Final Report

FY 2015 Improper Payment for Quality Control for Rental Subsidy Determination Study

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Executive Summary

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

The errors evaluated by ICF in this study affect the rent contributions that tenants should have been charged. The findings presented in this report are derived from data collected from December 2015 through May 2016 for actions taken by PHA and project staff during Federal fiscal year (FY) 2015 (October 2014 through September 2015). These findings show that 73 percent of households nationally paid the correct amount of rent in FY 2015. In 13 percent of cases, households paid too much rent, and in 14 percent of cases, households paid too little.

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

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 (the HUDQC billing studies). Fourteen studies have been conducted to identify program administrator income and rent determination error. In addition to the 2000 study, studies were conducted in FY 2003 through FY 2015. The study referenced in this report covers FY 2015 and updates the FY 2014 measurement of errors in program administrator income and rent determinations. Separate reports will be provided for the other studies conducted in FY 2015.

For the purposes of this study, "error" is defined as any rent calculation or eligibility determination that differs from what would have occurred if the PHA or other program administrator had followed all HUD income certification and rent calculation requirements during the initial certification or

annual recertification conducted in FY 2015. When appropriate, study findings are compared with findings from the previous studies.

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

A. Methodology

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

The Sample. A nationally representative sample of 583 projects in the United States and Puerto Rico was selected for this study. These projects were selected from the universe of the three program types covered by the study:

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

A random sample of four households was selected for most projects, but more households were selected from unusually large projects. The final study data set includes responses from 2,400 households.

Out-of-Scope Projects. Certain programs were excluded from the study because their eligibility and rent calculation rules differed from the standards, including the Owner-administered Rental Assistance Payment, Rental Supplement Program, Section 236, and Below Market Interest Rate programs. Since the FY 2012 study, Moving to Work (MTW) agencies have been included in the sampling frame and the HUDQC Study sample. Owner-administered Rental Assistance Demonstration properties were excluded from the FY 2015 sample. Universe files requested from HUD either excluded out-of-scope projects, or the projects were identified by HUD for easy removal.

Weighting. Updated population counts per program were calculated based on the assisted housing universe files provided by HUD in June 2015 to compile weights for the study. The same population totals per program, provided by HUD in the FY 2005 statement of work, were used from FY 2006 through FY 2010. Starting in FY 2011, the population totals were updated based on the FY 2012 HUDQC sample universe to better reflect the current population. The same population totals were used from FY 2012 to FY 2014, and were then updated for the FY 2015 study. In general, when the population totals are adjusted, the changes seen in total gross dollar error may be due to a change in the assisted housing population, not necessarily an increase in average dollar error. When comparing dollar error between years in which the population size has been adjusted, it is appropriate to compare average dollar error, as it is not affected by changes in population size.

The Data Collection Process. The data collection effort included creating and automating more than 30 data collection instruments, contacting and obtaining information from PHA/Owner staff, hiring and training 73 field interviewers, and selecting the project and household sample. Field interviewers obtained data from tenant files and interviewed tenants using computer-assisted personal interviewing software developed for this study. The automated data collection process included built-in consistency and edit checks that prompted interviewers to probe inconsistent and anomalous responses. Collected data were electronically transferred daily to ICF headquarters for review. Requested third-party verifications related to income, assets, and expenses were also processed at ICF's office in Rockville, MD.

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

B. Major Rent Error Findings

National Rent Error Estimates. The analysis of the FY 2015 tenant files, household interviews, and income verification data indicates that:[1]

- Seventy-three percent of all households paid the correct amount of rent within $5 (61 percent paid the exact amount).
- Fourteen percent of all households paid at least $5 less than they should have (with an average error of $66 per month).
- Thirteen percent of all households paid at least $5 more than they should have (with an average error of $35 per month).

[1] Note that results may not total to 100 percent 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 at 13 percent and the Owner-administered program at 12 percent. The PHA-administered Section 8 program had the highest overpayment rate, at 15 percent, followed by Public Housing programs at 12 percent and Owner-administered programs with 11 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	13%	12%
PHA-administered Section 8	15%	15%
Owner-administered	12%	11%
Total	**14%**	**13%**

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

- **Rent underpayments of approximately $499.3 million annually (up from $458.4 million in FY 2014).** For tenants who paid less monthly rent than they should have paid (14 percent), the average monthly underpayment was $66. For purposes of generalization, spreading total underpayment errors across all households (including those with no error and overpayment error) produces a program-wide average monthly underpayment error of $8.94 ($107 annually). Multiplying and weighting the $107 by the approximately 4.7 million units represented by the study sample resulted in an overall annual underpayment dollar error of approximately $499.3 million per year.
- **Rent overpayments of approximately $248.5 million annually (down from $260.3 million in FY 2014).** For tenants who paid more monthly rent than they should have paid (13 percent), the average monthly overpayment was $35. When this error is spread across all households, it produces an average monthly overpayment of $4.45 ($53 annually). Multiplying and weighting the $53 by the approximately 4.7 million units represented by the study sample resulted in an overall annual overpayment dollar error of approximately $248.5 million per year.
- **Aggregate net rent error of $250.9 million annually.** When combined, the average Gross Rent Error per case was $13.39 ($8.94 + $4. 45). Overpayment and underpayment errors partly offset each other; the net overall average monthly rent error was -$4.49 (-$8.94 + $4.45). 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

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

that rent errors have a dollar-for-dollar correspondence with subsidy payment errors, except in the Public Housing program in years in which it is not fully funded (in which case, errors have slightly less than a dollar-for-dollar effect). The study found that the net subsidy cost of the under- and overpayments was approximately $250.86 million per year ($499.34 million – $248.48 million).

Subsidy overpayment and underpayment dollars are summarized in Exhibit ES-2.[3] This information identifies 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	$66 (14% of cases)	$35 (13% of cases)
Average Monthly per Tenant Error Across All Households	$8.94	$4.45
Total Annual Program Errors	$499.3 million	$248.5 million
Total Annual Errors (95% Confidence Interval)	**$374.2 – 624.5 million**	**$178.3 – 318.7 million**

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

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

Program	Subsidy Overpayment	Subsidy Underpayment	Net Erroneous Payment	Gross Erroneous Payment
Public Housing	$98,861	$84,426	$14,435	$183,286
PHA-administered Section 8	$287,452	$113,326	$174,126	$400,778
Total PHA-administered	*$386,313*	*$197,752*	*$188,561*	*$584,064*
Owner-administered	$113,025	$50,732	$62,293	$163,758
Total	**$499,338**	**$248,484**	**$250,854**	**$747,822**
95% Confidence Interval	**±$125,137**	**±$70,208**	**±$136,035**	**±$150,569**

Comparison with Prior Studies. Thirteen prior studies (the 2000 baseline study and the annual studies since FY 2003) estimated erroneous payments attributed to program administrator rent calculation and processing errors. The current FY 2015 study used similar methodology, sampling procedures, and sample sizes as all previous studies. Although the FY 2003 and FY 2004 studies demonstrated significant reductions in erroneous payments attributed to program administrator income and rent determinations, the studies since that time have shown less dramatic changes in gross error.

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

The total gross erroneous payments decreased from FY 2014 to FY 2015, but this change was not statistically significant. There were also no statistically significant overall changes or significant changes within program type. The average dollar error decreased from $13.55 in FY 2014 to $13.39 in FY 2015. The decrease in total gross dollar error may have been caused by the change in population size. Additionally, in a departure from previous years, newfound sources of Social Security income were treated as intentional tenant misreporting of income in FY 2015, and was not included in the QC rent calculation.[4] This income source was instead included in the Income Match Study. Finally, sampling error contributes to the variation of estimates from year to year, as a new sample is drawn for each study in order to best represent the housing population at that point in time.

Exhibit ES-4 presents a review of the gross erroneous payments for the QC studies from 2000 to FY 2015. Figure ES-1 shows the progression of gross erroneous payments over time.

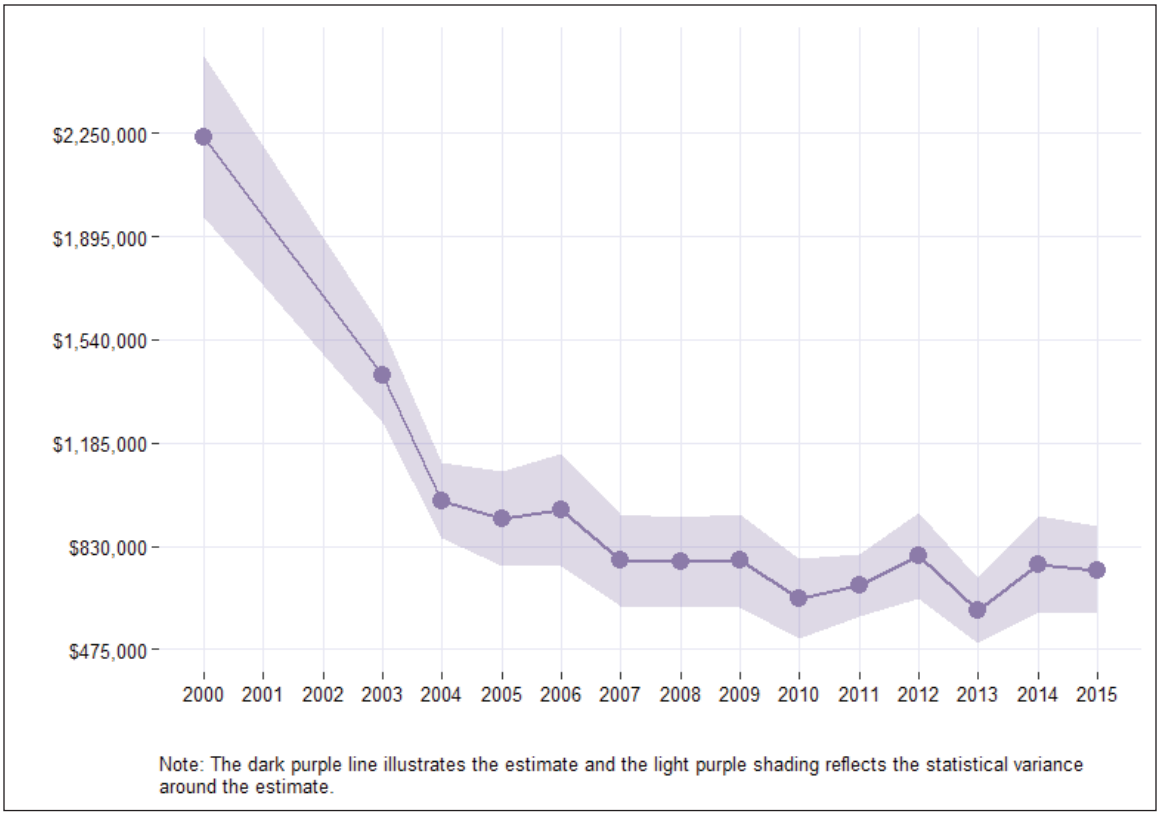
[4] For further details on intentional tenant misreporting of income, please refer to the *FY 2015 Income Match Draft Report*, delivered to HUD on August 20, 2016.

Exhibit ES-4
Comparative 2000 Through FY 2015 Gross Erroneous Payments*

Gross Erroneous Payments (in $1,000s)	Administration Type				Total
	Public Housing	PHA-administered Section 8	Total PHA-administered	Owner-administered	
FY 2015†	$183,286	$400,778	$584,064	$163,758	$747,822 ±$150,569
FY 2014	$247,580	$392,317	$639,897	$129,452	$769,349 ±$167,657
FY 2013	$177,908	$324,293	$502,201	$105,628	$607,829 ±$112,660
FY 2012‡	$190,849	$430,716	$621,566	$177,234	$798,800 ±$148,415
FY 2011§	$139,885	$436,156	$576,041	$119,168	$695,209 ±$108,728
FY 2010	$141,033	$341,515	$482,548	$167,719	$650,266 ±$137,235
FY 2009	$130,268	$440,288	$570,556	$209,455	$780,011 ±$162,116
FY 2008	$183,305	$400,248	$583,553	$191,723	$775,276 ±$153,447
FY 2007	$149,364	$435,012	$584,376	$199,104	$783,480 ±$157,292
FY 2006	$172,824	$520,020	$692,844	$261,324	$954,168 ±$192,264
FY 2005	$220,464	$456,240	$676,704	$248,580	$925,232 ±$164,206
FY 2004	$242,076	$521,220	$763,292	$224,460	$987,744 ±$131,201
FY 2003	$316,116	$730,956	$1,047,072	$368,796	$1,415,844 ±$163,000
2000	$602,556	$1,096,524	$1,699,092	$539,160	$2,238,252 ±$275,000
Percent Reduction from 2000 to FY 2015	69.58%	63.45%	65.62%	69.48%	66.55%

* Gross Rent Error is the sum of the absolute value of positive and negative rent error.
† For FY 2015, the population totals were updated to reflect the population in FY 2015.
‡ For FY 2012, the population totals were updated to reflect the population in FY 2012. In addition, the MTW program was included in the HUDQC study for the first time.
§ For FY 2011, the population totals were updated to reflect the population in FY 2011.
Note: Numbers may not add exactly due to rounding.

