared with Fair Market Rent	**15**	**712**	**23**	**5%**

Data provided in this exhibit are not weighted.

The analysis of the households that fell outside the 90% to 110% FMR band indicated that 5% of households did so for 5 general reasons: the incorrect number of bedrooms or household members was used, the incorrect Payment Standard was used, Gross Rent was used instead of Payment Standard, project staff made a typographical error, or other reasons. Exhibit IV-29c summarizes the number and percent of households that fall outside the 90% to 110% 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%	
Incorrect Number of Bedrooms/Household Member was Used	3	6	25%
Incorrect Payment Standard Schedule was Used	8	0	22%
Gross Rent was Used Instead of the Payment Standard	1	5	17%
Project Staff Made a Typographical Error	0	3	8%
Other Reasons—Overdue Recertification, 105% of FMR Used, Software Limitations, Original Payment Standard Over 110%	2	8	28%
Total	**14**	**22**	**100%**

Data provided in this exhibit are not weighted.

Comparison of the FY 2010 to the FY 2011 Payment Standard Analysis Results. The same Payment Standard analysis was conducted for the FY 2010 study. Of the 785 PHA-administered Section 8 Voucher households in the FY 2011 study, the AC and the QC Payment Standard matched for 632 (81%) of the households. Additionally, 38 (5%) of the households had Payment Standards that did not fall within the 90 to 110% FMR band. Of those 38 households, no cases were granted any exemptions. Therefore, a total of 5 percent of the PHA-administered Section 8 Voucher households included in the FY 2011 did not meet HUD's Payment Standard requirements. Exhibit IV-29d summarizes the results from the FY 2010 and FY 2011 Payment Standard Analysis.

Exhibit IV-29d
Comparison of the FY 2010 to FY 2011 Payment Standard Analysis

Characteristic	FY 2010		FY 2011	
	Number	Percent	Number	Percent
PHA-administered Section 8 Voucher Sample	800	100%	785	100%
Households Where the AC and QC Payment Standard Did Not Match	88	11%	143	18%
Households Where the AC Payment Standard Did Not Meet the 90% to 110% of FMR Threshold	48	6%	38	5%
Households That Were Not Exempt From the 90% to 110% of FMR Threshold and Did Not Meet HUD's Payment Standard Requirements	41	5%	38	5%

Data provided in this exhibit are not weighted.

I. PIC/TRACS Analysis

The households included in this study were matched against PIC/TRACS data using identifying information (a combination of the Social Security Number, name, and date of birth) for the head of each household. Because this study covers the Federal FY 2011, an attempt was made to use historical PIC/TRACS files to identify the 50058/50059 Form data for the specific effective date and type of action for which study data were collected.

PIC/TRACS data were received for any household (in the study sample) that was in the historical databases used by HUD analysts, even if the specific study effective date and type of action did not match. When matching on the specific study effective date and type of action, only 1,690 of the 2,404 households in the study were represented. Therefore, most of the PIC/TRACS analysis for this report was based on the broader match (PIC/TRACS data received for any household in the study sample). Using these criteria, PIC records were found for 96 percent of the households in PHA-administered projects, while TRACS records were found for 97 percent of the households in Owner-administered projects. Of the 2,404 households sampled, 2,318 households (or 96%) were successfully matched with PIC/TRACS.

Analysis was conducted to compare the average dollars in gross rent error for households that matched PIC/TRACS with those that did not match. Exhibit IV-30a provides the percentage of households in each of the three program types by presence or absence in PIC/TRACS, and the average dollars in error based on all households in the study. Exhibit IV-30b provides the same information but uses only households with rent error as its base. These exhibits demonstrate that households with a PIC/TRACS data match were proportionally equal to all households in the study with regards to the number of households in error.

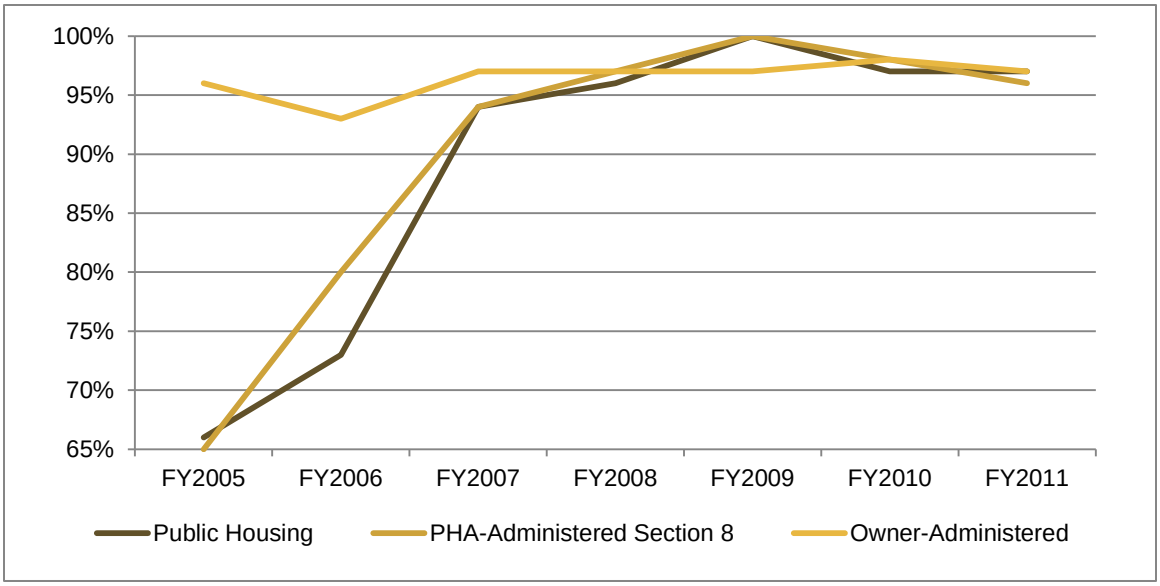
Exhibit IV-30a
PIC/TRACS Data by Program Type and Average Gross Dollars in Error for all Households

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%	$10	3%	$52
PHA-Administered Section 8	96%	$18	4%	$35
Total PHA-Administered	*96%*	*$15*	*4%*	*$39*
Total Owner-Administered	97%	$7	3%	$11
Total	**96%**	**$13**	**4%**	**$31**

Data provided in this exhibit are weighted.

Figure IV-3 tracks the percentage of households where PIC/TRACS is present over time, beginning in FY 2005. PHA-administered percentages have increased since FY 2005, while Owner-administered percentages have remained fairly steady over time.

Figure IV-3
PIC/TRACS Data Present by Program Type for All Households over Time



As presented in Exhibit IV-30b, the average dollars in error for Owner-administered households is higher for households when PIC/TRACS data is absent ($86) than when PIC/TRACS data is present ($52). 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, the percentage of PHA-administered projects with PIC/TRACS present for households in error decreased slightly (from 97% in FY 2010 to 95% in FY 2011).

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	97%	$47	3%	$219
PHA-Administered Section 8	93%	$60	8%	$62
Total PHA-Administered	*94%*	*$56*	*6%*	*$84*
Total Owner-Administered	98%	$37	2%	$104
Total	**95%**	**$52**	**5%**	**$86**

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

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 for both groups, there is a large difference in underpayment amounts (i.e., $70 compared to $139). In addition, because there are fewer cases where PIC/TRACS is absent, the average dollars in error amounts can vary significantly 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[1]	Percent of Households	Average Dollars in Error[1]
Underpayment	12%	$70	15%	$139
Overpayment	12%	$33	21%	$48
Proper Payment	75%	n/a	63%	n/a
Total	**100%**	**$13**	**100%**	**$31**

Data provided in this exhibit are weighted.
[1] Average dollar error per under- and overpayment subgroups.

Exhibit IV-30d examines net and gross errors by program type and whether there was a PIC/TRACS match. This exhibit illustrates that it is important to review 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	-$4	-$49	$10	$52
PHA-Administered Section 8	-$7	$4	$18	$35
Total PHA-Administered	*-$6*	*-$11*	*$15*	*$39*
Total Owner-Administered	-$2	-$11	$7	$11
Total	**-$4**	**-$11**	**$13**	**$31**

Data provided in this exhibit are weighted.

For households where PIC/TRACS data matched on specific study effective date and type of action, further analysis was conducted to determine if certain key variables matched. The key variables included gross income, net income, total tenant payment, and tenant rent. Exhibit IV-30e provides the percentage of households where the data gathered through the QC process matched that in PIC/TRACS.

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

Match Status	Gross Income		Net Income		Total Tenant Payment		Tenant Rent	
	PIC	TRACS	PIC	TRACS	PIC	TRACS	PIC	TRACS
No Match	2.3%	2.9%	3.3%	3.7%	3.2%	10.2%	12.0%	36.6%
Match	97.7%	97.1%	96.7%	96.3%	96.8%	89.8%	88.0%	63.4%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Data provided in this exhibit are weighted.

J. Project Staff Questionnaire Analysis

The purpose of the Project Staff Questionnaire (PSQ) is to obtain information on project and PHA practices and procedures, to better understand how work is carried out in projects and PHAs, and to identify difficulties and potential areas for improvement. The executive directors or managers of the PHAs/projects in the FY 2011 study were surveyed, using a self-administered, paper questionnaire. The PSQ collected information on topics related to PHA/project staffing, (re)certification processes, verification processes, use of automated systems, and quality control procedures. The results were analyzed separately for three major program types: Public Housing, PHA-Administered Section 8, and Owner-administered.

A brief summary of the key findings from this analysis is presented below. A more detailed summary of the Project Staff Questionnaire information is found in Appendix E.

- *PHA/Project Staffing Topics.* This section included the number and types of staff, staff caseload, staff turnover, minimum education, training and experience requirements for new staff, and staff development and training.
  - Overall, the average PHA/project had about 12 employees including full-time, part-time, and contractual staff. On average, 200 cases were assigned to each (re)certification staff member across all 3 program types over a 12-month period.
  - The percentage of PHAs/projects who assigned new staff was about 40 percent in FY 2011, and the number of new staff who were assigned to conduct (re)certifications of projects averaged about two staff per PHA/project. The average number of experienced staff assigned to conduct (re)certifications was about four staff per PHA/project.
  - In FY 2011, about 33 percent of all PHAs/projects in the study had at least one staff member leave in the past 12 months. On average, PHAs/projects had 1.9 (re)certification staff leave the PHA/project in the past 12 months. The most common reason for staff turnover was resignation due to better opportunity, career change or relocation (35%). Twenty percent of the PHAs/projects reported they had staff turnover due to work performance related termination.
  - The minimum education requirements for employees working with (re)certifications remained little changed from the previous year, with a majority of PHAs/projects at 66 percent requiring a High School Diploma or equivalent for new staff working with (re)certifications. Overall, only about 3 percent of PHAs/projects did not require some education, down from 4 percent in FY 2010.
  - Other requirements for new (re)certification staff included background checks, housing-related training and skills, and other basic skills. Seventy-eight percent of PHAs/projects indicated they required background checks for applicants and 55 percent indicated they required some housing-related experience.
  - The PSQ also collected information about the amount and type of training provided to new and experienced staff. The average number of hours of training received by each newly hired (re)certification staff increased significantly to 130 hours when compared to the 101 hours received in FY 2010. Conversely PHAs trained re-assigned staff and

experienced staff far fewer hours, 49 and 45 respectively, than in FY 2010, when they trained an average of 69 hours. The skill or training PHA/project staff considered most important was a general understanding of HUD and PHA policies (43%). Interestingly, far fewer PHAs/projects in FY 2011 (12%) indicated that EIV training was important, compared with 71 percent in FY 2010.

- *(Re)certification Process.* The PSQ collected information on an array of topics regarding the (re)certification process. It included items on the amount of time allowed for the (re)certification process, methods used to conduct the (re)certification process, tools used in the (re)certification process, methods used to (re)certify households with non-English speaking tenants, and procedural differences in processing households with stable vs. volatile incomes.
  - Owner-administered projects were predominantly likely to mail letters to tenants more than 120 days prior to the next effective date and were in general more likely to start interviewing the household sooner than Public Housing and PHA-administered Section 8 projects.
  - About 88 percent of PHAs/projects used a formal guide or set of questions to conduct the (re)certification interviews. Owner-administered projects were most likely to use a formal guide (95%), whereas PHA-administered Section 8 projects were least likely to use a formal guide (80%).
  - Over 65 percent of PHAs/projects had tenants who speak a language other than English as their primary language. Of the projects that had non-English speaking tenants, an average of 27 percent of tenants spoke a language other than English as their primary language.
  - When PHAs/projects were asked whether procedures were the same for houses with stable income compared to those with volatile income (e.g., income from seasonal employment or sporadic income), overall 94 percent said they were the same, compared to 92 percent in FY 2010 and 91 percent in FY 2009.
- *Verification Process.* The PSQ collected information on various topics regarding the verification process, including the frequency of verification of household member characteristics or income and expenses, problems in obtaining complete verification, the cooperativeness of various institutions to verify tenant information, and measures taken to obtain outstanding verification requests.
  - Over 95 percent of the PHAs/projects indicated that they verify all income items (e.g., employment income, income from assets) during both move-in and annual (re)certifications. In addition, over 92 percent of the PHAs/projects indicated that they verify all expenses items (e.g., medical expenses, childcare expenses) during both move-in and annual (re)certifications. All PHAs/projects indicated they verify static information such as date of birth, social security numbers, and citizenship information during move-in certifications, and more than 61 percent indicated they verify these identifiers at both move-in and the annual (re)certifications.
  - PHAs/projects were asked about causes of problems in obtaining complete verifications. The most prevalent issue, cited by 76 percent of the PHAs/projects, was employers not responding to requests in a timely manner. With respect to the level of

noncooperation from various types of institutions when verifying tenant information, the list includes employers, financial institutions, tenants, healthcare providers, social services, insurance companies.

- When problems and difficulties arose in verifying information, most PHAs/projects sent follow-up letters to third-parties (70%). PHAs/projects also called third-parties to obtain information (69%), used electronic verification or data matching such as EIV (45%), called tenants (40%), and sent follow-up letters to tenants (40%). Use of EIV decreased significantly from 83 percent in FY 2010 to 45 percent in FY 2011. On average, 28 percent of PHAs/projects reported resorting to accepting other less preferred verification, down from 67 percent in FY 2010, and 75 percent in FY 2009.

- *Use of Automated Systems.* The PSQ collected information on the PHAs/projects' use of automated systems. These covered capabilities of the software used by the PHAs/projects and PHAs/projects use of computers to assist in the (re)certification process.
  - Automated systems and computer software continues to play an increasingly integral part in PHAs/projects' daily tasks. In the past 12 months, almost all PHAs/projects utilized computers and computer software when performing various (re)certification and other administrative tasks (95%). Of those PHAs/projects, over 94 percent used computer software to submit data to PIC/TRACS.
  - The PHAs/projects also indicated how they used the software. The most common use of the software was printing the HUD-50058/50059 forms (98%), followed by maintaining demographic information about the residents and calculating rent, income and allowances (97%). Only about 20 percent of the PHAs/projects indicated they used a software program for assistance with household interviews.

- *Quality Control Procedures.* The PSQ collected information on the four aspects of quality control procedures: prevalence and causes of errors, measures taken to rectify or prevent errors, characteristics of households that were more likely to have errors, and suggestions on how to overcome errors. Errors include overdue (re)certifications, missing verification documents, and mistakes in calculating rent. Measures taken to reduce errors included strategies used to address various causes of errors, methods used to clarify and implement HUD policies, external reviews and monitors, methods used to select cases for review, frequency of review, and tools and techniques used to monitor the (re)certification process.
  - Upon reviewing (re)certifications, 57 percent of the PHAs/projects indicated that they frequently found cases with missing or incomplete verifications of income. Forty six percent of the PHAs/projects indicated they frequently found cases with mistakes in calculating rent and 45 percent indicated they found cases with missing or incomplete verification of expenses. In the past few years, the issue that most frequently caused errors was, once again, tenants providing inaccurate or incomplete information (64%).
  - Of the PHAs/projects who stated they conducted a review, about 20 percent stated that certain types of tenants were more likely to have errors than other types of tenants. Of the PHAs/projects that responded, 128 provided characteristics of households that were more likely to have errors. Twenty-six percent of these PHAs/projects indicated that households with multiple incomes were more likely to have errors.

- Of the PHAs/projects that described their strategies to reduce error, 41 percent indicated they communicate with their tenants by sending information mails, requesting additional interviews, and requesting self-documentations.
- When PHAs/projects had questions concerning HUD policies, they used a variety of methods to seek answers. They were most likely to ask a HUD field office or other HUD staff (60%), refer to their HUD/PHA/owner manual (58%) and use Internet/Web-based information or training (52%).
- Most PHAs/projects review tenant files as a QC measure after (re)certifications have been conducted in some form, at 93 percent. In determining which cases to select for review, PHAs/projects most frequently randomly spot checked a percentage of all cases (52%). Overall, 40 percent of PHAs/projects reported reviewing all cases.
- When monitoring (re)certification work, a majority of PHAs/projects most frequently have the team leader or supervisor perform the monitoring (88%). Of the remaining types of personnel most frequently used to monitor (re)certification work, 67 percent use outside auditors, 51 percent use HUD or a HUD contractor, 41 percent used PHA/project coworkers, 40 percent used staff auditors, 39 percent used internal staff, and 31 percent used contracts administrators.
- Sixty-two percent of PHAs/projects had suggestions regarding how to help the PHAs/projects minimize errors. The most common suggestions addressed HUD policies. Thirty-six percent of the PHAs/projects that responded indicated HUD policies should be simplified. Another 34 percent indicated that project-specific issues needed to be addressed. Nineteen percent indicated verification tools, processes and policies should be improved, and 18 percent indicated there should be general improvement in EIV (a sharp decrease from 27% of the PHA/project suggests in FY 2010).

K. Multivariate Analysis

The FY 2011 HUDQC multivariate modeling followed the conceptual and analytical approaches used in previous years, with minor changes. Large patterns were identified where rent errors related to project and household variables. The patterns were similar to those reported in previous analyses. Other things being equal, gross rent error, subsidy overpayment, and subsidy underpayment were higher among PHA-administered Section 8 households. The net effects of the program type differences were consistent with the results from the bivariate cross-tabulations presented in the text of this report (see Exhibits ES-1 and ES-3).

Project-caused errors accounted for a large proportion of gross rent error. Of the project-caused errors, transcription errors, overdue recertification errors, the rate of items with transcription error, and the rate of items without third-party written verification predicted higher gross error. Transcription error also predicted higher subsidy overpayment. The basic results were comparable with those from previous years (FY 2008–FY 2010) analyses, underscoring the importance of reducing project-made errors, particularly transcription errors and overdue recertification in minimizing rent errors.

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 relationships between household financial and demographic variables and rent errors are highly consistent across models and years, a finding suggesting robust and continuing tenant risk factors with which housing projects must cope.

However, the impact of project characteristics or project operations on improper payments remained elusive within the current data analysis. Most key indicators of project resources, staff capacity, training, (re)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. There were a few estimates generated from modeling that were statistically significant, however, when examined across equations or compared with prior year analyses they indicated trivial, unstable, or inconsistent project effects. As project management and operations are key to improper payment reduction, it is necessary to revamp the measurement of project features in the Project Staff Questionnaire to better reveal the connections between housing management practice and rent error.

To explore factors influential to project-caused errors, we modeled those that were identified as predictive of rent errors including transcription error (counts and percent), a lack of written verification, and overdue recertification error. We found that households' complex financial situations were related to some of these project errors in roughly similar ways as they were related to rent error. The relation between project errors and project characteristics and operation, however, were not found to be meaningful.

Future research is needed to clarify the definition and measurement of project-made errors so that it is possible to quantify the relationship among project errors and their unique and joint effects on rent error. This can be accomplished by clarifying the nature of each type of project error and underlying processes that lead to the error. Through clear concepts and solid measurement of project errors, we can improve the analysis of project-made errors to generate actionable information.

Moreover, the same set of predictor variables did not well account for different subsidy rent error measures (i.e., gross error, overpayment, and underpayment) or project-made errors. Arguably, overpayment errors may be caused by issues that are somewhat different from issues that cause underpayment, and project errors could be more distinctive in nature and causes. It seems necessary to learn more about housing subsidy determination practices and to conceptualize causal links to various types of errors in order to improve our model specification. Fewer but more relevant predictor variables may yield better explanations for subsidy rent errors and project-caused errors.

L. The 20 Largest PHAs Study

The 20 Largest PHAs Study includes the 17 largest PHAs and the three largest state PHAs in the project level sample selected for the HUDQC Study. There are 32 households in most PHAs, 36 in NV018 and TX003, 48 in RQ005, and 128 households in NY005, for a total of 760 households. Each PHA represents both Public Housing and Voucher households. Weights for the 20 Largest PHAs Study were not calculated and as a result all the exhibits in this section are not weighted.

Administrative Error. Exhibit IV-31a provides the percent of households with overdue recertification and transcription errors, and the percent of income and expense items verified by PHA staff both with 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 and Net Rent Error. Overdue recertification errors in general were relatively scarce with a notable exception of NV018 where 11 percent of cases were overdue. For transcription error, most of the 20 largest PHAs had percentages that were around the QC study mean. However, NY904 had the highest percentage with 50 percent and MI901 had the lowest with 9 percent. Compared to all the QC study PHAs, the 20 largest PHAs had somewhat higher overdue recertification errors (1% and 5% respectively) and a slightly higher transcription error rate (37% and 38% respectively). Regarding the percentages of verified items, the 20 largest PHAs verified items using third-party in-writing within 1 percentage point of the QC study PHAs. Overall, they verified items using third-party verbal or in-writing, documentation or EIV/UIV about 2 percent less than the QC study PHAs.

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

PHA	Number of Cases	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	-	34%	80%	4%
CA004	32	-	38%	90%	10%
CA027	32	-	28%	98%	35%
FL003	32	-	38%	94%	50%
IL025	32	3%	34%	73%	7%
MA002	32	-	47%	89%	9%
MI001	32	-	41%	59%	2%
MI901	32	-	9%	88%	38%
MO002	32	-	34%	82%	13%
NJ002	32	-	47%	93%	23%
NJ912	32	-	56%	98%	16%
NV018	36	11%	17%	96%	29%
NY005	128	7%	54%	83%	15%
NY110	32	3%	41%	84%	14%
NY904	32	-	50%	83%	23%
OH001	32	3%	28%	84%	39%
PA006	32	-	44%	73%	25%
RQ005	48	-	31%	90%	29%

Administrative Errors in the 20 Largest PHAs (continued)

PHA	Number of Cases	Overdue Recertification Error	Transcription Error	Percent of Verified Items	
				Third-Party Verbal or In-Writing, Documentation, or EIV/UIV	Third-Party In-Writing
TX003	36	-	47%	81%	17%
WI002	32	3%	34%	86%	19%
Total/Average	**760**	**5%**	**38%**	**85%**	**21%**
QC Study Total/Average	**2,404**	**1%**	**37%**	**87%**	**22%**

Data in this exhibit are not weighted.

Payment Error. Exhibit IV-31b provides payment error information. It includes proper payments, under- and overpayments of tenant rents, and the mean gross rent errors by PHA. A large proportion of proper payments would seem to lead to small gross rent errors for PHAs. However, this is not always the case. For example, the PHA with the lowest percentage of proper payments was PA006 at 59 percent, with NJ002 and NY110 in second with 66 percent. While NJ002 has the highest gross rent error at $31.19, PA006 has a gross rent error of only $14.84. These results imply that while PA006 has a higher rate of case error, the average dollar amount for each case was relatively small. The PHA with the highest percentage of proper payments was CA027 at 91 percent. Compared to the QC study PHAs as a whole, the 20 largest PHAs have about the same percentage of proper payments (both around 75%–76%) and had slightly higher average gross dollar error (about $15 for the 20 largest PHAs versus about $13 for the QC study). Policies that increase proper payment rates may have little effect on decreasing rent errors (and vice versa). These seemingly related problems may sometimes require different approaches targeted to specific PHAs.

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

PHA	Underpayment	Proper Payment	Overpayment	Average Gross Dollar Error
CA002	3.1%	75.0%	21.9%	$9.06
CA004	12.5%	78.1%	9.4%	$12.22
CA027	6.3%	90.6%	3.1%	$1.91
FL003	9.4%	78.1%	12.5%	$18.16
IL025	15.6%	81.3%	3.1%	$23.84
MA002	15.6%	71.9%	12.5%	$12.97
MI001	18.8%	78.1%	3.1%	$28.84
MI901	3.1%	87.5%	9.4%	$4.84
MO002	28.1%	71.9%	0%	$14.66
NJ002	28.1%	65.6%	6.3%	$31.19

Dollar Rent Errors in the 20 Largest PHAs (continued)

PHA	Underpayment	Proper Payment	Overpayment	Average Gross Dollar Error
NJ912	9.4%	78.1%	12.5%	$5.66
NV018	16.7%	80.6%	2.8%	$17.75
NY005	5.5%	74.2%	20.3%	$14.73
NY110	15.6%	65.6%	18.8%	$27.25
NY904	9.4%	68.8%	21.9%	$26.41
OH001	21.9%	75.0%	3.1%	$7.78
PA006	9.4%	59.4%	31.3%	$14.84
RQ005	10.4%	85.4%	4.2%	$3.19
TX003	13.9%	72.2%	13.9%	$8.89
WI002	9.4%	78.1%	12.5%	$22.34
Total	**12.1%**	**75.8%**	**12.1%**	**$14.97**
QC Study Total	**12.5%**	**74.5%**	**13.0%**	**$13.30**

Data in this exhibit are not weighted.

V. RECOMMENDATIONS

This section discusses recommended changes to the study that will improve the data collection process or the quality of the data used in the analysis, as well as policy actions that could be taken to reduce error. Section A discusses changes to the quality control process itself. Section B addresses policy recommendations. Note that these recommendations have not changed significantly from recommendations made in previous final reports. However, if further reduction in error is desired, it continues to be important to learn more about local policies and procedures that impact error, and methods of changing those processes to reduce error.

A. Modifying the Quality Control Process

The current methodology used by ICF to conduct its quality control study is based on the successes and failures of previous studies and meets the established objectives. However, there are some recommendations that would be helpful for expanding the utility of data products as well as improving the overall efficiency of ongoing quality control studies. These include the following:

1. **Continue the HUD quality control studies as a regular, ongoing effort to monitor and manage HUD rent determination processes.** Ongoing evaluation of the subsidy programs administered by HUD is essential to the management of those programs. The primary goal of the QC studies is to measure rent errors. However, these studies also give HUD the opportunity to learn more about alternatives to reducing rent errors and how to better manage current and changing conditions at PHAs/projects. Annual evaluations facilitate more accurate cross-year comparisons of rent errors. They also allow for data collection and analysis staff to develop specific expertise with HUD policy areas, and develop tailored solutions for improving data quality. Further, other HUD-related topics could be investigated (e.g., the changing demographics of HUD tenants) and piggybacked on to the rent error data collection processes.

   Data collected through the QC studies provides detail not available through other HUD sources (e.g., PIC/TRACS) that could be used to track such trends as the extent to which income and expense items are verified or the number of sources of employment income received by a particular household or household member.

2. **Gather information to document the outcome of the HUD quality control studies.** Overall, the HUDQC studies indicate that both the percent of errors and dollars associated with those errors have decreased in the last seven years. However, there is no information on changes in tenant behavior related to the identification and reduction of error. One might want to assume that reducing error should save HUD money. However, because the housing programs managed by HUD are not entitlement programs (meaning not everyone who is eligible for the program is entitled to benefits), as soon as an ineligible household is removed from the roles, another household takes that household's place. The subsidy for the replacement household could be even higher than the subsidy for the previously-subsidized household. The existing QC studies identify the dollars associated with error but do not identify an overall reduction in subsidy dollars. To really understand the overall impact of the QC studies on subsidy funding, additional information is needed regarding both the tenants receiving the subsidies and the PHAs/projects administering the housing benefits.

3. **Expand contractor access to verification obtained through interagency agreements.** Despite increasing rates of third-party verification, a large proportion of tenant income and expenses are not being verified. This is especially important given that study results indicate a significant relationship between third-party verification of certain types of income and rent errors.

   During the current study, household-level information was used to match sample household members with Social Security data. Through this electronic match, verification was obtained for most sample household members' SSA and SSI benefits. However, there were many household members where a match between the study electronic files and the SSA/SSI electronic files was not found when expected, and other situations where irresolvable discrepancies were identified. If ICF as the contractor for the HUDQC study could have access to the SSA/SSI database, these mismatches and discrepancies could be investigated further.

4. **Collect more information regarding PHA/project policies and practices.** Each PHA establishes its own policies, procedures, and forms for collecting the information that is ultimately used to calculate tenant rent. The differentiation in these practices should have some (possibly major) impact on the rent error, yet the analysis of the project practices and characteristics collected in the Project Staff Questionnaire designed for this study does not demonstrate the expected impact. Therefore, we recommend that focus groups and cognitive interviewing be used to identify additional PHA/project-level factors that may impact error. This additional information could be used to revise the Project Staff Questionnaire to include questions focused on the specific practices expected to influence errors. As the data already start to reflect, as rent error decreases it will become increasingly difficult for HUD and PHA/project staff to continue to make changes that will reduce the error. Analysis of more detailed project-level data will assist in this process.

5. **Continue to investigate PIC/TRACS data for sampling and other purposes.** Ideally PIC/TRACS data would be used to select the quality control sample and provide the actual data used by the PHA/project staff when calculating rent (in place of abstracting 50058/50059 Form data from the tenant file). The most recent match of the study sample households with PIC/TRACS data indicated that 96 percent of the sample households are included in the PIC/TRACS databases. While this is slightly down from the FY 2010 match at 98 percent and the FY 2009 match at 99 percent, the general trend over time has been above 95 percent. We are at the point now where consideration should be given to using these data for selecting the household sample. However, using the PIC/TRACS data for selecting the household sample may not be appropriate unless it is clear that data are available for the specific period of time covered by the study.

6. **Consider conducting a remote data collection with national estimates and a larger number of households per project.** Eliminating a field data collection would eliminate the need to travel and the costs associated with travel. More importantly, the sample would not have to be geographically clustered. The projects could be sampled by project area using PPS and stratification. Stratification would guarantee diversity of projects and, unlike clustering, it would decrease the confidence interval of the estimates. This means that practically every State could be represented and one would be able to increase the precision and make better estimates with the same sample size. The precision would further be improved by increasing number of households per project. In this scenario, the

number of projects to be sampled would be somewhat smaller and the number of households per project would be much larger. There are, however, potential tradeoffs with remote data collection. PHAs/projects would be required to send tenant file information to study headquarters, and household interviews would be conducted over the phone. A field data collection has some advantages with regard to the quality of the data collected. A conversation with HUD would best address any concerns about whether these potential tradeoffs can be sufficiently abated though telephone communication with the Project and Tenant.

B. Policy Actions

This study was not designed to provide recommendations regarding basic program objectives and policies. However, the findings from this study suggest that some major procedural changes should be considered when establishing and revising policy. Again, the recommendations in this section remain essentially the same. While HUD has begun several initiatives in the last few years, the errors associated with the programs included in this study are no longer decreasing. Additional action is needed. The suggestions below are examples of the type of actions that need to be taken. Overall PHAs/projects must be held accountable for their work, but HUD must provide the tools needed to accomplish the work accurately.

1. **HUD should continue to require both PHAs and owners to use the information available through the Department of Health and Human Services' "New Hires" income matching database.** The majority of subsidy overpayment errors are associated with earned income, and a large majority of tenant income underreporting also relates to earned income. The "New Hires" income matching database provides the opportunity to correct errors associated with reported and unreported income. However, our experience working with the "New Hires" data indicates that caution needs to be taken when using the information provided by the database. The data are extremely helpful in identifying unreported sources of income; however, it is not current and often contain errors. Great care needs to be taken when using these data to insure that income is only counted when it is clear that it is received by the tenant and not simply because it is identified through the New Hires database.

2. **HUD should continue expanding support of the occupancy function and conducting outreach campaigns to PHAs and owners, informing them of the Department's occupancy-related resources.** Provision of detailed, current occupancy handbooks is essential, in addition to providing a mechanism for answering questions as they surface. HUD should develop a nationwide, consistent, reliable approach for providing guidance and support to both PHAs and owners.

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

3. **HUD should provide the PHA/owners with the forms, training, and other tools needed to determine rent correctly.** Rent calculation error could be reduced if HUD provides structured forms for interviewing tenants, obtaining verifications, and calculating rent.

Ideally, these tools would be provided in the form of computer-assisted interview software that minimizes the number of questions that need to be asked. Such systems would ensure that tenants are asked about all income sources and expenses that affect their rent. Manuals and training materials explaining how to implement requirements correctly and calculate rent accurately should be provided. To the extent that HUD program rules can be simplified, provision of automated and manual tools would be easier.

The Earned Income Disregard is one example of a difficult rule where PHA/owners would benefit from clearer guidelines and training materials. Guidelines that include calculation sheets that are easy to follow and maintain should be provided. The calculation worksheet should include step by step directions on how to calculate the percent of disregard for that year; the income that should be used to calculate the disregard, basically providing a place to record the income by component type (e.g., TANF, SS, SSI, Pension); easy to follow formulas; and end and start dates for the completion of the disregard. For more complicated cases where the disregard should have been granted but was not, and the housing staff is now retro-actively correcting the mistake, guidelines should be provided on how to implement the adjustment. Standardized documents should be provided for this adjustment that include the earned income amount to be used (i.e., current or based on the event start date). Finally, clear instructions should be provided on how to calculate the event start date and how far back the housing staff must go to retro-actively give the disregard.

In addition, HUD should consider creating a handbook that combines or cross references the rules and regulations for all rental assistance programs administered by HUD. Such a handbook would give staff a central source of information for all the programs for which they are responsible, as well as potentially support the administration's efforts through the Rental Policy Working Group's Alignment to reduce redundancy among agencies.

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

4. **HUD should continue to implement its onsite monitoring program, and PHA/owners should be held accountable for implementing HUD regulations and calculating rent accurately.** An onsite monitoring system that includes reviews at both the local and Federal level 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. HUD initiated extensive onsite monitoring efforts since the 2000 QC study, in contrast with its policies of most of the previous two decades. The most obvious explanation for the magnitude of error reductions in subsidy determinations between 2000 and FY 2009 is improved HUD monitoring and the expectation of such monitoring. However as the dollars associated with rent error stop declining, further action will be needed to help the PHAs and owners focus on policies and procedures that lead to error.

   Monitoring can be conducted at a variety of different levels. We recommend that HUD require PHA/owners to perform their own QC reviews on a percentage of income determinations and rent calculations. Agencies that have aggressively sought to improve

performance of their programs have had some significant successes, and one of the most frequently used error-reduction strategies includes the establishment of internal QC review procedures.

In addition to agency monitoring, HUD Field Offices and/or other national-level well-trained staff should conduct a re-review of a percentage of the cases reviewed at the local level to ensure the QC reviews are being conducted correctly, or select their own random sample of files for review. This type of oversight not only identifies errors, but also prevents them. In addition, it demonstrates HUD's concern and focuses PHA/owner attention on tenant income and rent.

5. **Federal laws, regulations, and HUD requirements should be simplified to the extent possible.** The current statutory environment poses substantial obstacles to efficient, accurate income and rent calculations. It contains dozens of requirements that may all be well-intentioned and have potentially desirable impacts but which, taken as a whole, make the income and rent determination process extremely complex. HUD has sought to issue guidance on virtually all aspects of current income and rent determination requirements, but some of the legislative provisions were written without any thought as to implications for their administrative complexity. While determining which income to count, which expenses to allow, and annualizing that information in a program with multiple objectives may always be complicated, the various specialized provisions that relate to small subparts of the population could be eliminated or simplified.

   The policy related to students is the most recent example of such complex policies. PHA and project staff are required to gather a series of information to determine whether students continue to be eligible to receive assisted housing. For students who do not meet certain criteria, PHA/project staff are required to determine the eligibility of the student's parents. This new policy, while well intentioned, just adds to the complex rules PHA/project staff are required to implement when determining eligibility and calculating rent for assisted households.

6. **HUD should consider requiring some re-examinations to be completed less often than annually.** Many years ago, the reexaminations for elderly and disabled families were conducted biannually rather than annually. HUD should consider implementing this policy again or possibly conducting re-examinations for selected populations every three years. To remove the issues related to incorrect subsidies because of the annual increase in Social Security benefits, the policy could require adding the annual SSA cost of living adjustment (COLA) to the total annual income for the households included in this group. With the time-savings made available by this change in policy, PHA/project staff could spend more time conducting required re-examinations, following up on suspected cases of fraud, and conducting more internal monitoring of tenant files.

Appendix A—Rent Calculations

APPENDIX A—RENT CALCULATIONS

1. **Public Housing**
    a. Obtain the Total Tenant Payment (TTP).
    b. Determine if the family includes any ineligible noncitizens. IF YES, **continue.** If NO, **go to d.**
    c. Determine if the family includes any citizens or eligible noncitizens. IF YES, **go to #6 (continuation of assistance).** IF NO, **go to #7 (temporary deferral).**

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

    d. Determine if the tenant selected Flat Rent. IF NO, **go to f.** 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 d. (Utility Allowance), or the Flat Rent.[1]
    g. Determine if the QC RENT equals the ACTUAL RENT. IF YES, **no error.** IF NO, **dollar error.**

2. **Section 8 Vouchers**
    a. Obtain TTP.
    b. Obtain the Rent to Owner.
    c. Obtain Utility Allowance.
    d. If TTP is greater than Gross Rent, then set TTP to Gross Rent.
    e. Obtain Payment Standard[2] (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 a. (TTP) to g. (Gross Rent minus Payment Standard).
    i. Determine if this is the initial occupancy for this dwelling unit. (Item 12b on the 50058 is yes). IF YES, **continue.** IF NO, **the Family Share = h. Go to l.**
    j. Calculate 40% of the household's Adjusted Monthly Income (f.).
    k. Determine if 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 = h. Go to l.** IF NO, **procedural error. Family Share = h. Go to l.**

[1] If there is no Flat Rent, the QC rent will be the lower of the Ceiling Rent and the a. (TTP) minus d. (Utility Allowance) to determine the dollar amount of error.

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

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

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

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

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

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

3. Section 8 Enhanced Voucher

a. Determine if household is receiving an Enhanced Voucher. If YES, **continue.** If NO, **use the regular Section 8 Voucher formula #2.**

b. Obtain the TTP.

c. Obtain the Gross Rent.

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

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

f. Determine if 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 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 if the QC RENT equals the ACTUAL RENT. IF YES, **no error.** IF NO, **dollar error.**

4. Section 8 Project-Based, 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 if the family includes any ineligible noncitizens. IF YES, **continue.** If NO, **go to e.**

d. Determine if 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 status)

e. Obtain the Utility Allowance.

f. If Subsidy Type on 50059 = PRAC, **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 if 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 greater 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 if this is the initial occupancy for this dwelling unit. (Item 12b on the 50058). IF YES, **continue.** IF NO, **the Family Share = 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 if 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 = h.; go to m.** If NO, **Procedural Error. The family is not entitled to assistance in this unit.**

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

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

MARKER

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

p. Determine if 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 if 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).**
   b. Determine if 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).**
   c. Determine if 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).**
   d. Determine if 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).**
7. **Temporary Deferral of Termination of Assistance**
   a. Determine if Temporary Deferral of Termination of Assistance has been granted. IF YES, **continue.** IF NO, **go to d.**
   b. Determine if the FAMILY includes a refugee under Section 207 of the Immigration and Naturalization Act or an individual seeking asylum under Section 208 of that Act. IF YES, **the Family is entitled to ongoing Deferral of Termination of Assistance; go to MARKER for the appropriate program type.** IF NO, **go to c.**
   c. Determine if the FAMILY was receiving assistance on June 19, 1995. If YES, **the Family is eligible for Temporary Deferral of Termination of Assistance; go to MARKER for the appropriate program type.**
   d. Determine if the FAMILY is exercising its hearing rights (waiting for a decision from an INS or PHA/owner appeal). IF YES, **go to MARKER for the appropriate program type.** IF NO, **continue.**
   e. Determine if the PHA is making reasonable efforts to evict. IF YES, **go to MARKER.** IF NO, **Procedural Error,** HOUSEHOLD IS INELIGIBLE.
8. **Proration Formula for Public Housing**
   a. Determine if this is a Public Housing case. IF YES, **continue.** IF NO, **go to #9.**
   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.[3]
   f. Determine if the Family pays a Flat Rent. IF NO, **go to i.** IF YES, **continue.**

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

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 members) to determine the Eligible Subsidy for the FAMILY.

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 if 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 = 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. If Manufactured Home Space Rental, **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. Determine if 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 project sample.

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

The following programs are included in the sample:

- PIH-administered Public Housing (Public Housing)
- PHA-administered Section 8 (PHA-administered Section 8)
  - Moderate Rehabilitation
  - Housing Choice Voucher 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 files used to draw the sample include many out-of-scope projects such as projects in the Move-to-Work program and projects that were demolished or that are no longer assisted housing. Many of these projects were identified before the sample was drawn, but others were identified at a later date and replaced. In addition, at times projects were identified as resulting from a merger of two or more projects or from a split into two or more new projects, resulting in difficult sampling decisions.

Weighting Strategy. The weighting procedure begins by determining the probability of selection for every unit in the sample. The use of purposive replacement for out-of-scope projects for any of several reasons makes the sample weight calculations complicated. The determination of an actual probability of selection for a replacement is impossible to make. A sampling weight that is proportional to what the probability would have been had the project been selected originally is a reasonable estimate.

The probability of selection of a tenant was thus the product of the following combinations:

1. The probability of selection of the Primary Sampling Unit (PSU)
2. The probability of selection of a sub-PSU if the PSU was split
3. The probability of selection of the project from the PSU
4. The probability of selection of the tenant from the project.

The four probabilities were multiplied together to form the preliminary weights. The weights were then adjusted to be added to estimates of the national total of tenants in each program. In FY 2011, the population totals were updated based on the FY 2011 frame, excluding Move-to-Work PHAs. The use of the same population counts as FY 2010 does have the advantage that it increases comparability, so that 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 undercharged. However, programs may grow or shrink over time. While estimates of averages and percentages within program types will not be affected by different population counts, the total dollar amounts and the proportion of the population represented by each program type *would not be representative of the current population*. The sum of the new weights totaled to 1,382,670 for the Owner-administered programs, 1,052,503 for Public Housing, and 1,912,467 for the PHA-administered Section 8 programs.

Primary Sampling Unit Probabilities. Each PSU was sampled with probabilities proportional to size. The size measure used was the number of tenants adjusted to obtain equal expectation for the three major types of programs in the study. The number of tenants of each kind in a PSU was multiplied by an inflation factor to make all three numbers equal. The size measures were then added; the PSU probability of selection was its size measure divided by the sum of the size measures nationwide, multiplied by the number of PSUs to be selected (i.e., 60). PSUs with probabilities greater than one could be selected more than once (Sampling with Minimal Replacement). For weighting purposes, probabilities greater than one were set to 1.0. Some PSUs were divided into multiple geographic areas and one of these smaller geographic areas was selected with probabilities proportional to size. This resulted in the same probability that would have ensued had the division taken place before drawing the sample.

Project Probabilities. This was defined as the minimum of kt/T and one, where k is the number of projects in the program selected from the PSU, t is the number of tenants in the project and T is the number of tenants in the program that are in the PSU. The PHA-administered Section 8 projects could have 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 they added to the allocation for the program in the PSU. For weighting purposes probabilities greater than one among PHA-administered Section 8 projects were set to one.

Tenant Probabilities. This is the total number of tenants sampled from the project divided by the estimated number of tenants whose annual recertifications were conducted during the study period. The estimate was obtained by multiplying the total number of tenants by the proportion of tenants selected who were in scope for the study (i.e., who were subsidized by one of the programs). For example, if six tenants were reviewed and four tenants were found to be both in scope and available for interviewing (i.e., one who was out of town, and one who was not subsidized), there would be five tenants in scope (the one who was out of town is unavailable, but in scope). From a list of 120 tenants, the estimate would then be 120 x (5/6) = 100 tenants.

One exception to this occurred for flat rent cases in Public Housing projects. A flat rent case could not be a refusal, since no interview was necessary for such cases. However, it could replace a refusal. As a result, the probability of selection for flat rent cases was different than for

non-flat-rent cases. In order to take this into account, an additional category (beyond non-flat rent completes, out-of-scope and completes) was created for flat-rent cases. The estimates would be created by first estimating the number of non-flat rent cases and letting the weight be the estimated total divided by the number sampled. Then the weights for the non-flat-rent cases would be calculated as before. For example, suppose in the situation mentioned above one of the completed cases had been a flat rent case. Then we would estimate that 1/6 of the 120 tenants, or 20 tenants, were flat rent. Of the remaining 100, 4/5 would be estimated to be in scope, or 80, and 3 would be in the sample. So the tenant weight for the flat-rent case would be 20 and the tenant weight for the non-flat-rent case would be 80/3 or 26 2/3.

Post-Stratification. The sample was designed to obtain similar numbers of tenants 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 2011 sampling frame. However, the sampling frame totals did not correspond exactly to these numbers and required extensive adjustments. This was in part because the geographic areas affected by the 2005 hurricanes and the Owner-administered projects from Alaska were excluded from the frame, but included during the weighting process. To recapitulate, the weights were adjusted so that they add up to the totals, so the sum of the weights would have been the same had a different sample been selected.

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. The weights led to an effective sample size (because of the weighting) of 760 (down from an actual size of 800) for the Owner-administered projects, 745 for the Public Housing projects (down from 804), and 760 for the PHA-administered Section 8 projects (down from 800). 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 using 20 replicate groups and creating 20 sets of replicate weights. This procedure is available in SAS 9.2 and is considered more robust with respect to design characteristics than the Taylor Series method (Kott, 1998).

Reference

Kott, P. S. (1998). *Using the Delete-a-Group Jacknife 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 2011
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 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	74	(5.4%)	49	(3.5%)	1,256	(91.1%)
Pension, Etc…	17	(.7%)	31	(1.2%)	2,450	(98.1%)
Public Assistance	21	(4.5%)			446	(95.5%)
Other Income	110	(11.3%)	17	(1.7%)	843	(86.9%)
Asset Income	6	(1.0%)	23	(3.9%)	550	(95.1%)
Child Care Expense	18	(9.7%)			170	(90.3%)
Disability Expense					2	(100.0%)
Medical Expense	17	(1.4%)	67	(5.5%)	1,142	(93.2%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 1b. Verification of QC Rent Components
Third Party In Writing

RENT COMPONENT	NOT VERIFIED		PARTIALLY VERIFIED		FULLY VERIFIED	
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	659	(46.4%)	71	(5.0%)	691	(48.6%)
Pension, Etc…	220	(8.8%)	284	(11.4%)	1,995	(79.8%)
Public Assistance	303	(58.5%)	2	(.3%)	214	(41.2%)
Other Income	702	(65.5%)	28	(2.6%)	341	(31.9%)
Asset Income	178	(30.4%)	95	(16.2%)	313	(53.4%)
Child Care Expense	76	(40.2%)	4	(2.0%)	109	(57.8%)
Disability Expense					2	(100.0%)
Medical Expense	436	(35.5%)	401	(32.7%)	389	(31.8%)

2012.10.8 [Weighted]

HUDQC FY 2011
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 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	574	(40.4%)	66	(4.6%)	782	(55.0%)
Pension, Etc...	130	(5.2%)	229	(9.2%)	2,140	(85.6%)
Public Assistance	207	(39.9%)	2	(.3%)	310	(59.8%)
Other Income	567	(53.0%)	33	(3.1%)	470	(43.9%)
Asset Income	172	(29.4%)	94	(16.0%)	320	(54.6%)
Child Care Expense	67	(35.4%)	4	(2.0%)	118	(62.6%)
Disability Expense					2	(100.0%)
Medical Expense	305	(24.9%)	369	(30.1%)	551	(44.9%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 1d. Verification of QC Rent Components
Third Party - Verbal

RENT COMPONENT	NOT VERIFIED		PARTIALLY VERIFIED		FULLY VERIFIED	
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	1,405	(98.8%)	4	(.3%)	12	(.9%)
Pension, Etc…	2,499	(100.0%)				
Public Assistance	518	(100.0%)				
Other Income	1,065	(99.5%)			6	(.5%)
Asset Income	584	(99.8%)	1	(.2%)		
Child Care Expense	186	(98.6%)			3	(1.4%)
Disability Expense	2	(100.0%)				
Medical Expense	1,214	(99.0%)	12	(1.0%)		

2012.10.8 [Weighted]

HUDQC FY 2011
Table 1e. Verification of QC Rent Components
Documentation

RENT COMPONENT	NOT VERIFIED		PARTIALLY VERIFIED		FULLY VERIFIED	
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	941	(66.2%)	54	(3.8%)	426	(30.0%)
Pension, Etc…	2,189	(87.6%)	200	(8.0%)	111	(4.4%)
Public Assistance	382	(73.8%)	2	(.3%)	134	(25.9%)
Other Income	700	(65.4%)	24	(2.2%)	347	(32.4%)
Asset Income	341	(58.2%)	96	(16.3%)	149	(25.5%)
Child Care Expense	139	(73.8%)	4	(2.0%)	46	(24.2%)
Disability Expense	2	(100.0%)				
Medical Expense	593	(48.4%)	361	(29.5%)	271	(22.1%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 1f. Verification of QC Rent Components
EIV (Enterprise Income Verification)

RENT COMPONENT	NOT VERIFIED		PARTIALLY VERIFIED		FULLY VERIFIED	
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	1,401	(98.6%)	4	(.3%)	16	(1.2%)
Pension, Etc…	2,354	(94.2%)	74	(3.0%)	72	(2.9%)
Public Assistance	516	(99.5%)			2	(.5%)
Other Income	1,069	(99.9%)			1	(.1%)
Asset Income	586	(100.0%)				
Child Care Expense	189	(100.0%)				
Disability Expense	2	(100.0%)				
Medical Expense	944	(77.0%)	202	(16.5%)	79	(6.5%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 1g. Verification of QC Rent Components
UIV (Upfront Income Verification)

RENT COMPONENT	NOT VERIFIED		PARTIALLY VERIFIED		FULLY VERIFIED	
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	1,300	(94.3%)	17	(1.2%)	62	(4.5%)
Pension, Etc…	2,483	(99.4%)	9	(.4%)	6	(.3%)
Public Assistance	373	(79.9%)			94	(20.1%)
Other Income	834	(86.0%)	9	(.9%)	127	(13.1%)
Asset Income					9	(100.0%)
Child Care Expense					9	(100.0%)
Medical Expense					14	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
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	117	(11.1%)	(21.6%)	830	(78.9%)	(25.5%)	105	(10.0%)	(19.2%)	1,053	(100.0%)	(24.2%)
	Section 8	295	(15.4%)	(54.6%)	1,304	(68.2%)	(40.0%)	314	(16.4%)	(57.1%)	1,912	(100.0%)	(44.0%)
	Total	411	(13.9%)	(76.3%)	2,135	(72.0%)	(65.5%)	419	(14.1%)	(76.2%)	2,965	(100.0%)	(68.2%)
OWNER ADMINISTERED	Owner-Administered	128	(9.3%)	(23.7%)	1,124	(81.3%)	(34.5%)	131	(9.5%)	(23.8%)	1,383	(100.0%)	(31.8%)
	Total	128	(9.3%)	(23.7%)	1,124	(81.3%)	(34.5%)	131	(9.5%)	(23.8%)	1,383	(100.0%)	(31.8%)
Total		539	(12.4%)	(100.0%)	3,259	(75.0%)	(100.0%)	550	(12.6%)	(100.0%)	4,348	(100.0%)	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
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		PAYMENT TYPE									TOTAL		
		UNDERPAYMENT			PROPER PAYMENT			OVERPAYMENT					
		# 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	157	(14.9%)	(20.6%)	681	(64.7%)	(25.3%)	215	(20.4%)	(24.0%)	1,053	(100.0%)	(24.2%)
	Section 8	372	(19.5%)	(48.8%)	1,082	(56.6%)	(40.2%)	458	(24.0%)	(51.2%)	1,912	(100.0%)	(44.0%)
	Total	529	(17.9%)	(69.3%)	1,762	(59.4%)	(65.5%)	673	(22.7%)	(75.2%)	2,965	(100.0%)	(68.2%)
OWNER ADMINISTERED	Owner-Administered	234	(16.9%)	(30.7%)	927	(67.0%)	(34.5%)	222	(16.0%)	(24.8%)	1,383	(100.0%)	(31.8%)
	Total	234	(16.9%)	(30.7%)	927	(67.0%)	(34.5%)	222	(16.0%)	(24.8%)	1,383	(100.0%)	(31.8%)
Total		764	(17.6%)	(100.0%)	2,689	(61.9%)	(100.0%)	895	(20.6%)	(100.0%)	4,348	(100.0%)	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
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	1,053	(24.2%)	241,799	229.74	1,053	(24.2%)	247,586	235.24	1,053	(24.2%)	11,657	11.08
	Section 8	1,912	(44.0%)	420,719	219.99	1,912	(44.0%)	432,200	225.99	1,912	(44.0%)	36,346	19.00
	Total	2,965	(68.2%)	662,519	223.45	2,965	(68.2%)	679,786	229.27	2,965	(68.2%)	48,003	16.19
OWNER ADMINISTERED	Owner-Administered	1,383	(31.8%)	278,176	201.19	1,383	(31.8%)	280,951	203.19	1,383	(31.8%)	9,931	7.18
	Total	1,383	(31.8%)	278,176	201.19	1,383	(31.8%)	280,951	203.19	1,383	(31.8%)	9,931	7.18
Total		4,348	(100.0%)	940,694	216.37	4,348	(100.0%)	960,738	220.98	4,348	(100.0%)	57,934	13.33

2012.10.8 [Weighted]

HUDQC FY 2011
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	117	(21.6%)	8,788	75.34	105	(19.2%)	2,869	27.23	1,053	(24.2%)	247,586	235.24
	Section 8	295	(54.6%)	23,986	81.40	314	(57.1%)	12,360	39.42	1,912	(44.0%)	432,200	225.99
	Total	411	(76.3%)	32,774	79.68	419	(76.2%)	15,229	36.35	2,965	(68.2%)	679,786	229.27
OWNER ADMINISTERED	Owner-Administered	128	(23.7%)	6,348	49.61	131	(23.8%)	3,582	27.41	1,383	(31.8%)	280,951	203.19
	Total	128	(23.7%)	6,348	49.61	131	(23.8%)	3,582	27.41	1,383	(31.8%)	280,951	203.19
Total		539	(100.0%)	39,122	72.55	550	(100.0%)	18,812	34.23	4,348	(100.0%)	960,738	220.98

2012.10.8 [Weighted]

HUDQC FY 2011
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	157	(20.6%)	8,871	56.51	215	(24.0%)	3,084	14.37	1,053	(24.2%)	247,586	235.24
	Section 8	372	(48.8%)	24,212	65.01	458	(51.2%)	12,731	27.77	1,912	(44.0%)	432,200	225.99
	Total	529	(69.3%)	33,083	62.49	673	(75.2%)	15,815	23.49	2,965	(68.2%)	679,786	229.27
OWNER ADMINISTERED	Owner-Administered	234	(30.7%)	6,613	28.24	222	(24.8%)	3,838	17.32	1,383	(31.8%)	280,951	203.19
	Total	234	(30.7%)	6,613	28.24	222	(24.8%)	3,838	17.32	1,383	(31.8%)	280,951	203.19
Total		764	(100.0%)	39,696	51.98	895	(100.0%)	19,653	21.97	4,348	(100.0%)	960,738	220.98

2012.10.8 [Weighted]

HUDQC FY 2011
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	1,053	(24.2%)	11,657	11.08	1,053	(24.2%)	-5,919	-5.62	1,053	(24.2%)	247,586	235.24
	Section 8	1,912	(44.0%)	36,346	19.00	1,912	(44.0%)	-11,626	-6.08	1,912	(44.0%)	432,200	225.99
	Total	2,965	(68.2%)	48,003	16.19	2,965	(68.2%)	-17,545	-5.92	2,965	(68.2%)	679,786	229.27
OWNER ADMINISTERED	Owner-Administered	1,383	(31.8%)	9,931	7.18	1,383	(31.8%)	-2,766	-2.00	1,383	(31.8%)	280,951	203.19
	Total	1,383	(31.8%)	9,931	7.18	1,383	(31.8%)	-2,766	-2.00	1,383	(31.8%)	280,951	203.19
Total		4,348	(100.0%)	57,934	13.33	4,348	(100.0%)	-20,311	-4.67	4,348	(100.0%)	960,738	220.98

2012.10.8 [Weighted]

HUDQC FY 2011
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	1,053	(24.2%)	11,955	11.36	1,053	(24.2%)	-5,787	-5.50	1,053	(24.2%)	247,586	235.24
	Section 8	1,912	(44.0%)	36,943	19.32	1,912	(44.0%)	-11,481	-6.00	1,912	(44.0%)	432,200	225.99
	Total	2,965	(68.2%)	48,898	16.49	2,965	(68.2%)	-17,268	-5.82	2,965	(68.2%)	679,786	229.27
OWNER ADMINISTERED	Owner-Administered	1,383	(31.8%)	10,451	7.56	1,383	(31.8%)	-2,776	-2.01	1,383	(31.8%)	280,951	203.19
	Total	1,383	(31.8%)	10,451	7.56	1,383	(31.8%)	-2,776	-2.01	1,383	(31.8%)	280,951	203.19
Total		4,348	(100.0%)	59,349	13.65	4,348	(100.0%)	-20,043	-4.61	4,348	(100.0%)	960,738	220.98

2012.10.8 [Weighted]

HUDQC FY 2011
Table 6. Case Type by Program 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	142	(13.5%)	(25.7%)	893	(84.8%)	(23.9%)	18	(1.7%)	(30.3%)	1,053	(100.0%)	(24.2%)
	Section 8	210	(11.0%)	(38.0%)	1,665	(87.1%)	(44.6%)	38	(2.0%)	(64.2%)	1,912	(100.0%)	(44.0%)
	Total	352	(11.9%)	(63.7%)	2,558	(86.3%)	(68.4%)	56	(1.9%)	(94.5%)	2,965	(100.0%)	(68.2%)
OWNER ADMINISTERED	Owner-Administered	200	(14.5%)	(36.3%)	1,179	(85.3%)	(31.6%)	3	(.2%)	(5.5%)	1,383	(100.0%)	(31.8%)
	Total	200	(14.5%)	(36.3%)	1,179	(85.3%)	(31.6%)	3	(.2%)	(5.5%)	1,383	(100.0%)	(31.8%)
Total		552	(12.7%)	(100.0%)	3,737	(85.9%)	(100.0%)	59	(1.4%)	(100.0%)	4,348	(100.0%)	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 7. Percent of Newly Certified Households Meeting Certification Criteria

Certification Criteria	Met Criterion		Did Not Meet Criterion		Unable to Determine	
	# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases
Citizenship	552	(100.0%)				
Social Security Number	546	(98.9%)	6	(1.1%)		
Consent Form	499	(90.4%)	51	(9.3%)	2	(.3%)
Low and Very Low Income	550	(99.6%)	2	(.4%)		
Meets All Eligibility Criteria	494	(89.4%)	58	(10.6%)		

2012.10.8 [Weighted]

HUDQC FY 2011
Table 7b. Percent of Newly Certified Households Meeting Certification Criteria by Program Type

Certification Criteria		Met Criterion		Did Not Meet Criterion		Unable to Determine	
		# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases
PUBLIC HOUSING	Citizenship	142	(100.0%)				
	Social Security Number	140	(98.1%)	3	(1.9%)		
	Consent Form	123	(86.6%)	19	(13.4%)		
	Low and Very Low Income	140	(98.4%)	2	(1.6%)		
	Meets All Eligibility Criteria	120	(84.1%)	23	(15.9%)		
PHA-ADMINISTERED SECTION 8	Citizenship	210	(100.0%)				
	Social Security Number	208	(99.0%)	2	(1.0%)		
	Consent Form	193	(91.9%)	17	(8.1%)		
	Low and Very Low Income	210	(100.0%)				
	Meets All Eligibility Criteria	190	(90.9%)	19	(9.1%)		
OWNER-ADMINISTERED	Citizenship	200	(100.0%)				
	Social Security Number	199	(99.2%)	2	(.8%)		
	Consent Form	184	(91.6%)	15	(7.6%)	2	(.8%)
	Low and Very Low Income	200	(100.0%)				
	Meets All Eligibility Criteria	184	(91.6%)	17	(8.4%)		

2012.10.8 [Weighted]

HUDQC FY 2011
Table 8. Dollar Error Amount by Payment Type and Case Type

CASE 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
CERTIFICATION		85	(15.7%)	5,842	69.01	59	(10.7%)	1,722	29.19	552	(12.7%)	109,416	198.16
	Total	85	(15.7%)	5,842	69.01	59	(10.7%)	1,722	29.19	552	(12.7%)	109,416	198.16
RE-CERTIFICATION	Non-Overdue	436	(80.9%)	30,987	71.06	467	(85.0%)	14,004	29.99	3,737	(85.9%)	832,858	222.89
	Overdue	19	(3.4%)	2,294	123.75	24	(4.3%)	3,086	130.42	59	(1.4%)	18,464	313.48
	Total	455	(84.3%)	33,280	73.20	491	(89.3%)	17,090	34.83	3,795	(87.3%)	851,322	224.30
Total		539	(100.0%)	39,122	72.55	550	(100.0%)	18,812	34.23	4,348	(100.0%)	960,738	220.98

2012.10.8 [Weighted]

HUDQC FY 2011
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 1,000)	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
CERTIFICATION	0	107	(14.0%)	5,890	55.17	111	(12.4%)	1,832	16.50	552	(12.7%)	109,416	198.16
	Total	107	(14.0%)	5,890	55.17	111	(12.4%)	1,832	16.50	552	(12.7%)	109,416	198.16
RE-CERTIFICATION	Non-Overdue	637	(83.4%)	31,504	49.48	757	(84.7%)	14,732	19.45	3,737	(85.9%)	832,858	222.89
	Overdue	20	(2.6%)	2,302	113.92	26	(2.9%)	3,088	117.76	59	(1.4%)	18,464	313.48
	Total	657	(86.0%)	33,806	51.47	784	(87.6%)	17,821	22.74	3,795	(87.3%)	851,322	224.30
Total		764	(100.0%)	39,696	51.98	895	(100.0%)	19,653	21.97	4,348	(100.0%)	960,738	220.98

2012.10.8 [Weighted]

HUDQC FY 2011
TABLE 9. Largest Component Error for Households with Rent Error (Annual Dollars)

RENT COMPONENT	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount
Earned Income	353	(32.4%)	1,370,808	3,881
Pension, Etc…	178	(16.3%)	520,104	2,923
Public Assistance	83	(7.6%)	157,735	1,906
Other Income	171	(15.7%)	532,432	3,118
Asset Income	26	(2.4%)	15,818	613
Dependent Allowance	35	(3.2%)	20,515	580
Elderly Head of Houseold Allowance	23	(2.1%)	9,304	400
Child Care Allowance	29	(2.7%)	64,599	2,237
Disability Allowance	2	(.2%)	340	172
Medical Allowance	160	(14.7%)	133,398	832
No Error	29	(2.6%)	0	0
Total	1,089	(100.0%)	2,825,053	2,594