Figure ES-1
Comparative 2000 through FY 2015 Gross Erroneous Payments Over Time



A sharp decline in erroneous payments occurred from 2000 to FY 2004, from $2.2 billion to $988 million. From FY 2004 through FY 2015, the Gross Rent Error was relatively less varied and showed a general plateau.

C. Sources of Errors

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

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

- Consistency errors, which are errors in logical conformity between elements within Form HUD-50058/50059
- Calculation errors, which are arithmetic errors within subsections of Form HUD50058/50059
- Transcription errors, which are errors in transferring information from documentation in the tenant file to Form HUD-50058/50059
- Failure to conduct a recertification in a timely manner
- Failure to verify information

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

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

Overdue Recertifications. In general, HUD requires that every household be recertified annually. About 2 percent of households had overdue recertifications in FY 2015, which was the same rate found in FY 2014.

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, delineated guidelines for new procedures for obtaining and using verification. The new HUD verification guidelines were implemented at the end of FY 2010, and FY 2011 was the first fiscal year in which they were applied. For the HUDQC Study, methodology was changed to reflect these new HUD guidelines. In FY 2012, the acceptable verification date range for documents used by PHA/project staff was extended by approximately 2 months so that more documents in the tenant file met the HUDQC Study requirements. In FY 2013, the study's verification date range was revised to provide a more accurate time frame for acceptable verification of documents. The changes included new criteria for selecting the Quality Control Month and narrowing the time frame for acceptable verification documents found in the tenant file to exclude any that were dated after the effective date of the transaction being reviewed.

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

Component Error Findings. Incorrect income and allowance amounts were by far the most significant sources of error when determining rents; only about 4 percent of households with rent errors did not have an income or expense component error. Earned income (33 percent), medical

allowances (16 percent), pensions (15 percent), and other income (13 percent) continued to have the highest 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 households with any rent component error in which the specified rent component was responsible for the largest error. The average dollar amount reported represents the average dollar amount for the specified rent component for households in which the specified component was responsible for the largest error. For comparison purposes, findings from FY 2014 are provided in parentheses. While the percentage of households with specific rent component errors remained relatively consistent from FY 2014 to FY 2015, there are often large differences in the annual average dollar error from year to year.

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

Rent Component	Percent of Households	Annual Average Dollar Amount
Earned Income	33% (33%)	$3,860 ($4,528)
Medical Allowance	16% (17%)	$905 ($1,813)
Pensions	15% (15%)	$2,572 ($1,945)
Other Income	13% (13%)	$2,453 ($3,122)
Elderly/Disabled Allowance	6% (4%)	$400 ($422)
Dependent Allowance	5% (4%)	$522 ($566)
Public Assistance	4% (3%)	$2,133 ($1,519)
Asset Income	2% (3%)	$596 ($808)
Child Care Allowance	2% (2%)	$2,148 ($1,256)
No Rent Component Error	4% (7%)	$0
Total	**100%**	**$2,326 ($2,625)***

* Refers to the sum of the dollars associated with the largest component in error divided by the number of households with that error.
Note: FY 2014 findings are provided in parentheses. Rounding may result in totals not equal to 100 percent. The cell size for elderly/disabled allowance is small; therefore, estimates may not be reliable.

Exhibit ES-6 displays the impact of changes in the error threshold on the case error rate and gross dollar error. As noted above, a monthly error of less than $5 is currently ignored due to rounding. An increase in the error threshold of $5 to $10 would result in an increase in proper payments by about 6 percent, as well as a decrease in the estimate for gross dollar error by about $28.8 million. Based on the distribution of household error, most rent errors are within $100 per month, or $1,200 per year. At the individual household level, the gross error may seem insignificant; however, these errors can result in a substantial amount of gross dollar error for the assisted housing programs in aggregate. Although an increase in the error threshold to $100 per month would result in 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 $1,000s)

Monthly Error	Percentage of Households			Dollar Error Amount			
	Rent Under-payment	Proper Payment	Rent Over-payment	Rent Under-payment	Rent Over-payment	Gross Error	Net Error
Exact Match	19.0%	61.4%	19.7%	$506.972	$256,933	$763,905	$250,039
Within $5	13.5%	73.6%	12.8%	$499,338	$248,484	$747,822	$250,854
Within $10	11.2%	79.8%	9.0%	$488,896	$230,173	$719,069	$258,723
Within $15	9.6%	83.5%	6.9%	$477,702	$215,132	$692,834	$262,570
Within $25	7.3%	87.8%	4.9%	$451,810	$191,948	$643,758	$259,863
Within $50	3.8%	94.5%	1.7%	$379,778	$129,017	$508,795	$250,761
Within $100	2.1%	97.3%	0.7%	$314,614	$90,526	$405,140	$224,088

*Row totals may not add up 100 percent to due to rounding.

D. Additional Findings

Eligibility of Newly Certified Households. A separate analysis of newly certified households (13 percent) was conducted to determine whether the households were eligible for HUD housing assistance. Ninety-six percent of these households met all of the eligibility criteria—the same rate found in new certifications in FY 2014. All certified households in the sample were income-eligible on the basis of the QC income determination.

One percent of newly certified households failed to document Social Security numbers for one or more household members, and 3 percent lacked the signed consent forms needed to authorize verification of income and assets (for each member of the household who is at least 18 years old). All households had the signed declaration forms or evidence accepted as proof of citizenship. These findings estimate the percentage of newly certified tenants who were incorrectly determined eligible for program admission.

Occupancy Standards. The study also determined the extent to which households are under- or over-housed, relative to HUD's occupancy standards. Seventeen percent of all households occupied a unit with too many or too few bedrooms in FY 2015, according to the guidelines used for this study. Historically, the percentage of households in units with the correct number of bedrooms according to study guidelines has fluctuated between 83 percent and 88 percent since FY 2004.

Rent Reasonableness. The extent to which PHA-administered Section 8 Voucher rent comparability (reasonableness) determinations are found in the tenant file was also investigated, along with the method used to support the determinations. Ninety-six percent of new admission files contained rent reasonableness documents, as did 89 percent of the files for households for which data were collected for an annual recertification. However, the absence of documentation does not necessarily indicate that a determination was not completed, only that it was not properly documented. Information was also collected at the PHA level to understand the method used to determine rent reasonableness. To determine whether the rent was reasonable, all PHAs in the study used unit-to-unit rent comparison, unit-to-market rent comparison, or a point system.

Utility Allowances. For PHA-administered Section 8 Voucher households, the utility allowances found on Form HUD-50058 were compared to the utility allowance worksheets found in the tenant

file and to the utility allowance values calculated using the utility allowance schedules provided by the PHAs. For the first comparison, 83 percent of the utility allowance values matched. For the second comparison, 87 percent of the values matched between the QC utility allowance amount and that on the Form HUD-50058. However, nonmatching values may not necessarily mean the utility allowance found on Form HUD-50058 was incorrect.

Payment Standards. A special analysis was conducted to determine whether the correct payment standards were used for PHA-administered Section 8 Voucher households. The payment standard found on Form HUD-50058 was compared to the payment standard schedules provided by the PHA and to the Fair Market Rent (FMR) for the appropriate geographical area. For the first comparison, 82 percent of the payment standards matched. For the second comparison, 89 percent of the payment standards found on Form HUD-50058 fell within the 90 to 110 percent FMR band. As with the utility allowance analysis, the information needed to conduct the analysis was not always available. Therefore, 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.

Form HUD-50058/50059 Rent Calculation Error Compared to QC Rent Error. The tenant rent was calculated using only the data on Forms HUD-50058/50059 to determine the relationship between errors detected using Forms HUD-50058/50059 and total rent errors found in the study. When using only Form HUD-50058/50059 data to calculate rent, errors were found in 9 percent of households. This is clearly different from the QC error calculation, in which calculation errors were found in 26 percent of households. Calculation error was found in both Forms HUD-50058/50059 and the QC calculation in only 4 percent of households.

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

Tenant Characteristics and Project Characteristics and Practices. The conceptual approach used for the multivariate modeling was updated to be a single combined model, but the analytical approach used was the same used in FY 2014. The analysis identified patterns in which rent errors related to project and household variables, particularly involving project-caused errors such as transcription error and overdue recertification error and their association with Gross Rent Error. These findings were essentially similar to those reported in prior years' analyses—differences among program types were not found to be statistically significant with regard to Gross Rent Error, or subsidy overpayment, subsidy underpayment, net of other project and household effects. (See *Appendix F* for more information on the Multivariate Analysis.)

Project-caused errors accounted for a large proportion of Gross Rent Error, controlling for other effects. Of the project-caused errors, administrative errors, transcription errors, overdue recertification errors, and the rate of items without third-party written verification predicted a higher gross error, which has been consistently found in prior analyses. Transcription error was a driver of overpayment, while the percentage of items without verification was a driver of underpayment.

Household background variables were strong predictors of Gross Rent Error, subsidy overpayment, and subsidy underpayment. Variables indicative of complex financial conditions and income strongly

predicted higher rent errors. The relationship between household financial or sociodemographic variables and rent error is highly consistent across models and years, a finding which indicates that PHA/project staff should emphasize quality control of these cases.

E. HUD Initiatives: 2000–2015

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

1. A Rental Housing Integrity Improvement Program committee, headed by the Office of the Chief Financial Officer with representatives from other affected offices, was formed to coordinate and monitor corrective actions. The committee meets to review progress and to identify and resolve impediments to progress in reducing errors.
2. The Office of Housing and PIH developed and issued new handbooks and instructional materials that detailed all current HUD program requirements and standardized them to the extent possible without regulatory or statutory change. The handbooks cover nearly all aspects of occupancy policy, from the point of tenant application for admission and rent calculations through ongoing occupancy to lease termination. For Public Housing, the issuance of a Public Housing Occupancy Guidebook represented the first such effort in more than 20 years and provided a defined methodology for calculating a number of complex requirements (e.g., the Earned Income Disallowance).
3. The Office of Housing and PIH substantially increased training efforts and held a number of national and regional training sessions. This contrasts with a less educational approach in the 1980s and 1990s.
4. The Office of Housing and PIH initiated comprehensive, large-scale, and onsite occupancy and management reviews, which also represented a major procedural change from the previous two decades for most HUD offices:
   - The Office of Housing primarily used new agreements with contract administrators, which are usually State agencies, to perform this function. Contract administrators provide technical support in adhering to HUD program requirements and routinely perform detailed monitoring of agency compliance.
   - PIH initiated a system of Rental Integrity Monitoring (RIM) reviews to detect and reduce errors in income and rent calculations at targeted PHAs, reduce rent under- and overpayments by residents, and ensure that HUD's limited housing resources were being used to serve eligible families in a fair and equitable manner, as intended by Congress.
5. HUD initiated a legislative change that granted it access to the U.S. Department of Health and Human Services National Directory of New Hires (NDNH) income and wage database for income matching purposes. HUD uses these data to compare tenant-reported income with State wage data to better ensure that the right subsidy payments are made to the right households in accordance with program statutory and regulatory requirements. This legislation was passed in late 2003 and required the implementation of agreements and data systems. HUD also negotiated agreements with some States to obtain access to the same

information. Access to the NDNH database is available through the Enterprise Income Verification (EIV) system.

6. The Office of Housing and PIH initiated a computer matching program with the Social Security Administration (SSA) that provides SSA data for tenants receiving assisted housing. SSA electronically provides HUD with benefit information on all active household members who have disclosed a valid Social Security number. HUD makes this information available to administrators of the Public Housing and Section 8 programs through the EIV system. This information allows PHAs to validate Social Security numbers and SSA benefits quickly and efficiently.

7. In 2010, HUD issued the *Implementation of Refinement of Income and Rent Rule*, which mandated the use of the EIV system (discussed in the previous two bullets) as a third-party source to verify tenant employment and income information during mandatory recertification of household composition and income. The use of EIV minimizes the need for traditional third-party verification forms. To make the EIV system as effective as possible, the rule was also revised to require all applicants and participants to disclose a Social Security number, no longer exempting children younger than age 6.