2012.10.8 [Weighted]

HUDQC FY 2011
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 1,000)	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	222	(20.4%)	637,738	2,872.59	222	(20.4%)	558,124	2,513.98
	Section 8	608	(55.9%)	2,237,960	3,679.46	608	(55.9%)	1,829,950	3,008.65
	Total	830	(76.2%)	2,875,698	3,463.70	830	(76.2%)	2,388,074	2,876.37
OWNER ADMINISTERED	Owner-Administered	259	(23.8%)	482,186	1,864.28	259	(23.8%)	436,979	1,689.49
	Total	259	(23.8%)	482,186	1,864.28	259	(23.8%)	436,979	1,689.49
Total		1,089	(100.0%)	3,357,885	3,083.79	1,089	(100.0%)	2,825,053	2,594.45

2012.10.8 [Weighted]

HUDQC FY 2011
Table 11. QC Rent Components by Payment Type and Administration Type

RENT COMPONENT		PHA ADMINISTERED			OWNER ADMINISTERED			TOTAL		
		# of Cases (in 1,000)	Col % of Cases	Row % of Cases	# of Cases (in 1,000)	Col % of Cases	Row % of Cases	# of Cases (in 1,000)	Col % of Cases	Row % of Cases
UNDERPAYMENT	Earned Income	201	(6.8%)	(85.5%)	34	(2.5%)	(14.5%)	236	(5.4%)	(100.0%)
	Pension, Etc…	117	(3.9%)	(71.7%)	46	(3.3%)	(28.3%)	163	(3.7%)	(100.0%)
	Public Assistance	42	(1.4%)	(84.3%)	8	(.6%)	(15.7%)	49	(1.1%)	(100.0%)
	Other Income	94	(3.2%)	(88.1%)	13	(.9%)	(11.9%)	107	(2.4%)	(100.0%)
	Asset Income	35	(1.2%)	(64.5%)	19	(1.4%)	(35.5%)	55	(1.3%)	(100.0%)
	Dependent Allowance	12	(.4%)	(100.0%)				12	(.3%)	(100.0%)
	Elderly HH Allowance	3	(.1%)	(100.0%)				3	(.1%)	(100.0%)
	Child Care Allowance	24	(.8%)	(93.9%)	2	(.1%)	(6.1%)	25	(.6%)	(100.0%)
	Disability Allowance				2	(.1%)	(100.0%)	2	(.0%)	(100.0%)
	Medical Allowance	53	(1.8%)	(49.3%)	55	(4.0%)	(50.7%)	108	(2.5%)	(100.0%)
	No Error	12	(.4%)	(58.5%)	8	(.6%)	(41.5%)	20	(.5%)	(100.0%)
PROPER PAYMENT	Earned Income	216	(7.3%)	(87.3%)	31	(2.3%)	(12.7%)	247	(5.7%)	(100.0%)
	Pension, Etc…	303	(10.2%)	(52.0%)	280	(20.2%)	(48.0%)	583	(13.4%)	(100.0%)
	Public Assistance	42	(1.4%)	(78.7%)	11	(.8%)	(21.3%)	53	(1.2%)	(100.0%)
	Other Income	128	(4.3%)	(77.7%)	37	(2.7%)	(22.3%)	165	(3.8%)	(100.0%)
	Asset Income	136	(4.6%)	(64.1%)	76	(5.5%)	(35.9%)	212	(4.9%)	(100.0%)
	Dependent Allowance	28	(1.0%)	(94.3%)	2	(.1%)	(5.7%)	30	(.7%)	(100.0%)
	Elderly HH Allowance	19	(.6%)	(89.7%)	2	(.2%)	(10.3%)	21	(.5%)	(100.0%)
	Child Care Allowance	19	(.6%)	(92.5%)	2	(.1%)	(7.5%)	20	(.5%)	(100.0%)
	Disability Allowance	1	(.0%)	(100.0%)				1	(.0%)	(100.0%)
	Medical Allowance	166	(5.6%)	(45.4%)	200	(14.5%)	(54.6%)	366	(8.4%)	(100.0%)
	No Error	1,365	(46.0%)	(66.7%)	683	(49.4%)	(33.3%)	2,048	(47.1%)	(100.0%)

HUDQC FY 2011
Table 11. QC Rent Components by Payment Type and Administration Type (continued)

RENT COMPONENT		PHA ADMINISTERED			OWNER ADMINISTERED			TOTAL		
		# of Cases (in 1,000)	Col % of Cases	Row % of Cases	# of Cases (in 1,000)	Col % of Cases	Row % of Cases	# of Cases (in 1,000)	Col % of Cases	Row % of Cases
OVERPAYMENT	Earned Income	165	(5.6%)	(88.6%)	21	(1.5%)	(11.4%)	186	(4.3%)	(100.0%)
	Pension, Etc…	112	(3.8%)	(75.5%)	36	(2.6%)	(24.5%)	148	(3.4%)	(100.0%)
	Public Assistance	48	(1.6%)	(85.6%)	8	(.6%)	(14.4%)	57	(1.3%)	(100.0%)
	Other Income	76	(2.6%)	(72.2%)	29	(2.1%)	(27.8%)	105	(2.4%)	(100.0%)
	Asset Income	34	(1.2%)	(75.3%)	11	(.8%)	(24.7%)	46	(1.0%)	(100.0%)
	Dependent Allowance	40	(1.3%)	(86.4%)	6	(.5%)	(13.6%)	46	(1.1%)	(100.0%)
	Elderly HH Allowance	23	(.8%)	(80.8%)	6	(.4%)	(19.2%)	29	(.7%)	(100.0%)
	Child Care Allowance	15	(.5%)	(72.5%)	6	(.4%)	(27.5%)	21	(.5%)	(100.0%)
	Disability Allowance									
	Medical Allowance	77	(2.6%)	(63.4%)	45	(3.2%)	(36.6%)	122	(2.8%)	(100.0%)
	No Error	8	(.3%)	(100.0%)				8	(.2%)	(100.0%)
TOTAL with Rent Error Calculated		2,965	(100.0%)	(68.2%)	1,383	(100.0%)	(31.8%)	4,348	(100.0%)	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 12a. Elderly/Disabled Allowances

ALLOWANCES	NON-ELDERLY/DISABLED HH			ELDERLY/DISABLED HH			Total		
	# of Cases (in 1,000)	Col % of Cases	Row % of Cases	# of Cases (in 1,000)	Col % of Cases	Row % of Cases	# of Cases (in 1,000)	Col % of Cases	Row % of Cases
No Allowance	2,025	(99.9%)	(100.0%)				2,025	(46.6%)	(100.0%)
Incorrect Allowance	1	(.1%)	(1.9%)	52	(2.2%)	(98.1%)	53	(1.2%)	(100.0%)
Correct Allowance				2,270	(97.8%)	(100.0%)	2,270	(52.2%)	(100.0%)
Total	2,026	(100.0%)	(46.6%)	2,322	(100.0%)	(53.4%)	4,348	(100.0%)	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 12b. Dependent Allowances

ALLOWANCES	HH W/OUT DEPENDENT			HH W/DEPENDENT			Total		
	# of Cases (in 1,000)	Col % of Cases	Row % of Cases	# of Cases (in 1,000)	Col % of Cases	Row % of Cases	# of Cases (in 1,000)	Col % of Cases	Row % of Cases
No Allowance	2,405	(99.8%)	(100.0%)				2,405	(55.3%)	(100.0%)
Incorrect Allowance	6	(.2%)	(6.3%)	82	(4.3%)	(93.7%)	88	(2.0%)	(100.0%)
Correct Allowance				1,855	(95.7%)	(100.0%)	1,855	(42.7%)	(100.0%)
Total	2,410	(100.0%)	(55.4%)	1,937	(100.0%)	(44.6%)	4,348	(100.0%)	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 13. Calculation Errors on Form 50058/59

ITEMS	Form 50058		Form 50059		Total	
	# of Errors	# of Cases (in 1,000)	# of Errors	# of Cases (in 1,000)	# of Errors	# of Cases (in 1,000)
HOUSEHOLD COMPOSITION	162	162	41	41	204	204
NET FAMILY ASSETS AND INCOME	330	203	139	56	469	258
ALLOWANCES AND ADJUSTED INCOME	1,563	1,362	148	63	1,710	1,426
FAMILY RENT AND SUBSIDY INFORMATION	541	333	56	43	597	376

2012.10.8 [Weighted]

HUDQC FY 2011
Table 14. Consistency Errors on Form 50058/59

ITEMS	Form 5058		Form 5059		Total	
	# of Errors	# of Cases (in 1,000)	# of Errors	# of Cases (in 1,000)	# of Errors	# of Cases (in 1,000)
GENERAL INFORMATION	71	69	155	111	226	180
HOUSEHOLD COMPOSITION	232	95	178	155	410	250
NET FAMILY ASSETS AND INCOME	165	148	2	2	166	150
ALLOWANCES AND ADJUSTED INCOME	329	321	3	3	332	325
FAMILY RENT AND SUBSIDY INFORMATION	68	66	7	7	75	73

2012.10.8 [Weighted]

HUDQC FY 2011
Table 15a. Verification of Form 50058/59 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 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	192	(13.7%)	365	(26.0%)	845	(60.3%)	1,402	(100.0%)
Pension, Etc…	205	(8.3%)	176	(7.1%)	2,096	(84.6%)	2,477	(100.0%)
Public Assistance	83	(16.2%)	69	(13.6%)	357	(70.1%)	509	(100.0%)
Other Income	267	(25.6%)	133	(12.7%)	645	(61.7%)	1,044	(100.0%)
Asset Income	46	(8.6%)	51	(9.6%)	436	(81.9%)	532	(100.0%)
Child Care Expense	24	(14.9%)	18	(11.2%)	121	(73.8%)	164	(100.0%)
Disability Expense	2	(100.0%)					2	(100.0%)
Medical Expense	107	(10.4%)	165	(16.0%)	757	(73.6%)	1,029	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 15b. Verification of Form 50058/59 Rent Components
Third Party In Writing

RENT COMPONENT	NO VERIFICATION		VERIFICATION				TOTAL	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	830	(59.2%)	133	(9.5%)	439	(31.3%)	1,402	(100.0%)
Pension, Etc…	2,392	(96.6%)	7	(.3%)	78	(3.2%)	2,477	(100.0%)
Public Assistance	336	(66.0%)	22	(4.3%)	151	(29.7%)	509	(100.0%)
Other Income	792	(75.9%)	28	(2.7%)	224	(21.4%)	1,044	(100.0%)
Asset Income	305	(57.2%)	20	(3.8%)	207	(39.0%)	532	(100.0%)
Child Care Expense	91	(55.4%)	9	(5.4%)	64	(39.2%)	164	(100.0%)
Disability Expense	2	(100.0%)					2	(100.0%)
Medical Expense	845	(82.1%)	13	(1.3%)	171	(16.6%)	1,029	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 15c. Verification of Form 50058/59 Rent Components
Third Party In Writing or EIV

RENT COMPONENT	NO VERIFICATION		VERIFICATION				TOTAL	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	718	(51.2%)	177	(12.6%)	507	(36.2%)	1,402	(100.0%)
Pension, Etc…	899	(36.3%)	104	(4.2%)	1,475	(59.5%)	2,477	(100.0%)
Public Assistance	236	(46.4%)	49	(9.7%)	224	(44.0%)	509	(100.0%)
Other Income	654	(62.6%)	53	(5.0%)	338	(32.4%)	1,044	(100.0%)
Asset Income	297	(55.9%)	23	(4.3%)	212	(39.9%)	532	(100.0%)
Child Care Expense	82	(49.8%)	10	(6.3%)	72	(43.9%)	164	(100.0%)
Disability Expense	2	(100.0%)					2	(100.0%)
Medical Expense	693	(67.4%)	45	(4.4%)	290	(28.2%)	1,029	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 15d. Verification of Form 50058/59 Rent Components
Third Party - Verbal

RENT COMPONENT	NO VERIFICATION		VERIFICATION				TOTAL	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	1,388	(99.0%)			14	(1.0%)	1,402	(100.0%)
Pension, Etc…	2,476	(100.0%)			1	(.0%)	2,477	(100.0%)
Public Assistance	509	(100.0%)					509	(100.0%)
Other Income	1,037	(99.3%)			7	(.7%)	1,044	(100.0%)
Asset Income	532	(100.0%)					532	(100.0%)
Child Care Expense	160	(97.3%)	2	(1.0%)	3	(1.7%)	164	(100.0%)
Disability Expense	2	(100.0%)					2	(100.0%)
Medical Expense	1,029	(100.0%)					1,029	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 15e. Verification of Form 50058/59 Rent Components
Documentation

RENT COMPONENT	NO VERIFICATION		VERIFICATION				TOTAL	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	914	(65.2%)	173	(12.4%)	314	(22.4%)	1,402	(100.0%)
Pension, Etc…	1,990	(80.3%)	30	(1.2%)	456	(18.4%)	2,477	(100.0%)
Public Assistance	356	(69.8%)	20	(4.0%)	133	(26.2%)	509	(100.0%)
Other Income	676	(64.7%)	78	(7.5%)	290	(27.8%)	1,044	(100.0%)
Asset Income	346	(65.0%)	23	(4.2%)	164	(30.8%)	532	(100.0%)
Child Care Expense	111	(67.8%)	7	(4.0%)	46	(28.2%)	164	(100.0%)
Disability Expense	2	(100.0%)					2	(100.0%)
Medical Expense	680	(66.0%)	67	(6.5%)	283	(27.5%)	1,029	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 15f. Verification of Form 50058/59 Rent Components
EIV (Enterprise Income Verification)

RENT COMPONENT	NO VERIFICATION		VERIFICATION				TOTAL	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	1,380	(98.5%)	10	(.7%)	11	(.8%)	1,402	(100.0%)
Pension, Etc…	1,164	(47.0%)	58	(2.3%)	1,255	(50.7%)	2,477	(100.0%)
Public Assistance	507	(99.5%)			2	(.5%)	509	(100.0%)
Other Income	1,040	(99.6%)	4	(.4%)			1,044	(100.0%)
Asset Income	532	(100.0%)					532	(100.0%)
Child Care Expense	164	(100.0%)					164	(100.0%)
Disability Expense	2	(100.0%)					2	(100.0%)
Medical Expense	945	(91.8%)	23	(2.2%)	61	(6.0%)	1,029	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 15g. Verification of Form 50058/59 Rent Components
UIV (Upfront Income Verification)

RENT COMPONENT	NO VERIFICATION		VERIFICATION				TOTAL	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	1,325	(94.5%)	28	(2.0%)	49	(3.5%)	1,402	(100.0%)
Pension, Etc…	2,457	(99.2%)	5	(.2%)	15	(.6%)	2,477	(100.0%)
Public Assistance	412	(80.9%)	27	(5.4%)	70	(13.8%)	509	(100.0%)
Other Income	910	(87.1%)	21	(2.0%)	114	(10.9%)	1,044	(100.0%)
Asset Income	523	(98.4%)	3	(.5%)	6	(1.2%)	532	(100.0%)
Child Care Expense	155	(94.4%)	2	(.9%)	8	(4.6%)	164	(100.0%)
Disability Expense	2	(100.0%)					2	(100.0%)
Medical Expense	1,015	(98.7%)	3	(.3%)	11	(1.0%)	1,029	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 15h. Verification of Form 50058/59 Rent Components
EIV (Enterprise Income Verification)/UIV (Upfront Income Verification)

RENT COMPONENT	NO VERIFICATION		VERIFICATION				TOTAL	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	1,282	(91.4%)	52	(3.7%)	68	(4.9%)	1,402	(100.0%)
Pension, Etc…	774	(31.2%)	131	(5.3%)	1,573	(63.5%)	2,477	(100.0%)
Public Assistance	409	(80.4%)	27	(5.4%)	72	(14.2%)	509	(100.0%)
Other Income	895	(85.7%)	29	(2.8%)	120	(11.5%)	1,044	(100.0%)
Asset Income	523	(98.4%)	3	(.5%)	6	(1.2%)	532	(100.0%)
Child Care Expense	155	(94.4%)	2	(.9%)	8	(4.6%)	164	(100.0%)
Disability Expense	2	(100.0%)					2	(100.0%)
Medical Expense	740	(71.9%)	65	(6.3%)	224	(21.8%)	1,029	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 15i. Verification of Form 50058/59 Rent Components
Third Party Verbal, In Writing, Documentation, or EIV

RENT COMPONENT BY PROGRAM TYPE		NO VERIFICATION		VERIFICATION				Total	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Public Housing	Earned Income	66	(18.4%)	112	(31.3%)	180	(50.3%)	358	(100.0%)
	Pension, Etc…	56	(10.4%)	49	(9.1%)	437	(80.6%)	543	(100.0%)
	Public Assistance	26	(19.9%)	23	(17.3%)	82	(62.8%)	131	(100.0%)
	Other Income	66	(26.7%)	42	(17.2%)	138	(56.1%)	245	(100.0%)
	Asset Income	15	(14.7%)	17	(16.2%)	70	(69.1%)	102	(100.0%)
	Child Care Expense	9	(21.5%)	3	(6.8%)	30	(71.7%)	42	(100.0%)
	Medical Expense	29	(13.7%)	54	(25.0%)	132	(61.3%)	215	(100.0%)
PHA-Administered Section 8	Earned Income	98	(13.0%)	208	(27.6%)	447	(59.4%)	752	(100.0%)
	Pension, Etc…	70	(7.2%)	63	(6.5%)	841	(86.3%)	974	(100.0%)
	Public Assistance	40	(13.9%)	42	(14.4%)	208	(71.7%)	290	(100.0%)
	Other Income	122	(21.2%)	77	(13.4%)	375	(65.4%)	573	(100.0%)
	Asset Income	15	(10.5%)	22	(15.8%)	104	(73.7%)	141	(100.0%)
	Child Care Expense	14	(14.4%)	14	(14.9%)	67	(70.7%)	95	(100.0%)
	Medical Expense	32	(12.2%)	40	(15.4%)	189	(72.4%)	261	(100.0%)
Owner-Administered	Earned Income	28	(9.7%)	45	(15.4%)	218	(74.8%)	292	(100.0%)
	Pension, Etc…	79	(8.2%)	64	(6.6%)	818	(85.2%)	960	(100.0%)
	Public Assistance	16	(18.4%)	5	(5.5%)	67	(76.1%)	88	(100.0%)
	Other Income	80	(35.3%)	14	(6.1%)	132	(58.5%)	226	(100.0%)
	Asset Income	16	(5.4%)	12	(4.2%)	261	(90.4%)	289	(100.0%)
	Child Care Expense	2	(6.8%)	2	(5.5%)	24	(87.8%)	28	(100.0%)
	Disability Expense	2	(100.0%)					2	(100.0%)
	Medical Expense	45	(8.2%)	71	(12.9%)	437	(78.9%)	553	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 15j. Verification of Form 50058/59 Rent Components
Third Party In Writing

RENT COMPONENT BY PROGRAM TYPE		NO VERIFICATION		VERIFICATION				TOTAL	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Public Housing	Earned Income	227	(63.5%)	38	(10.7%)	92	(25.8%)	358	(100.0%)
	Pension, Etc…	530	(97.7%)	2	(.4%)	10	(1.8%)	543	(100.0%)
	Public Assistance	97	(74.4%)	5	(3.7%)	29	(21.9%)	131	(100.0%)
	Other Income	189	(77.3%)	10	(4.0%)	46	(18.8%)	245	(100.0%)
	Asset Income	63	(61.8%)	6	(6.3%)	33	(31.9%)	102	(100.0%)
	Child Care Expense	21	(51.4%)	3	(6.8%)	17	(41.8%)	42	(100.0%)
	Medical Expense	182	(84.7%)	3	(1.6%)	30	(13.7%)	215	(100.0%)
PHA-Administered Section 8	Earned Income	493	(65.6%)	65	(8.7%)	193	(25.7%)	752	(100.0%)
	Pension, Etc…	930	(95.4%)	4	(.4%)	40	(4.2%)	974	(100.0%)
	Public Assistance	201	(69.2%)	14	(4.8%)	75	(26.0%)	290	(100.0%)
	Other Income	444	(77.4%)	15	(2.6%)	115	(20.1%)	573	(100.0%)
	Asset Income	108	(76.1%)	7	(4.6%)	27	(19.3%)	141	(100.0%)
	Child Care Expense	58	(61.2%)	6	(6.3%)	31	(32.5%)	95	(100.0%)
	Medical Expense	210	(80.5%)	1	(.5%)	50	(19.0%)	261	(100.0%)
Owner-Administered	Earned Income	109	(37.4%)	29	(9.9%)	154	(52.6%)	292	(100.0%)
	Pension, Etc…	932	(97.1%)			28	(2.9%)	960	(100.0%)
	Public Assistance	38	(42.8%)	3	(3.4%)	47	(53.7%)	88	(100.0%)
	Other Income	159	(70.6%)	3	(1.5%)	63	(27.8%)	226	(100.0%)
	Asset Income	134	(46.4%)	7	(2.5%)	148	(51.1%)	289	(100.0%)
	Child Care Expense	12	(41.5%)			16	(58.5%)	28	(100.0%)
	Disability Expense	2	(100.0%)					2	(100.0%)
	Medical Expense	453	(81.9%)	8	(1.5%)	91	(16.5%)	553	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 15k. Verification of Form 50058/59 Rent Components
Third Party In Writing

RENT COMPONENT BY PROGRAM TYPE		NO VERIFICATION		VERIFICATION				TOTAL	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Public Housing	Earned Income	197	(55.2%)	52	(14.4%)	109	(30.4%)	358	(100.0%)
	Pension, Etc…	206	(38.0%)	24	(4.5%)	312	(57.5%)	543	(100.0%)
	Public Assistance	72	(55.0%)	15	(11.1%)	44	(33.9%)	131	(100.0%)
	Other Income	168	(68.5%)	16	(6.6%)	61	(24.9%)	245	(100.0%)
	Asset Income	63	(61.8%)	6	(6.3%)	33	(31.9%)	102	(100.0%)
	Child Care Expense	21	(51.4%)	3	(6.8%)	17	(41.8%)	42	(100.0%)
	Medical Expense	145	(67.7%)	20	(9.1%)	50	(23.2%)	215	(100.0%)
PHA-Administered Section 8	Earned Income	423	(56.3%)	95	(12.6%)	234	(31.1%)	752	(100.0%)
	Pension, Etc…	290	(29.8%)	48	(4.9%)	636	(65.3%)	974	(100.0%)
	Public Assistance	133	(45.8%)	30	(10.3%)	127	(43.9%)	290	(100.0%)
	Other Income	355	(61.8%)	27	(4.8%)	191	(33.4%)	573	(100.0%)
	Asset Income	103	(72.5%)	9	(6.4%)	30	(21.0%)	141	(100.0%)
	Child Care Expense	50	(53.1%)	6	(6.3%)	38	(40.5%)	95	(100.0%)
	Medical Expense	178	(68.3%)	6	(2.1%)	77	(29.6%)	261	(100.0%)
Owner-Administered	Earned Income	97	(33.3%)	31	(10.5%)	164	(56.2%)	292	(100.0%)
	Pension, Etc…	403	(42.0%)	31	(3.2%)	526	(54.8%)	960	(100.0%)
	Public Assistance	31	(35.5%)	5	(5.5%)	52	(59.0%)	88	(100.0%)
	Other Income	131	(58.0%)	9	(4.0%)	86	(38.0%)	226	(100.0%)
	Asset Income	132	(45.6%)	7	(2.5%)	150	(51.9%)	289	(100.0%)
	Child Care Expense	10	(36.1%)	2	(5.5%)	16	(58.5%)	28	(100.0%)
	Disability Expense	2	(100.0%)					2	(100.0%)
	Medical Expense	370	(66.8%)	20	(3.6%)	163	(29.5%)	553	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 15l. Verification of Form 50058/59 Rent Components
Third Party - Verbal

RENT COMPONENT BY PROGRAM TYPE		NO VERIFICATION		VERIFICATION				TOTAL	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Public Housing	Earned Income	357	(99.7%)			1	(.3%)	358	(100.0%)
	Pension, Etc…	542	(99.8%)			1	(.2%)	543	(100.0%)
	Public Assistance	131	(100.0%)					131	(100.0%)
	Other Income	245	(100.0%)					245	(100.0%)
	Asset Income	102	(100.0%)					102	(100.0%)
	Child Care Expense	41	(97.3%)			1	(2.7%)	42	(100.0%)
	Medical Expense	215	(100.0%)					215	(100.0%)
PHA-Administered Section 8	Earned Income	745	(99.1%)			7	(.9%)	752	(100.0%)
	Pension, Etc…	974	(100.0%)					974	(100.0%)
	Public Assistance	290	(100.0%)					290	(100.0%)
	Other Income	570	(99.4%)			4	(.6%)	573	(100.0%)
	Asset Income	141	(100.0%)					141	(100.0%)
	Child Care Expense	93	(98.3%)	2	(1.7%)			95	(100.0%)
	Medical Expense	261	(100.0%)					261	(100.0%)
Owner-Administered	Earned Income	286	(98.0%)			6	(2.0%)	292	(100.0%)
	Pension, Etc…	960	(100.0%)					960	(100.0%)
	Public Assistance	88	(100.0%)					88	(100.0%)
	Other Income	222	(98.4%)			4	(1.6%)	226	(100.0%)
	Asset Income	289	(100.0%)					289	(100.0%)
	Child Care Expense	26	(93.8%)			2	(6.2%)	28	(100.0%)
	Disability Expense	2	(100.0%)					2	(100.0%)
	Medical Expense	553	(100.0%)					553	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 15m. Verification of Form 50058/59 Rent Components Documentation

RENT COMPONENT BY PROGRAM TYPE		NO VERIFICATION		VERIFICATION				TOTAL	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Public Housing	Earned Income	237	(66.3%)	55	(15.5%)	65	(18.3%)	358	(100.0%)
	Pension, Etc…	443	(81.5%)	11	(2.0%)	89	(16.4%)	543	(100.0%)
	Public Assistance	85	(64.9%)	8	(6.2%)	38	(28.9%)	131	(100.0%)
	Other Income	145	(59.1%)	26	(10.6%)	74	(30.2%)	245	(100.0%)
	Asset Income	58	(57.2%)	9	(8.7%)	35	(34.1%)	102	(100.0%)
	Child Care Expense	30	(72.8%)			11	(27.2%)	42	(100.0%)
	Medical Expense	136	(63.6%)	26	(12.0%)	52	(24.4%)	215	(100.0%)
PHA-Administered Section 8	Earned Income	445	(59.2%)	105	(14.0%)	202	(26.8%)	752	(100.0%)
	Pension, Etc…	813	(83.4%)	10	(1.0%)	152	(15.6%)	974	(100.0%)
	Public Assistance	198	(68.1%)	12	(4.1%)	80	(27.7%)	290	(100.0%)
	Other Income	351	(61.2%)	47	(8.3%)	175	(30.5%)	573	(100.0%)
	Asset Income	74	(52.5%)	9	(6.3%)	58	(41.3%)	141	(100.0%)
	Child Care Expense	60	(62.9%)	7	(6.9%)	29	(30.2%)	95	(100.0%)
	Medical Expense	150	(57.6%)	22	(8.4%)	89	(33.9%)	261	(100.0%)
Owner-Administered	Earned Income	232	(79.6%)	13	(4.3%)	47	(16.1%)	292	(100.0%)
	Pension, Etc…	735	(76.6%)	9	(1.0%)	216	(22.5%)	960	(100.0%)
	Public Assistance	73	(82.9%)			15	(17.1%)	88	(100.0%)
	Other Income	180	(79.8%)	5	(2.1%)	41	(18.1%)	226	(100.0%)
	Asset Income	213	(73.9%)	5	(1.7%)	71	(24.4%)	289	(100.0%)
	Child Care Expense	21	(76.9%)			6	(23.1%)	28	(100.0%)
	Disability Expense	2	(100.0%)					2	(100.0%)
	Medical Expense	393	(71.0%)	19	(3.5%)	141	(25.6%)	553	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 15n. Verification of Form 50058/59 Rent Components
EIV (Enterprise Income Verification)

RENT COMPONENT BY PROGRAM TYPE		NO VERIFICATION		VERIFICATION				TOTAL	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Public Housing	Earned Income	347	(97.0%)	6	(1.6%)	5	(1.4%)	358	(100.0%)
	Pension, Etc…	240	(44.2%)	21	(4.0%)	281	(51.8%)	543	(100.0%)
	Public Assistance	131	(100.0%)					131	(100.0%)
	Other Income	245	(100.0%)					245	(100.0%)
	Asset Income	102	(100.0%)					102	(100.0%)
	Child Care Expense	42	(100.0%)					42	(100.0%)
	Medical Expense	188	(87.4%)	11	(5.3%)	16	(7.3%)	215	(100.0%)
PHA-Administered Section 8	Earned Income	743	(98.7%)	5	(.6%)	5	(.6%)	752	(100.0%)
	Pension, Etc…	401	(41.1%)	25	(2.5%)	549	(56.3%)	974	(100.0%)
	Public Assistance	288	(99.2%)			2	(.8%)	290	(100.0%)
	Other Income	569	(99.3%)	4	(.7%)			573	(100.0%)
	Asset Income	141	(100.0%)					141	(100.0%)
	Child Care Expense	95	(100.0%)					95	(100.0%)
	Medical Expense	238	(91.3%)	4	(1.6%)	19	(7.1%)	261	(100.0%)
Owner-Administered	Earned Income	290	(99.5%)			2	(.5%)	292	(100.0%)
	Pension, Etc…	523	(54.5%)	12	(1.2%)	425	(44.3%)	960	(100.0%)
	Public Assistance	88	(100.0%)					88	(100.0%)
	Other Income	226	(100.0%)					226	(100.0%)
	Asset Income	289	(100.0%)					289	(100.0%)
	Child Care Expense	28	(100.0%)					28	(100.0%)
	Disability Expense	2	(100.0%)					2	(100.0%)
	Medical Expense	519	(93.8%)	7	(1.3%)	27	(4.9%)	553	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 15o. Verification of Form 50058/59 Rent Components
UIV (Upfront Income Verification)

RENT COMPONENT BY PROGRAM TYPE		NO VERIFICATION		VERIFICATION				TOTAL	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Public Housing	Earned Income	344	(96.1%)	3	(.9%)	11	(3.0%)	358	(100.0%)
	Pension, Etc…	542	(99.8%)			1	(.2%)	543	(100.0%)
	Public Assistance	105	(80.6%)	10	(7.4%)	16	(12.0%)	131	(100.0%)
	Other Income	224	(91.2%)	6	(2.6%)	15	(6.1%)	245	(100.0%)
	Asset Income	102	(100.0%)					102	(100.0%)
	Child Care Expense	42	(100.0%)					42	(100.0%)
	Medical Expense	209	(97.5%)	3	(1.4%)	2	(1.1%)	215	(100.0%)
PHA-Administered Section 8	Earned Income	699	(93.0%)	23	(3.0%)	30	(4.0%)	752	(100.0%)
	Pension, Etc…	965	(99.1%)	3	(.3%)	6	(.6%)	974	(100.0%)
	Public Assistance	224	(77.4%)	16	(5.5%)	50	(17.1%)	290	(100.0%)
	Other Income	489	(85.2%)	9	(1.5%)	76	(13.3%)	573	(100.0%)
	Asset Income	136	(96.4%)	3	(1.8%)	2	(1.8%)	141	(100.0%)
	Child Care Expense	87	(91.9%)			8	(8.1%)	95	(100.0%)
	Medical Expense	258	(98.9%)			3	(1.1%)	261	(100.0%)
Owner-Administered	Earned Income	281	(96.4%)	2	(.6%)	9	(3.0%)	292	(100.0%)
	Pension, Etc…	950	(98.9%)	2	(.2%)	9	(.9%)	960	(100.0%)
	Public Assistance	82	(92.7%)	2	(2.1%)	5	(5.3%)	88	(100.0%)
	Other Income	197	(87.4%)	6	(2.5%)	23	(10.1%)	226	(100.0%)
	Asset Income	285	(98.7%)			4	(1.3%)	289	(100.0%)
	Child Care Expense	26	(94.5%)	2	(5.5%)			28	(100.0%)
	Disability Expense	2	(100.0%)					2	(100.0%)
	Medical Expense	548	(99.0%)			5	(1.0%)	553	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 16a. QC Rent Component for Household with QC Rent Error (>$5)

RENT COMPONENT		50058		50059		TOTAL	
		# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases
Earned Income	0	2,599	(87.6%)	1,327	(96.0%)	3,926	(90.3%)
	1	366	(12.4%)	56	(4.0%)	422	(9.7%)
Pensions, Etc…	0	2,736	(92.3%)	1,300	(94.0%)	4,037	(92.9%)
	1	228	(7.7%)	82	(6.0%)	311	(7.1%)
Public Assistance	0	2,875	(97.0%)	1,367	(98.9%)	4,242	(97.6%)
	1	90	(3.0%)	16	(1.1%)	106	(2.4%)
Other Income	0	2,795	(94.3%)	1,341	(97.0%)	4,136	(95.1%)
	1	170	(5.7%)	42	(3.0%)	212	(4.9%)
Asset Income	0	2,895	(97.6%)	1,352	(97.8%)	4,247	(97.7%)
	1	70	(2.4%)	31	(2.2%)	100	(2.3%)
Child Care Expense	0	2,926	(98.7%)	1,375	(99.5%)	4,301	(98.9%)
	1	39	(1.3%)	7	(.5%)	46	(1.1%)
Disability Expense	0	2,965	(100.0%)	1,381	(99.9%)	4,346	(100.0%)
	1			2	(.1%)	2	(.0%)
Medical Expense	0	2,812	(94.8%)	1,284	(92.9%)	4,096	(94.2%)
	1	153	(5.2%)	99	(7.1%)	252	(5.8%)
All Components	No Error	2,185	(73.7%)	1,143	(82.6%)	3,328	(76.5%)
	With Error	780	(26.3%)	240	(17.4%)	1,020	(23.5%)
Total		2,965	(100.0%)	1,383	(100.0%)	4,348	(100.0%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 16b. QC Error Cases with Missing Verification in Tenant File

RENT COMPONENT		50058		50059		Total	
		# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases
Earned Income	Verified	171	(46.6%)	22	(39.1%)	192	(45.6%)
	Not Verified	196	(53.4%)	34	(60.9%)	230	(54.4%)
Pension, Etc…	Verified	31	(13.7%)	12	(14.6%)	43	(13.9%)
	Not Verified	197	(86.3%)	70	(85.4%)	268	(86.1%)
Public Assistance	Verified	36	(40.3%)	5	(30.5%)	41	(38.8%)
	Not Verified	54	(59.7%)	11	(69.5%)	65	(61.2%)
Other Income	Verified	75	(44.0%)	7	(16.9%)	82	(38.6%)
	Not Verified	95	(56.0%)	35	(83.1%)	130	(61.4%)
Asset Income	Verified	20	(29.3%)	7	(22.6%)	27	(27.3%)
	Not Verified	49	(70.7%)	24	(77.4%)	73	(72.7%)
Child Care Expense	Verified	8	(20.9%)			8	(17.6%)
	Not Verified	31	(79.1%)	7	(100.0%)	38	(82.4%)
Disability Expense	Not Verified			2	(100.0%)	2	(100.0%)
Medical Expense	Verified	40	(26.0%)	25	(25.4%)	65	(25.7%)
	Not Verified	113	(74.0%)	74	(74.6%)	187	(74.3%)

2012.10.8 [Weighted]

HUDQC FY 2011
Table 17. Administrative Error: Number & Percent of Households, Average Dollars in Error
For Households with Recalculated 50058/59 Rent Error and Households with QC Rent Error by Administrative Error Type

Error Type	Households with Recalculated 50058/59 Rent Error			Households with QC Rent Error		
	# of Households in Error	% of Households in Error	Average Gross Dollar Error	# of Households in Error	% of Households in Error	Average Gross Dollar Error
Transcription Error	113	(37.7%)	$36.04	772	(70.9%)	$55.49
No Transcription Error	188	(62.3%)	$33.58	317	(29.1%)	$47.64
Consistency Error	112	(37.1%)	$54.03	193	(17.8%)	$42.59
No Consistency Error	189	(62.9%)	$22.98	896	(82.2%)	$55.50
Allowances Calculation Error	13	(4.3%)	$32.82	27	(2.5%)	$32.47
No Allowances Calculation Error	288	(95.7%)	$34.58	1,062	(97.5%)	$53.74
Income Calculation Error	13	(4.3%)	$208.59	35	(3.2%)	$44.37
No Income Calculation Error	288	(95.7%)	$26.67	1,054	(96.8%)	$53.50
Other Calculation Error	17	(5.8%)	$66.28	77	(7.0%)	$119.14
No Other Calculation Error	284	(94.2%)	$32.56	1,012	(93.0%)	$48.22
Overdue Recertification	9	(3.0%)	$50.95	42	(3.9%)	$127.49
On-time Recertification	251	(83.3%)	$28.84	903	(82.9%)	$49.82
Certification	41	(13.7%)	$65.36	144	(13.2%)	$52.66
Any Administrative/Procedural Error	170	(56.5%)	$43.03	842	(77.3%)	$55.69
No Administrative/Procedural Error	131	(43.5%)	$23.43	247	(22.7%)	$44.75
Total Households	301	(100.0%)	$34.51	1,089	(100.0%)	$53.21

2012.10.8 [Weighted]

HUDQC FY 2011
Table 18. Administrative Error: Number & 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	1,631	(37.5%)	$26.79	1,631	(37.5%)	-$7.41
No Transcription Error	2,716	(62.5%)	$5.76	2,716	(62.5%)	-$2.93
Consistency Error	847	(19.5%)	$10.16	847	(19.5%)	-$4.32
No Consistency Error	3,501	(80.5%)	$14.49	3,501	(80.5%)	-$4.68
Allowances Calculation Error	83	(1.9%)	$11.40	83	(1.9%)	-$0.25
No Allowances Calculation Error	4,265	(98.1%)	$13.69	4,265	(98.1%)	-$4.69
Income Calculation Error	108	(2.5%)	$15.16	108	(2.5%)	-$8.01
No Income Calculation Error	4,239	(97.5%)	$13.61	4,239	(97.5%)	-$4.52
Other Calculation Error	204	(4.7%)	$44.95	204	(4.7%)	-$10.39
No Other Calculation Error	4,144	(95.3%)	$12.11	4,144	(95.3%)	-$4.33
Overdue Recertification	59	(1.4%)	$91.51	59	(1.4%)	$13.35
On-time Recertification	3,737	(85.9%)	$12.37	3,737	(85.9%)	-$4.49
Certification	552	(12.7%)	$13.99	552	(12.7%)	-$7.35
Any Administrative/Procedural Error	2,210	(50.8%)	$21.66	2,210	(50.8%)	-$6.74
No Administrative /Procedural Error	2,137	(49.2%)	$5.37	2,137	(49.2%)	-$2.41
Total	4,348	(100.0%)	$13.65	4,348	(100.0%)	-$4.61

2012.10.8 [Weighted]

HUDQC FY 2011
Table 19. Occupancy Standards on Form 50058/59

NUMBER OF BEDROOMS BY OCCUPANCY STANDARD		PUBLIC HOUSING		PHA-ADMINISTERED SECTION 8		OWNER-ADMINISTERED		Total	
		# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases
UNDERHOUSED	0			3	(9.2%)	4	(3.8%)	7	(3.4%)
	1	1	(.4%)	6	(1.4%)	4	(.4%)	11	(.7%)
	2	3	(.8%)	8	(1.1%)	7	(2.8%)	18	(1.4%)
	3	1	(.5%)	9	(1.5%)			10	(1.0%)
	4	1	(1.1%)	3	(2.1%)			3	(1.5%)
	5+			3	(11.6%)			3	(9.0%)
	All Units	6	(.6%)	32	(1.7%)	15	(1.1%)	52	(1.2%)
CORRECT	0	66	(100.0%)	28	(90.8%)	105	(96.2%)	199	(96.6%)
	1	342	(99.6%)	423	(98.6%)	863	(99.6%)	1,628	(99.3%)
	2	270	(79.6%)	502	(69.6%)	194	(80.3%)	966	(74.2%)
	3	201	(86.5%)	466	(80.8%)	120	(88.8%)	787	(83.4%)
	4	44	(69.2%)	73	(55.7%)	20	(62.9%)	136	(60.5%)
	5+	3	(46.1%)	9	(37.2%)			12	(39.2%)
	All Units	927	(88.1%)	1,501	(78.5%)	1,301	(94.1%)	3,729	(85.8%)
OVERHOUSED	2	67	(19.6%)	211	(29.2%)	41	(16.8%)	318	(24.4%)
	3	30	(13.0%)	102	(17.7%)	15	(11.2%)	147	(15.6%)
	4	19	(29.7%)	55	(42.2%)	12	(37.1%)	86	(38.0%)
	5+	4	(53.9%)	12	(51.2%)			16	(51.8%)
	All Units	120	(11.4%)	380	(19.9%)	67	(4.9%)	567	(13.0%)

2012.10.8 [Weighted]

Number of Bedrooms	Number of Household Members																			
	1		2		3		4		5		6		7		8		9		11	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
0	199	96.6%	4	2.0%	3	1.4%														
1	1475	90.0%	153	9.3%	11	.7%														
2	318	24.4%	620	47.6%	261	20.0%	86	6.6%	15	1.2%	3	.2%								
3	37	3.9%	111	11.7%	305	32.3%	310	32.8%	117	12.4%	56	5.9%	7	.8%	3	.3%				
4	5	2.3%	7	3.1%	27	11.8%	47	20.7%	69	30.6%	38	16.8%	26	11.6%	3	1.5%	3	1.5%		
5+							3	9.2%	12	38.8%	1	3.9%	7	21.0%	3	8.0%	3	10.3%	3	9.0%

2012.10.8 [Weighted]

Source Tables Based on Tenant File Data

HUD QC FY 2011 [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	93	(8.8%)	(23.7%)	877	(83.3%)	(24.7%)	83	(7.9%)	(20.4%)	1,053	(100.0%)	(24.2%)
	Section 8	218	(11.4%)	(55.8%)	1,460	(76.3%)	(41.2%)	235	(12.3%)	(57.3%)	1,912	(100.0%)	(44.0%)
	Total	311	(10.5%)	(79.4%)	2,336	(78.8%)	(65.9%)	318	(10.7%)	(77.6%)	2,965	(100.0%)	(68.2%)
OWNER ADMINISTERED	Owner-Administered	81	(5.8%)	(20.6%)	1,211	(87.6%)	(34.1%)	92	(6.6%)	(22.4%)	1,383	(100.0%)	(31.8%)
	Total	81	(5.8%)	(20.6%)	1,211	(87.6%)	(34.1%)	92	(6.6%)	(22.4%)	1,383	(100.0%)	(31.8%)
Total		391	(9.0%)	(100.0%)	3,547	(81.6%)	(100.0%)	409	(9.4%)	(100.0%)	4,348	(100.0%)	(100.0%)

2012.10.8

HUD QC FY 2011 [Tenant File]
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	128	(12.2%)	(23.5%)	722	(68.6%)	(23.5%)	202	(19.2%)	(27.7%)	1,053	(100.0%)	(24.2%)
	Section 8	265	(13.9%)	(48.6%)	1,255	(65.6%)	(40.9%)	392	(20.5%)	(53.7%)	1,912	(100.0%)	(44.0%)
	Total	394	(13.3%)	(72.1%)	1,977	(66.7%)	(64.4%)	594	(20.0%)	(81.4%)	2,965	(100.0%)	(68.2%)
OWNER ADMINISTERED	Owner-Administered	152	(11.0%)	(27.9%)	1,095	(79.2%)	(35.6%)	136	(9.8%)	(18.6%)	1,383	(100.0%)	(31.8%)
	Total	152	(11.0%)	(27.9%)	1,095	(79.2%)	(35.6%)	136	(9.8%)	(18.6%)	1,383	(100.0%)	(31.8%)
Total		546	(12.6%)	(100.0%)	3,072	(70.7%)	(100.0%)	730	(16.8%)	(100.0%)	4,348	(100.0%)	(100.0%)

2012.10.8

HUD QC FY 2011 [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)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
PHA ADMINISTERED	Public Housing	1,053	(24.2%)	241,799	229.74	1,053	(24.2%)	244,966	232.75	1,053	(24.2%)	14,287	13.57
	Section 8	1,912	(44.0%)	420,719	219.99	1,912	(44.0%)	421,699	220.50	1,912	(44.0%)	31,792	16.62
	Total	2,965	(68.2%)	662,519	223.45	2,965	(68.2%)	666,665	224.85	2,965	(68.2%)	46,080	15.54
OWNER ADMINISTERED	Owner-Administered	1,383	(31.8%)	278,176	201.19	1,383	(31.8%)	277,665	200.82	1,383	(31.8%)	9,633	6.97
	Total	1,383	(31.8%)	278,176	201.19	1,383	(31.8%)	277,665	200.82	1,383	(31.8%)	9,633	6.97
Total		4,348	(100.0%)	940,694	216.37	4,348	(100.0%)	944,331	217.21	4,348	(100.0%)	55,712	12.81

2012.10.8

HUD QC FY 2011 [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)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
PHA ADMINISTERED	Public Housing	93	(23.7%)	8,786	94.84	83	(20.4%)	5,502	66.01	1,053	(24.2%)	244,966	232.75
	Section 8	218	(55.8%)	16,464	75.44	235	(57.3%)	15,328	65.35	1,912	(44.0%)	421,699	220.50
	Total	311	(79.4%)	25,250	81.22	318	(77.6%)	20,829	65.53	2,965	(68.2%)	666,665	224.85
OWNER ADMINISTERED	Owner-Administered	81	(20.6%)	4,521	56.13	92	(22.4%)	5,112	55.85	1,383	(31.8%)	277,665	200.82
	Total	81	(20.6%)	4,521	56.13	92	(22.4%)	5,112	55.85	1,383	(31.8%)	277,665	200.82
Total		391	(100.0%)	29,771	76.06	409	(100.0%)	25,941	63.36	4,348	(100.0%)	944,331	217.21

2012.10.8

HUD QC FY 2011 [Tenant File]
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)				DC RENT (MONTHLY)			
		# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
PHA ADMINISTERED	Public Housing	128	(23.5%)	8,853	68.99	202	(27.7%)	5,686	28.15	1,053	(24.2%)	244,966	232.75
	Section 8	265	(48.6%)	16,578	62.49	392	(53.7%)	15,598	39.79	1,912	(44.0%)	421,699	220.50
	Total	394	(72.1%)	25,431	64.61	594	(81.4%)	21,284	35.83	2,965	(68.2%)	666,665	224.85
OWNER ADMINISTERED	Owner-Administered	152	(27.9%)	4,712	30.95	136	(18.6%)	5,223	38.47	1,383	(31.8%)	277,665	200.82
	Total	152	(27.9%)	4,712	30.95	136	(18.6%)	5,223	38.47	1,383	(31.8%)	277,665	200.82
Total		546	(100.0%)	30,143	55.22	730	(100.0%)	26,507	36.32	4,348	(100.0%)	944,331	217.21

2012.10.8

HUD QC FY 2011 [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)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
PHA ADMINISTERED	Public Housing	1,053	(24.2%)	14,287	13.57	1,053	(24.2%)	-3,284	-3.12	1,053	(24.2%)	244,966	232.75
	Section 8	1,912	(44.0%)	31,792	16.62	1,912	(44.0%)	-1,136	-.59	1,912	(44.0%)	421,699	220.50
	Total	2,965	(68.2%)	46,080	15.54	2,965	(68.2%)	-4,421	-1.49	2,965	(68.2%)	666,665	224.85
OWNER ADMINISTERED	Owner-Administered	1,383	(31.8%)	9,633	6.97	1,383	(31.8%)	591	.43	1,383	(31.8%)	277,665	200.82
	Total	1,383	(31.8%)	9,633	6.97	1,383	(31.8%)	591	.43	1,383	(31.8%)	277,665	200.82
Total		4,348	(100.0%)	55,712	12.81	4,348	(100.0%)	-3,830	-.88	4,348	(100.0%)	944,331	217.21

2012.10.8

HUD QC FY 2011 [Tenant File]
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)				DC RENT (MONTHLY)			
		# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
PHA ADMINISTERED	Public Housing	1,053	(24.2%)	14,539	13.81	1,053	(24.2%)	-3,167	-3.01	1,053	(24.2%)	244,966	232.75
	Section 8	1,912	(44.0%)	32,177	16.82	1,912	(44.0%)	-980	-.51	1,912	(44.0%)	421,699	220.50
	Total	2,965	(68.2%)	46,715	15.76	2,965	(68.2%)	-4,147	-1.40	2,965	(68.2%)	666,665	224.85
OWNER ADMINISTERED	Owner-Administered	1,383	(31.8%)	9,935	7.19	1,383	(31.8%)	511	.37	1,383	(31.8%)	277,665	200.82
	Total	1,383	(31.8%)	9,935	7.19	1,383	(31.8%)	511	.37	1,383	(31.8%)	277,665	200.82
Total		4,348	(100.0%)	56,650	13.03	4,348	(100.0%)	-3,636	-.84	4,348	(100.0%)	944,331	217.21

2012.10.8

Appendix D—Consistency and Calculation Errors

APPENDIX D—CONSISTENCY AND CALCULATION ERRORS

50058 Form—Consistency Errors

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, or XX
3k.	Race	Must equal 1 through 5
3m.	Ethnicity	Must equal 1 or 2
3u.	Family Subsidy Status	Must equal C, E, F, P, or blank
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

50058 Form—Consistency Errors (continued)

50058 Item		Error
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)
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	Must equal TTP (9j) or blank
10a.	Through 14ag. Rent Calculations	• 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 12 ai) 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

50059 Form—Consistency Errors

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. 75.	Member No.—Income Info 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

50059 Form—Consistency Errors (continued)

50059 Item	Error
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

50058 Form—Calculation Errors

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)

50058 Form—Calculation Errors (continued)

50058 Item	Error Calculation
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	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

50059 Form—Calculation Errors

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)

50059 Form—Calculation Errors (continued)

50059 Item		Error Calculation
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)
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 created to obtain project-level information regarding characteristics and practices that promote accurate certifications and recertifications, hereafter referred to as "(re)certifications", identify difficulties experienced by PHAs/projects, and uncover areas of potential improvement. The PSQ is a self-administered questionnaire sent to project managers and executive directors of PHAs/projects included in the FY 2011 study.

A. Methodology

Regarding the content, the FY 2011 PSQ was comparable to the FY 2010 study. It consisted of a combination of open-ended items in addition to the closed-ended items. The biggest change in the PSQ between FY 2010 and FY 2011 was the ranking format of some of the items. In FY 2011, instead of asking the PHAs/projects to select all options that applied, the questionnaire asked them to rank the top three items on the list. Ranking the items enabled ICF to determine the most prevalent methods, strategies, and other tactics used by the PHAs/projects.

The PSQ was administered as a Web questionnaire using a survey package called Select Survey. PHAs/projects were contacted by e-mail in March 2012 with instructions on how to access and complete the survey. ICF staff sent emails and made phone calls to PHAs/projects until June 2012 reminding staff to complete the PSQ survey. ICF also requested assistance from HUD to ask some of the nonresponsive PHAs/projects to complete the questionnaire. Overall, the efforts led to a response rate of 98.5 percent; 535 out of 543 PHAs/projects completed the PSQ. After the 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. Furthermore, the PSQ was analyzed separately for three major program types: Public Housing, PHA-administered Section 8, and Owner-administered projects.

B. Results

The results are presented in five sections.

1. **PHA/Project Staffing Topics:** This section includes the number and types of staff, staff caseload, staff turnover, minimum education, training and experience requirements for new staff, and staff development and training.
2. **(Re)certification Practices:** This section includes timing, methods, tools and other issues related to the (re)certification process.
3. **Verification Processes:** This section includes frequency, problems and measures taken to overcome the problems associated with the verification process.
4. **Use of Automation:** This section includes topics on the capabilities of the software and utilization of computer tools by the PHA/project.
5. **Quality Control Issues:** This section includes the various aspects of errors, the measures the PHAs/projects took to reduce errors, and PHA/project staff suggestions regarding ways

to reduce errors in the (re)certification process. This section also covers the prevalence of various kinds of errors, causes of those errors and characteristics of households that were more likely to have errors. Additional topics include the strategies used to address and reduce various causes of errors, methods used to clarify and implement HUD policies, the types of reviews conducted to identify and rectify errors, as well as methods used to select cases for review, frequency of review, and tools and techniques used to monitor the (re)certification process.

1. PHA/Project Staffing Topics

Types, Numbers and Caseload of Staff

Beginning in FY 2008, the PSQ distinguished between management companies that were able to provide information specific to one project under their management, and management companies that were not able to provide information specific to a single project within their management as a result of their organizational structure. In FY 2011, organizations that could not provide information specific to a project but provided information regarding their entire organization indicated that they employed an average of 55 staff members supporting an average total of 1,412 units. These organizations had an average ratio of 51 units per total staff (See Exhibit E-1a). PHA-administered Section 8 projects had the highest ratio of units per total staff in the entire organization at 101, Owner-administered projects had the smallest ratio of 24, and Public Housing projects were in the middle with an average of 29 units per total staff in the organization.

In FY 2011, those PHAs and management companies that could provide information regarding a specific project indicated that the average PHA/project had 12 employees including full-time, part-time, and contractual. PHA-administered Section 8 projects had an average of 20 employees, followed by Public Housing with 13, and Owner-administered projects staff with about 6 employees (See Exhibit E-1a). On average, about 600 units were supported by these PHA/project staff across all three program types over a 12-month period, with an average ratio of units per total staff of 53. PHA-administered Section 8 projects had the highest ratio of units per total staff at 130, Owner-administered projects had the smallest ratio of 27, and Public Housing projects were in the middle with an average of 33 units per total staff.

In addition to the number of staff at the organization and PHA/project, the PSQ gathered information from the (re)certification staff who interview the tenants regarding rent calculation, verification tracking, and supervising other staff in performing move-in certifications and annual (re)certifications at a PHA/project. In FY 2011, the average PHA/project had 4 (re)certification staff assigned to 200 cases across all three program types over a 12-month period, for an average ratio of 84 cases per (re)certification staff member (See Exhibit E-1a). Public Housing projects had the highest average (re)certification caseload at 104 households per staff person, Owner-administered projects had the smallest average with 68 cases, and PHA-administered Section 8 projects were in the middle with on average 83 cases per staff member.

Exhibit E-1a: Average Number of Staff and Caseload of Staff, by Program Type

Average Number of Staff and Average Caseload of Staff	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
The Total Number of Staff Employed by the PHA and Organization That Could Not Provide Information Specific to a Single Project. (Full Time, Part Time, and Contractual Staff)	48.2	60.4	58.6	55.3
The Total Number of Assisted Units Supported by These Staff	1,157.7	2,343.8	724.2	1,410.7
Units Per Entire Organization Staff Ratio	*29.4*	*101.4*	*24.0*	*50.6*
Number of Staff an Individual Project Employs, Including Full-Time, Part-Time and Contractual	12.9	19.9	5.6	11.7
The Total Number of Assisted Units Supported by These Staff	413.2	1,713.3	137.3	597.5
Units per Individual Project Staff Ratio	*33.0*	*130.0*	*26.6*	*52.7*
Number of Staff That Work on (Re)Certification or Verification Tasks at the PHA/Project	2.2	9.9	1.7	3.9
The Number of Cases Assigned to Each (Re)Certification Staff Member Over a 12-Month Period	198.9	359.8	102.0	199.6
Cases Per PHA/Project (Re)Certification Staff Ratio	*104.1*	*82.5*	*67.5*	*84.4*

Note: Averages were calculated based on the number of PHAs/projects that responded to the specific items.

New Staff, Experienced Staff and Staff Turnover

The PSQ also collected information about the number of new and experienced staff assigned to conduct (re)certifications. New staff was defined as staff that was hired to conduct (re)certifications, or existing staff that were reassigned to (re)certification tasks in the past 12 months. Forty percent of the PHAs/projects indicated that they assigned new staff to the (re)certification tasks in the past 12 months and had an average number of 2 new staff within these PHAs/projects (See Exhibit E-1b). PHAs/projects also reported that the average number of experienced staff conducting (re)certifications was about four. Furthermore, about 33 percent of PHAs/projects in the study indicated at least one staff member left in the past 12 months. For these PHAs/projects, an average number of 2 (re)certification staff left in the past 12 months.

With respect to the program type, PHA-administered Section 8 projects were the most likely to report hiring new (re)certification staff (53%), hiring the largest number of new (re)certification staff. PHA-administered Section 8 projects were also most likely to have (re)certification staff that left the PHA/project (46%) and to report the largest number of (re)certification staff who had left (3) (See Exhibit E-1b). Conversely, Owner-administered projects were the least likely to report these characteristics.

Exhibit E-1b: Average Number of New and Experienced Staff, by Program Type

New and Experienced Staff	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
PHA/Projects with NEW (Re)Certification Staff Added in the Past 12 Months	36.8%	53.0%	35.2%	40.0%
Average Number of New Staff Assigned to Conduct (Re)Certifications	1.4	2.5	1.7	1.9
Average Number of Experienced Staff Assigned to Conduct (Re)Certifications	2.2	8.8	1.6	3.6
The PHA/Projects with (Re)Certification Staff Who Left the PHA/Project	36.2%	46.0%	23.0%	33.3%
Average Number of (Re)Certification Staff Who Left the PHA/Project	1.4	2.8	1.4	1.9

Note: Averages and percentages were calculated based on the PHAs/projects that responded to the specific items.

The PHAs/projects that experienced staff turnover in the past 12 months were then asked to describe the reasons for their staff leaving their PHAs/projects. Most of them provided a single reason for staff turnover, primarily because only one staff had left over the past 12 months. However, there were some projects that had multiple turnovers and therefore provided multiple reasons for the change in staff. The most common reason for leaving was resignation due to better opportunity, career change, relocation, or promotion (35%) (See Exhibit E-1c). Twenty percent of the PHAs/projects reported they had staff turnover due to work performance-related termination. A minority of PHAs/projects reported staff turnover due to retirement (15%), interagency or interdepartmental transfer (13%), budget and management (9%), or other reasons (10%). Interestingly, PHA-Administered Section-8 projects were slightly more likely to report most of these major reasons for staff turnover. Also noteworthy is that the Owner-administered projects were the least likely to report budget or management issues leading to staff turnover (6%).

Exhibit E-1c: Reasons for Staff Turnover, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Resignation Due to Better Opportunity, Career Changes, Relocation, or Promotion	29.3%	41.9%	33.3%	34.5%
Termination Due to Work Performance-Related Problems	17.4%	23.0%	20.8%	20.2%
Retirement	14.1%	18.9%	11.1%	14.7%
Inter-Agency or Interdepartmental Transfer	19.6%	10.8%	6.9%	13.0%
Budget and Management (e.g., Layoffs, Budget Cuts, New Management)	10.9%	10.8%	5.6%	9.2%
Other	10.9%	8.1%	11.1%	10.1%
N/A or None	19.6%	14.9%	22.2%	18.9%

Note: Percentages were calculated based on the PHAs/projects that had staff turnover.

Education, Training, and Experience Requirements for Staff Working with (Re)certifications

The minimum education requirements for employees working with (re)certifications changed little from the previous years, with a majority of PHAs/projects (66%) requiring at least a high school diploma or equivalent when hiring new staff who will be working with (re)certifications (See Exhibit E-1d). Additionally, 26percent of PHAs/projects reported requiring college degrees while only about three percent of PHAs/projects did not require any education, which was down from 5 percent in FY 2009. With respect to the program type, the Owner-administered projects were the most likely to not to require any education (about 7%) and were also the least likely to require a 2-year college degree (14%) or a 4-year college degree (6%). Conversely, PHA-administered Section 8 projects were the most likely have an education requirement (<1% with no minimum requirement) and were the most likely to require a 2-year degree (19%).

Exhibit E-1d: Minimum Education Requirements for New Employees Working with (Re)certifications, by Program Type

Minimum Education Requirements	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
No Minimum Requirements	2.1%	.7%	6.6%	3.4%
High School/GED	65.1%	62.9%	68.0%	65.6%
2-Year College Degree or Commensurate Experience	16.4%	19.3%	14.2%	16.4%
Bachelor's Degree	12.3%	10.0%	5.6%	9.2%
Other	4.1%	7.1%	5.6%	5.5%

Note: Averages were calculated based on the PHAs/projects that responded to the items.

In addition to minimum education requirements, PHAs/projects also had other requirements for employees working with (re)certifications. The majority of PHAs/projects required background checks (78%), other housing-related experience (55%), or special housing-related training (50%) (See Exhibit E-1e). A special housing-related certification was required by less than half of the PHAs/projects (41%) and only two percent of PHAs/projects reported not having any training, experience, or qualification requirements. The Owner-administered projects were the least likely to require special housing-related training (38%) and were the most likely to rely on special housing-related certification (62%). Conversely, PHA-administered Section 8 projects were the least likely to require special housing-related certification (22%) or housing-related experience (47%). Public Housing projects were the most likely to require special housing-related training (59%).

Exhibit E-1e: Housing-Related Training and Experience Requirements for Employees Working with (Re)certifications, by Program Type

Training and Experience Requirements	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Background Checks such as Valid Driver's License, Credit Checks, Criminal History, or Drug Testing	72.3%	79.3%	82.7%	78.0%
Other Housing-Related Experience	57.9%	47.1%	56.3%	54.5%
Special Housing-Related Training, such as Nan McKay (NMA) or NCHM	59.0%	54.3%	38.1%	50.0%
Special Housing-Related Certification	33.3%	22.1%	62.4%	41.2%
None	4.1%	--	2.0%	2.3%

Note: Percentages were calculated based on the PHAs/projects with training and experience requirements.

The basic skills that the vast majority of the PHAs/projects required for employees working with (re)certifications were customer service and communication skills (93%), computer skills (93%), math and logic skills (89%), and administrative or clerical skills (83%) (See Exhibit E-1f). Case management skills were required by less than half of the PHAs/projects (49%). Overall, hardly any project/PHAs (1%) reported not having any skill requirements for the employees. The biggest differences in basic skill requirements between program types involved case management skills and administrative or clerical skills. PHA-administered Section 8 projects were less likely to require administrative or clerical skills (74%), while Owner-administered projects were less likely to require case management skills (28%). Furthermore, Public Housing projects were slightly more likely not to require any skills (3%).

Exhibit E-1f: Other Basic Skills Required for Employees Working with (Re)certifications, by Program Type

Basic Skills Required	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Customer Service and Communication Skills	92.8%	95.0%	92.9%	93.4%
Computer Skills	94.9%	91.4%	91.9%	92.9%
Basic Math or Logic Skills	88.2%	88.6%	88.8%	88.5%
Administrative or Clerical Skills	83.6%	73.6%	88.3%	82.7%
Case Management Skills	60.0%	62.1%	28.4%	48.9%
None	2.6%	--	1.0%	1.3%

Note: Percentages were calculated based on the number of PHAs/projects with basic skills requirements.

Staff Development and Training

The PSQ collected information about the amount and type of training provided to new and experienced (re)certification staff in the past 12 months. The average number of hours of training received by each newly hired (re)certification staff stayed relatively stable over the years at 130 hours (See Exhibit E-1g), compared to 101 hours on average in FY 2010 and 98 hours in FY 2009. The Projects/PHAs provided a comparable amount of training to their re-assigned staff

and their experienced staff (49 hours and 45 hours, respectively). Owner-administered projects provided the least amount of training to their new or experienced staff (70 hours and 23 hours, respectively), while Public Housing projects provided the most training (188 hours and 79 hours). However, a greater number of training hours was provided to re-assigned staff by PHA-administered Section 8 projects (70 hours).