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

F. Recommendations

HUD's progress in decreasing improper payment since 2000 is impressive. However, findings from the study suggest general actions that should be continued or policies that should be considered to maintain or improve PHA/project performance in rent determination. We present the following recommendations that may improve administrative error rates in HUD programs, based on insights we have gathered during this and other studies:

1. **Continue Requiring the Use of EIV Reports.** HUD should continue requiring the use of EIV information in the process of rent determination. Data systematically collected from the NDNH and SSA provide a strong method of identifying specific sources of income information. The study shows that the majority of subsidy errors are associated with earned income. HUD may also want to consider forming relationships with State programs, organizations, and companies to collect other data not currently captured by the EIV system. Although EIV provides a uniform and efficient method of verifying income sources that lessens the burden on program administrators, caution must be exercised when using information from the system. The data are extremely helpful in identifying unreported sources of income, but they are not current and sometimes contain errors (including

instances of identity theft and incorrect identification of disability status). HUD's EIV requirement should be coupled with policies aimed at addressing the challenges of using EIV for verification.

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

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

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

3. **Continue to Streamline the Program Requirements.** Continue to simplify Federal laws, regulations, and HUD requirements to the extent possible. The new regulations outlined in Notice PIH 2016-05 provide much needed clarification on previous regulations, such as the time period associated with the Earned Income Disregard calculations. The implementation of triennial certification for fixed income households will save time for PHA staff, allowing them to spend more time conducting required reexaminations, following up on suspected cases of fraud, and conducting more internal reviews of tenant files. Office of Housing should implement similar changes.

4. **Create an Online Community to Share Best Practices and Tools.** HUD should provide PHA/Owners with an online venue to support the sharing of best practices for its assisted housing programs. A Web-based resource could facilitate communication between HUD and program administrators regarding identifying ways to improve and address challenges related to proposed policies. Comprehensive supporting documents, including forms for interviewing tenants, obtaining verification, and determining rent, could be posted to the site for downloading. Manuals and training materials describing how to implement requirements

and accurately calculate rent could also be available electronically, with online webcasts providing an additional training resource for local program offices.

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

5. **Develop a technical assistance platform for rent calculation staff.** HUD should develop a technical assistance hotline for project/PHA staff to call about particularly difficult policies related to completing (re)certifications. The assistance could be a Web-based support system, where the PHA/project staff would be given a time estimate of when they will receive an answer after submitting a question, or a live telephone system staffed by experienced HUD policy advisors. This open dialogue would help avoid common errors that contribute to rent error. Additionally, HUD should keep detailed records for each call to determine if there were commonly asked questions, and provide written guidance on these issues to all PHA/projects for future use.
6. **Develop a calculation worksheet for use in annualizing income.** This electronic worksheet would be programmed to calculate annual income to be used for rent calculation. It would also serve as documentation of the methodology used by the PHA/project staff to annualize income. A physical copy could be kept in the tenant file after it is dated and signed by the certification staff. This would help to avoid calculation errors and thus reduce rent error.

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

7. **Continue to Measure Improper Payment Associated With Billing Error.** HUD should conduct billing error studies to obtain a more accurate assessment of improper payments. In the *FY 2014 HUD Agency Financial Report*, billing error estimates are based on FY 2004 data for the Public Housing program and FY 2009 data for Owner-administered programs. In FY 2015, ICF conducted billing studies for both the Office of Public and Indian Housing and the Office of Housing. This work should continue to be conducted. Current error estimates could be obtained by conducting primary data collection or by using statistical modeling to update the existing data. However, an updated study will provide HUD with a better assessment of billing error associated with rental assistance programs in order to understand one of the main contributors to improper payments. The information from these billing studies could strengthen financial management controls so that HUD can better detect and prevent improper payments.
8. **Incorporate Additional Objectives in the HUDQC Study.** Data collected through the HUDQC Study provide details that are not available through other HUD sources (e.g., PIC/TRACS) that could be used to track trends, such as the extent to which income and expense items are verified or the number of sources of employment income for a particular household

or household member. Furthermore, because a statistically valid nationwide sample of projects and households is created for the study, other HUD-related topics could be investigated using the HUDQC Study's research mechanisms and data collection processes. The rental integrity monitoring (RIM) review validation, identified in the July 2013 issuance of the HUD Research Roadmap for FY 2014–FY 2018, is a task that could be incorporated into the HUDQC Study's data collection process. Additional topics could include a review of the changing demographics of HUD tenants, participant satisfaction surveys, and a more in-depth review and evaluation of MTW programs.

9. **Continue to Conduct a Utility Allowance Comparison Study.** In response to tightening budgets and overall concerns with energy efficiency, HUD should undertake a study to better understand utility costs and consumption in subsidized housing. ICF conducted this work in FY 2015, and this work should continue. HUD should consider conducting an in-depth quality control study of how utility allowance values are calculated and used in rent calculation. This study could involve collecting data from utility companies regarding utility use for a given fiscal year and comparing actual consumption with the utility allowance subsidy calculated by program administrators.

   The FY 2015 Utility Allowance Comparison Study found that current HUD Utility Schedule Model (HUSM) users produce incorrect allowances via the tool. HUD should consider making improvements to the HUSM tool to increase accuracy of data entry and calculated utility allowances. Additionally, performing project-level reviews and approvals of utility allowance levels would improve accountability in updating allowances in a timely manner and would likely reduce subsidy error in utility allowances.

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

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

I. Introduction

The U.S. Department of Housing and Urban Development (HUD) provides housing subsidies to Multifamily project owners and Public Housing Authorities (PHAs) to administer housing assistance primarily to low-income households. The Office of Public and Indian Housing (PIH) and the Office of Multifamily Housing provide funding for rental subsidy through Public Housing, the PHA-administered Section 8 Voucher program, and the Owner-administered Section 8 project-based programs. Collectively, these programs are referred to as HUD's Rental Housing Assistance Programs (RHAP). They are administered by more than 4,000 intermediary agencies and provide affordable housing for approximately 4.97 million households (i.e., 1.1 million though Public Housing, 2.2 million through the PHA-administered Section 8 program, and 1.6 million through project-based programs).[5]

Under the Improper Payments Elimination and Recovery Act (IPERA), signed into law in 2010, and the guidance of the Office of Management and Budget (OMB), agencies assess all programs they administer and identify those that may be susceptible to improper payments. An improper payment is any payment that should not have been made or that was made in an incorrect amount. In fiscal year (FY) 2014, $32 billion of HUD's total payments were attributed to HUD's rental assistance programs. These programs constitute a significant amount of HUD's total payments and continue to be assessed as being at high risk of significant improper payments.[6]

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

A. Purpose of the Improper Payment for Quality Control for Rental Subsidy Determinations Study for FY 2015

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

[5] U.S. Department of Housing and Urban Development. *Annual Report: FY 2015 Agency Financial Report.* Washington, DC: U.S. Department of Housing and Urban Development, 2015. pg. 12

[6] U.S. Department of Housing and Urban Development. *Annual Report: FY 2015 Agency Financial Report.* Washington, DC: U.S. Department of Housing and Urban Development, 2015. pg. 213

examines the sources, associated costs, and frequency of subsidy errors in tenant certification and annual recertification processes for recertification transactions conducted during Federal FY 2015.[7]

This report examines a total of 16 objectives and outlines them in more detail in Section III. The main focus of this work involved collecting and analyzing information that pertained to eligibility and rent determination processes to identify possible causes of error in rent calculation. Throughout this report, information is reported for the three major housing programs separately and in combination. As a separate analysis, key error estimates are also provided for the 20 largest PHAs included in the study sample. In addition, some special analyses were conducted regarding PHA utility allowances, payment standards, and rent reasonableness practices. As part of our review, we also compared unit size to household size to identify any errors in the determination of unit size.

B. Study Background

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

1. *Program administrator error,* which is the program administrator's failure to correctly determine eligibility and income and to apply all income exclusions and deductions when conducting the recertification.
2. *Tenant income reporting error,* which is a consequence of the tenant's failure to disclose all employment income and unemployment compensation sources.
3. *Billing error,* which occurs when there is incorrect billing and payment of subsidies between HUD and third-party program administrators and/or housing providers.

The FY 2015 HUDQC Study is the 14th in a series of studies designed to:

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

Activities for the FY 2015 HUDQC Study commenced in December 2015, starting the review of recertification transactions effective November 1, 2014, to October 31, 2015. Tasks completed prior to data collection that have not been listed above included designing the research and survey methodology and automating the data collection process. Data were collected from a nationally representative sample of HUD-assisted housing projects, and participant household data were collected from tenant files, household interviews, and third-party verification when necessary.

[7] PHAs and owners of HUD-assisted housing are required to make an initial determination of eligibility and, thereafter, an annual recertification of each household's rent. In this report, the term recertification refers to the initial certification and annual recertification. This study does not include interim recertification transactions.

C. Organization of This Report

This report is organized into the following sections:

- Section I: Introduction
- Section II: Methodology
- Section III: Study Objectives and Analytic Methods
- Section IV: Findings
- Section V: Recommendations
- Appendices
  - Appendix A: Rent Calculations
  - Appendix B: Weighting Procedure
  - Appendix C: Source Tables
  - Appendix D: Consistency and Calculation Errors
  - Appendix E: Project Staff Questionnaire Descriptive Analysis
  - Appendix F: Multivariate Analysis

D. Definitions of Key Terms

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

- Abstract Month—The month in which the data collection process for any given household was initiated
- Actual Rent—The tenant rent listed on the Form HUD-50058/50059
- Administration Type—PHA or owner
- Calculation Errors—Arithmetic errors within subsections of the Form HUD-50058/50059
- Case Type—Certification, recertification, and overdue recertification
- Component Errors—The income components (i.e., employment income, Social Security and pensions, public assistance, other income, and asset income) and expense components (i.e., elderly/disabled allowance, dependent allowance, medical expenses, child care expenses, and disability expenses) responsible for an error in rent calculation
- Consistency Errors—Errors in logical conformity between elements within the Form HUD-50058/50059
- Dollar Rent Error—The difference between the household's QC Rent (see definition below) and 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 underpayments and overpayments
- (Rent) Overpayment—Results when the household paid more than it should have paid, making HUD's contribution less than it should have been
- Payment Type—Underpayment, proper payment, or overpayment
- Program Type—Public Housing, Section 8 Housing Choice Voucher, Section 8 Moderate Rehabilitation, Section 8 project-based, Section 202 PRAC, Section 811 PRAC, or Section 202/162 PAC
- Quality Control Date—The day the tenant rent was calculated by the project staff; this date is used to determine whether verification is acceptable
- Quality Control Month—The month in which the PHA/owner completed the rent calculation; used during the household interview to obtain data for the correct time period
- Quality Control (QC) Rent—Calculated by ICF using the tenant file, household interview, and verification data
- Rent Component—One of the five sources of income (i.e., earned, pensions, public assistance, other income, and assets) or the five types of deductions (i.e., medical, child care, disability assistance expenses, dependent allowance, and elderly/disabled allowance)
- Rent Error—The difference between the monthly Actual Rent and the monthly QC Rent
- Total Component Dollars in Error—The absolute sum (i.e., the sum of the positive and negative amounts, ignoring the plus or minus signs) of all individual income and expense component errors, combined to provide an overall Total Dollars in Error and presented as an annual amount
- Transcription Errors—Errors in transferring information from documentation in the tenant file to the Form HUD-50058/50059
- (Rent) Underpayment—Results when the household paid less than it should have paid, making HUD's contribution higher than it should have been

II. Methodology

A. HUD Requirements and Study Standards

ICF used the *Code of Federal Regulations* and official HUD handbooks and notices to consolidate all HUD rules relevant to the determination of rent into a set of HUD requirements. We used these requirements to create a uniform set of rules that could identify errors in eligibility determination, rent calculation, and unit assignment for the housing programs in the study. In general, this uniform set of rules—known as the standards—follows the official HUD requirements. However, for some complex requirements, standardized procedures were developed to ensure a uniform manner of data collection. A complete list of the standards used in this study can be found in the *Final FY 2015 Improper Payment for Quality Control for Rental Subsidy Determinations Data Collection Standards*.[8]

B. The Sample

The initial sampling design called for a nationally representative sample of 600 projects with 4 households randomly selected from each project, equaling 2,400 households. We selected projects with probabilities proportional to size, but 8, 12, or more households were selected from larger projects whose size exceeded the sampling interval; these were counted as more than one project for the purpose of determining the sample size. The sampling design required approximately equal allocations for the three assisted program types: Public Housing, PHA-administered Section 8 (Vouchers and Moderate Rehabilitation), and Owner-administered (Section 8, Section 202 PRAC, Section 202/162 PAC, and Section 811 PRAC).

Project Sampling. Certain projects were excluded from the study because of their different eligibility and rent calculation rules, such as Owner-administered Rental Assistance Payment or Rental Supplement Program (RAP/SUP) projects. Based on a discussion with HUD, Owner-administered projects that were in the process of converting via the Rental Assistance Demonstration (RAD) program were excluded from the project frame files in FY 2015. This decision was due to the difficulty of determining rental subsidy error in units undergoing the transition. Universe files requested from HUD either excluded out-of-scope projects or those projects were identified for easy removal. Given that some large projects were selected multiple times, the study sample included 583 distinct projects in 57 geographic areas in the United States and Puerto Rico. We sampled 200 projects from each major program type[9] and collected data for a multiple of 4 households from each project. An additional project was added to the sample to ensure that the sample would include a minimum of 2,400 households, even if unexpected circumstances were encountered. The final data set includes responses from 2,400 households in 583 projects.

Household Sampling. For the second year in a row, ICF selected households using HUD-provided PIH Information Center/Tenant Rental Assistance Certification System (PIC/TRACS) data. Previously, field interviewers selected the sample of households while onsite at PHAs/projects

[8] ICF International unpublished report to HUD dated September 18, 2015.

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

using PHA/project-supplied tenant rosters. ICF automated this process using PIC/TRACS data that included all active non-Moving to Work (MTW) tenants who had been certified or recertified in FY 2015. Due to nonstandard recertification cycles permitted by various MTW PHAs, ICF's PIC/TRACS data request did not include MTW households. Certain MTW PHAs selected for the FY 2015 study allow tenants to have biennial or triennial recertifications, so those tenants would not be included in a list of all active and assisted tenants who were either certified or recertified in FY 2015. In order to not exclude eligible tenants from the study sample, ICF collected tenant rosters for MTW projects from the individual PHAs/projects and selected those samples using the previous method used for random sampling.

A random sample of 4 households was selected from most projects, with some larger projects having a larger random selection of 8, 12, or more households. For example, 16 PHA-administered Section 8 Voucher projects, including those in New York City (NYC) and Los Angeles, had household sample sizes of 12 or more. An equal number of "replacement" households were identified at each selected project as potential substitutes in the event that a selected household did not meet the study requirements or was unavailable to be interviewed.

Sampling for the 20 Largest PHAs. Once the sample for the HUDQC Study was identified, additional projects and households were selected for the 20 largest PHAs in the study sample. This additional sample allowed us to provide supplemental findings for these large PHAs. At least 32 cases were sampled per PHA. If a PHA's HUDQC 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 HUDQC Study, we allowed vouchers to be selected more than once. Since we selected households in groups of four, we aimed for eight projects per PHA, with possible multiple selections for the PHA-administered Section 8 Voucher and Moderate Rehabilitation projects. The resulting sample yielded 71 new projects that were not selected for the HUDQC Study and 268 new households. For additional information on the sampling procedures, see the *Final FY 2015 Improper Payment for Quality Control for Rental Subsidy Determinations Sampling Plan*.[10]

Weighting. In studies from FY 2004 to FY 2011, Owner-administered RAP/SUP projects and MTW projects in Public Housing and Voucher programs were excluded from the population totals because of the differences in their eligibility and rent calculation rules. Beginning in FY 2012, however, MTW projects were included in the study, at HUD's request.

In studies from FY 2005 to FY 2010, the population totals from the June 13, 2005, request for proposal were used as the basis for the estimate of occupied units in each of the programs. In FY 2011, a comparison of the previous population totals to the frame population totals showed a change sufficient enough to warrant updating the population counts. In FY 2012, the inclusion of MTW projects led to an increase in the population. These population totals were used until FY 2014. For FY 2015, these population totals were updated per HUD's request. Exhibit II-1 displays the changes to frame population totals over time.

[10] ICF unpublished report to HUD dated September 18, 2015.

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

Program Type	FY 2005–FY 2010 Population Totals*	FY 2011 Study Sample*	FY 2012–FY 2014 Study Sample**	FY 2015**
Public Housing Total	955,000	1,052,503	1,154,796	1,061,690
Public Housing (non-MTW)	955,000	1,052,503	1,040,708	959,766
Public Housing (MTW)	0	0	114,088	101,924
PHA-administered Section 8 Total	1,858,000	1,912,467	2,198,722	2,209,296
PHA-administered Section 8 (non-MTW)	1,858,000	1,912,467	1,935,597	1,916,735
PHA-administered Section 8 (MTW)	0	0	263,125	292,561
Owner-administered	1,320,000	1,382,670	1,378,158	1,382,453
Total	**4,133,000**	**4,347,640**	**4,731,676**	**4,653,439**

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

The use of the same population counts increases the comparability of data, so any change from year to year would not be due to a change in the number of households in the program but to an actual change in the average gross dollar error or percentage of households that are in error. However, maintaining constant population counts over time despite changes in the population itself may result in estimates for total dollar amounts and the proportion of the population represented by each program type not being representative of the current population. Based on these reasons and given the inclusion of MTW projects in the FY 2012 sample and with HUD's agreement, ICF updated the population counts for the FY 2012 study and continued to use those counts for the FY 2013 and FY 2014 studies.[11] In order to ensure accuracy with the current rental assistance population, these population counts were updated for FY 2015 based on the FY 2015 HUD sampling frame.

C. Data Collection

This study used a multistage data collection process to obtain all required information. Web surveys provided project-level information from PHA/project staff. Tenant-level information was obtained by field interviewers who abstracted data from the household file, interviewed households, and requested tenant consent to verify income, expense, and household composition items from third parties.[12] Tenant income, expense, allowance, and third-party verification information was collected using HUD-sanctioned data collection procedures. Field data collection began in December 2015 and ended in May 2016.

Most data collection activities were categorized as either project level data collection or household level data collection, but select processes applied to both.

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

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

Creating the Data Collection Instruments. For this study, more than 30 data collection instruments were used to collect data at both the project and tenant levels. These instruments were similar to those used for the previous data collection efforts, although instruments were modified to improve the data collection process. Project-level instruments were used to gather information to facilitate data collection, collect the data elements necessary to calculate QC rent, and gather information about certification and recertification practices. The tenant-level data collection instruments were created to collect data and determine whether:

1. There were errors in the eligibility determination
2. The household rent was calculated correctly
3. Units were correctly assigned according to the study standards

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

Automating the Data Collection Process. This study used an enhanced version of the data collection system than was used in previous studies. Project-level data were collected through the PSI and PSQ Web surveys that were developed using Select Survey Software. Data from household files were entered directly into laptop computers, and a computer-assisted personal interviewing (CAPI) system was used to interview tenants. This system, referred to as the HUD Data Collection Software (HDCS) system, was developed by a special team of ICF survey specialists and computer systems experts.[13]

Project Level Data Collection

Project Level Web Surveys. The initial collection of project-level data began in October 2015 with the Web-based Project Specific Information (PSI) questionnaire. Using contact information obtained from HUD, this survey requested background information essential to the data collection process as well as specific data used for the calculation of QC Rent. The rent calculation information requested varied by program, but included questions relating to items such as passbook rate, utility allowance schedules, payment standards, minimum rent, and flat rent. PHA/project staff verified the project type and size and the location of project offices and files. Projects were also asked to indicate whether the selected project had been designated a "special demonstration project" by HUD. If a project answered "yes" to this question, and this status was confirmed, the project was replaced in the study. In addition, PHA-administered Section 8 Voucher projects and Public Housing projects were asked to provide their Administrative Plan and their Admissions and Continued Occupancy Policy (ACOP) documents. Public Housing projects were asked to identify the location of any information on permissible deductions. Administrative Plans and ACOPs were thoroughly reviewed for local discretionary policies that would impact QC rent determination.

The data requested from the PHA/project were essential to the calculation of the QC Rent and to preparing interviewers to begin the process of data collection. For these reasons, a 100 percent

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

response rate to our request for information was targeted. In FY 2015, 99 percent of the projects selected responded to the survey and supplied the necessary documents. Rigorous strategies were employed to ensure compliance and the completeness of requested information prior to field data collection.

Another Web-based survey, the Project Staff Questionnaire (PSQ), was sent to projects in February 2016. This survey was designed to obtain information from PHA/projects about the processes that they use to calculate rent during certifications.

Because PHAs/projects have varying practices, ICF designed data collection instruments and guidelines for data collection that were flexible enough to obtain data from the variety of circumstances found in PHAs/projects. The major tasks accomplished during data collection and the instruments used to accomplish those tasks are discussed as follows.

Contacting the PHA/Project. PHA/project contact names were obtained from HUD headquarters staff. Emails were sent to PHA/project staff advising them of the study and requesting their participation. When field data collection commenced, PHA/projects were sent communication introducing the field interviewer and requesting cooperation during their site visit.

Household-Level Data Collection

Hiring and Training Field Interviewers. Seventy-three field interviewers were hired to complete the field data collection, and each interviewer was assigned a group of projects. Field interviewers typically lived in the same general area as the projects selected for the study. Fifty field interviewers who had not worked on the previous year's study (for FY 2014) attended a 7-day training; twenty-three experienced interviewers who completed the FY 2014 study attended a 3-day training. The 7-day training covered the following topics:

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

The 3-day training covered a review of the project background and data collection procedures and focused on changes implemented for the FY 2015 study.

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

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

HDCS was designed to collect data in the same format as the official Form HUD-50058 and Form HUD-50059 published by HUD. The NYC Housing Authority uses a Form HUD-50058 format that differs slightly from the standard. However, because of the large number of NYC Public Housing units and PHA-administered Section 8 Voucher cases in the study, copies of the corresponding PIH Information Center (PIC) 50058 data for these cases were requested and used for data collection when available. In previous study years, we encountered projects where Form HUD-50058 differed from the official HUD format. In those cases, ICF developed crosswalks by examining the data elements on the atypical forms and developing a plan that illustrated which fields corresponded to the standard Form HUD-50058. In the FY 2015 study, three nonstandard documents required crosswalks, compared to four in FY 2014. These three documents were used by three projects, two of which were MTW PHAs.

In addition to the data collected from Form HUD-50058/50059, field interviewers collected data from the household files to document the determination of tenant eligibility and the calculation of rent. A series of documents that supported the certification action were copied by the field interviewer to verify income, assets, household composition, expenses, and other items needed for accurate rent calculations. The documents may have been supplied to the PHA/Project by the tenant or by a third-party agency. When these documents met various study verification criteria, they were used in the QC rent determination.

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

Requesting Verification From Third-Party Sources. When there was no evidence in the household file that the PHA/Owner verified the information used for calculating rent, or the existing verification information did not meet the requirements for this study,[14] ICF requested verification from appropriate third-party sources. Verification was also requested from third parties when household interviews resulted in the identification of sources of income that were not found in the household files. Tenants signed release forms during the household interview so that third-party verification

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

of income and expenses could be obtained. In addition, release form cover letters were also signed by all adult members of the household to ensure that third parties contacted for the verification of information would be satisfied with the validity of the request. Third-party entities completed the forms and returned them to study headquarters, where data were compared to other file information.

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

D. Field Data Collection Time Periods

Data were collected in the field between December 2015 and May 2016 for the certification or annual recertification that occurred during FY 2015 (November 2014 through October 2015). Field interviewers collected data related to actions that may have occurred up to 18 months prior to the file abstraction and household interview. In collecting data to document actions taken in the past, a major challenge was to develop methodologies to ensure that collected data reflect the situation that existed at the selected point in time. For the respondent in the household interview, it may be difficult to recall details of life situations at a past point in time. Some respondents in this population may have unstable situations resulting from inconsistent income or changes to household size, further complicating the collection of data from the past. In light of these challenges, ICF developed study constructs to ensure the consistent and accurate collection of data across program types, projects, and households in the study. The information below describes the two primary strategies developed for this purpose: the quality control month and third-party verification rules.

Quality Control Study Time Period. The month for which data were collected is referred to as the Quality Control Month (QCM) and was used during the household interview to obtain data for the correct time period. This time period refers to when an eligible action occurred during FY 2015. The Quality Control Date (QCD) refers to the day the tenant rent was calculated by the project staff. For most households in the Owner-administered program, the QCD is the date on which the project manager (or other authorized housing project staff member) or the tenant signed Form HUD-50059, certifying that the information on the form was correct. For most households in the PHA-administered programs, the QCD is the date on which the rent calculation worksheet was signed. If these pieces of information were not available, the field interviewer used other documentation in the household file to determine when the action was taken.

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

Note: If the recertification was overdue by more than 12 months, 12-month intervals were added to the QCM so that the QCD fell within the FY 2015 review period. In this situation, during the household interview, the respondent was questioned about circumstances for the month in which the recertification would have been completed had housing project staff completed it on time. In rare

situations when the rent was calculated after the effective date of the action (because of retroactive adjustments), the QCM is the date of that action.

Third-Party Verification Rules. Occasionally the verification documents found in the file for household composition, income, assets, and expense items were different from those required by HUD.

To ensure that data from the correct documents (i.e., those that were gathered to verify the information on the certification or recertification under review) were used to calculate QC Rent, and to apply rules fairly and consistently across all households in the study, ICF developed a set of guidelines defining acceptable verification. For the purpose of this study, verification was considered acceptable if it was either given verbally or in writing, was from the relevant third party, and was dated within the 4 months leading up to the time period of interest. These documents were considered acceptable whether they were received directly from the third party, provided by tenants during the recertification process, or submitted during the household interview.