Exhibit E-1g: Average Number of Training Hours, by Program Type

Training Types	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Average Number of Training Hours Received by Each New (Re)Certification Staff	188.2	132.9	69.9	130.2
Average Number of Training Hours Received by Each Staff Re-Assigned Within the Last 12 Months	38.0	69.6	36.5	48.7
Average Number of Training Hours Received by Each Experienced (Re)Certification Staff	79.1	31.0	22.6	44.6

Note: Averages were calculated based on the PHAs/projects that responded to the specific items.

With respect to the frequency of training the experienced (re)certification staff on new policies, new procedures, or new quality control operations, the vast majority of PHAs/projects (89%) reported always or frequently conducting the training, with the majority (62%) indicating frequently conducting the training (See Exhibit E-1h). Hardly any PHAs/projects acknowledged not conducting training of experienced staff. The Owner-administered projects were slightly more likely to report always or frequently training their experienced (re)certification staff (92%), while Public Housing was the least likely to acknowledge always or frequently conducting training (86%) and were the most likely to report rarely training experienced staff (13%).

Exhibit E-1h: Frequency of Training Experienced Staff, by Program Type

Frequency of Training Experienced Staff	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Never	1.0%	--	1.0%	.8%
Rarely	13.0%	11.4%	7.1%	10.4%
Frequently	64.8%	57.9%	61.4%	61.7%
Always	21.2%	30.7%	30.5%	27.2%
Total: Frequently or Always	86.0%	88.6%	91.9%	88.9%

Note: Percentages were calculated based on the PHAs/projects with training for experienced staff.

The 89 percent of PHAs/projects that frequently or always conducted the training of experienced (re)certification staff were then asked to rank order the three training methods that they've used most frequently. The ranks of these top three methods were combined to calculate the total percentage of PHAs/projects that have used the various methods. At least half of the PHAs/projects rated the following methods to train experienced (re)certification staff as the three most frequent methods: self-training through manuals, videos, or informal questions (59%), specialized training conducted by an outside organization (58%), working with other experienced staff one-on-one

while conducting (re)certifications (52%), and training sessions with the supervisor (51%) (See Exhibit E-1i). Using telecourse or Internet/Web-based training was reported by less than half of PHAs/projects (49%). Unfortunately, changes to the scale of the question yield percentages that are not comparable from year to year.

Public Housing projects were the least likely to use senior staff training sessions with experienced staff (40%) and were the most likely to require employees to read the HUD/PHA/owner manual, watch videos, or ask informal questions (66%) (See Exhibit E-1i). PHA-administered Section 8 projects were the most likely to rely on senior staff to hold training sessions with experienced staff (61%) and tele-course or Internet/Web-based training (55%). Owner-administered projects, conversely, were the least likely to use tele-course or Internet/Web-based training (43%), but were the most likely to rely on specialized training conducted by an outside organization (65%).

Exhibit E-1i: Methods Used to Train Experienced (Re)certification Staff, by Program Type

Methods Used to Train Experienced (Re)certification Staff	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Read HUD/PHA/Owner Manual, Watched Videos, or Asked Informal Questions	65.7%	56.5%	54.1%	58.8%
Attended Specialized Training Conducted by an Outside Organization (e.g., HUD, NAHRO)	53.6%	53.2%	65.2%	58.0%
Worked One-On-One With Other Experienced Staff During the Conduct of (Re)Certifications	51.2%	53.2%	53.0%	52.4%
Supervisor/Senior Staff Held Training Sessions With Experienced Staff Explaining Procedures	40.4%	61.3%	54.7%	51.4%
Participated in Telecourse or Internet/Web-Based Training (e.g., Webcasts, Webinars)	51.8%	54.8%	43.1%	49.3%

Note: Percentages were calculated for PHAs/projects that frequently or always provided training to experienced staff.

PHAs/projects were also asked to rank order the top three methods they used most frequently to train their new (re)certification staff. The ranks of the top three methods were combined to calculate the total percentage of PHAs/projects that have used the various methods. The methods that were rated as the three most frequent methods by at least half of the PHAs/projects to train their new (re)certification staff were working one-on-one with experienced staff (82%); self-training through manuals, videos, or informal questions (53%); and attending specialized training conducted by an outside organization (53%) (See Exhibit E-1j). Less than half of the PHAs/projects reported using supervisor/senior staff training sessions (45%) and telecourse or Internet/Web-based training (34%).

Owner-administered projects were the least likely to rely on HUD/PHA/owner manuals, videos, or informal questions (45%), or to have new staff work one-on-one with experienced staff (76%), while being the most likely to use specialized training conducted by an outside organization (61%) (See Exhibit E-1j). PHA-administered projects were the most likely to have staff working one-on-one with experienced staff (88%) and to have supervisor/senior staff hold training sessions with new staff (49%). Public Housing projects, however, were the least likely to have supervisor/senior staff holding training sessions (40%) or to rely on specialized training conducted by an outside organization (46%).

Exhibit E-1j: Most Frequently Used New (Re)certification Staff Training Methods, by Program Type

Methods Used for Training New (Re)certification Staff	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
New Staff Worked One-On-One With Experienced Staff to Conduct (Re)Certifications	84.3%	87.5%	76.4%	82.4%
Read HUD/PHA/Owner Manual, Watched Videos, or Asked Informal Questions	57.5%	57.7%	44.9%	53.1%
Attended Specialized Training Conducted by an Outside Organization (e.g., HUD, NAHRO)	45.7%	51.0%	60.6%	52.5%
Held Training Sessions for Supervisor/Senior Staff to Explain Procedures to New Staff	40.2%	49.0%	46.5%	45.0%
Participated in Telecourse or Internet/Web-Based Training (e.g., Webcasts, Webinars)	35.4%	34.6%	33.1%	34.4%

Note: Percentages were calculated for PHAs/projects that reported conducting training of new (re)certification staff in the past 12 months.

In addition to information regarding the types and amount of training provided to the (re)certification staff, the PSQ also collected qualitative information on the PHA/project staff's descriptions of the skills or trainings that they think are most important for a staff conducting (re)certification. Of the PHAs/projects that provided suggestions, the most common responses were that the staff needed skills and training in knowledge of PHA and HUD policies (43%); rent, income, and expense calculations (32%); customer service skills (24%); general office skills (21%); as well as specific housing occupancy specialist training (20%) (See Exhibit E-1k). The rest of the items were reported by the minority of the PHAs/projects.

Exhibit E-1k: Training and Skills Suggested for (Re)certification Staff, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
PHA and HUD Policies	40.6%	44.9%	42.7%	42.6%
Rent Calculation Including Income, Expense Calculations	38.3%	39.3%	19.1%	31.7%
Customer Service: People, Communication, Language, and Interview Skills	22.7%	33.6%	16.8%	23.8%
General Office Skills: Detail Oriented, Organizational, Time Management, and Math/Bookkeeping Skills, Etc…	16.4%	24.3%	21.4%	20.5%
Housing Occupancy Specialist Training (e.g., Nan McKay, COS, HUD)	13.3%	17.8%	27.5%	19.7%
Management Training	10.2%	18.7%	9.9%	12.6%
EIV Training	9.4%	11.2%	13.7%	11.5%
HUD-Related Computer Software Skills (e.g., Rent Calculation, PIC)	12.5%	8.4%	9.2%	10.1%
General Computer Skills	5.5%	10.3%	7.6%	7.7%
Verification Process	10.2%	7.5%	4.6%	7.4%
Other	5.5%	7.5%	6.1%	6.3%

Note: Percentages were calculated for PHAs/projects that had suggestions regarding the (re)certification skills or trainings.

2. The (Re)certification Process

Time Allowed for the (Re)certification Process

Regarding the (re)certification process, PHAs/projects were asked the number of days prior to the effective date that they started conducting certain (re)certification tasks. On average, the PHAs/projects mailed letters to the tenants 103 days prior to the (re)certification. They averaged 78 days prior to the (re)certification for conducting household interviews, 75 days prior to the (re)certification for requesting third-party verifications, and 50 days prior to the (re)certification effective date for calculating rent (See Exhibit E-2a). With respect to the program type, the Owner-administered projects started these (re)certification tasks the earliest, while Public Housing projects were the last to start these tasks.

Exhibit E-2a: Average Number of Days Prior to the Effective Date (Re)certification Tasks are Performed, by Program Type

Tasks Performed Prior to the Effective Date of (Re)certification	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Mail Letter to Household Advising Them of an Upcoming Annual Review	88.7	99.9	120.3	103.4
Interview Household Member	66.2	74.1	90.9	77.8
Request/Obtain Verification From Third Parties	62.4	73.0	88.0	74.6
Calculate the Rent	47.5	46.4	55.4	50.1

Note: Averages were calculated based on the PHAs/projects that responded to the specific items.

Methods Used to Gather Information for the (Re)certification Process

When conducting move-in/initial certifications, PHAs/projects were most likely to obtain household information by conducting a telephone interview (for an average of 91% of the certifications) and were less likely to conduct an in-person interview (59% of the cases) or to use a form (52% of the cases) (See Exhibit E-2b). During the annual (re)certifications, PHAs/projects were the most likely to obtain household information by completing a form (for an average of 85% of the cases) and were much less likely to conduct in-person or telephone interviews (7% of cases). These data are in sharp contrast to data from previous years, when over 90 percent of the PHAs/projects indicated that they conducted in-person interviews to gather household information during both move-in and annual (re)certifications. However, the data are not comparable when compared to last year's questionnaire due to a change in the question's wording. This year, the PSQ asked for the percent of cases where PHAs/projects used the three methods to obtain household information. In previous years, the PSQs asked whether they used the three methods or not.

Exhibit E-2b: Average Percent of Cases for Which Methods Were Used to Obtain Household Information for (Re)certifications, by Program Type

Methods Used to Obtain Household Information for (Re)certifications	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
MOVE-IN: Have the Tenant Complete a Form and Return it Via Mail, Drop Box in the Office, or In-Person	52.8	54.5	50.5	52.4
MOVE-IN: Conduct an In-Person Interview	65.0	61.9	50.0	58.6
MOVE-IN: Conduct a Telephone Interview	93.4	84.7	92.8	90.9
ANNUAL: Have the Tenant Complete a Form and Return it Via Mail, Drop Box in the Office, or In-Person	87.6	70.6	92.4	85.0
ANNUAL: Conduct an In-Person Interview	3.2	11.9	7.9	7.4
ANNUAL: Conduct a Telephone Interview	7.6	9.3	5.9	7.4

Note: Averages were calculated based on the number of PHAs/projects that responded to the specific items.

Tools Used to Gather Information in the (Re)certification Process

About 88 percent of the PHAs/projects used a formal guide or a set of questions to conduct the (re)certification interviews (See Exhibit E-2c). These PHAs/projects were then asked to indicate the various types of formal guides that they use when interviewing tenants. These PHAs/projects were more likely to use questionnaires developed in house (67%), or to use their own checklists (59%), compared to only 15 percent who use questionnaires developed by a third-party vendor.

The Owner-administered projects were the most likely to use a formal guide (95%), whereas PHA-administered projects were the least likely to do so (80%) (See Exhibit E-2c). The Owner-administered projects were least likely to use their own questionnaires (64%) or checklists (51%) and were the most likely to rely on a vendors' questionnaires (20%). Conversely, PHA-administered Section 8 projects were the most likely to use their own questionnaires (73%) and were the least likely to rely on vendors (9%). Public Housing projects were the most likely to use their own checklists (67%).

Exhibit E-2c: Use and Types of Formal Guides When Interviewing Tenants, by Program Type

Use and Types of Formal Guides	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Formal Guide or Set of Questions Used to Interview Tenants During the (Re)Certification Process	85.9%	80.0%	94.9%	87.7%
* Type of Formal Guide: Questionnaire Developed Specifically by the PHA/Project	67.1%	73.2%	63.6%	67.2%
* Type of Formal Guide: Checklist Developed by the PHA/Project	66.5%	59.8%	51.3%	58.7%
* Type of Formal Guide: Questionnaire Developed by a Vendor	12.2%	8.9%	20.3%	14.7%

* Percentages were calculated for PHAs/projects that used formal guide or set of questions.

Methods Used to (Re)certify Households with Non-English-Speaking Tenants

The majority of PHAs/projects (65%) reported having tenants who speak a language other than English as their primary language (See Exhibit E-2d). Within these PHAs/projects, about 27 percent of the tenant population speaks a language other than English as their primary language. There are two interesting findings regarding non-English speaking tenants. First, there is a sharp contrast by program type, where only 50 percent of the Owner-administered projects reported having non-English speaking tenants, compared with 82 percent of the PHA-administered Section 8 projects. The second interesting finding involves the proportion of non-English speaking tenants within program types. The Owner-administered projects with non-English speaking tenants indicated that 30 percent of their population are non-English speaking, whereas the PHA-administered Section 8 projects with non-English speaking tenants reported that only 19 percent of their tenants are non-English speaking. So, while it seems the proportion of non-English speaking households is higher in PHA-administered projects, non-English speaking tenants are actually more clustered together in Owner-administered than in PHA-Administered projects.

The PHAs/projects that have tenants who speak a language other than English used a combination of methods to communicate with their non-English speaking tenants. These PHAs/projects were most likely to rely on tenants to bring their own translators (71%), followed by using bi-lingual staff (70%) or using translated forms or third-party translators (54% each) (See Exhibit E-2d). The Owner-administered projects were least likely to use bi-lingual staff (60%) or third-party translators (38%) and were more likely to rely on tenants' translators (73%). The Public Housing projects were the most likely to use bi-lingual staff (77%) and were the least likely to use tenants' translators (68%), while PHA-administered Section 8 projects were the most likely to rely on third-party translators (65%).

Exhibit E-2d: Prevalence of Tenants Who Speak Language Other Than English as Their Primary Language, and Methods Used to Communicate with Them, by Program Type

Tenants Who Speak Language Other Than English and Methods Used to Communicate with Them	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Percentage of PHA/Projects With Tenants Who Speak a Language Other Than English as Their Primary Language	68.6%	82.1%	50.3%	65.3%
* Average Percentage of Tenants Who Speak a Language Other Than English	30.9%	19.3%	30.0%	26.8%
* Methods of Communication: Use Translators Brought by Tenants Themselves	67.7%	73.9%	72.7%	71.2%
* Methods of Communication: Use Bilingual Project Staff	77.4%	71.3%	59.6%	70.3%
* Methods of Communication: Use Forms Written in a Language Other than English	54.9%	53.0%	52.5%	53.6%
* Methods of Communication: Use Translators Provided by PHA/Project (Third-Party Translators)	54.9%	65.2%	38.4%	53.6%

* Percentages were calculated for PHAs/projects that had non-English speaking tenants.

Procedural Differences in Processing (Re)Certifications for Households with Stable vs. Volatile Incomes

When PHAs/projects were asked whether (re)certification procedures were the same for households with stable income (such as Social Security/SSI) compared to households with volatile sources of income (such as income from seasonal employment or employment providing sporadic or infrequent income), virtually all PHAs/projects (94%) responded that (re)certification procedures were the same (See Exhibit E-2e). This is similar to 92 percent reported in FY 2010, 91 percent in FY 2009, and 93 percent in FY 2008. The Owner-administered projects were most likely to maintain the same procedures (97%), followed by PHA-administered Section 8 projects (94%), and Public Housing projects (92%).

The PHAs/projects that indicated their procedures were different for households with volatile vs. stable income were then asked to describe the nature of these differences. The most common differences mentioned by PHAs/projects were that households with volatile, low or no sources of income were certified more frequently (32%); since they were difficult to (re)certify and verify, they were treated differently, often by relying on other verification sources of information (32%) (See Exhibit E-2e). A substantial proportion of PHAs/projects also described differences in reporting and updating requirements, such as when unstable income is low or none, a zero income questionnaire is used, whereas for stable income, only an updated form is used (36%). With respect to the program type, Owner-administered projects did not report any differences in certification but were the most likely to describe differences in verifications (50%) and differences in reporting and updating requirements (50%).

Exhibit E-2e: (Re)Certification Process Differences Between Households with Volatile and Stable Incomes, by Program Type

Households with Volatile and Stable Incomes	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Annual (Re)Certification Procedures Are the Same for Households With Only Stable Income as for Households With More Volatile Sources of Income	91.7%	93.6%	96.9%	94.1%
* Differences in Certification: Household With Unstable Income, Zero or Very Low Income are Certified More Frequently (e.g., Monthly, Every 60-90 Days, 180 Days); Households With Fixed Stable Income Are Recertified Less Frequently	43.8%	33.3%	--	32.3%
* Differences in Verification: Volatile Sources of Income Are Verified Differently and are Usually More Difficult to Verify (e.g., EIV Provides Social Security/SSI Verification; Must Use Other Sources for Seasonal Information such as Employer-Provided Verification)	31.3%	22.2%	50.0%	32.3%
* Differences in Reporting and Updating Requirements: When Unstable Income is Low or None, a Zero Income Questionnaire is Used, Whereas for Stable Income Only Income updated on a Form is Used	25.0%	44.4%	50.0%	35.5%
* Other	12.5%	--	16.7%	9.7%

* The percentages are based on the PHAs/projects whose procedures are different for households with volatile sources of income than for those with stable sources of income.

3. The Verification Process

Frequency of Verifications

The PSQ collected information on the frequency of verification of various incomes, expenses and other household characteristics in the past 12 months. PHAs/projects were asked whether these items were verified only during move-in certifications, only during annual (re)certifications, during both move-in/initial and annual (re)certifications, or during neither certification type. In general, virtually all of the PHAs/projects (at least 95%) indicated that they verify all of the listed items while processing either move-in or annual (re)certifications.

With respect to the timing of the verification, most of the incomes, expenses and household characteristics were reported to be verified during both move-in and annual (re)certifications by at least 92 percent of the PHAs/projects. The only items that were verified during both move-in and annual (re)certifications by less than 92 percent of PHAs/projects were some of the household characteristics (See Figures 1 thru 4, below). It makes sense that PHAs/projects were less likely to verify static information such as date of birth, social security numbers, citizenship, and disability information during subsequent annual (re)certifications. However, even for these items, the majority of PHAs/projects reported conducting verification during both move-in certifications and annual (re)certifications (65% for age, 61% for SSNs, and 78% for disability). The only item that was reported to be verified during move-in certification by the majority of PHAs/projects was citizenship status (53%).

Most of the differences in verification practices between there program types occurred in the household characteristics, where Owner-administered projects were slightly more likely to verify these household characteristics only during move-in certifications, while Public Housing projects were slightly more likely to verify these household characteristics during both move-in and annual (re)certifications (See Figures 1 thru 4, below).

Figure 1. Verify Age

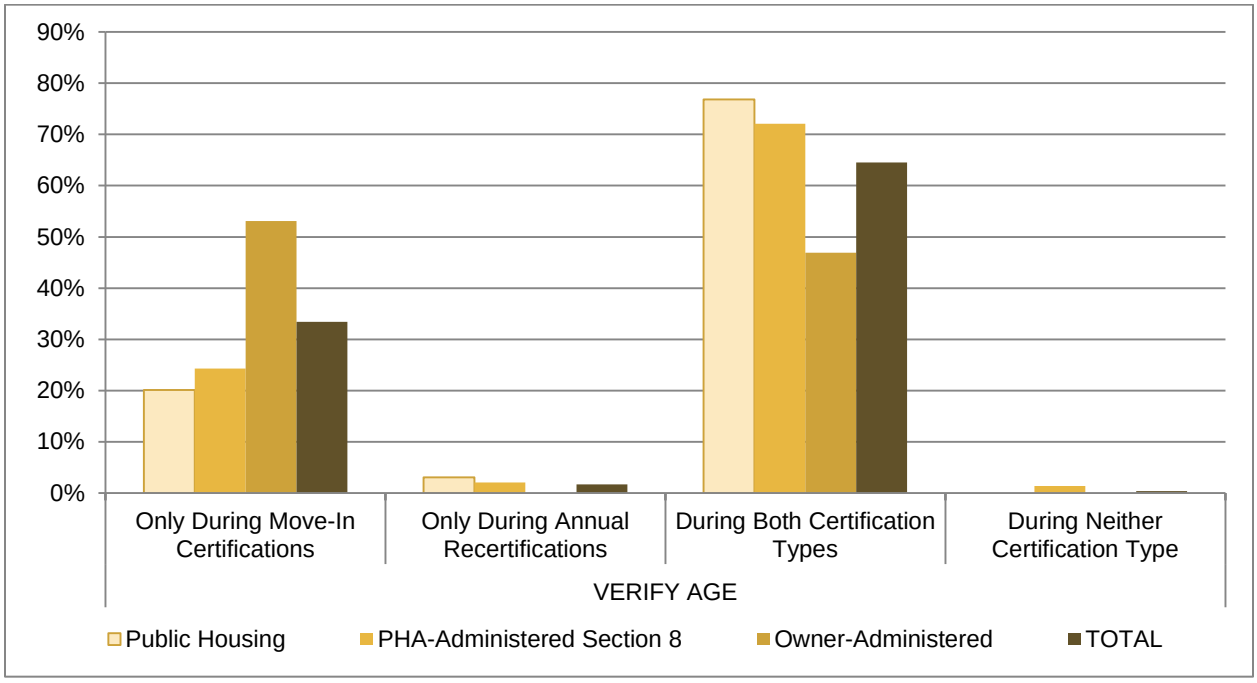


Figure 2. Verify Social Security Numbers

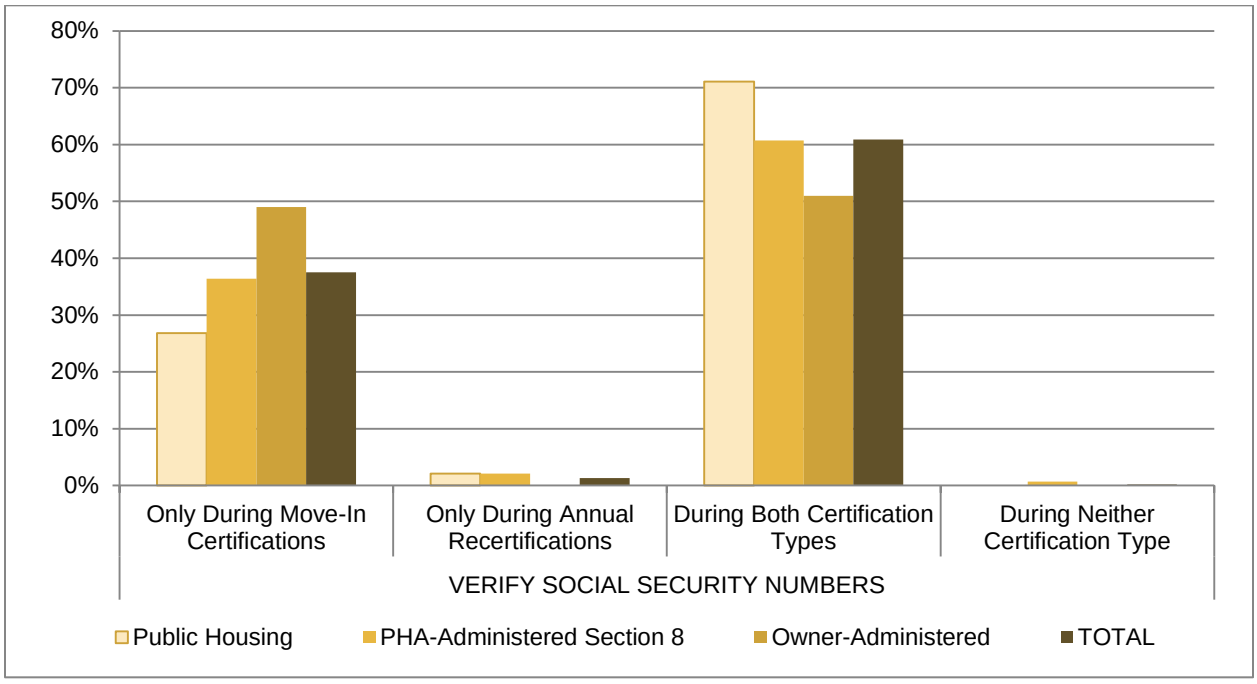


Figure 3. Verify Citizenship

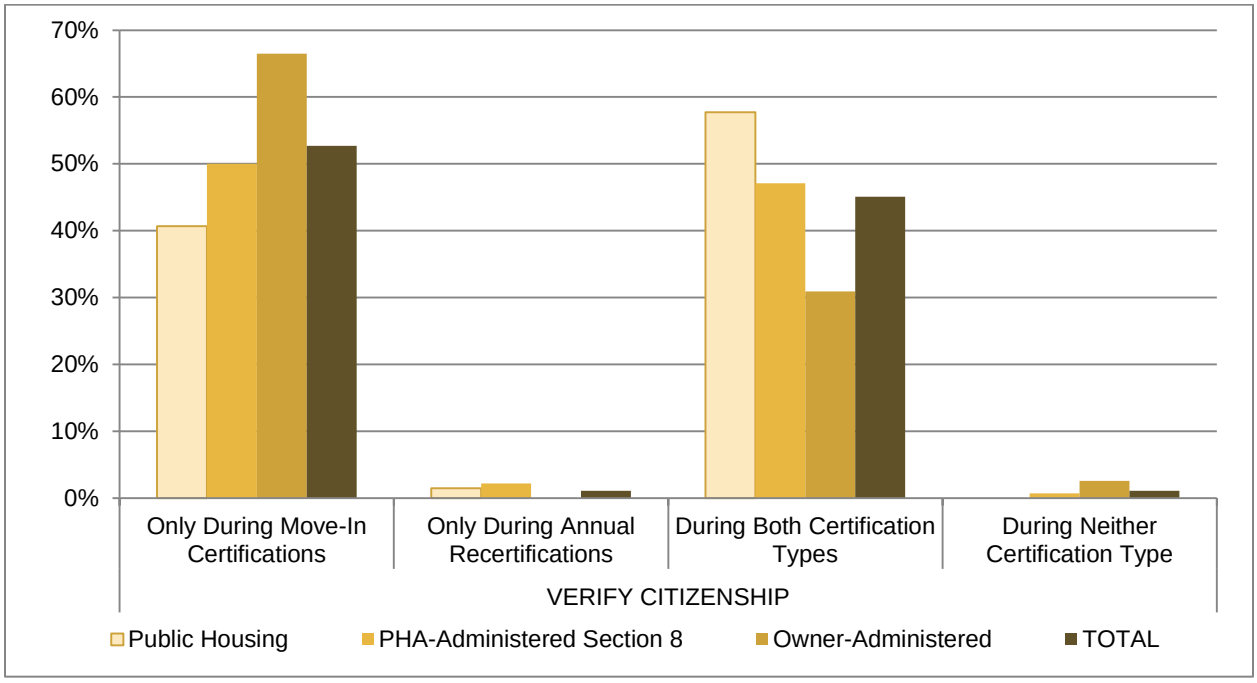
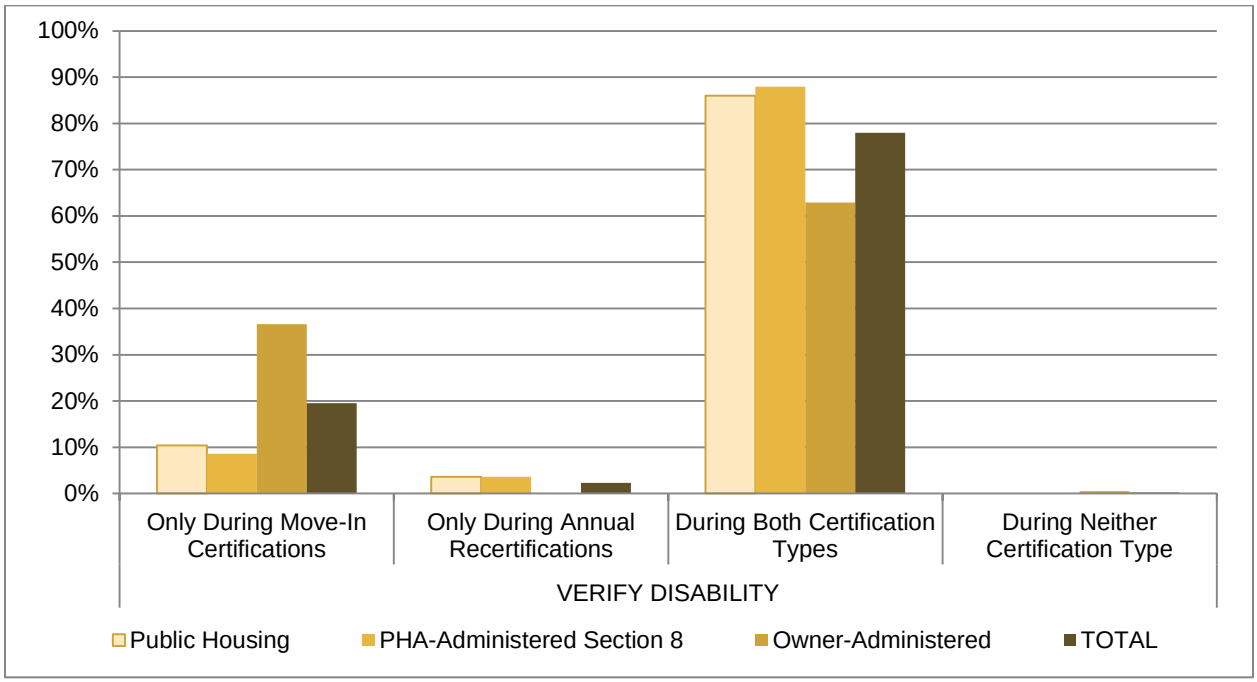


Figure 4. Verify Disability



Problems in Obtaining Complete Verification

PHAs/projects were asked to rank order the top three issues they encountered in obtaining complete verifications. The ranks of the top three issues were combined to calculate the total percentage of all PHAs/projects that have encountered the various issues. The issues ranked by all PHAs/projects as three most frequently encountered were employers not responding to requests in timely manner (76%), followed by tenants providing incomplete or inaccurate information (71%), other institutions not responding in a timely manner (66%), and employers not providing all requested information (45%) (See Exhibit E-3a). The other issues (i.e., housing staff not following up when verification is not received as requested and not having enough staff to complete all of the verification procedures) were endorsed by less than eight percent of all PHAs/projects.

With respect to program types, Owner-administered projects were the most likely to report other institutions not responding in a timely manner (79%), but were the least likely to acknowledge the other issues in obtaining complete verifications (See Exhibit E-3a). The Public Housing projects, on the other hand, were the most likely to report having these issues in obtaining complete verifications, with an exception of employers not providing all requested information, which was the most likely to be endorsed by PHA-administered Section 8 projects (53%).

Exhibit E-3a: Causes of Problems in Obtaining Complete Verifications, by Program Type

Issues that Caused Problems in Obtaining Complete Verifications	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Employers Not Responding to Requests in a Timely Manner	80.9%	78.6%	70.4%	76.4%
Tenants Providing Incomplete or Inaccurate Third-Party Contact Information	75.4%	71.4%	67.3%	71.4%
Other Institutions (e.g., Banks, TANF Agency) Not Responding in a Timely Manner	55.3%	62.9%	78.9%	66.0%
Employers Not Providing All Requested Information	46.7%	52.9%	38.7%	45.4%

Note: Percentages were calculated for all PHAs/projects.