ICF study headquarters staff classified these documents and determined whether each document met the acceptability criteria. For items that did not meet the requirements, verification was requested from the appropriate third-party entity.

E. Construction of the Analysis Files

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

For the calculation of rent error, the final analysis files contained income and expense/allowance data aggregated at the household level in annual amounts. Rent data were in monthly amounts. Separate files were created for the analysis of issues such as verification, internal Form HUD50058/50059 errors, and occupancy standards.

F. Rent Formula

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

- Thirty percent of a household's adjusted monthly income, defined as one-twelfth of the total of all household members' earned and unearned income—other than those amounts specifically excluded by HUD or PHA policy—less allowances for elderly/disabled households and household dependents and deductions for disability, medical, and childcare expenses

- Ten percent of a household's gross monthly income, with no allowances or expense deductions
- The welfare rent in as-paid states (New York was the only as-paid state in this study)
- The minimum rent ($25 for Owner-administered projects or an amount established by the PHA, not to exceed $50)

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

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

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

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

- Public Housing (MTW and non-MTW)
- Section 8 Project-based (including Moderate Rehabilitation) and Sections 202 PRAC, 811 PRAC, and 202/162 PAC
- Section 8 Vouchers (MTW and non-MTW)
- Section 8 Enhanced Vouchers (there were 18 Enhanced Voucher households in the study)
- Manufactured Home Space Rental for Section 8 Vouchers (there were no households in the FY 2015 study sample that met this criterion)

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

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

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

G. Calculation of Rent Error

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

- **Actual Rent**—The Actual (AC) Rent is the monthly rent indicated on Form HUD50058/50059. If this item was missing on Form HUD-50058/50059, the AC Rent was taken from another official document in the file.[15]
- **Quality Control Rent**—The Quality Control (QC) Rent is the monthly rent calculated by ICF using all verified household information.[16]

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

H. Quality Control Rent

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

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

[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 household file or documentation obtained during the household interview that met study requirements was used to calculate the QC Rent.

the household's recertification process. The following special procedures were followed when calculating the QC Rent, as appropriate:

- Income that started after the QCM was not counted when calculating the QC Rent.
- Income that ended after the QCM was counted for the full year unless it was clear that the PHA/Owner knew that this income was going to end.
- Earned income bonuses were not counted unless it was clear that the bonus was paid on a regular basis.
- Temporary Assistance for Needy Families (TANF) and other welfare income were treated as the same source of income so that income listed as TANF on one form (e.g., the household questionnaire) and "Other Welfare" on another form (e.g., the documentation forms) would not be counted twice.
- Welfare income (TANF and other welfare), child support income, and childcare expenses were treated at the household level instead of the household member level so that the same source of income assigned to various household members would not be counted twice. For example, if one household member (e.g., the head of household) was assigned a source of income on one document and the same income was assigned to another household member (e.g., a child) on another form, the income would not be counted twice because it was assigned at the household level.
- Disability status was assigned to a household member based on Enterprise Income Verification (EIV) documentation if two items were evident on the EIV printout: (1) receipt of Social Security or SSI benefits and (2) a disability status of "yes."
- Passbook rates (for determining the imputed income from assets) for PHA-administered programs were taken from the project-level data provided by PHA/Owner staff. The passbook rate for Owner-administered programs was 2 percent prior to February 2015, and 0.06 percent for those certifications and recertifications starting in February 2015.
- 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 Form HUD-50058, the Fair Market Rent was used instead of the 95th percentile of gross rent because the 95th percentile of gross rent was not available.
- The values from Form HUD-50058 were used for minimum rent, gross rent, payment standard, and flat rent unless the value was missing, in which case the missing value was taken from the PHA/project-level data collection information provided by PHA staff.
- The values from Form HUD-50059 were used for gross rent and contract rent unless the value was missing, in which case the missing value was taken from the project-level data collection information provided by owner staff.
- Welfare rent for the State of New York was taken from the project-level data collection information provided by PHA staff.

- A separate verification code was used to identify verification obtained from the EIV system. When Social Security, SSI, or Black Lung benefits were verified by EIV, the information was considered third-party in-writing verification. If EIV information was in the file for earned income or unemployment benefits, the dates associated with the form were examined to determine whether PHA/project staff had access to the EIV information at the time of recertification. Copies of EIV reports (as well as other types of verification of earned income found in the household file) were sent to study headquarters and reviewed by data quality specialists to prevent mistakes in calculating the QC earned income value. *Note:* EIV was not considered an acceptable verification source for earned income.
- When working with Social Security and SSI benefit information obtained through the SSA data match, discrepancies were sometimes found between those data and EIV printouts contained in the household file. If the two sources of information were contradictory, the information found on the EIV printout (from the household file) was used in the QC calculation.

I. HUD Requirements Complicating the Analysis

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

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

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

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

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

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

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

From the original 60 cases identified from household interview data, QC calculations determined that 20 cases were possibly entitled to an EID. After investigating further for additional factors that affect EID, 16 of the 20 cases were eligible and 4 were not eligible for EID. In 4 of the 16 eligible cases, our QC calculation confirmed the PHA's EID determination. In the remaining 12 cases, our QC review determined that an EID was appropriate, but the PHA did not provide the household with the income exclusion.

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

To identify households eligible for the training program exclusion, field interviewers documented training program information found in the household file and provided during the household interview. This process identified members of 13 households with indications of involvement in training programs, and 4 of those 13 households were found to be eligible for this income exclusion.

Permissible Deductions. Public Housing programs may adopt other deductions from annual income in addition to HUD's required deductions. To ensure that the appropriate additional permissible deductions were taken into consideration when determining the adjusted annual income, two sources of information were examined. First, ICF reviewed items 8b through 8e on Form HUD-50058, which records the type and amount of permissible deductions. Second, a copy of local discretionary policies from all PHAs was requested to identify additional exclusions adopted in their Public Housing program. In the review of these documents, few unique permissible deductions were found across Public Housing programs. The few special deductions that we found are attributed to unique employment circumstances (i.e., union payments or individuals not utilizing the Mandatory Earned Income Deduction), and household members making childcare and alimony expenses. In FY 2015, this review found 5 households with permissible deductions using the local discretionary policies at the 2 PHAs.

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

from each project's ACOP or Administrative Plan, and these policies were included in the QC Rent calculation.

Flat Rent. Households that elected to pay a flat rent rather than an income-based rent were included in the study. For these households, there is no rent error; the QC Rent is the same as the flat rent used by the PHA. In FY 2015, there were 79 flat rent cases in the study sample. Determining whether a household is paying a flat rent is not always easy because of contradictory data within Form HUD-50058. In most cases, items 2a (i.e., Flat Rent Annual Update) and 10u (i.e., Type of Rent Selected) could be used to determine whether the household is paying a flat rent instead of an income-based rent. However, if these two items contradicted one another, information from other documents in the file was used to determine the type of rent a selected tenant paid.

Ineligible Noncitizens. HUD regulations require that rents be prorated for households with ineligible noncitizens unless the household meets certain criteria that allow the continuation of full assistance. ICF reviewed all households with ineligible noncitizens to ensure that the rent was calculated correctly. Twelve households (less than 1 percent of households in this study) included an ineligible noncitizen and had a prorated rent amount per HUD regulations.

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

If the TANF benefits were reduced or terminated because of fraud or failure to comply with the welfare family self-sufficiency requirements, the value of the TANF benefit before the reduction or termination was used in the QC Rent calculation.[17] TANF benefits in 18 households were reviewed, and we identified no households for which TANF amounts should have been imputed.

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

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

III. Study Objectives and Analytic Methods

This section identifies the 16 HUDQC Study objectives and a brief description of the methodology that was used to fulfill these objectives.[18] A summary of these objectives and the location of this information in the report is presented at the end of this section, in Exhibit III-2.

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

The FY 2015 study identified the error types and error rates that were previously analyzed and presented in the FY 2000 through FY 2014 studies. Using verified information as determined in the HUDQC Study standards, the tenant rent (QC Rent) was recalculated and subtracted from the tenant rent indicated on the Form HUD-50058/50059 (Actual Rent, or AC Rent) to determine error. Rent error was categorized and described in a number of ways, including providing the percentage of households paying correct and incorrect rent, total dollar error amounts, and dollar error rates. Variance estimates (standard errors) were provided for selected error rates. Errors were determined by recalculating the tenant rent on the basis of verified QC information and subtracting this amount from the tenant rent indicated on the Form HUD-50058/50059 (AC Rent). The following three types of dollar rent error estimates were calculated:

- **Dollar Rent Error**—The Dollar Rent Error is the difference between the monthly Actual Rent (AC Rent) and the monthly QC Rent (i.e., AC Rent minus QC Rent). A household rent was found to be in error if the difference between the AC Rent and QC Rent was greater than $5, while proper rent payments reflected differences of $5 or less. Rates of exactly matching AC and QC rents (within $1) were also presented. Simple percentages of the number of households paying the proper and exact rents were reported, as well as the percentage of households in error per program, the average gross dollars in error, and the percentage of rent dollars in error. For households that were ineligible when initially certified, the QC Rent was the flat rent for Public Housing households, or the Housing Assistance Payment (HAP) for Section 8 programs. The dollar error in these cases was also defined as the QC Rent amount minus the AC Rent.
- **Total Component Dollars in Error**—The Total Component Dollars in Error is the absolute sum (i.e., the sum of the positive and negative amounts, ignoring the plus or minus signs) of all individual income and expense component errors. These errors were combined to provide an overall Total Dollars in Error and were presented as annual amounts.19 Each component of identified error contributed to a dollar amount of rent overpayment or underpayment; however, some of these errors overlapped or were offset. For example, earned income may have been underreported because of a calculation error or the Supplemental Security

[18] For a more detailed description of the methodology, see the *Analysis Plan for the FY 2015 HUDQC Study,* an unpublished ICF report to HUD dated October 2, 2015.

[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: 0.30 * CE = 12 * RE, or CE = (12/0.30) * RE = (120/3) x RE = 40 * RE.

Income (SSI) may have been overstated. Thus, the net difference could be zero or a positive or negative amount.

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

The dollar error rate was 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. This information is used to support policies that promote better oversight and administrative practices of HUD rental subsidies.

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

Five types of administrative errors are linked to rent errors. Data obtained directly from the Form HUD-50058/50059 as well as PHA/project and tenant information from the tenant file were 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 were detected by recalculating section subtotals and the final rent based on the exact information on Form HUD-50058/50059. The tenant rent was calculated using the detailed information on Form HUD-50058/50059, and the amount was compared to the actual tenant rent on Form HUD50058/50059. A difference in these two rents was identified as a calculation error.

Consistency errors identified a lack of logical conformity between elements within Form HUD-50058/50059. For example, the Effective Date of Action had to be on or after the Date of Admission; elderly status information had to be consistent with information about the age of the head of household or spouse.

Transcription errors are errors that were identified by comparing Form HUD-50058/50059 data with information in the tenant file. If the amount of a specific income or expense item on the Form HUD-50058/50059 did not match the tenant file data, a transcription error existed.

Incorrect determinations of allowances and income sources were also detected using tenant file information and comparing it to the Form HUD-50058/50059 data. Allowance errors were detected by calculating the allowances based on the tenant file information and comparing this QC allowance amount to the actual allowance on Form HUD-50058/50059. Similarly, income was calculated

based on the types and amounts of income identified in the tenant file. The improper application of allowances and the incorrect calculation of income were a subset of transcription errors.

Overdue recertifications often produced rent errors because rents were based on out-of-date information. For households with overdue recertifications, the QC information was based on the month the recertification should have been completed rather than the month that the recertification was completed.

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

This analysis included 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 were weighted to provide national estimates.

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

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

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

This analysis presented differences in error rates by program type. Data were provided for three program groups: Public Housing, PHA-administered Section 8 (Section 8 Vouchers and Moderate Rehabilitation programs), and Owner-administered programs (Section 8, Section 202 PRAC, Section 811 PRAC, and Section 202/162 PAC). The Gross and Net Error Rates were provided for each of these program types. The Gross Error Rate was the sum dollar amount of gross error divided by the sum dollar amount of QC Rent, and the Net Error Rate was 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 are 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 contributed to QC error. Multivariate analyses using administrative errors and income components as independent variables were performed to identify how these errors affected the QC Dollar Rent Error.

Objective 7: Determine the extent to which households are over-housed relative to HUD's occupancy standards.

This objective addressed whether households resided in units with the correct number of bedrooms. Exhibit III-1 shows HUD's generally accepted guidelines specifying the appropriate size unit for assisted households.[20]

For most programs, unit-size rules are not based solely on household size but allow for discretion on the part of PHA/project staff. All programs allow exceptions to these rules. This study replicated 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 outlined 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 are conducted with the tenant as the unit of analysis. Tenant and PHA/project characteristics are analyzed as independent variables predicting error rates. This analysis identified how each of these variables contributes to rent error. The results will help guide HUD's management of error rates and help HUD evaluate relationships between management practices and project/tenant characteristics that affect error rates.

Objective 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 were reviewed to determine whether they met the eligibility requirements for assisted housing.

Five eligibility requirements reviewed at initial/move-in certification are not a part of the recertification process (and thus are not confirmed on an ongoing basis): the definition of family, citizenship status, the verification of Social Security numbers, signed tenant consent forms, and

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

low to very low income limits. This study did not investigate the definition of family because it is determined by the PHA or owner. Therefore, findings were 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 and history 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 rent comparability 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 presented weighted proportions of voucher recipients with rent comparability data.

Additionally, payment standard data from Form HUD-50058 were compared with Fair Market Rent (FMR) data to identify the households whose payment standards fall outside the 90 to 110 percent FMR band. Utility allowance schedules were 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 total positive and negative errors in terms of HUD subsidies.

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

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

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 to provide HUD with more information for identifying projects and tenants likely to exhibit high error rates.

Objective 14: Determine whether cases for which Form HUD-50058/50059 data had been submitted to HUD were more or less likely to have errors than those for which data had not been submitted.

The QC sample was matched to the Public and Indian Housing (PIH) Information Center/Tenant Rental Assistance Certification System (PIC/TRACS) data. Analysis was conducted to compare the average dollars in error for households included in PIC/TRACS with those that were not included.

Objective 15: Determine the extent of program administrator rent and income determination errors.

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

Objective 16: Determine the error rate for the 20 Largest PHAs.

For the 20 Largest PHAs sample, 32 households were selected per PHA. Since the desired error rate can use the households sampled in the HUDQC Study, we interpreted HUD's needs in terms of the total sample needed from these PHAs. Thus, if a PHA already had 32 households selected for the HUDQC Study, no further cases would be sampled. However, if fewer than 32 households were selected in the HUDQC Study, additional tenant files would be selected to achieve 32 households per PHA. Analysis for the 20 Largest PHAs will include tables regarding administrative error and payment error.

ICF addressed administrative error and provided the percentage of households with overdue recertification and transcription errors and the percentage of income and expense items verified by PHA staff, both with written third-party verification only and with verbal or written third-party verification or documentation. Totals for the 20 Largest PHAs were compared to the PHA-administered projects supplied for the HUDQC Study and the HUDQC Study as a whole. Additionally, payment error information was provided. This includes proper payments, under- and overpayments of tenant rents, and the mean gross rent errors by PHA. As with administrative error, totals for the 20 Largest PHAs were compared to the PHA-administered projects supplied for the HUDQC Study and the HUDQC Study as a whole.

Exhibit III-2 presents all study objectives and where they are addressed.

Exhibit III-2
Summary of Study Objectives

#	Objective	Where Objective Is Addressed in 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	Exhibit 1; Exhibit 2; Exhibits 3a & 3b
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	Exhibit 6; Exhibit 8; Exhibit 16; Exhibits 22a & 22b
3	Estimate the national-level costs for total error and major error types.	Exhibit 4
4	Determine the relationship between errors detectable using the Form HUD-50058/50059 and total errors found in the study.	Exhibit 15; Exhibit 17
5	Determine whether error rates and error costs have statistically significant differences from program to program.	Exhibits 4-5
6	Determine the apparent cause of significant rent errors to provide HUD with information on whether the error was caused primarily by the tenant or by program administrator staff.	Exhibits 11 – 14
7	Determine the extent to which households are over-housed relative to HUD's occupancy standards.	Exhibits 24a – 24c
8	Provide information on the extent to which errors are concentrated in projects and programs.	Exhibits 18 – 21
9	Identify the percentage of newly certified tenants who were incorrectly determined eligible for program admission.	Exhibits 7a – 7b
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.	Exhibits 25 – 27; Exhibits 29a – 29d; Exhibits 28a – 28d
11	Estimate total positive and negative errors in terms of HUD subsidies.	Exhibits 9a – 10
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 use an automated rent calculation system.	Appendix F
13	Determine whether other tenant or project characteristics on which data are available are correlated with higher or lower error rates.	Appendix F
14	Determine whether cases for which Form HUD-50058/50059 data were submitted to HUD were more or less likely to have errors than those for which data were not submitted.	Exhibits 30a – 30e
15	Determine the extent of program administrator rent and income determination errors.	Appendix E
16	Determine the error rate for the 20 Largest PHAs.	Exhibits 31a–31b

IV. Findings

A. Overview

Analyses were conducted using nationally weighted sample data for 2,400 households.[21] Data are presented by the three program types that were the basis for the sampling design: Public Housing; Public Housing Authority (PHA)-administered Section 8 Housing Choice Voucher and Moderate Rehabilitation programs (PHA-administered Section 8); and Office of Housing-administered Section 8, Section 202 Project Rental Assistance Contracts (PRAC), Section 811 PRAC, and Section 202/162 PAC programs (Owner-administered). The major study findings, the reasons for the errors, and other background information concerning these errors are discussed as follows. In many of the exhibits in this report, the data collected during the current study (referred to as the FY 2015 data) are compared with the data collected in the previous study (referred to as the FY 2014 data).

Our discussion is divided into 11 parts:

1. The errors in the rent amount based on the QC data (rent errors)
2. The errors in sources of income and expenses (component errors)
3. The errors found using only project-file data (administrative errors)
4. Occupancy standards
5. Findings related to rent reasonableness determinations
6. Utility allowance analysis
7. Payment standard analysis
8. Comparisons with PIH Information Center/Tenant Rental Assistance Certification System (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
11. Errors in the 20 largest PHAs

The first three parts present different types of errors, described as follows.

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

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

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

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

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

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

B. Rent Error

Overview. Rent errors were identified by subtracting the QC Rent from the Actual (AC) Rent.[22] The QC Rent was calculated using data obtained from one of several sources, including the tenant file, the household interview, and third-party verification. If acceptable verification was present in the tenant file, that information was used. If acceptable verification was not present in the tenant file, other sources were used. The Actual Rent is the Tenant Rent from Form HUD-50058/50059. As noted previously, a household was considered to be correct (proper payment) if the QC Rent and the Actual Rent matched within $5. All exhibits included in this report (except Exhibit IV-1) and all tables in *Appendix C* (except the supplemental tables) define households in which AC Rents and QC Rents matched within $5. As noted, this is not the case for the supplemental tables in *Appendix C* (designated by the letter "S"), which are based on exact matches between these two rents.

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

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

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

- *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 underpayments and overpayments) of the Rent Error.
- *Error Rate* is calculated by dividing the sum of the Rent Error (gross or net) by the sum of the QC Rent for the entire sample or a specified group of households.

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

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

- At certification/recertification, the rent was calculated correctly (within $5) in 73 percent of households, a slight drop from the 75 percent of households for which rent was calculated correctly in FY 2014.
- There was an exact match of rent payment in 61 percent of households in FY 2015, which was a decrease from the 65 percent of the last two study years.

Exhibit IV-1
Percentage of Households With Proper Payments

Administration Type	Percentage of Households Within $5			Standard Error	Percentage of Households That Matched Exactly			Standard Error
	FY 2013	FY 2014	FY 2015	FY 2015	FY 2013	FY 2014	FY 2015	FY 2015
Public Housing	77%	73%	75%	2.4%	67%	64%	63%	2.3%
PHA-administered Section 8	77%	74%	71%	1.6%	62%	63%	58%	1.8%
Total PHA-administered	*77%*	*74%*	*72%*	*1.5%*	*64%*	*63%*	*60%*	*1.5%*
Owner-administered	80%	80%	77%	1.7%	68%	69%	66%	2.8%
Total	**78%**	**75%**	**73%**	**1.3%**	**65%**	**65%**	**61%**	**1.5%**

Source: Tables 2 and 2(S), Appendix C

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

- Twenty-six percent of households had a rent error greater than $5, which is higher than the 25 percent recorded in FY 2014.

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

- The average gross dollars in error was $13 in FY 2015, lower than the $14 average gross dollar error in FY 2014.

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

- The total gross dollar error rate decreased by 1 percent, from 6 percent in FY 2014 to 5 percent in FY 2015.

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

Administration Type	Percentage of Households With Error		Average Gross Dollars in Error		Gross Dollar Error Rate	
	FY 2014	FY 2015	FY 2014	FY 2015	FY 2014	FY 2015
Public Housing	27%	25%	$18	$14	7%	5%
PHA-administered Section 8	26%	29%	$15	$15	7%	6%
Total PHA-administered	*26%*	*28%*	*$16*	*$15*	*7%*	*5%*
Owner-administered	20%	23%	$8	$10	4%	4%
Total	**25%**	**26%**	**$14**	**$13**	**6%**	**5%**

Source: Tables 2 and 5, Appendix C

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

- Fourteen percent of all households paid in excess of $5 less than they should have in FY 2015, which was the same percentage found in FY 2014.
- For FY 2014 households, the average monthly underpayment error was $66, which is an increase from the average of $59 in FY 2014 and $52 in FY 2013.

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

Administration Type	Percentage of Households in Error			Average Dollar Amount of Error					
				For Underpayment Households (with errors > $5)			For All Households		
	FY 2013	FY 2014	FY 2015	FY 2013	FY 2014	FY 2015	FY 2013	FY 2014	FY 2015
Public Housing	11%	14%	13%	$70	$63	$59	$7	$9	$8
PHA-administered Section 8	13%	14%	15%	$53	$63	$73	$7	$9	$11
Total PHA-administered	*12%*	*14%*	*14%*	*$58*	*$63*	*$69*	*$7*	*$9*	*$10*
Owner-administered	10%	12%	12%	$36	$46	$57	$4	$6	$7
Total	**12%**	**14%**	**14%**	**$52**	**$59**	**$66**	**$6**	**$8**	**$9**

Source: Tables 2 and 4, Appendix C

- Thirteen percent of all households paid in excess of $5 more than they should have in FY 2015, which is greater than the 11 percent found in FY 2014 and the 10 percent found in FY 2013.
- The average monthly overpayment for households with overpayment error was $35 in FY 2015, a marked decrease from the past 2 years. This value was $51 in FY 2014 and $44 in FY 2013.

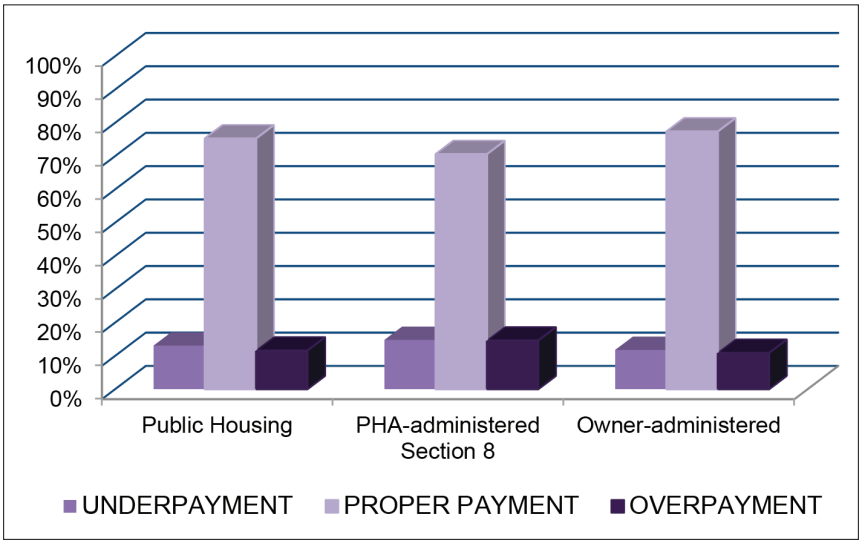
Exhibit IV-3b
Overpayment Households: Percentage of Households and Average Monthly Dollar Amount of Error

Administration Type	Percentage of Households in Error			Average Dollar Amount of Error					
				For Overpayment Households (with errors > $5)			For All Households		
	FY 2013	FY 2014	FY 2015	FY 2013	FY 2014	FY 2015	FY 2013	FY 2014	FY 2015
Public Housing	13%	13%	12%	$42	$70	$57	$5	$9	$7
PHA-administered Section 8	10%	11%	15%	$53	$51	$29	$5	$6	$4
Total PHA-administered	*11%*	*12%*	*14%*	*$49*	*$58*	*$37*	*$5*	*$7*	*$5*
Owner-administered	10%	8%	11%	$29	$27	$28	$3	$2	$3
Total	**10%**	**11%**	**13%**	**$44**	**$51**	**$35**	**$5**	**$5**	**$4**

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

Figure IV-1 shows the percentage of underpayments, proper payments, and overpayments by program type. Programs were grouped into three categories: Public Housing, PHA-administered Section 8, and Owner-administered. For all program types, the majority of cases fall into the proper-payment category.