Cooperativeness of Various Institutions in Verifying Tenant Information

PHAs/projects were asked to rank order the three groups that were the least cooperative in providing verification information in the past 12 months. The ranks of these top three groups were combined to calculate the total percentage of all PHAs/projects that have encountered various uncooperative groups. The types of groups that were rated as uncooperative when verifying tenant information included employers (59%), financial institutions (53%), tenants (50%), health care providers (36%), social services (33%), and insurance companies (24%) (See Exhibit E-3b). Educational institutions were perceived as uncooperative by less than 15 percent of all PHAs/projects.

Public Housing projects were the most likely to view employers, tenants, and social services as not cooperative (63%, 59%, and 37%, respectively), but were the least likely to report other institutions as being uncooperative. Conversely, the Owner-administered projects were the least

likely to view employers, tenants or social services as not cooperative (37%, 54%, and 29%, respectively), while being more likely to view the other groups as uncooperative.

Exhibit E-3b: Groups and Institution Types that Were Not Cooperative When Verification Information Was Requested, by Program Type

Non-Cooperative Groups and Institutions	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Employers	62.8%	60.7%	53.8%	58.9%
Financial Institutions (e.g., Banks, Investment Firms)	42.7%	51.4%	63.8%	52.8%
Tenants	59.3%	55.0%	36.7%	49.8%
Health Care Providers (e.g., Doctors, Pharmacies)	27.1%	39.3%	42.2%	35.9%
Social Services (e.g., TANF, SNAP, Child Support Enforcement)	37.2%	33.6%	28.6%	33.1%
Insurance Companies (e.g., Health Insurance)	17.6%	23.6%	30.2%	23.8%

Note: Percentages were calculated for all PHAs/projects.

Measures Taken When Verification Requests Were Outstanding

When problems and difficulties arose in verifying information, PHAs/projects tried to resolve these issues though a variety of methods. PHAs/projects were asked to rank the three actions they took most frequently when verification was not provided as requested. These ranks were combined to calculate the total percentage of PHAs/projects that have reported the various actions. When verification was not provided, most PHAs/projects most frequently called third-parties to obtain verification information or sending follow-up letter to third-party (about 70% each) (See Exhibit E-3c). Less than half of PHAs/projects with outstanding verifications reported using electronic verification or data matching (45%), calling tenants (40%), or sending follow-up letters to tenants (40%), while the minority acknowledged accepting other, less preferred verification information (28%).

The Owner-administered projects were the most likely to call or send letters to third-parties (82% and 76%, respectively), but were the least likely to rely on other methods (See Exhibit E-3c). PHA-administered Section 8 projects were the least likely to call or send letters to third-parties (60% and 59%, respectively), but were slightly more likely to use other methods. The Public Housing projects were the least likely to resort to accepting less preferred verification (19%).

Exhibit E-3c: Measures Taken When Verification Was Not Provided As Requested, by Program Type

Measures Taken When Verification Was Not Provided	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Sent Follow-Up Letter to Third-Party	72.3%	59.3%	75.9%	70.2%
Called Third-Party	63.4%	60.0%	82.1%	69.4%
Used Electronic Verification or Data Matching (e.g., EIV)	51.8%	54.3%	30.3%	44.5%
Called Tenant	41.4%	40.0%	38.5%	39.9%
Sent Follow-Up Letter to Tenant	44.0%	47.1%	30.8%	39.9%
Accepted Other/Less Preferred Verification	18.8%	32.9%	32.8%	27.8%

Note: Percentages were calculated for PHAs/projects that reported their actions when verification was not provided.

4. Use of Automated Systems

Capabilities of Computer Software Regarding the (Re)Certification Process

Automated systems and computer software continue to play an increasingly integral part in a PHA/project's daily tasks. Ninety five percent of PHAs/projects indicated that they've used computer software to help calculate tenant rent (see Exhibit E-4a). Of these PHAs/projects, the vast majority reported that their software was able to submit data to PIC/TRACS (94%), bring forward household-specific information from previous 58/59 forms (92%), annualize individual sources of income/expenses (92%), contain pre-loaded information (90%), and enter the 50058/59 after its manual completion (82%). Less than half of the PHAs/projects reported that their computer systems enable them to manually annualize income and expenses (45%); manually enter the utility allowance, payment standard, contract rent, etc…, for each unit type or each individual household (35% and 26%, respectively); and manually add together all sources of income/expenses and calculate the total adjusted income (20%). The Public Housing projects were slightly less likely to report most of these capabilities of their computer systems.

Exhibit E-4a: Tasks Performed by Computer Software, by Program Type

Tasks Performed by Computer Software	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Helps Calculate Tenant Rent	92.8%	96.4%	95.4%	94.7%
Submits Data to PIC/TRACS	90.0%	94.1%	96.8%	93.6%
Brings Forward Household-Specific Information From Previous 58/59s and Allows One to Update it With Current Information	86.1%	94.1%	96.8%	92.2%
Annualizes Individual Sources of Income/Expenses When Rate and Frequency Income or Expense is Entered	89.4%	97.0%	91.5%	92.2%
Contains Pre-Loaded Information such as Payment Standards or Utility Allowances and Selects the Appropriate Standard/Allowance Based on Household Type, Total Annual Income, or Unit Size	88.3%	91.9%	90.4%	90.1%
Allows 50058/59 Data Entry After its Manual Completion	80.6%	81.5%	84.6%	82.3%
Adds Together All Sources of Income/Expenses and	43.3%	44.4%	46.8%	44.9%

Tasks Performed by Computer Software	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Calculates Total Adjusted Income, but Only After Manually Annualizing Income and Expense for Each Type of Income/Expense				
Requires Manually Entering of the Utility Allowance, Payment Standard, Contract Rent, etc…, For Each Unit Type	36.7%	38.5%	29.8%	34.6%
Requires Manually Entering the Utility Allowance, Payment Standard, Contract Rent, etc…, for Each Individual Household	28.9%	35.6%	17.6%	26.4%
Requires the Annualization of Income and Expenses for Each Type of Income/Expense, Manual Addition of all Sources of Income/Expenses and Calculation of the Total Adjusted Income Prior to Entry into the Computer System	23.9%	14.1%	19.1%	19.5%

Note: Percentages were calculated for PHAs/projects that indicated using the computer software.

Use of Computers to Assist in the (Re)certification Process

PHAs/projects were also asked to describe how they use their computer software systems. Virtually all of the PHAs/projects (at least 94%) with the computer software reported using it to print the 50058/50059 form; maintain demographic information about residents; calculate rent, income, or allowances; print letters to tenants; and input verified information (See Exhibit E-4b). The majority also acknowledged using the computer software to assign (re)certification dates/appointments (73%), keep track of pending verifications (64%), and conduct rent reasonableness comparisons (52%). Other uses of computer systems (e.g., inputting answers from a tenant interview or conducting automated tenants interviews) were reported by less than half of the PHAs/projects (48% and 20%, respectively). It is worth noting that the PHA-administered Section 8 projects were the least likely to conduct computer-assisted automated interviews with tenants (15%).

Exhibit E-4b: 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	
Print the 50058/50059 Form	96.9%	98.6%	98.5%	97.9%
Maintain demographic information about residents	96.9%	99.3%	95.9%	97.2%
Calculate Rent, Income, or Allowances	98.4%	98.6%	94.4%	97.0%
Print Letters to Tenants	95.9%	94.3%	97.4%	96.0%
Input Verified Information	93.3%	94.3%	94.4%	94.0%
Assign (Re)Certification Dates/Appointments	74.1%	80.0%	67.3%	73.2%
Keep Track of Pending Verifications	58.0%	60.0%	71.4%	63.5%
Conduct Rent Reasonableness Comparisons	46.1%	80.7%	37.2%	52.0%
Input Answers From a Tenant Interview Transcript or Checklist	51.8%	44.3%	47.4%	48.2%
Conduct Computer-Assisted Automated Interviews With Tenants	20.7%	15.0%	24.0%	20.4%

Note: Percentages were calculated for PHAs/projects that indicated using the computer software.

5. Quality Control Procedures

Prevalence of Various Types of Errors

PHAs/projects were asked to rank-order the three types of errors that they most frequently found during the quality control review process. The ranks of these top three errors were combined to calculate the total percentage of all PHAs/projects that reported the various errors. The majority of PHAs/projects (57%) rated missing or incomplete verifications of income as the most frequent error found after reviewing (re)certifications, followed by mistakes in calculating rent (47%), and missing or incomplete verification of expenses (46%) (See Exhibit E-5a). Twenty-two percent of all PHAs/projects indicated that they found cases with overdue (re)certifications, and only 3% reported encountering cases with mistaken determination of eligibility. However, almost a quarter of PHAs/projects also reported encountering other types of errors not covered by the questionnaire.

The Owner-administered projects were the least likely to report finding cases with missing or incomplete verifications of income (54%) or overdue (re)certifications (16%), but were the most likely to encounter cases with missing or incomplete verification of expenses (51%). PHA-administered projects were most likely to report mistakes in calculating rent (60%), but were least likely to have cases with missing or incomplete verification of expenses (40%). Public Housing projects were slightly more likely to encounter cases with missing or incomplete verifications of income (59%) and cases with mistaken determination of eligibility (5%).

Exhibit E-5a: Prevalence of Various Types of Errors, by Program Type

Types of Errors Found in Cases	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Missing or Incomplete Verifications of Income	59.3%	57.9%	54.3%	57.1%
Mistakes in Calculating Rent	41.2%	60.0%	42.2%	46.5%
Missing or Incomplete Verification of Expenses	44.2%	40.0%	50.8%	45.5%
Overdue (Re)Certifications	25.6%	26.4%	15.6%	22.1%
Determination that Applicants are Eligible When They Should Not be Eligible	5.0%	1.4%	2.0%	3.0%
Other Types of Errors	17.6%	30.0%	24.6%	23.4%

Note: Percentages were calculated for all PHAs/projects.

Causes of Errors

PHAs/projects were asked to rank the three causes of errors in eligibility determinations and rent calculations. These top three causes of errors were combined to calculate the total percentage of all PHAs/projects that reported the various causes of errors. As in the past few years, the issue that most frequently caused errors was once again tenants providing inaccurate or incomplete information (64%), followed by complex HUD regulations for rent calculations (35%), complexity of using electronic sources (31%), and not having enough staff to handle the workload (21%) (See Exhibit E-5b). The other causes of errors were rated as frequent by the minority of PHAs/projects.

The sharpest contrast between program types was regarding not having enough staff to handle the workload, reported by 34 percent of the PHA-administered Section 8 projects and only 8 percent of the Owner-administered projects. The PHA-administered Section 8 projects were also more likely to report most of the other causes of eligibility errors.

Exhibit E-5b: Causes of Errors in Eligibility Determinations and Rent Calculations in the Past 12 Months, by Program Type

Causes of Errors in Eligibility Determinations and Rent Calculations	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Tenants Providing Inaccurate/Incomplete Information	65.3%	71.4%	58.3%	64.3%
Complex HUD Regulations for Rent Calculations	27.6%	41.4%	37.7%	34.9%
Complexity of Using Electronic Sources Such as EIV for Gathering Information About Tenants	31.7%	20.7%	37.2%	30.9%
Not Having Enough Staff to Handle the Workload	25.1%	34.3%	8.0%	21.2%
Frequent Changes in HUD Regulations Concerning Eligibility for Assistance	6.5%	7.1%	21.1%	12.1%
Complexity of Determining Eligibility for Assistance	10.6%	12.9%	8.5%	10.4%

Note: Percentages were calculated for all PHAs/projects.

Characteristics of Households That Were More Likely To Have Errors

Less than a quarter of PHAs/projects (24%) reported having certain types of tenants who were more likely than others to have errors in eligibility determinations and rent calculations (See Exhibit E-5c). The Owner-administered projects were the least likely to report having such tenants (20%), while PHA-administered Section 8 projects were the most likely (29%).

The PHAs/projects who reported that certain households that were more likely to have errors were asked to describe these households. The households that were described as error prone included those with multiple sources and types of income (26%), large families (18%), households with volatile income (16%), and households with expenses (16%) (See Exhibit E-5c). With respect to the program type, the Public Housing projects were the most likely to report households with multiple sources and types of income (29%), but were the least likely to acknowledge households with expenses (3%) as error prone. PHA-administered projects were the most likely to report large families (23%), but were the least likely to view households with multiple/complex sources of assets (7%) as error prone.

Exhibit E-5c: Characteristics of Households That Are More Likely To Have Errors, by Program Type

Characteristics	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
PHA/Projects That Reported Having Certain Types of Tenants Who Were More Likely Than Others to Have Errors	24.7%	28.6%	19.9%	24.0%
* Households With Multiple Sources and Types of Income	29.0%	23.3%	25.7%	26.0%
* Large Families	16.1%	23.3%	14.3%	17.7%
* Households With Volatile Income	16.1%	16.7%	14.3%	15.6%
* Households With Expenses (e.g., Medical, Childcare)	3.2%	23.3%	20.0%	15.6%
* Households With Multiple/Complex Sources of Assets	12.9%	6.7%	14.3%	11.5%
* Other/Irrelevant and N/A	22.6%	6.7%	14.3%	14.6%

*: Percentages are based on PHAs/projects that indicated households with certain characteristics were more likely to have errors.

Strategies Used to Address the Causes of Errors Identified

In order to minimize various types of errors in the (re)certification process, PHAs/projects take corrective and preventative actions. In FY 2011, the PSQ collected information on the various strategies that PHAs/projects used to reduce errors using the open-ended responses. PHAs/projects described the following error-reduction strategies: using tenant communication (e.g., sending informative mails, termination letters, request additional interviews, self-documentations) (42%); providing adequate access to information resources (e.g., discussing issues and policies at staff meetings; referring to HUD field offices, HUD guidebooks or other policy sources; and staying up to date with HUD policies) (30%); training staff on policy, procedures and topics with the most common errors; providing one-on-one training as well as training with experienced staff (27%); and improving the review process (e.g., review selected items or cases and make corrections, double check one's own work, review selective cases, allow more time for processing) (27%) (See Exhibit E-5d). The rest of the strategies were reported by less than a quarter of the PHAs/projects.

With respect to the program type, Public Housing projects were the most likely to report tenant communication as a strategy to reduce errors (51%), but were the least likely to report training staff as a strategy (19%). Owner-administered projects were the least likely to report tenant communication as a strategy (35%), but were the most likely to report improving the review process as a strategy (33%). Notably, Owner-administered projects were also the least likely to report staff management strategies (8%).

Exhibit E-5d: Strategies Used by PHAs/projects To Reduce (Re)Certification Errors, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Tenant Communication (e.g., Send Informative Mails and Termination Letters, Request Additional Interviews, Request Self-Documentations)	50.7%	38.9%	34.7%	41.5%
Provide Adequate Access to Resources (e.g., Discuss Issues and Policies at Staff Meetings; Refer to HUD Field Office, HUD Guidebooks or Other Policy Sources; and Stay Up-to-Date with HUD Policies)	28.3%	30.1%	30.6%	29.6%
Improve Review Process (e.g., Review Selected Items or Cases and Make Corrections, Double Check One's Own Work, Review Selective Cases [Move-Ins Processed by New Hires], Allow More Time for Processing)	24.6%	23.9%	32.6%	27.3%
Train Staff on Issues such as Policy, Procedures, Topics With Most the Common Errors, and Provide One-On-One Training as well as Training With Experienced Staff	18.8%	33.6%	29.2%	26.8%
Improve Compliance, Checks and Balances (e.g., Outside Audits/Audits by Compliance Staff, Consult Specialists, Streamline and Improve Internal Processes and Follow Up Procedures, Use Computer System With Internal Checks)	21.0%	24.8%	24.3%	23.3%
Staffing Management (e.g., Hire/Re-Assign Additional Staff, Allow for Comp/Overtime for Staff, Evaluate/Terminate Employees)	19.6%	20.4%	7.6%	15.4%
None/Other/Irrelevant	10.1%	6.2%	6.3%	7.6%

Note: Percentages are based on PHAs/projects that indicated strategies to reduce (re)certification errors.

Methods Used To Clarify and Implement HUD Policies

PHAs/projects were asked to rank the three methods they used most frequently to answers questions about HUD policies in the past 12 months. These ranks were combined to calculate the total percentage of PHAs/projects that reported using these methods. When PHAs/projects had questions concerning HUD policies, the majority of them rated the following methods as the most frequently used: asking HUD field office or other HUD staff (60%); referring to HUD/PHA/owner memo or manual (58%); and using the Internet, Web-based information, or training (52%) (See Exhibit E-5e). Less than a third of PHAs/projects reported meeting with other PHAs/owners (28%) or asking questions at a HUD training session (28%). Furthermore, almost a quarter of PHAs/projects (23%) reported determining the answers for themselves without any assistance. The other methods were used by a minority of PHAs/projects.

Public Housing projects were the least likely to determine the answers themselves (18%), while PHA-administered Section 8 projects were the most likely to rely on themselves for answers (27%). Owner-administered projects were the least likely to use the Internet (42%) and were the most likely to rely on outside contractors (22%).

Exhibit E-5e: Methods for Getting Answers to Questions About HUD Policies in the Past 12 Months, by Program Type

Methods for Getting Answers to Questions	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Ask HUD Field Office or Other HUD Staff	50.5%	73.4%	60.6%	60.4%
Refer to HUD/PHA/Owner Memo or Manual	65.4%	46.0%	58.5%	57.7%
Use Internet, Web-Based Information, or Training	54.8%	61.9%	42.0%	51.9%
Hold Meetings or Talks With Other PHAs/Owners (e.g., Round Tables, Regional Meetings)	31.9%	25.2%	25.9%	27.9%
Ask Questions at a HUD Training Session	24.5%	21.6%	35.8%	27.9%
Determine the Answer Themselves	18.1%	26.6%	23.8%	22.5%
Use Contractors/Consulting Services	14.9%	20.9%	22.3%	19.2%
Watch Training Videos	20.7%	14.4%	6.7%	13.8%

Note: Percentages were calculated for PHAs/projects that reported using methods for getting answers to questions.

Selecting Cases for Review and Frequency of Review

Virtually all of the PHAs/projects (93%) indicated that they review tenant files in some form as a quality control measure after (re)certifications are conducted (see Exhibit E-5f). PHA-administered Section 8 projects were the most likely to review tenant files (97%), while Public Housing projects were the least likely to review cases (89%). Overall, in the past 12 months PHAs/projects checked an average of 57 percent of cases in a review and were more likely to conduct reviews on a monthly basis (36%), followed by quarterly or annually (about 23%).

With respect to the program type, Owner-administered projects had the highest average percentage of cases reviewed (72%), while PHA-administered Section 8 projects had the lowest percentage (39%). Furthermore, Owner-administered projects were the most likely to conduct reviews quarterly or annually (24% and 31%, respectively) and were the least likely to review weekly or monthly (14% and 31%). Conversely, PHA-administered Section 8 projects were the most likely to review cases weekly or monthly (26% and 42%), but were the least likely to review quarterly or annually (21% and 12%).

Exhibit E-5f: Percent of Cases and Frequency of Quality Control Review in the Past 12 Months, by Program Type

Frequency of Quality Control Review	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
PHA/Projects That Review Tenant Files as a Quality Control Measure After (Re)Certifications	89.2%	97.1%	92.9%	92.6%
* Cases Checked in a Review (Percentage)	54.6%	38.9%	71.9%	56.7%
* Reviews Conducted on a Weekly Basis	14.5%	25.7%	13.7%	17.3%
* Reviews Conducted on Monthly Basis	37.6%	41.9%	30.8%	36.3%
* Reviews Conducted on a Quarterly Basis	21.4%	20.6%	24.2%	22.2%
* Reviews Conducted on an Annual Basis	26.6%	11.8%	31.3%	24.2%

* Percentages were calculated for PHAs/projects that review tenant files as a quality control measure after (re)certifications.

Methods Used To Select Cases for Review

Ninety-three percent of PHAs/projects that indicated that they review tenant files as a quality control measure after (re)certifications were also asked to indicate what percentage of cases were checked in reviews in the past 12 months. PHAs/projects that reported checking less than 100 percent of cases were then asked to rank-order the three methods they used most frequently to select cases for review. The ranks of these top three methods were combined to calculate the total percentage of PHAs/projects that reported using the various methods. In determining which cases to select for review, PHAs/projects that reviewed tenant files reported using the following methods most frequently: randomly spot checking a percentage of all cases (52%), checking all cases (40%), and reviewing (re)certifications completed within a given period (37%) (See Exhibit E-5g). The other methods were endorsed by quarter or less of PHAs/projects who review their (re)certification cases.

With respect to the program type, the Owner-administered projects were the most likely to review all cases (57%) and were the least likely to use the other methods for selecting cases for review. Conversely, PHA-administered Section 8 projects were the least likely to review all cases (22%) and were the most likely to use the other methods, with an exception of checking files with certain characteristics or anomalies. This method was most frequently used by Public Housing projects (24%).

Exhibit E-5g: Methods Used by PHA/project 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	
Spot-Checked Some Cases at Random	55.8%	59.6%	41.8%	51.6%
Reviewed All Cases	37.0%	22.1%	56.6%	40.1%
Checked Certain Cases Completed Within a Given Period	41.6%	48.5%	24.7%	37.3%
Checked (Re)Certifications Conducted by New Staff	20.2%	43.4%	15.9%	25.1%
Checked Files With Certain Characteristics or Anomalies	24.3%	19.9%	20.9%	21.8%
Checked (Re)Certifications Conducted by Staff Who Had Past Performance Problems	19.1%	30.9%	9.9%	18.9%

Note: Percentages were calculated for the PHAs/projects that indicated that they review tenant files as a quality control measure after (re)certifications.

File Reviewers

The majority of PHAs/projects that review tenant files as a quality control measure after (re)certifications indicated that the review or monitoring of (re)certifications was conducted by the team leader or supervisor (88%), outside auditor (68%), or HUD (51%) (See Exhibit E-5h). However, less than half of PHAs/projects reported using internal staff (e.g., coworker, staff auditor, contract administrator, or other internal staff). PHA-administered Section 8 projects were the most likely to rely on a team leader, outside contractor, or HUD (91%, 81%, and 54%, respectively) and were slightly less likely to rely on other types of internal staff. Owner-administered projects were the most likely to use contract administrator (65%) to monitor or review (re)certifications.

Exhibit E-5h: The Source of Monitoring or Reviewing of (Re)certifications, by Program Type

The Source of (Re)certifications Monitoring	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Team Leader or Supervisor	88.9%	91.2%	85.7%	88.3%
Outside Auditor	55.0%	80.9%	69.2%	67.5%
HUD or HUD Contractor	46.8%	54.4%	53.3%	51.3%
Coworker	45.0%	40.4%	37.9%	41.1%
Staff Auditor	35.1%	37.5%	45.6%	39.7%
Some Other Internal Staff	45.0%	34.6%	36.3%	38.9%
Contracts Administrator	9.4%	13.2%	65.4%	31.3%

Note: Percentages were calculated for PHAs/projects that review tenant files as a quality control measure after (re)certifications.

Tools and Techniques Used To Monitor the (Re)Certification Process

PHAs/projects that indicated that they review tenant files as a quality control measure after (re)certifications were also asked to rank the three techniques most frequently used to monitor the (re)certification process. These were combined to calculate the total percentage of PHAs/projects that reported the various techniques. The techniques rated as those most commonly used to monitor (re)certifications were reviewing files after completion (67%), using predesigned forms to check key steps (44%), reviewing files while (re)certification was being processed (37%), discussing (re)certifications with staff after completion (36%), making individualized notes (26%), and discussing (re)certifications while they are being processed (26%) (see Exhibit E-5i). The other methods were endorsed by the minority of PHAs/projects.

Owner-administered projects were the most likely to monitor (re)certification staff while conducting the (re)certifications (51%) or discussing (re)certification with staff while being processed (30%), and were the least likely to monitor after the completion of (re)certifications (60%) or discussing (re)certifications after their completion (30%). Conversely PHA-administered Section 8 projects were the most likely to conduct a review after the completion of the (re)certification process (73%), but were the least likely to hold a review or discussion during the process (22% for both).

Exhibit E-5i: Techniques Used to Monitor (Re)certifications in the Past 12 Months, by Program Type

Techniques Used to Monitor (Re)certifications	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Review Files After Completion	69.9%	73.3%	60.3%	67.3%
Use Pre-Designed Form to Check Key Steps	42.2%	56.3%	37.4%	44.4%
Review Files While (Re)Certification was Being Processed	33.1%	22.2%	51.4%	36.9%
Discuss (Re)Certification With Staff After Completion	42.8%	35.6%	29.6%	35.8%
Make Individualized Notes for Each Case Reviewed	22.9%	34.8%	21.2%	25.6%
Discuss (Re)Certification With Staff While Being Processed	24.7%	21.5%	30.2%	25.8%
Use Computer Program	25.3%	22.2%	24.0%	24.0%
Sit In on the Interview With the Client	16.3%	8.1%	17.3%	14.4%
Re-Interview Household	4.2%	.7%	5.6%	3.8%

Note: Percentages were calculated for PHAs/projects that monitor (re)certifications.

Suggestions to Reduce Error

In addition to collecting information regarding the strategies that the PHAs/projects use to reduce errors, the PSQ also collected information using the open-ended responses regarding what the PHA/project staff thought should be done to minimize these errors. Sixty-two percent of PHAs/projects had suggestions regarding what should be done to help the PHAs/projects minimize errors. Among these PHAs/projects, the most common suggestions were to simplify HUD policy or regulations regarding asset, income, and expense calculation (36%) and to address project-specific issues that are not directly related to HUD or HUD policy (34%) (See Exhibit E-5j). Other suggestions involved improving verification tools, process, and policies (20%); improving EIV (18%); improving recertification documentation process and procedures (18%); as well as providing training to project staff (13%).

With respect to the program type, the Public Housing projects were the most likely to suggest improving the (re)certification documentation process and procedures (28%) and providing training to project staff (16%). The Owner-administered projects were the most likely to suggest improving EIV (25%), but were the least likely to report project specific issues (26%) or to suggest increasing training to project staff (10%). PHA-administered projects were the most likely to suggest simplifying HUD policy or regulations (51%), and were the least likely to suggest improving EIV (11%) or improving the (re)certification documentation process and procedures (11%).

Exhibit E-5j: Suggestions Provided by PHA/Project Staff on How To Reduce Errors, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Simplify HUD Policy or Regulations Regarding Asset, Income, Expense Calculation, Etc…	32.1%	51.0%	27.8%	36.4%
Project-Specific Issues Not Directly Related HUD or HUD Policy (e.g., Increase in Number of Staff, Train More Staff, Increase Budget, Improve Facilities)	39.4%	37.0%	26.1%	34.0%
Improve Verification Tools, Process, and Policies	19.3%	19.0%	20.9%	19.8%
Improve EIV	17.4%	11.0%	25.2%	18.2%
Improve (Re)Certification Documentation Process and Procedures	28.4%	11.0%	14.8%	18.2%
Provide Training to Project Staff	15.6%	13.0%	10.4%	13.0%
Other	23.9%	14.0%	22.6%	20.4%
No Changes Required/NA/None	6.4%	8.0%	14.8%	9.9%

C. Conclusion

Overall the PSQ questions regarding staff training, (re)certification practices, verification processes, use of computer systems, and quality control procedures revealed a detailed, complex, and interesting picture of PHAs/projects. Virtually all of PHAs/projects required education, training, experience, qualifications, and various skills when hiring new (re)certifications staff. Furthermore, almost all of PHAs/projects reported conducting training of (re)certification staff on new policies, new procedures, or new quality control operations. Similarly, virtually all of the PHAs/projects reported verifying all of the various incomes, expenses and other household characteristics while processing move-in or annual (re)certifications. In addition, almost all of PHAs/projects indicated that they've used computer software to help calculate tenants' rent and reported that the software is able to conduct a wide variety of tasks. With respect to the monitoring of (re)certifications, almost all of the PHAs/projects indicated that they review tenant files as a quality control measure after (re)certifications are conducted.

The PSQ also provided some specific information regarding the issues and experiences of PHAs/projects. For instance, the issue most frequently encountered by the majority of PHAs/projects in obtaining complete verifications was employers not responding to requests in timely manner, followed by tenants providing incomplete or inaccurate information. Employers were also viewed as the least cooperative group in the verification process. The most common type of error found during the quality control review process was missing or incomplete verifications of income. The issue that most frequently caused errors in eligibility determinations and rent calculations was tenants providing inaccurate or incomplete information. Furthermore, during the quality control monitoring of (re)certifications, the majority of PHAs/projects reported randomly spot-checking some cases and 40 percent of PHAs/projects indicated reviewing all cases, with the most common quality control technique being to review the files after completion of (re)certifications.

The open ended questions provided further insights into the characteristics, experiences, and practices of PHAs/projects. For instance, PHAs/projects described households that are more likely to have errors as those with multiple sources and types of income and large families. PHAs/projects also described, in detail, various strategies that they've used to reduce (re)certification errors, such as using communication with tenants, providing access to information resources, improving the review process, and training staff. Furthermore, PHAs/projects provided specific suggestions on how to reduce (re)certification errors, including simplifying HUD policies and regulations regarding assets, income, and rent calculations, as well as various project-specific issues such as increasing the number of staff, training more staff, increasing the budget, or improving facilities.

For future studies, it would be helpful to develop and validate additional items specifically targeting potential difficulties in conducting training, using computer software, getting support from various sources in verifying tenants' information, as well as the specific types of errors that were found during the quality control review process. While focus groups and cognitive interviewing may be optimal in aiding the revision of the PSQ items by focusing attention on the specific circumstances and issues faced by the PHAs/projects, we have also realized that open-ended questions help identify and explain these issues. Having detailed descriptions of these aspects of the (re)certification process would provide a more complete and detailed picture of the issues faced by the PHAs/projects and provide a better link between PSQ information and the estimation of payment and income errors.

Appendix F—Multivariate Analysis

APPENDIX F—MULTIVARIATE ANALYSIS

Objectives

The FY 2011 HUDQC multivariate analyses used a similar approach as used in the FY 2010 and FY 2009 studies to identify project and household factors related to rent errors and errors in the certification/recertification process made by project staff. Using measures of project characteristics and operations combined with household variables, the multiple regression analysis sought to systematically assess project and household variables in terms of the *net effect on the rent error and project-caused errors*.[1] To meet the study objectives we addressed two research questions:

1. Other things being equal, what project characteristics, project operations, and household characteristics accounted for rent error and project-caused errors?
2. What was the effect size (or relative strength) of project characteristics, project operation features, project-made errors, and household characteristics in accounting for gross rent error?[2]

Focusing on project factors and project-caused errors in connection to rent errors, we attempted to generate useful information for improving the HUD housing program. Household or tenant characteristics associated with rent error were examined as well to generate information about potential risk cases in certification.

Rationale

As in prior studies, this analysis examined two conceptual models for rent errors: (1) gross, overpayment and underpayment and (2) project-caused errors.

For the first conceptual model, dollar amount of rent error was measured in terms of overpayment, underpayment, and gross error. Overpayment is defined as the dollar value of HUD's subsidiary rent payment greater than the rent determined in this QC evaluation for a given household. Underpayment is the dollar value of the HUD payment smaller than the rent as determined by the QC evaluation for a given household. Gross error is the dollar amount of either overpayment or underpayment (in absolute value) for a given household (For calculations of the three measures, see Appendix A). As the three measures of rent error may presumably relate to project and household factors in different patterns, modeling each rent error measure should be informative to program improvement.

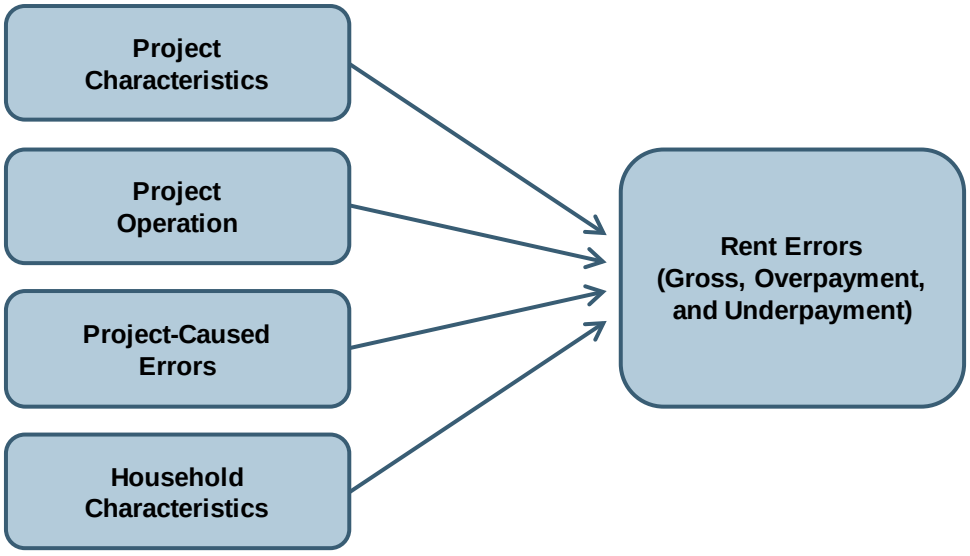
Hypothetically, dollar amounts of rent errors are affected by four sets of factors: project characteristics, project operation, project-caused errors, and household characteristics

[1] The term "net effect" refers to the relationship between a given independent variable and the outcome variable, statistically controlled for other independent variables in the model (i.e., the slope, or *b* coefficient, 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.

[2] 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.

(see Figure F-1). Project characteristics include organizational and staffing features (e.g., program type, case load, requirement for hiring, and staff experience and training). Project operation covers (re)certification interview, monitoring, review, verification practices, and computer applications. Project-caused errors are errors or problems that occur in the process of (re)certification and determination of rent subsidy as revealed in the QC evaluation (see *II. Methodology* in the report and the *Approach* section below for definitions of the error types).

Figure F-1
Conceptual Framework for Modeling Rent Errors



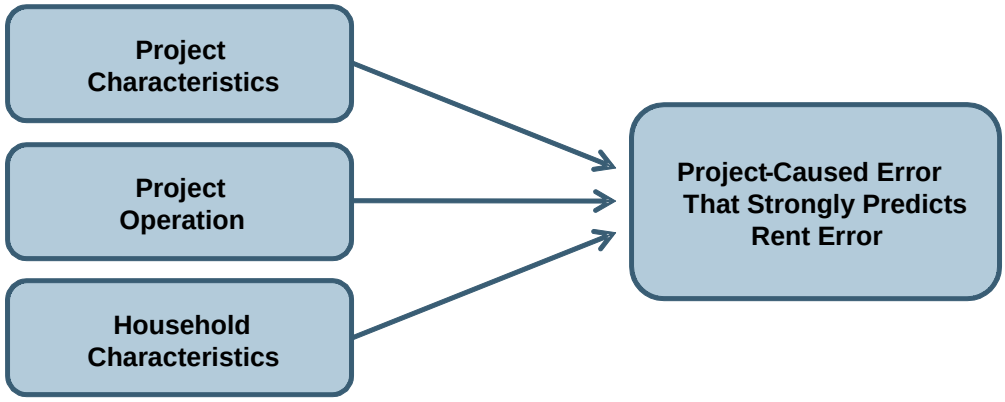
The available measures of project-caused errors may not be adequate to realistically represent all potential project errors. Not all indicators of project-caused errors were found important in accounting for rent errors. Some project errors were unrelated or even reversely related to the dollar amount of rent errors due to possible overlapping or confounding effects among multiple errors and other project or household factors.

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 the rent errors. They imply risk factors that project staff should monitor when managing cases. We considered household background variables as exogenous in the model because they were not responsive to project management and operations.

In the second conceptual model, we consider project-caused errors as the consequence of project characteristics, project operation, and household characteristics (see Figure F-2). Project-made errors were identified through investigation of tenant records conducted by the field work. By default, project-caused errors are to a varying extent related to rent error. Project-caused errors occur due to limitations in organizational resources, insufficient staff skills, a lack of rigorous quality control, and complicated household financial situations during (re)certifications and payment determinations. Some project-caused errors in prior analyses were strongly predictive of rent error. Examining the pattern in which project and household factors account for project-caused errors may help housing management reduce such errors.

It is not clear, however, the relationships *among* project errors. When defining and data coding project errors, some 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



Approach

Household and project data were combined and underwent data processing, missing data imputation, data editing and rescaling, composite variable construction, and data analysis. Data analysis entailed examining psychometric properties of key measures; the bivariate relationship between predictor variables and outcome variables; and diagnostic analysis to address issues such as two-level variance distribution, outliers, and multicollinearity among predictor variables.

The household records were matched with the affiliated projects using the project identification code. The resulting dataset contains 2,344 household cases affiliated to 534 projects[3]. Subsequent diagnostic analysis identified six cases with high residual scores in rent error that were removed before the final modeling (see the section *Regression Diagnosis Analysis* later in this Appendix). The final analysis used 2,338 tenant records linked to 534 project records. The activities of data editing, initial analysis, and final model specification and estimation are summarized below.

[3]Of the 544 sample units for the Project Staff Questionnaire, 10 projects failed to respond. As 60 households were affiliated to these missing PHAs/projects, we excluded these tenant records from the analysis. A comparison of subsidy rent error by program type found no substantial or statistically significant differences between the reduced tenant sample (n = 2,344) and the original sample (n = 2,404). See Attachment 1 for the comparison.

Data Processing and Editing

Project Data

The PSQ file contained 454 original data items, requiring extensive efforts in editing, rescaling, and bivariate comparison to build composite indicators of project characteristics and project operation. This effort generated over 120 composite indicators and rescaled variables for testing, which produced 23 project variables used in the modeling[4].

We selected project variables that were conceptually relevant to rent errors, although most did not have strong effect estimates. To do so, we made judgments based on descriptive statistics to exclude:

- Variables that were applicable only to a subgroup of projects (e.g., strategies to deal with non-English speaking clients were not used because not all projects had such clients);
- Variables with responses that were difficult to quantify (e.g., "other" techniques used to review/monitor recertification); and
- Variables that lacked variation (e.g., items regarding computer usage generated very high rates of positive answers, thus would have little use due to uniformed responses).

Breaking up statistics of project variables by binary indicator of gross error, we assessed the extent to which project characteristics differed by error status and eliminated those variables that were clearly identical for the error and non-error groups. Additionally, we specified a series of regression models, each with a dependent variable of the gross rent error and a different set of independent variables representing project staffing, hiring requirements, training efforts, verification practice, certification monitoring methods, certification review procedures/methods, the use of computer software, and ways to learn about policy changes. The regression procedure used a stepwise technique and maximal R-square methods to attempt to identify meaningful predictors from each set of variables.

Few project variables were strongly related to gross rent error. Therefore the selection of project variables used for modeling were primarily based upon informed judgments of the variables' conceptual relevance to rent error. Specifically, under the concept *project characteristics*, we selected variables by focusing on personnel involved in (re)certification including program type, case load, staff experience, hiring requirements, staff training and experience, work load, staff specialization in certification, and staff stability. Under the concept *project operation*, we selected variables that described (re)certification procedures and quality control (QC) activities such as the acceptance of less preferred verification, completion of recertification during move-in, timeliness preparing for recertification, use of methods in selecting cases for review, external review of recertification, methods/procedures for the review of files, and utilization of a computer application. Specific definitions and measurement scales of the project variables are listed below.

[4] A large number of project variables contained missing values or out-of-range values. Analyzing only available cases (i.e., a subsample that had completed data) could result in statistical bias. We conducted both multiple imputation and program-mean imputation for the missing data and found the latter generated data more similar to the completed data in regards to their mean and variance estimates. We decided to use program-mean imputed data in the analysis (see Attachment 2 for detail). We also repaired variables with out-of-range values.

The later Exhibit F-1 presents descriptive statistics of key variables by rent error status; Attachment 3 lists descriptive statistics in rescaled measures.

Project characteristics (PC) indicators:

- Section 8: PHA-administered Section 8 program, binary coded one for Section 8 and zero for otherwise
- Public Housing: HUD Public Housing program, binary coded one for yes and zero for otherwise (Note, with the two binary-coded program indicators, the reference group was the Owner-administered program)
- Units per staff (in 10s): Ratio of the household unit number over the number of staff, rescaled to 10 for presenting in three decimal points
- Percent of new certification staff in the past 12 months
- Percent of experienced certification staff (i.e., 5 or more years of experience) in the past 12 months
- Percent of certification staff that left the PHA/project in the past 12 months
- Requiring two or more years' college education in hiring: Binary coded one for yes and zero for no
- Number of housing experiences required in hiring: Counts of housing service work experiences
- Numbers of types/methods of training for experienced and new staff (e.g., by supervisor, one-on-one, tele-courses, by outside organizations, and reading relevant documents): Count of training methods frequently or always conducted
- Non-English speaking client rate: Respondents estimated percentage of tenants who did not speak English as their first language

Project operation (PO) indicators:

- Acceptance of less preferred verification when formal verification was not possible: Binary code indicating acceptance or non-acceptance
- Selecting cases for review of key items at both (re)certification and move-in: Binary code indicating if all key items were reviewed at both time points or otherwise
- Selecting case for review of certifications done by new staff: Binary code indicating new staff-focused case review or otherwise
- Average days for completing key (re)certification activities before (re)certification was achieved
- Average rate of completion for the key (re)certification activities during move-in
- Average rate of cases completed during (re)certification
- Number of key items verified at both (re)certification and move-in

- Number monitoring methods by outside entities (e.g., HUD or HUD contractors, contracts administrators, auditors, and others)
- Number of methods used in follow-up verification (e.g., follow-up letter to or calling third party, follow-up letter to or calling tenants, accepting lesser materials, and using income match)
- Using the Internet/Web to research housing policy changes: Binary code indicating use or nonuse
- Number of (re)certification tasks performed by computer software (e.g., entering data, submitting data to PIC/TRACS, linking to prior income/expense data, processing data differentiated by household characteristics, and annualizing financial conditions)
- Using EIV data match in verification: Binary code indicating use or nonuse

Project-caused error indicators:[5]

As in the previous studies, we examined six types of project-caused errors measured in dichotomous categories (with one for error and zero for without error), including overdue recertification error, calculation error, consistency error, transcription error, administration error, and procedural error.[6] We also examined indicators of project error on a ratio scale, namely, the transcription error rate (i.e., the proportion of transcribed items containing transcription errors) and the verification error rate (i.e., the proportion of the verification-required items without third-party verification in writing).

We found four indicators that were statistically significant relating to greater gross rent error (see Exhibit F-2 further in this appendix). These were (1) overdue recertification error, (2) transcription error, (3) percentage items with transcription errors, and (4) percentage items without written third-party verification. Note that overdue recertification error and the transcription error rate were consistently found to be strong predictors of gross error in prior studies. To understand how project characteristics, project operation, and household characteristics lead to these project errors, we further analyzed the data using them as dependent variables. For binary-coded overdue recertification and transcription errors, we used logistic regression. For rates of transcription error and third-party verification errors, we used linear regression techniques.

In addition, all types of project-caused errors that occurred for each household were aggregated to create an indicator of overall extent of project errors. This consolidated measure was also modeled in linear regression analysis to examine how project features and household background factors contributed to the overall project error.

Household Data

The household dataset 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. As a common practice, for

[5] Data on project-caused errors were collected in the household data collection.

[6] Please refer to the HUDQC Final Report Chapters I: Introduction and II: Methodology for definitions of error types.

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.

We edited and rescaled household data to construct composite variables from the original data items and tested the variables' bivariate and multivariate relationships with gross rent error. We examined all the household variables that were known to be predictive of gross rent error via past HUDQC multivariate analyses (FY 2000–FY 2010).

Household variables included interval measures in either dollar amount (e.g., total annual income and incomes/expenses) or item counts (e.g., number of bedrooms) and binary-coded indicators such as households with elderly (aged 62 or older) or disabled elderly member(s), coded as zero for no and one for yes. To make the statistic interpretation straightforward, we rescaled interval variables by subtracting the grand mean from each individual value, a process known as centering.[7] Exhibit F-1 presents descriptive statistics of the household variables in the original scale, separately for households who had a gross rent error dollar amount of $5 or more versus households who had no error or an error less than $5. Attachment 3 lists descriptive statistics for all the modeled variables that were rescaled or centered.

Regression Diagnosis Analysis

Regression diagnostic analysis was conducted to ensure that collinearity among household predictor variables were at acceptable levels. 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. The diagnostic results were largely comparable with earlier studies. Dependents that showed high multicollinearity were excluded.[8]

We also examined residual distribution of the predicted gross rent error. Residual analysis-generated statistics in plotted graphs suggest that the residual distribution was reasonably normal, with six cases (each affiliated with a different PHA/project) displaying large positive values of studentized residual errors (see Attachment 4). We removed these cases from the models, resulting in a final dataset containing 2,338 household records linked to and 534 projects.

In addition, we ran an unconditional Hierarchical Linear Model (HLM) to assess the rent error variance distribution at PHA/project and household levels. Project-level variance of the log gross error was estimated to be 3.17 percent of the total variance (see Attachment 5), a finding comparable with previous year estimates. The small proportion of project-level variance made using the HLM technique insignificant for this study (see Raudenbush & Bryk, 2002). Therefore, ordinary least square regression was substituted to model rent error.

[7] With centered scaling, the intercept of the regression model is the log gross rent error for households who had grand mean values on all the predictor variables. Each regression coefficient as the change in log gross rent error associated with one unit change around the grand mean of the given predictor variable.

[8] SAS PROC REG was used to generate collinearity diagnostic statistics (TOL, COLLIN, VIF) with the household variables as predictors and log gross error as dependent variable. Household dependent number, medical expense, and household size showed high collinearity, each with a VIF greater than 5.0. The latter two indicators were judged to be conceptually more important and were retained in the equation.

Model Specification and Estimation

Tests covered a number of multivariate models of rent error (i.e., gross rent error, overpayment, and underpayment) and project-caused errors. Modeling underpayment, overpayment, and project-caused errors, we ran regression equations with all four groups of predictor variables simultaneously. For gross rent errors, we used a procedure known as sequential or nested modeling. In this approach, we incrementally included four equations into four groups of predictor variables: project characteristics, project operation, project-caused errors, and household characteristics. The sequential modeling allowed us to observe the changing variance accounting for a given group of predictor variables added into the equation.

Unless otherwise noted, we conducted statistical analyses with the SURVEY procedures of SAS 9.2 on UNIX using Jackknife replicate weights to compensate for design effects. 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 conducted the initial variance analysis for estimating two-level variance, and SAS conventional procedures examined the raw data and residual scores of the predicted gross error.

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., statistically significant). The *R* square estimate for each model shows 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.[9]

All statistics presented were generated with missing data imputed and weighted with sample weights. In addition, the jackknife procedure used 20 replicate weights to compensate for any potential bias associated with the design effect that may result from the complex sample design.

Gross Rent Error

Statistics were tabulated for 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 by a binary-coded gross rent error (with or

[9] 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:

$$f^2 = \frac{(R^2_{AB} - R^2_A)}{1 - R^2_{AB}}$$

without an error of $5 or more). For statistics of the rescaled/centered predictor variables for the whole sample, see Attachment 3.

When the estimated ranges of two household groups of a given variable's mean overlap at a 95 percent confidence level (CL), this suggests that the predictor was not significantly different by gross error status. Predictors that significantly differed by rent error status were potentially useful in examining a household's likelihood of having gross error. The group *without* gross rent error had the following characteristics that were statistically significant (see rows denoted with * in the far right column of Exhibit F-1):

- Less likely to be a PHA-administered Section 8 household and slightly more likely to be a household in the Public Housing program
- Low rates of project-caused errors in all but three types (i.e., percentage of items without written verification, consistency error, and procedural error)
- Households had lower total annual income, fewer bedrooms, were less likely to have earned incomes, were more likely to be older, and more likely to have elderly/disabled household members

Exhibit F-1
Predictor Variables in Modeling: Households with and without Gross Rent Error

Predictors	Without Gross Rent Error (n = 1,637)				With Gross Rent Error (n = 765)				
	Mean	Standard Error of Mean	95% CL for Mean		Mean	Standard Error of Mean	95% CL for Mean		
Project Characteristics									
Public Housing	0.255	0.005	0.244	0.266	0.208	0.011	0.185	0.232	*
PHA-Administered Section 8	0.396	0.008	0.379	0.413	0.547	0.017	0.510	0.583	*
Caseload (10 units per total staff)	6.120	0.371	5.346	6.893	7.356	0.394	6.534	8.178	
% of new staff	0.227	0.012	0.202	0.253	0.228	0.021	0.184	0.271	
% of experienced staff (5+ years of experience)	0.269	0.014	0.241	0.297	0.262	0.016	0.229	0.296	
% of staff who left	0.155	0.016	0.121	0.189	0.181	0.019	0.142	0.219	
% of clients whose first language is not English	17.426	2.677	11.842	23.009	17.378	3.396	10.294	24.463	
N housing experience qualifications required	2.360	0.069	2.216	2.503	2.341	0.079	2.176	2.506	
Required 2+ years of college education (binary)	0.370	0.032	0.304	0.437	0.395	0.036	0.320	0.470	

Predictor Variables in Modeling: Households with and without Gross Rent Error (continued)

Predictors	Without Gross Rent Error (n = 1,637)				With Gross Rent Error (n = 765)				
	Mean	Standard Error of Mean	95% CL for Mean		Mean	Standard Error of Mean	95% CL for Mean		
Project Characteristics									
Number of types of training for experienced certification staff	2.664	0.032	2.596	2.731	2.700	0.036	2.625	2.775	
Number of types of training for new certification staff	1.872	0.068	1.731	2.014	1.944	0.086	1.764	2.124	
Project Operations									
Accept less preferred verification (binary)	0.293	0.027	0.238	0.349	0.312	0.042	0.223	0.400	
Select case by periods (binary)	0.357	0.026	0.303	0.411	0.385	0.027	0.329	0.441	
Select case by new staff (binary)	0.255	0.018	0.217	0.292	0.331	0.028	0.272	0.390	
Average days performed actions prior to certification	76.980	1.163	74.554	79.406	74.906	1.402	71.982	77.831	
Average % of cases completed during move-in	67.068	1.473	63.995	70.142	64.047	2.112	59.642	68.453	
Average % of cases competed during certification	32.059	0.884	30.214	33.904	30.693	1.328	27.923	33.462	
N items verified at both recertification and move-in	3.385	0.083	3.212	3.557	3.564	0.102	3.351	3.776	
Number of types: external monitors	1.632	0.047	1.534	1.730	1.597	0.059	1.475	1.720	
Number of types: follow-up verified	2.877	0.023	2.830	2.924	2.909	0.025	2.856	2.962	
Research policy on the Internet	0.506	0.026	0.452	0.561	0.560	0.034	0.490	0.630	
N tasks by software	5.260	0.079	5.095	5.425	5.182	0.106	4.961	5.404	
Use EIV data to match verification	0.455	0.026	0.400	0.509	0.499	0.031	0.435	0.564	
Project-Caused Errors									
% of items with transcription errors	0.146	0.007	0.131	0.161	0.382	0.012	0.358	0.407	*

Predictor Variables in Modeling: Households with and without Gross Rent Error (continued)

Predictors	Without Gross Rent Error (n = 1,637)				With Gross Rent Error (n = 765)				
	Mean	Standard Error of Mean	95% CL for Mean		Mean	Standard Error of Mean	95% CL for Mean		
Project-Caused Errors									
% of items without written third party verification	0.143	0.013	0.116	0.170	0.211	0.026	0.156	0.266	
Overdue recertification error	0.005	0.002	0.001	0.009	0.037	0.012	0.012	0.063	*
Consistency error	0.202	0.016	0.168	0.236	0.174	0.026	0.121	0.228	
Procedural error	0.246	0.016	0.213	0.279	0.252	0.024	0.203	0.301	
Transcription error	0.266	0.013	0.239	0.294	0.717	0.023	0.668	0.765	*
Administrative error	0.306	0.013	0.278	0.334	0.738	0.020	0.696	0.780	*
Any calculation error	0.066	0.006	0.053	0.080	0.113	0.014	0.084	0.143	*
Household (HH) Characteristics									
N of HH members	2.071	0.042	1.983	2.158	2.493	0.071	2.344	2.642	*
Total annual income in $1000s	12.045	0.291	11.437	12.653	15.376	0.446	14.445	16.307	*
N of bedrooms	1.788	0.034	1.717	1.859	2.097	0.053	1.986	2.208	*
Earned income	1.254	0.036	1.179	1.329	1.406	0.040	1.322	1.490	
Other income	0.226	0.014	0.196	0.256	0.334	0.031	0.270	0.399	*
Public assistance income	0.102	0.010	0.081	0.123	0.122	0.019	0.082	0.161	
Pension income	0.904	0.036	0.830	0.979	0.780	0.038	0.701	0.859	
Medical expense	2.574	0.120	2.324	2.823	2.768	0.170	2.413	3.124	
N income and expenses	-0.120	0.112	-0.353	0.113	0.354	0.119	0.107	0.602	
N of allowances	1.194	0.020	1.153	1.235	1.286	0.033	1.218	1.354	
HH head age	52.309	0.794	50.654	53.965	47.888	0.865	46.083	49.693	*
HH with disabled elderly	0.569	0.017	0.533	0.605	0.453	0.025	0.401	0.504	*

* The two groups differ significantly in the predictor variable at $p < .05$ level.
Source: HUDQC FY 2011 Household-level data collection and Project Staff Questionnaire

In a sequential modeling of gross rent error, we specified four multiple linear regression equations to estimate the effects of increasingly more predictor variables, which fit into four groups: project characteristics, project operation, project-caused errors, and tenant characteristics (see Exhibit F-2). The resulting statistics show the effect of predictors that were added into the equation, related estimate changes for the previously-entered predictors, and the model fit. The final model (Model 4) included all four sets of variables representing the four constructs.

The estimated intercept presented 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 0.940, equivalent to $2.56.[10] 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 Public Housing and PHA-administered Section 8, the zero value represented the Owner-administered program. For project-caused errors, the zero value indicated error free for a particular type. For household-level interval predictors that were rescaled by centering, 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 sample.

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 regression coefficients that were statistically significant ($p < .05$ or smaller) as they represented effects that were unlikely to be due to chance. For predictors of key project factors, we may briefly discuss the findings even if the estimates were not significant.

Exhibit F-2
Log Gross Rent Error Accounted for by Selected Variables: Multiple Regression Coefficients and Derived Dollar Value Net Effects from Sequential Models with Design Effect Adjusted

Predictors	Model 1			Model 2			Model 3			Model 4		
	Coefficient		$	Coefficient		$	Coefficient		$	Coefficient		$
Intercept	1.344	***	3.83	1.106	*	3.02	0.940		2.56	1.159	*	3.19
Project Characteristics												
Public Housing	0.112			0.093			-0.057			-0.152		
PHA-Administered Section 8	0.469	***	$1.35	0.409	**	$1.12	0.308	**	$0.58	0.179		
Caseload (10 units per total staff)	-0.006			-0.009			-0.009			-0.011		
% of new staff	0.036			0.082			0.102			0.042		
% of experienced staff (5+ years of experience)	-0.068			-0.084			-0.011			-0.005		
% of staff who left	0.220			0.150			0.109			0.129		
% of clients whose first language is not English	-0.001			-0.001			-0.002			-0.002		
N housing experience qualifications required	-0.010			0.005			0.017			0.022		

[10] 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 add the log-scale estimate of a given predictor to the intercept log scale and convert 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 Mode 3, the difference associated with predictor "PO: group cooperation level," has a log estimate of -.248 ($p < .05$). Other things being equal, this effect decreased the gross error (-$.56) from the reference group's estimates ($e^{(.94 - .248)} - e^{.94} = 1.99 – 2.55 = -.56$).

Log Gross Rent Error Accounted for by Selected Variables: Multiple Regression Coefficients and Derived Dollar Value Net Effects from Sequential Models with Design Effect Adjusted (continued)

Predictors	Model 1			Model 2			Model 3			Model 4		
	Coefficient		$	Coefficient		$	Coefficient		$	Coefficient		$
Project Characteristics												
Required 2+ years of college education (binary)	-0.010			-0.004			-0.005			-0.053		
Number of types of training for experienced certification staff	0.013			-0.010			0.003			-0.011		
Number of types of training for new certification staff	0.012			-0.006			0.031			0.034		
Project Operation												
Accept less preferred verification (binary)				0.045			0.040			0.035		
Select case by periods (binary)				-0.051			-0.089			-0.071		
Select case by new staff (binary)				0.185			0.107			0.118		
Average days performed actions prior to certification				-0.002			0.000			0.000		
Average % of cases completed during move-in				-0.004	*	-$0.01	-0.004	*	-$0.01	-0.004	**	-$0.01
Average % of cases completed during certification				-0.003			-0.001			-0.001		
N items verified at both recertification and move-in				0.042			0.050	*	$0.08	0.048	*	$0.09
Number of types: external monitor				-0.030			-0.010			-0.005		
Number of types: follow-up verified				0.093			0.057			0.040		
Research policy on the Internet				0.023			-0.020			-0.017		
N tasks by software				-0.028			-0.011			-0.006		
Use EIV data to match verification				-0.005			0.018			0.006		
Project-Caused Error												
% of items with transcription errors							0.549	**	$1.17	0.729	**	$1.96
% of items without written third party verification							0.356	***	$0.69	0.264	**	$0.55
Overdue recertification error							0.992	*	$2.72	1.067	**	$3.48

Log Gross Rent Error Accounted for by Selected Variables: Multiple Regression Coefficients and Derived Dollar Value Net Effects from Sequential Models with Design Effect Adjusted (continued)

Predictors	Model 1			Model 2			Model 3			Model 4		
	Coefficient		$	Coefficient		$	Coefficient		$	Coefficient		$
Project-Caused Error												
Consistency error							-0.688	*	-$0.80	-0.622	*	-$0.85
Procedural error							0.499			0.464		
Transcription error							1.568	***	$6.08	1.439	**	$5.87
Administrative error							-0.441			-0.541		
Any calculation error							0.000			0.053		
Household Characteristics												
N of HH members										-0.022		
Total annual income in $1000s										0.003		
N of bedrooms										0.005		
Earned income										0.356	***	$0.78
Other income										0.245	*	$0.51
Public assistance income										0.256	*	$0.53
Pension income										0.031		
Medical expense										0.061		
N income and expenses										-0.042		
N of allowances										0.194	**	$0.39
HH head age										-0.005		
HH with disabled elderly										0.029		
Model Fit Statistics												
R-square	**0.022**	***		**0.032**	***		**0.253**	***		**0.286**	***	
Adjusted R-square	**0.018**			**0.022**			**0.242**			**0.273**		
Cohen's f^2	**0.018**			**0.004**			**0.290**			**0.043**		
% of variance accounted for	**0.018**			**0.004**			**0.220**			**0.031**		

*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).
Source: HUDQC FY 2011 Household-level data collection and Project Staff Questionnaire

With Model 1, relative to the reference group and net of other factors, PHA-administered Section 8 households tended to have a higher gross rent error (i.e., log scale .469, equivalent to an increase of $1.35); whereas Public Housing households did not appear to differ from the reference group as their coefficient was not significantly different from zero. In the subsequent models with incrementally more predictors, the estimate for the PHA-administered Section 8 difference declined but remained significant until tenant variables entered into Model 4, where the program difference lost its significance. The diminishing program estimate implies that the initial

differences between PHA-administered Section 8 programs could be explained by the difference in tenant characteristics. The net effects of other project characteristics were not found statistically significantly.

Models 2, 3 and 4 revealed two indicators of project operation that were significantly related to gross error net of other effects. One was the average rate of cases completed during move-in, with a negative coefficient suggesting that projects reviewing a percentage point more cases were likely to reduce gross error (i.e., log scale -.004 is equivalent to a -$.01 decrease of gross rent error). This effect persisted across models. Another predictor, the number of items reviewed at recertification and move-in, was also found significant yet positively related to gross error, implying a moderate pattern where the more items reviewed at both points in time resulted in a slightly higher likelihood of gross error for the tenant.

Estimates from Models 3 and 4 for project-caused errors seemed informative. Percentage items with transcription error and percentage items without written verification, overdue recertification error, or transcription error were found to be positively and fairly strongly significantly related to gross rent error, with only a slightly reduced effect after tenant variables entered into Model 4.[11] In Model 4, holding household factors and other project factors equal, the estimates for these project error measures seemed meaningful, indicated by their significance level and their considerably large effect size. The statistics suggest that, controlling for other factors in the model:

- The percentage of items with transcription error predicted substantially higher gross error, with a log estimate of .729 equivalent to $1.96 relative to the reference group.
- The percentage of items without written verification was associated with a net increase of gross error with a log scale 264 or $.55.
- Overdue recertification error had a net increasing effect on gross error with a log scale of 1.067 or $3.48.
- Transcription error had a net effect of 1.439 in log scale increasing gross error by $5.87.

Remarkably, these findings were largely consistent with those in previous years. Clearly, these types of project-made error are a major source of improper payment subsidies. Also consistent with prior years were the effects of other measures of project errors, such as calculation error and administration error, which were not found to be statistically significant or meaningful in effect size.

Model 4 estimates household characteristics relating to gross rent error. Again, the large patterns were highly consistent with prior studies. Net of other effects, households with complex financial conditions in terms of more sources of income (i.e., earned, public assistance, and other incomes) and more allowances were likely to have larger gross rent error.

[11] Consistency error was estimated to be statistically significant ($p < .05$), yet negatively associated with gross error. We are not certain about its interpretation because of the estimate's negative value, low significance level, and small effect size.

In short, consistent with findings from the studies for FY 2007 through FY 2010, the FY 2011 data analysis suggested gross error was related to some project and household factors. The most substantiated findings were

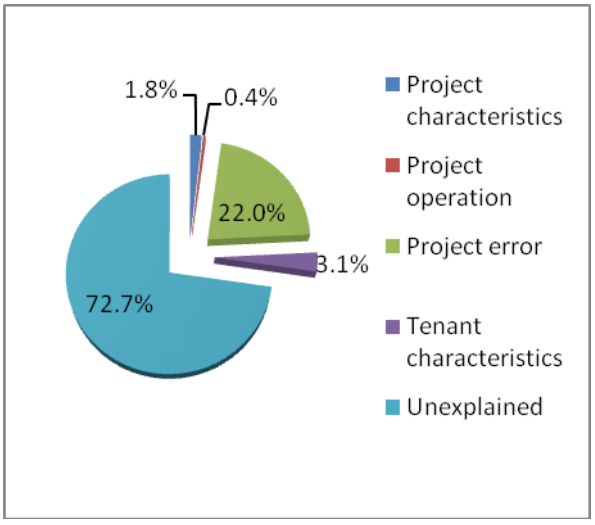
- Project-caused errors, particularly, overdue certification and transcription errors, contributed strongly to increased gross error, and
- Households that were characterized with complex financial conditions had greater gross error.

Relative Size of Effects by Variables Groups

Adding predictor variables into the sequential models incrementally accounted for the variance of the gross rent error, with the largest share accounted for by indicators of the project-caused error (22.0%), followed by household characteristics and financial conditions (3.1%). The proportion of gross rent error variance explained by project characteristics and by project operation amounted only 1.8 percent and 0.4 percent, respectively (Figure F-3).

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 (.290). Measures of household characteristics also had a sizable effect (.439) and project characteristics/operation effects were again found to be small (.018 and .044, respectively).

Figure F-3
Proportion of Variance of Gross Rent Error Accounted for by Predictor Variable Groups: Multiple Regression Analysis Adjusted for Design Effect



Source: HUDQC FY 2011 Household-level data collection and Project Staff Questionnaire

Overpayment and Underpayment

We analyzed overpayment and underpayment to offer additional information for program improvement in dealing with these specific forms of error. We estimated two equations with the same four sets of predictors when modeling gross error to explain overpayment and underpayment in logarithm. The following Exhibit F-3 presents estimates for regression coefficients.