Figure IV-1
Payment by Program Type



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

- Gross average dollar error in FY 2015 decreased from FY 2014 in Public Housing ($18 to $14, respectively), remained steady in PHA-administered Section 8 at $15, and increased in the Owner-administered program from $8 in FY 2014 to $10 in FY 2015.
- In FY 2015, there were no statistically significant results between either Gross Rent Error or Net Rent Error for any program types across the current and previous year's results.
- The net error measures the dollar cost of the errors and was -$5 (indicating a tenant underpayment) for FY 2015; the average gross dollar error was $13 for FY 2015 and represents the dollars associated with the errors (the magnitude of the errors).

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

	Gross Rent Error				Net Rent Error			
	Average Dollars in Error		Standard Error		Average Dollars in Error		Standard Error	
Administration Type	FY 2014	FY 2015	FY 2014	FY 2015	FY 2014	FY 2015	FY 2014	FY 2015
Public Housing	$18	$14	$2.09	$2.70	-$0.33	-$1	$2.44	$2.69
PHA-administered Section 8	$15	$15	$2.24	$1.95	-$3	-$7	$1.35	$1.91
Total PHA-administered	*$16*	*$15*	*$1.77*	*$1.88*	*-$2*	*-$5*	*$1.22*	*$1.65*
Owner-administered	$8	$10	$1.12	$1.33	$4	-$4	$1.26	$1.39
Total	**$14**	**$13**	**$1.42**	**$1.29**	**-$3**	**-$4**	**$0.97**	**$1.17**

Source: Table 5, Appendix C

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

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

- The Gross Error Rate of 5.6 percent for PHA-administered Section 8 programs remained higher than the rate for either Public Housing or Owner-administered programs. In total, PHA-administered programs showed a slight decrease of 1.2 percent in their Gross Error Rate in FY 2015 compared to FY 2014.
- The Net Error Rates for all programs increased slightly, from -1.1 percent in FY 2014 to -1.7 percent in FY 2015.

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

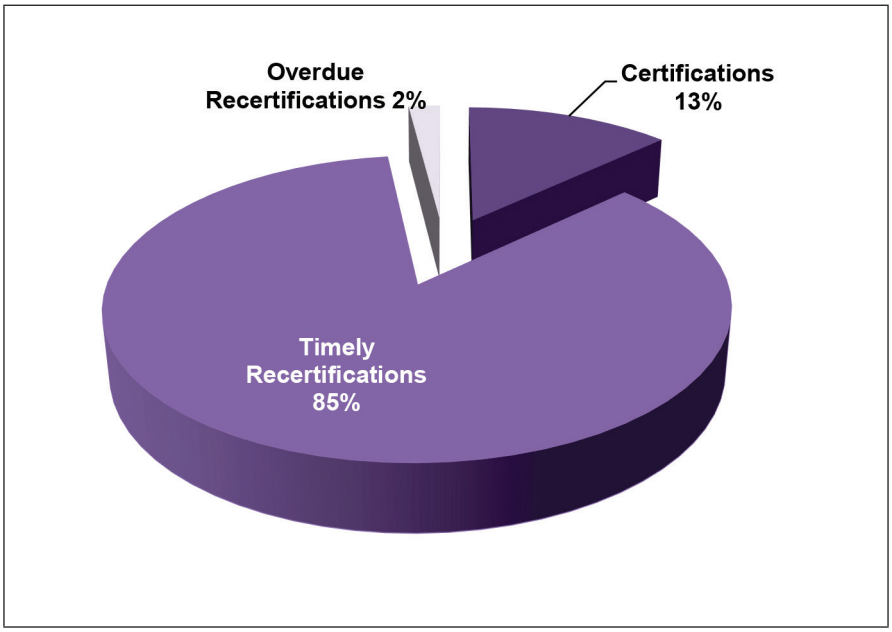
	Error Rates			
	Gross Error Rate		Net Error Rate	
Administration Type	FY 2014	FY 2015	FY 2014	FY 2015
Public Housing	6.6%	5.2%	-0.1%	-0.4%
PHA-administered Section 8	6.6%	5.6%	-1.4%	-2.4%
Total PHA-administered	*6.6%*	*5.4%*	*-0.9%*	*-1.8%*
Owner-administered	3.6%	3.9%	-1.7%	-1.5%
Total	**5.8%**	**5.0%**	**-1.1%**	**-1.7%**

Source: Table 5, Appendix C

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

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

Figure IV-2
Percentage of Cases by Case Type



Source: Table 6, Appendix C

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

- Eight-five percent of households had timely recertifications in FY 2015, a decrease for the third year in a row. In FY 2014, 88 percent of households received timely recertifications and in FY 2013, the rate was 90 percent.
- Two percent of households had overdue recertifications for the second year in a row.
- There was a slight increase in the total percentage of certifications, from 11 percent in FY 2014 to 13 percent in FY 2015.

Exhibit IV-6
Certifications and Recertifications by Administration Type*

Administration Type	Certifications		Timely Recertifications		Overdue Recertifications	
	FY 2014	FY 2015	FY 2014	FY 2015	FY 2014	FY 2015
Public Housing	11%	13%	87%	84%	2%	3%
PHA-administered Section 8	9%	12%	89%	86%	2%	2%
Total PHA-administered	*10%*	*12%*	*88%*	*86%*	*2%*	*2%*
Owner-administered	14%	14%	85%	86%	< 1%	< 1%
Total	**11%**	**13%**	**88%**	**85%**	**2%**	**2%**

Source: Table 6, Appendix C
*Totals may not add up 100 percent to due to rounding.

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

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

- However, only those households that do not meet the appropriate low-income 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 criteria if there was evidence in the tenant file that citizenship had been verified.

- A citizenship code (indicating whether each household member was a citizen, eligible noncitizen, or ineligible noncitizen) was available from either the tenant file or the household interview for each household member.
- According to the citizenship codes, no households in FY 2015 had a household member for whom there was no verification of citizenship. This is unchanged since FY 2010.

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

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

- One percent of households had at least one member for whom there was no verification of his or her social security number.
- In 97 percent of households, there was a signed consent form dated within 15 months of the Quality Control Month (the date for which data were collected) for all members age 18 or older, the same percentage found in FY 2014.
- A social security number was available for 99 percent of all Public Housing households, 100 percent of PHA-administered Section 8 households, and 97 percent of Owner-administered households.

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

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

Certification Criteria	Met Criteria	
	FY 2014	FY 2015
Citizenship	100%	100%
Social Security Number	99%	99%
Consent Form	97%	97%
Low and Very Low Income	100%	100%
Meets All Eligibility Criteria	96%	96%

Source: Table 7, Appendix C

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

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

Source: Table 7b, Appendix C

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

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

- For example, the sum of monthly underpayment dollar amounts for new certifications ($5.1 million) was divided by the total number of certifications (0.59 million). The result is an underpayment average dollar amount of $9.
- The amount of underpayment and overpayment average dollar error in new certifications and timely recertifications in FY 2015 ranged from $4 to $9 each month.
- As might be expected, there is a large difference in the underpayment dollar error for overdue recertifications ($27) as well as the overpayment dollar error for overdue recertifications ($50).

It is important to note that the estimates for overdue recertifications can vary widely from year to year because of the small number of cases (in FY 2015, 2 percent of cases were overdue).

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

Household Type	Underpayment Average Dollar Amount		Overpayment Average Dollar Amount	
	FY 2014	FY 2015	FY 2014	FY 2015
Certifications	$6	$9	$3	$4
Timely Recertifications	$8	$9	$5	$4
Overdue Recertifications	$29	$27	$21	$50
Total	**$8**	**$9**	**$5**	**$4**

Source: Table 8, Appendix C

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

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

- As shown in Exhibit IV-9a, the percentage of households with a positive subsidy error remained steady for all program types between FY 2014 and FY 2015, at 14 percent.
- The average dollar amount of error increased for all households between FY 2014 and FY 2015, from $8 to $9.

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

Administration Type	Percentage of Households in Error		Average Dollar Amount of Error			
			For Positive Subsidy Households (with errors > $5)		For All Households	
	FY 2014	FY 2015	FY 2014	FY 2015	FY 2014	FY 2015
Public Housing	14%	13%	$63	$59	$9	$8
PHA-administered Section 8	14%	15%	$63	$73	$9	$11
Total PHA-administered	*14%*	*14%*	*$63*	*$69*	*$9*	*$10*
Owner-administered	12%	12%	$46	$57	$6	$7
Total	**14%**	**14%**	**$59**	**$66**	**$8**	**$9**

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

- As seen in Exhibit IV-9b, the percentage of households in error due to a negative subsidy decreased for Public Housing households, from 13 percent to 12 percent. PHA-administered Section 8 households in error increased by 4 percent, and Owner-administered households increased from 8 percent to 11 percent.

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

Administration Type	Percentage of Households in Error		Average Dollar Amount of Error			
			For Negative Subsidy Households (with errors > $5)		For All Households	
	FY 2014	FY 2015	FY 2014	FY 2015	FY 2014	FY 2015
Public Housing	13%	12%	$70	$57	$9	$7
PHA-administered Section 8	11%	15%	$51	$29	$6	$4
Total PHA-administered	*12%*	*14%*	*$58*	*$37*	*$7*	*$5*
Owner-administered	8%	11%	$27	$28	$2	$3
Total	**11%**	**13%**	**$51**	**$35**	**$5**	**$4**

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

- As seen in Exhibit IV-10, the average dollar amount of error for overpayment across program types decreased from $5 in FY 2014 to $4 in FY 2015. That amount increased for underpayment errors, from $8 in FY 2014 to $9 in FY 2015.
- Overdue recertifications remained the source of the highest average dollar amount for both underpayment and overpayment.

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

Household Type	Underpayment Average Dollar Amount		Overpayment Average Dollar Amount	
	FY 2014	FY 2015	FY 2014	FY 2015
Certifications	$6	$9	$3	$4
Timely Recertifications	$8	$9	$5	$4
Overdue Recertifications	$29	$27	$21	$50
Total	**$8**	**$9**	**$5**	**$4**

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

C. Sources of Error

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

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

Figure IV-3
Example of the Impact of Component Errors

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

Exhibit IV-11 presents each income and expense component included in the rent calculation and the percentage of households in error[23] when each specific component contributed the most to the gross error.

- The exhibit indicates that the largest average dollar error continues to be in earned income, with an average error of $3,860. Thirty-three percent of households were in error when earned income was the largest component error.
- Pensions, etc. were the next largest component error, with an average dollar error of $2,572 found in 15 percent of households in error.
- Other income was a component of error in 13 percent of households, with an average associated dollar error of $2,453.
- The rent component with the greatest average dollar error increase was child care allowance, which experienced an increase from $1,256 in FY 2014 to $2,148 in FY 2015.
- For most rent components, the percentage of households in error remained relatively stable between years.
- The rate of households in error without a component error decreased from 7 percent in FY 2014 to 4 percent in FY 2015.

Note: For some households, the rent error was not caused by any 1 of the 10 components listed. Rather, it was caused by other arithmetic errors or by the use of the wrong rent calculation formula.

[23] The denominator in the percentage is the number of households with any component error, which was the percentage of total households in FY 2015.

Exhibit IV-11
Rent Components Responsible for the Average Annual Largest Dollar Error for Households With Rent Error

Rent Component	Percentage of Households in Error		Average Dollar Amount	
	FY 2014	FY 2015	FY 2014	FY 2015
Earned Income	33%	33%	$4,528	$3,860
Medical Allowance	17%	16%	$1,813	$905
Pensions, Etc.	15%	15%	$1,945	$2,572
Other Income	13%	13%	$3,122	$2,453
Elderly Household Allowance	4%	6%	$422	$400
Dependent Allowance	4%	5%	$566	$522
Public Assistance	3%	4%	$1,519	$2,133
Asset Income	3%	2%	$808	$596
Child Care Allowance	2%	2%	$1,256	$2,148
No Rent Component Error	7%	4%	$0	$0
Total	**100%**	**100%**	**$2,625**	**$2,326**

Source: Table 9, Appendix C

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

- There were decreases in the Average Total Dollars in Error for Public Housing and Owner-administered households in FY 2015, with the largest decrease evident in Public Housing programs. PHA-administered Section 8 households had a modest increase in FY 2015, with an increase of $108.
- All program types decreased slightly in Average Largest Dollars in Error, with the largest decrease seen in Public Housing.