The model fit was considerably poorer than that of the gross error models. As indicated by R-square estimates, the models account for approximately 10.8 percent and 12.9 percent of the total variance of underpayment and overpayment. A number of predictors of project operation, project-caused errors, and household background were associated with underpayment in patterns similar to those with gross error. For example, when controlled for other variables, PHA-administered Section 8 households tended to have slightly more underpayment than the reference group (log scale .192 converted to $0.27). More methods used in following verification were associated with higher underpayment (.115 or $0.16), a higher experienced certification staff ratio was associated with greater underpayment (.606 or $1.99), and the percentage of items with transcription errors and the binary coded transcription error were related to higher underpayment (.466 or $0.70 and .571 or $.100, respectively).

Very few household characteristics were related to underpayment. Net of other factors, households with more allowances tended to have greater underpayment. Consistent with last year's estimate, the total annual income had a negative (albeit small) net effect on underpayment (-.010 or -$0.01); but its effect on overpayment was positive (.013 or $0.02). The opposite directions in which total income related to the two subtypes of rent error present a consistent pattern, that is, higher total income tends to associate with greater subsidiaries than what would be appropriate. However, the effects cancel each other in the gross error measure due to gross error being measured in absolute values.

No program type net differences were found when modeling overpayment. Two project factors—case load (measured in 10 units per staff in the equation) and the percentage of clients whose native language was not English—were related to a very modest decrease of overpayment (-.014 or -$0.02 and -.002 or -$0.01). The percentage of staff that left the organization last year, a measure of staff stability, was associated with higher overpayment (.213 or $0.30). No project operation variable was found to significantly predict overpayment. Two types of project-caused error[12], procedural error and transcription error, seemed related to higher overpayment, with estimates respectively of log .667 or $1.20 and .844 or a $1.68 increase of overpayment. Note that transcription error was related to both underpayment and overpayment, making it a stronger factor relating to higher gross error. Household variables were related to overpayment in the same pattern as they predicted gross rent error. Other things being equal, households with higher total income, earned income, other incomes, and public assistance income tended to have higher overpayment.

[12] As in gross error analysis (see footnote 10), consistency error was estimated to be statistically significant ($p < .05$) and negatively associated with overpayment. We are not certain about its interpretation because of the estimate's negative value and relatively low significance level.

Exhibit F-3
Log Under- and Overpayment Rent Errors Accounted for by Selected Variables: Multiple Regression Coefficients and Derived Dollar Value Net Effects with Design Effect Adjusted

Predictors	Underpayment			Overpayment		
	Coefficient		$	Coefficient		$
Intercept	0.259	*	$1.30	0.238	*	$1.27
Project Characteristics						
Public Housing	-0.066			-0.092		
PHA-Administered Section 8	0.192	*	$0.27	-0.006		
Caseload (10 units per total staff)	0.002			-0.014	*	-$0.02
% of new staff	0.038			-0.021		
% of experienced staff (5+ years of experience)	0.051			-0.016		
% of staff who left	-0.029			0.213	*	$0.30
% of clients whose first language is not English	0.001			-0.002	**	$0.01
N housing experience qualifications required	-0.003			0.028		
Required 2+ years of college education (binary)	0.007			-0.064		
Number of types of trainings for experienced certification staff	0.033			-0.043		
Number of types of trainings for new certification staff	0.026			-0.003		
Project Operations						
Accept less preferred verification (binary)	0.053			-0.030		
Select case by periods (binary)	0.031			-0.118		
Select case by new staff (binary)	0.015			0.111		
Average days performed actions prior to certification	0.000			0.001		
Average % of cases completed during move-in	0.000			-0.003		
Average % of cases completed during certification	-0.002			0.001		
N items verified at both recertification and move-in	0.031			0.019		
Number of types: external monitor	-0.023			0.018		
Number of types: follow-up verified	0.115	*	$0.16	-0.069		
Research policy on the Internet	-0.033			0.057		
N tasks by software	-0.014			0.008		
Use EIV data to match verification	-0.037			0.038		
Project-Caused Errors						
% of items with transcription errors	0.466	*	$0.77	0.213		
% of items without written third party verification	0.155			0.098		
Overdue recertification error	0.849			0.292		
Consistency error	0.013			-0.681	*	-$0.63
Procedural error	-0.170			0.667	*	$1.20
Transcription error	0.571	*	$1.00	0.844	*	$1.68
Administrative error	-0.192			-0.382		

Log Under- and Overpayment Rent Errors Accounted for by Selected Variables: Multiple Regression Coefficients and Derived Dollar Value Net Effects with Design Effect Adjusted (continued)

Predictors	Underpayment			Overpayment		
	Coefficient		$	Coefficient		$
Project-Caused Errors						
Any calculation error	0.270			-0.219		
Household Characteristics						
N of HH members	0.043			-0.045		
Total annual income in $1000s	-0.010	***	-$0.01	0.013	**	$0.02
N of bedrooms	-0.044			0.043		
Earned income	0.152			0.190	*	$0.27
Other income	0.037			0.189	*	$0.26
Public assistance income	0.006			0.253	*	$0.37
Pension income	0.000			0.032		
Medical expense	0.073			-0.049		
N income and expenses	-0.048			0.012		
N of allowances	0.132	*	$0.18	0.006		
HH head age	-0.001			-0.003		
HH with disabled elderly	0.026			-0.001		
Model Fit Statistics						
R-square	**0.124**	*******		**0.145**	*******	
Adjusted R-square	**0.108**			**0.129**		

*p < .05, **p < .01, ***p < .001 (test with the null hypothesis that a coefficient [or R^2] = 0; a significant result indicates that the corresponding variable(s) is associated with the dependent variable).
Source: HUDQC FY 2011 Household-level data collection and Project Staff Questionnaire

Project-Caused Errors

Of project-caused errors, overdue recertification error, transcription error, the rate of items without third party written verification, and the rate of items with transcription error contributed to higher gross rent error. To explore the underlying factors leading to these project-made errors, each project error was modeled. Additionally, all project error measures were aggregated to create a total error indicator. For each project error measure, we used three sets of predictors: project characteristics, project operation, and household characteristics. Modeling a given project-caused error, other project-caused errors were not included as covariates as they are likely to overlap to some extent in measurement.

Two measures—overdue recertification error and transcription error—were binary coded (i.e., indicating whether or not the error occurred) and analyzed using multiple logistic regression. Rates of items with transcription error and items without written verification were in a ratio scale and the total project-error count was an interval indicator; thus were analyzed with linear regression. Exhibit F-4 presents the log scale estimates (log odds) and model fix statistics from the logistic

models of the two errors in binary coding.[13] A logit coefficient indicates the extent to which a given predictor is associated with the likelihood of the given project error.

The model fit of the two logistic models was acceptable as shown in model fit statistics, both with a substantial reduction of the Akaike information criterion (AIC) values when predictors entered into the equation[14]. Predictor variables with a significant logit estimate (with $p < .05$) were considered as salient factors contributing to the project-caused errors. The following predictors were significantly related to the two types of error, under the condition of *all other modeled factors being equal*.

Overdue recertification error:

- Older household heads were more likely to have an overdue recertification (logit .056).
- Households with disabled elderly members were less likely to have an overdue recertification (logit 0.613)**.**

Transcription error:

- Tenants with Public Housing and PHA-administered Section 8 programs were more likely to have a transcription error (logits 0.491 and .368 respectively).
- Tenants in projects with higher rates of non-English speaking clients were more likely to have a transcription error (logit .006).
- Household total annual income, earned income, other income, counts of incomes and expenses, counts of allowances, and household head age were related to greater probability of transcription error (respectively logits 0.021, 0.552, 0.249, 0.177, 0.630, and 0.013). Note that this pattern was similar to that for gross rent error and the estimates were very similar to those found in the FY 2010 analysis.
- Households with disabled elderly members were less likely to have a transcription error (-.732).

[13] We choose to present logit estimates rather than odds ratio because logits can be understood in a similar way as linear regression coefficients. The logistic regression models the relationship between the outcome *Y=1* (a given error in our analysis) and the predictor variables through the logit function, the natural logarithm of odds for *Y =1*. The model assumes a linear relation between the log of odds and predictor variables $X_1, X_2, \ldots, X_k$, and can be written as follows: Let $p=P(Y=1)$, then $\log (p/(1-p)) = intercept + b_1X_1 + b_2X_2 + \ldots + b_kX_k$. Max-rescaled R^2 allows the maximal value of 1 and is recommended as a better approximation of the variance explained by the logistic model, comparable with generalized R^2 (Hosmer & Lemeshow, 2001).

[14] AIC, Akaike information criteria, is commonly used to assess model fit in logistic regression. Generally speaking, if AIC decreases significantly for a model with covariates relative to a model with only an intercept,(adjusting for number of covariates and other factors), then the model may be acceptable in goodness of fit. See Harrell (2001) for further details.

Exhibit F-4
Project-Caused Major Errors Accounted for by Selected Variables:
Multiple Logistic Regression Coefficients with Design Effect Adjusted

Predictors	Overdue Recertification Error Model		Transcription Error Model	
Intercept	-5.639	***	-0.437	*
Project Characteristics				
Public Housing	1.479		0.491	**
PHA-Administered Section 8	1.478		0.368	*
Caseload (10 units per total staff)	-0.044		0.006	
% of new staff	-0.368		0.006	
% of experienced staff (5+ years of experience)	-0.721		-0.036	
% of staff who left	0.856		0.278	
% of clients whose first language is not English	0.004		0.006	***
N housing experiences qualifications required	-0.104		-0.007	
Required 2+ years of college education (binary)	0.959		-0.122	
Number of types of trainings for experienced certification staff	0.106		-0.063	
Number of types of trainings for new certification staff	-0.167		-0.096	
Project Operations				
Accept less preferred verification (binary)	0.541		-0.116	
Select case by periods (binary)	0.464		0.142	
Select case by new staff (binary)	0.126		0.180	
Average days performed actions prior to certification	0.008		0.000	
Average % of cases completed during move-in	-0.008		0.000	
Average % of cases completed during certification	-0.016		0.000	
N items verified at both recertification and move-in	0.214		0.020	
Number of types: external monitor	-0.371		-0.082	
Number of types: follow-up verification	-0.429		-0.024	
Research policy on the Internet	0.182		0.147	
N tasks by software	-0.081		0.004	
Use EIV data to match verification	0.062		-0.101	
Household Characteristics				
N of HH members	0.168		-0.135	

Project-Caused Major Errors Accounted for by Selected Variables: Multiple Logistic Regression Coefficients with Design Effect Adjusted (Continued)

Predictors	Overdue Recertification Error Model		Transcription Error Model	
Household Characteristics				
Total annual income in $1000s	-0.002		0.021	***
N of bedrooms	0.163		0.029	
Earned income	-0.085		0.552	***
Other income	-0.107		0.249	*
Public assistance income	-1.654		-0.168	
Pension income	0.200		0.050	
Medical expense	0.185		-0.038	
N income and expenses	0.010		0.177	***
N of allowances	-0.387		0.630	***
HH head age	0.056	*	0.013	***
HH with disabled elderly	-2.147	*	-0.732	***
Model Fit Statistics				
AIC (null model)	**600645.6**		**5609776.6**	
AIC	**444734.1**		**4871163.7**	
Change in AIC	**-155911.5**		**-738612.9**	

*p < .05, **p < .01, ***p < .001 (test with the null hypothesis that a coefficient [or R^2] = 0; a significant result indicates that the corresponding predictor variable is associated with the dependent variable.
Source: HUDQC FY 2011 Household-level data collection and Project Staff Questionnaire

We specified three linear regression models of (1) the rate of item transcription error, (2) the rate of items without third party written verification, and (3) the total counts of project-caused errors. The model fit for the models of the rate item transcription error and the total counts of errors were acceptable, with an adjusted *R*-square of .114 and .182 respectively (Exhibit F-5), but the model of the rate items without written verification was relatively poor (R^2 = .054). We highlight below the statistically significant and substantively meaningful predictors in the models, with the qualification that all other factors were held constant in each model.

Percentage of items with transcription error:

- Households under projects of the Public Housing program tended to have moderately higher rate of items with transcription errors, with a 7.7 percent increase of the error rate.
- Household size was positively related to the rate of items with transcription error: a one-member increase in a household corresponded to an increase of 2.3 percent in the rate of items with transcription error.
- Total income, earned income, and counts of incomes and expenses can predict higher rates of item transcription error. With every unit increase of the three predictors ($1,000 or one count

of income or expense), the related increase in the rate of item error was 0.3 percent, 5.5 percent, and 1.0 percent, respectively.

- The age of the head of household predicted a slightly higher rate of items with transcription error. For every one year increase in age, the rate of items with transcription error increased 0.2 percent.
- Households with disabled elderly members tended to have 12.0 percent lower rate of items with transcription error.

Percentage of items without written verification:

- Households with projects where a larger percentage of clients whose first language was not English tended to have a moderately lower rate of items without written verification. For every percentage increase in non-English speaking clients, the rate of items without verification decreased by 0.1 percent.

- Other income, public assistance income, and counts of allowance were related to a higher rate of items without verification; every per unit increase of the predictors related to an 8.9 percent, 6.8 percent, and 2.9 percent increase of the error rate, respectively.

Total number of project-caused errors:

- Households managed under Public Housing and PHA-administered Section 8 programs were more likely than those under Owner-administered programs to have project-caused error, with an average increase of .341 percent and .194 percent in total errors, respectively.
- Household size was moderately associated with lower counts of errors while every additional household member was related to a reduction of .074 in total error.
- Household total annual income, earned income, other income, counts of incomes and expenses, and number of allowances and expenses were related to greater total counts of errors, respectively estimated as .011, .219, .205, .089, and .341.

Exhibit F-5
Project-Caused Errors Accounted for by Selected Variables:
Multiple Linear Regression Coefficients with Design Effect Adjusted

Predictors	Rate Items Transcription Error Model		Rate Items Verification Error Model		Total N of Project Error Model	
Intercept	0.235	***	0.149	**	1.259	***
Project Characteristics						
Public Housing	0.077	**	0.033		0.341	**
PHA-Administered Section 8	0.032		0.011		0.194	*
Caseload (10 units per total staff)	-0.001		-0.002		-0.007	
% of new staff	-0.012		-0.041		-0.048	
% of experienced staff (5+ years of experience)	-0.017		-0.051		-0.142	

**Project-Caused Errors Accounted for by Selected Variables:
Multiple Linear Regression Coefficients with Design Effect Adjusted (continued)**

Predictors	Rate Items Transcription Error Model		Rate Items Verification Error Model		Total N of Project Error Model	
Project Characteristics						
% of staff who left	0.042		-0.046		0.039	
% of clients whose first language is not English	0.000		-0.001	**	0.002	
N housing experience qualifications required	-0.006		-0.001		-0.021	
Required 2+ years of college education (binary)	0.006		0.004		0.061	
Number of types of training for experienced certification staff	-0.004		0.003		-0.008	
Number of types of training for new certification staff	-0.010		-0.004		-0.044	
Project Operations						
Accept less preferred verification (binary)	-0.012		0.019		-0.023	
Select case by periods (binary)	0.016		0.002		0.047	
Select case by new staff (binary)	0.029		0.017		0.084	
Average days perform actions prior to certification	0.000		0.000		-0.001	
Average % of cases completed during move-in	0.000		0.000		0.000	
Average % of cases completed during certification	0.000		-0.001		-0.002	
N items verified at both recertification and move-in	0.000		-0.010		0.003	
Number of types: external monitor	-0.005		0.007		-0.047	
Number of types: followup verify	0.009		0.025		0.022	
Research policy on the Internet	0.009		-0.037		0.050	
N tasks by software	-0.006		-0.003		-0.014	
Use EIV data to match verification	0.007		0.022		0.019	
Household Characteristics						
N of HH members	-0.023	**	-0.001		-0.074	*
Total annual income in $1000s	0.003	***	-0.001		0.011	***
N of bedrooms	0.003		0.020		0.021	
Earned income	0.055	***	0.015		0.219	***
Other income	0.007		0.089	**	0.205	**
Public assistance income	-0.012		0.068	*	0.135	
Pension income	0.008		0.001		0.027	
Medical expense	0.013		-0.001		0.011	

**Project-Caused Errors Accounted for by Selected Variables:
Multiple Linear Regression Coefficients with Design Effect Adjusted (continued)**

Predictors	Rate Items Transcription Error Model		Rate Items Verification Error Model		Total N of Project Error Model	
Household Characteristics						
N income and expenses	0.010	*	0.007		0.089	***
N of allowances	0.013		-0.029	*	0.341	***
HH head age	0.002	***	0.000		0.007	
HH with disabled elderly	-0.120	***	0.000		-0.361	**
Model Fit Statistics						
R-square	**0.127**	*******	**0.068**	*******	**0.194**	*******
Adjusted R-square	**0.114**		**0.054**		**0.182**	

*p < .05, **p < .01, ***p < .001 (test with the null hypothesis that a coefficient [or R^2] = 0; a significant result indicates that the corresponding variable is associated with the dependent variable).
N/A marks a predictor that was not included in the equation due to its conceptual redundancy and/or empirical excessive collinearity with the dependent variable.
Source: HUDQC FY 2011 Household-level data collection and Project Staff Questionnaire

Summary

The FY 2011 HUDQC multivariate modeling followed the conceptual and analytical approaches used in previous years, with minor changes. Large patterns were identified where rent errors related to project and household variables. The patterns were similar to those reported in previous analyses. Other things being equal, gross rent error, subsidy overpayment, and subsidy underpayment were higher among PHA-administered Section 8 households. The net effects of the program type differences were consistent with the results from the bivariate cross-tabulations presented in the main text of this report (see Exhibits ES-1 and ES-3).

Project-caused errors accounted for a large proportion of gross rent error. Of the project-caused errors, transcription errors, overdue recertification errors, the rate of items with transcription error, and the rate of items without third-party written verification predicted a higher gross error. Transcription error also predicted higher subsidy overpayment. The basic results were comparable with those from previous years' analyses (i.e., FY 2008–FY 2010), underscoring the importance of reducing project-made errors, particularly transcription errors and overdue recertification, in minimizing rent errors.

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 relationships between household financial and demographic variables and rent errors are highly consistent across models and years, a finding suggesting robust and continuing tenant risk factors with which housing projects must cope.

However, the impact of project characteristics or project operations on improper payments remained elusive within the current data analysis. Most key indicators of project resources, staff capacity, training, (re)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. There were a few estimates generated from modeling that were statistically significant; however, when examined across equations or compared with prior year analyses they indicated trivial, unstable, or inconsistent project effects. As project management and operations are key to improper payment reduction, it is necessary to revamp the measurement of project features in the Project Staff Questionnaire to better reveal the connections between housing management practice and rent error.

To explore factors influential to project-caused errors, we modeled those that were identified as predictive of rent errors, including transcription error (counts and percent), lack of written verification, and overdue recertification error. We found that households' complex financial situations were related to some of these project errors in roughly similar ways as they were related to rent error. Project characteristics and operation, however, were not found to be very statistically meaningful.

Future research is needed to clarify the definition and measurement of project-made errors to enable quantification of the relationships among project errors and their unique and joint effects on rent error. This can be accomplished by clarifying the nature of each type of project error and the underlying processes that lead to the error. Through clear concepts and solid measurement of project errors, we can improve the analysis of project-made errors to generate actionable information.

Moreover, a same set of predictor variables did not properly account for different subsidy rent error measures (i.e., gross error, overpayment, and underpayment) or project-made errors. Arguably, overpayment errors may be caused by issues that are somewhat different from the issues causing underpayment, and project errors could be more distinctive in nature and causes. It seems necessary to learn more about housing subsidy determination practices and to reconceptualize causal links to various types of errors in order to improve our model specification. Fewer but more relevant predictor variables may be better able to explain subsidy rent errors and project-caused errors than the current field of analysis.

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Attachments 1: Nonresponding PHA Projects

In the 2012 HUDQC Project Staff Questionnaire, 10 out of 544 sampled PHAs/projects did not respond to the survey, even after repeated contact. To assess potential bias of the nonresponding projects to the data integrity, we compared the original sample and the available sample that excluded nonresponding projects by cross-tabulating the outcome variable, monthly gross rent error, with housing program type. This required merging the tenant file that contained rent error data with the project file.

Merging the tenant file with the project file, we identified 60 tenant records whose matched projects did not respond to the survey and one project that responded to the survey but no tenant was surveyed. The original sample as designed had 544 projects and 2,404 related tenants, whereas the merged dataset contained 534 projects and 2,344 related tenants available for analysis. With the originally designed data and the available data, cross-tabulation of rent error by three program types did not find substantial or significant differences in gross error means by groups (see the Table below). Therefore, it was acceptable to use the available dataset for multiple regression modeling.

Gross rent error by housing programs: Original sample vs. Available sample

	Original Sample Units (Project n=544, Tenant n=2,403)			Available Sample Units (Project n=534, Tenant n=2,304)		
Program type	Public Housing	PHA Section 8	Owner Administered	Public Housing	PHA Section 8	Owner Administered
N	804	800	800	784	772	788
Mean	13.418	20.286	8.066	13.7	20.524	8.063
Lower 95% CL	9.777	16.387	5.913	9.972	16.503	5.887
Upper 95% CL	17.06	24.186	10.22	17.429	24.545	10.238

Source: HUDQC FY 2011 Household-level data collection and Project Staff Questionnaire

Attachment 2: Imputation of Missing Data

The 2012 PSQ file contained a fairly large number of data items with missing data that were potentially important, including data measuring project characteristics and certification operation features (e.g., staffing, caseload, experience, and certification activities). We examined missing data patterns and tested multiple imputation (MI) and program-mean imputation (PMI) procedures to determine which method generated more reasonable results. MI is recommendable for its systematic approach to substituting missing data based on statistical models that assume data missing at random. PMI is a traditional approach that may generate fairly realistic values, depending on the extent to which the subgroups are distinct from each other. We used SAS procedure MI, specifying a model to include a total of 24 variables with two serving as auxiliaries (without missing data but conceptually related to the items with missing data). The names of these variables are listed below (auxiliaries names are in bold):

iiia_q1,iiia_q2 iiia_q3 iiia_q4 iiia_q5 ***iiia_q6*** iiia_q6_a iiia_q6_b iiia_q6_c ***iiia_q7*** ivb_q1a ivb_q1b ivb_q1c vii_q3 va_q1a va_q1b va_q1c va_q1d va_q2a va_q2b va_q2c va_q3a va_q3b va_q3c

The MI resulted five sets of data with imputed values. We averaged the five sets of results and then tabulated each variable, splitting them by program type. The same tabulations were conducted with PMI-generated data and the original (available or complete) data. To judge which method produced more reasonable results, we took the available data-generated means and standard error as the criteria; the resulting imputed data should be as similar as possible to the original available data in mean and standard error estimates.

Of the 132 total estimates (22 variables X 3 programs X 2 statistics) with imputed values, 36 estimates from MI showed a greater different from and 15 were more similar to the original data, relative to the PMI estimates. The remaining estimates were similar between MI and PMI. Further, the differences between the MI estimates appeared irregular, with either positive or negative discrepancies. Such wider variation of MI estimates may raise questions about the missing-at-random assumption. We therefore decided to use the results from the PMI procedure for modeling. The imputation comparison result, in a lengthy file, is available upon request.

Attachment 3: Descriptive Statistics for Centered/Rescaled Variables

Rescaled/Centered Variables Used in the Multivariate Analysis (Unweighted n = 2,338)

Variable Label	Mean	Standard Error	95% Confidence Level for Mean	
Rent Error				
log gross error	0.987	0.032	0.925	1.049
log overpay	0.47	0.026	0.418	0.521
log underpay	0.399	0.022	0.355	0.442
Project Characteristics				
Public Housing	0.334	0.01	0.315	0.354
Section 8	0.329	0.01	0.31	0.348
Caseload (10 units per total staff)	0.004	0.09	-0.173	0.181
% of new staff	-0.003	0.005	-0.012	0.007
% of experienced staff (5+ years of experience)	0.001	0.006	-0.01	0.013
% of staff who left	0	0.006	-0.012	0.012
% clients whose first language is not English	16.678	0.551	15.598	17.759
N housing experiences qualifications required	2.394	0.025	2.346	2.443
Required 2+ years of college education (binary)	0.36	0.01	0.341	0.38
Number of types of trainings for experienced certification staff	0.004	0.012	-0.02	0.028
Number of types of trainings for new certification staff	0.006	0.027	-0.047	0.059
Project Operation				
Accept less preferred verification (binary)	0.275	0.009	0.257	0.293
Select case by periods (binary)	0.348	0.01	0.329	0.367
Select case by new staff (binary)	0.242	0.009	0.225	0.26
Average days perform actions prior to certification	-0.103	0.423	-0.933	0.728
Average % of cases completed during move-in	-1.025	0.532	-2.068	0.018
Average % of cases completed during certification	-0.68	0.293	-1.255	-0.105
N items verified at both recertification and move-in	0.008	0.032	-0.055	0.071
Number of types: external monitor	1.548	0.022	1.504	1.591
Number of types: follow-up verified	-0.005	0.009	-0.023	0.014
Research policy on the Internet	0.512	0.01	0.492	0.532
N tasks by software	-0.001	0.031	-0.061	0.059
Use EIV data to match verification	0.451	0.01	0.43	0.471
Project-Caused Error				
% of items with transcription errors	0.002	0.006	-0.009	0.014
% of items without written third party verification	0.001	0.007	-0.012	0.014

Rescaled/Centered Variables Used in the Multivariate Analysis (Unweighted n = 2,338) (continued)

Variable Label	Mean	Standard Error	95% Confidence Level for Mean	
Project-Caused Error				
Overdue recertification error	0.012	0.002	0.008	0.016
Consistency error	0.201	0.008	0.184	0.217
Procedural error	0.251	0.009	0.233	0.268
Transcription error	0.38	0.01	0.36	0.399
Administrative error	0.414	0.01	0.394	0.434
Any calculation error	0.077	0.006	0.066	0.088
Tenant Characteristics				
N of HH members	-0.043	0.03	-0.102	0.017
Total annual income in $1000s	-0.159	0.196	-0.544	0.226
N of bedrooms	-0.036	0.021	-0.077	0.005
Earned income	-0.013	0.015	-0.042	0.016
Other income	-0.003	0.011	-0.023	0.018
Public assistance income	-0.001	0.007	-0.014	0.012
Pension income	-0.007	0.019	-0.044	0.031
Medical expense	0.023	0.035	-0.045	0.092
N income and expenses	0.008	0.053	-0.096	0.111
N of allowances	-0.002	0.013	-0.028	0.023
HH head age	0.084	0.402	-0.704	0.872
HH with disabled elderly	0.543	0.01	0.522	0.563

Source: HUDQC FY 2011 Household-level data collection and Project Staff Questionnaire

Attachment 4: Residual Analysis and Outlier Identification

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, the problem was more likely due to a different sampling distribution of these cases than 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, 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.

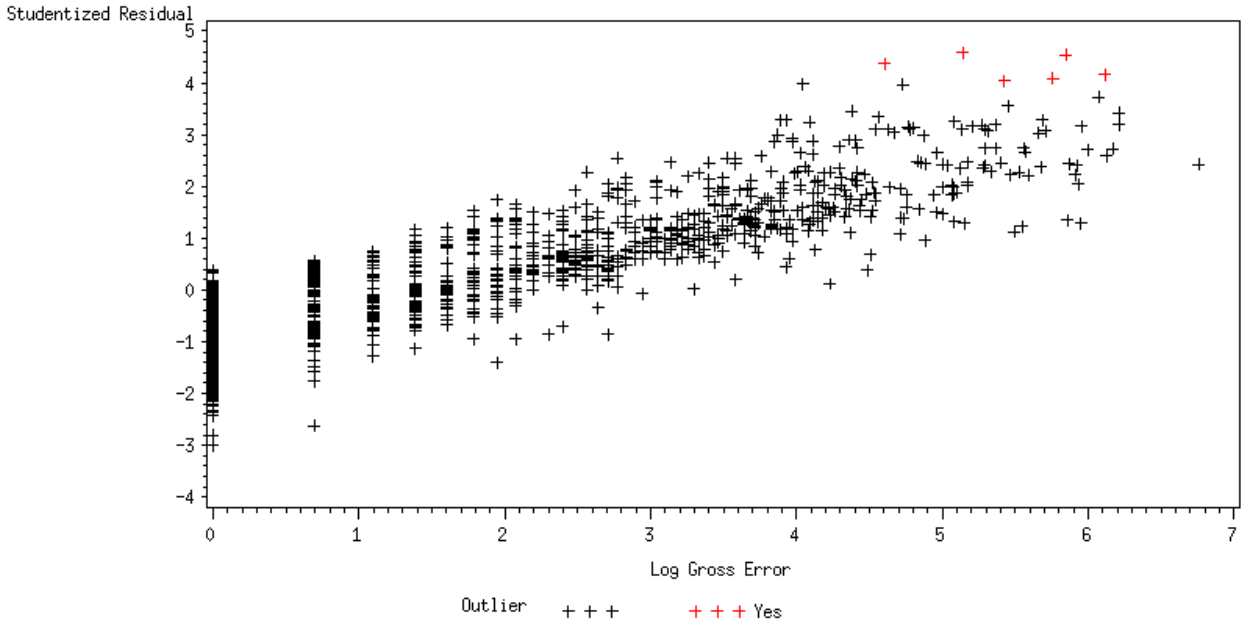
Diagnosis of outlying Y observations entailed deleting and studentizing each case's residual. Each studentized, deleted residual t_i was calculated from the residual e_i, the error sum of squares SSE, and the hat matrix values h_{ii}, all for the fitted regression based on the 2,344 cases in the dataset. Each studentized, deleted residual t_i follows the t distribution with n-p-1 degrees of freedom.

We 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 $t(1-\alpha/2n; n-p-1) = 4.0$. The table below shows the differences in improper payment measures for outliers and the rest of sample. The subsequent chart plots the residual distribution of log gross rent error, with six outliers in red. We decided to remove the six cases from multiple regression analysis of gross rent error, resulting a .015 improvement of the R square for the final model.

Measures of Subsidy Rent Errors: Outlier Households and Other Households

	Subsidy Rent Error	Mean	Standard Error	95% Confidence Level for Mean	
Outliers: Households with Studentized Residual > 4.0 (n= 6)	Gross Error	253.533	32.206	186.353	320.713
	HUD Overpaid	253.533	32.206	186.353	320.713
	HUD Underpaid	0.000	0.000	0.000	0.000
	Log Gross Error	5.422	0.181	5.045	5.799
Other households with Studentized Residual <= 4.0 (n=2,388)	Gross Error	13.748	0.892	11.887	15.609
	HUD Overpaid	8.614	0.961	6.610	10.617
	HUD Underpaid	4.914	0.707	3.440	6.388
	Log Gross Error	1.007	0.037	0.931	1.084

Residual Distributions of Log Gross Error:
Correlation of Studentized Residual Score and Log Gross Error



Source: HUDQC FY 2011 Household-level data collection and Project Staff Questionnaire

Attachment 5: Proportion of Gross Rent Error Variance, Partitioned by Project and Tenant Levels: Unconditional HLM Model Estimates

Model Effects				
Random effects	**Estimate**	**Standard Error**	**Z Value/t Value**	**Probability**
Project-Level Variance	0.126	0.0349	3.60	0.1261
Household-Level Variance	3.967	0.125	31.65	<.0001
Total Variance	4.093			
Project-Level Variance as a Percentage of the Total Variance	3.17%			
Fixed effects				
Mean Log Gross Rental Error (Intercept)	1.013	0.036	28.26	<.0001

Source: HUDQC FY 2011 Household-level data collection and Project Staff Questionnaire