Exhibit IV-12
Total and Annual Component Dollars in Error for Households With Rent Error

Administration Type	Average Total Dollars in Error		Average Largest Dollars in Error	
	FY 2014	FY 2015	FY 2014	FY 2015
Public Housing	$4,222	$3,401	$3,523	$2,833
PHA-administered Section 8	$2,472	$2,580	$2,308	$2,270
Total PHA-administered	*$3,093*	*$2,817*	*$2,739*	*$2,432*
Owner-administered	$2,665	$2,428	$2,266	$2,019
Total	**$2,989**	**$2,717**	**$2,625**	**$2,326**

Source: Table 10, Appendix C

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

- For example, 4 percent of total households with overpayment rent error had errors in earned income, 10 percent of households with proper payment had errors in pensions, and 3 percent of households with underpayment rent error had errors in medical allowances.
- The exhibit indicates that when considering both underpayment and overpayment, pension income, medical allowance, other income, and earned income remain the rent components with the highest percentage of error leading to improper payment.

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

- Considering all component errors, not just those that resulted in tenant payment error, the pensions (16 percent), earned income (16 percent), and medical allowance (12 percent) components had the highest rates of error.

Exhibit IV-13
Percentage of Households With Rent Component Error by Payment Type

Rent Component	Underpayment			Proper Payment			Overpayment		
	PHA	Owner	Total	PHA	Owner	Total	PHA	Owner	Total
Earned Income	7%	4%	6%	7%	3%	6%	5%	2%	4%
Pensions	4%	3%	3%	9%	12%	10%	3%	3%	3%
Public Assistance	1%	—	1%	2%	2%	2%	1%	1%	1%
Other Income	3%	2%	3%	5%	3%	5%	3%	2%	3%
Asset Income	1%	2%	1%	3%	4%	3%	1%	1%	1%
Dependent Allowance	1%	< 1%	1%	1%	< 1%	1%	1%	1%	1%
Elderly Household Allowance	1%	< 1%	< 1%	1%	< 1%	< 1%	1%	3%	2%
Child Care Allowance	1%	< 1%	1%	< 1%	—	< 1%	1%	—	1%
Disability Allowance	—	—	—	—	—	—	—	—	—
Medical Allowance	2%	5%	3%	5%	10%	6%	3%	5%	3 %
No Rent Component Error	1%	1%	1%	49%	53%	50%	1%	—	1%

Source: Table 11, Appendix C

Allowances. Elderly/disabled and dependent allowances were examined to determine whether these allowances were applied correctly.[24] The findings are summarized in Exhibit IV-14, which shows the percentage of elderly/disabled and non-elderly/disabled households for which allowances were correctly or incorrectly applied.

[24] 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 age 18, full-time students, and disabled household members other than the head of household or spouse).

- Elderly/disabled allowances were incorrectly used in 3 percent of all households in FY 2015.
- Four percent of elderly/disabled households received an incorrect allowance.
- 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 allowance was incorrectly applied in 6 percent of all households with dependents. These households were given the wrong amount.
- In less than 1 percent of households, a dependent allowance was given to a household that did not have dependents.
- A total of 3 percent of all households had an incorrect dependent allowance in FY 2015.

Exhibit IV-14
Percentage of Households With Elderly/Disabled Allowances and Dependent Allowances*

	Elderly/Disabled Allowance			Dependent Allowance		
Allowance	Non-Elderly/ Disabled Households	Elderly/ Disabled Households	All Households	Households Without Dependents	Households With Dependents	All Households
No Allowance	99%	—	42%	100%	—	60%
Incorrect Allowance	1%	4%	3%	< 1%	6%	3%
Correct Allowance	—	96%	56%	—	94%	38%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Tables 12a and 12b, Appendix C
*Totals may not add up 100 percent to due to rounding.

D. Errors Detected Using Information Obtained From Project Files

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

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

The findings from this analysis were compared with the QC findings in which 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).

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

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

- There was a difference of $68 in subsidy overpayment average dollar error between what was discovered in the tenant file and what the QC review determined. When calculated as a monthly average, this value is $6.
- For subsidy underpayment, the difference in error between the QC determination and what was found in the file was $175 in FY 2015, or approximately $15 as a monthly average value.

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

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

Error Source	Percentage of Households in Error		Average Annual Dollar Error	
	Subsidy Overpayment	Subsidy Underpayment	Subsidy Overpayment	Subsidy Underpayment
Error Based on All Income and Expense Items Identified During the Study	14%	13%	$793	$416
Error Based on Tenant File Without Income and Expense Items Identified During the Household Interview and Verification Obtained by ICF Through Third-Party Sources	13%	13%	$725	$591

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

Calculation and Consistency Errors. Analysis of the errors on Form HUD-50058/50059 was completed to determine whether the errors identified using Form HUD-50058/50059 as the sole source of information are representative of the total errors in the program. These analyses focused on the following calculation and consistency errors.

Calculation errors were identified from income, expenses, and allowances used to calculate the rent amount and recorded on Form HUD-50058/50059. This calculation did not take into account whether dollar amounts were verified or whether the recertification was conducted on time. This analysis identified errors resulting from arithmetic mistakes, the incorrect use of a formula, and

items that were not completed but should have been. This analysis did not identify households in which items were recorded in the wrong place on Form HUD-50058/50059, although improper use of a field on Form HUD-50058/50059 can result in a calculation error. Table 13 in *Appendix C* presents the number of households with a Form HUD-50058/50059 that contained calculation errors by the rent component contributing to the error. The items considered when determining calculation error are listed in *Appendix D*.

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

Exhibit IV-16 shows the percentage of households with calculation and consistency errors by Form HUD-50058/50059 subsections. It is important to emphasize that Form HUD-50058 is formatted differently from and contains more line items of information than Form HUD-50059. Consequently, the number and types of calculation and consistency errors on the forms differ, and findings from the two forms are not directly comparable. The Office of Housing has periodically implemented a new version of Form HUD-50059. A minor revision was made in FY 2011, and a new version was released during FY 2014. This further complicates the comparison between the Form HUD-50058/50059 elements.

- The large number of calculation errors (particularly in the allowances and adjusted income from Form HUD-50058) may be a contributing factor to QC errors.

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

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

Form HUD-50058/50059 Item	Percentage of Households					
	Calculation Errors			Consistency Errors		
	Form HUD-50058	Form HUD-50059	Total	Form HUD-50058	Form HUD-50059	Total
General Information	n/a	n/a	n/a	1%	12%	4%
Household Composition	5%	—	4%	4%	23%	10%
Net Family Assets and Income	10%	5%	8%	2%	—	1%
Allowances and Adjusted Income	42%	—	30%	9%	1%	7%
Family Rent and Subsidy Information	9%	—	7%	2%	< 1%	2%

Source: Tables 13 and 14, Appendix C

Comparison of Form HUD-50058/50059 Errors to QC Error. A comparison was made between the rent calculation errors on Form HUD-50058/50059 and errors identified through the QC Rent calculation process. The purpose of this comparison was to determine whether errors identified

using only Form HUD-50058/50059 data could predict the rent errors found in a QC review. Exhibit IV-17 summarizes these results for FY 2014 and FY 2015.

- When using only Form HUD-50058/50059 data to calculate the Actual Rent, errors were found in 9 percent of the households in FY 2015. This was a slight increase when compared with the findings in FY 2014, which had a rate of 8 percent.
- The QC error calculation found errors in 26 percent of households in FY 2015, up from 25 percent in FY 2014. The results are quite different from the individual and joint comparison methods (which were 3 percent in FY 2014 and 4 percent in FY 2015).

This comparison emphasizes that data from Form HUD-50058/50059 alone cannot accurately identify rent error.

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

Rent Calculation	Percentage of Households With Correctly Calculated Rent		Percentage of Households With Incorrectly Calculated Rent	
	FY 2014	FY 2015	FY 2014	FY 2015
Using Information on Form HUD-50058/50059	92%	91%	8%	9%
According to the QC Rent Calculation	75%	74%	25%	26%
Both Form HUD-50058/50059 Calculation and QC Rent Calculation	70%	69%	3%	4%

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

Verification Used in Determining the QC Rent. Verification errors were identified by whether an item was verified by the project and, if it was, whether the correct information was transferred to Form HUD-50058/50059. An error occurs when the verified amount obtained by the project was not used or the incorrectly calculated amount was recorded on the Form HUD-50058/50059 (and, presumably, not used correctly in the rent calculation). When determining whether a verified income or expense item matched the amount used on Form HUD-50058/50059, we assumed a variance of $100 to accommodate potential rounding errors when annualizing data.

In 2010, HUD issued the *Implementation of Refinement of Income and Rent Rule*, which mandated the use of Enterprise Income Verification (EIV) as a third-party source to verify tenant employment and income information during mandatory recertification of family composition and income. The use of EIV minimizes the need for traditional third-party verification forms. FY 2011, the first fiscal year affected by this rule, displayed significant verification rate decreases across the board when compared to FY 2010, as verification was required in fewer instances. In FY 2015, this trend was repeated, with modest decreases in items verified for the seven rent components.

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

As indicated above, a set of rules was established for the use of third-party verification (see Section II-C). 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.[25] As of the FY 2011 study, ICF has accepted third-party documentation submitted by the tenant, based on new HUD guidelines.

Exhibit IV-18 shows the percentage of each rent component that was verified by either the PHA/Owner or ICF. Findings from FY 2015 are compared to findings from FY 2014.

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

- Verification of most rent component categories remained relatively stable between FY 2014 and FY 2015, with the exception of child care expenses, which saw a marked increase (from 79 percent in FY 2014 to 100 percent in FY 2015.

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

- Verification using third-party in writing increased slightly in FY 2015 compared to FY 2014 for several rent components, with the most notable change seen in child care expense verification. This increased from 42 percent in FY 2014 to 57 percent in FY 2015.

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

	Third-Party Verbal or in Writing, Documentation, EIV, or UIV		Third-Party in Writing		Documentation	
Rent Component	FY 2014	FY 2015	FY 2014	FY 2015	FY 2014	FY 2015
Earned Income	88%	90%	34%	31%	41%	47%
Pensions	97%	97%	9%	11%	24%	23%
Public Assistance	97%	96%	21%	22%	49%	28%
Other Income	80%	77%	25%	19%	37%	36%
Asset Income	93%	91%	41%	40%	24%	24%
Child Care Expense	79%	100%	42%	57%	34%	42%
Medical Expense	89%	96%	31%	42%	22%	19%

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

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

Documentation of Verification. In FY 2011, HUD issued new guidelines regarding verification. These revised guidelines indicated that documentation from a third party submitted by the tenant is acceptable, requiring fewer instances of direct third-party requests. Such documentation would, for example, include paystubs or letters from benefits agencies. Since FY 2011, there was a general trend showing increased use of documentation for verification. Between FY 2014 and FY 2015, this trend generally stabilized, with the exception of public assistance verification.

- The use of documentation decreased for public assistance documentation, from 49 percent in FY 2014 to 28 percent in FY 2015.

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

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

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

- In FY 2015, the number of households where verification was not obtained by the PHA/Owner increased for three of the seven rent components.
- Public assistance and other income showed an increase in lack of verification, at 7 percent and 5 percent, respectively.
- There was improvement in child care expense, which increased by 25 percent over FY 2014. The remainder of the rent components had a relatively stable rate of project verification.
- Child care expenses were the most commonly verified rent component item in FY 2015, with a rate of 98 percent, up from 73 percent in FY 2014.
- Percentage of verifications found to match Form HUD-50058/50059 entries within $100 decreased for three of the seven rent components in FY 2015, with the most marked decrease being within other income. This value was 56 percent in FY 2014 and decreased to 44 percent in FY 2015.

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

Rent Component	Percentage of Households With No Project Verification		Percentage of Households With Item Verified by Project		Percentage of Households Where Verification Matched Form HUD50058/50059*	
	FY 2014	FY 2015	FY 2014	FY 2015	FY 2014	FY 2015
Earned Income	16%	14%	84%	86%	58%	60%
Pensions	4%	5%	96%	95%	86%	82%
Public Assistance	15%	22%	86%	79%	69%	65%
Other Income	30%	35%	71%	65%	56%	44%
Asset Income	12%	10%	88%	90%	76%	79%
Child Care Expense	28%	2%	73%	98%	60%	73%
Medical Expense	19%	9%	81%	91%	60%	68%

Source: Table 15a, Appendix C
* Within $100
** Row totals may not add up 100 percent to due to rounding.

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

Rates of verification found in the file for Form HUD-50058 remained relatively stable for six out of the seven rent components between FY 2014 and FY 2015. The following changes are notable:

- Within Owner-administered programs using Form HUD-50059, public assistance verification saw the largest decrease, falling from 78 percent in FY 2014 to 63 percent in FY 2015.
- For all PHA-administered programs using Form HUD-50058, the most commonly verified rent components were pension income and child care expenses. The least verified rent components were other income items, with a rate of 67 percent.
- Within Owner-administered programs using the Form HUD-50059, pension income and child care expenses were most commonly verified, while other income items were the least verified rent components.
- Other income had the lowest percentage of items that were matched within $100 based on file documents across all program types.

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

Rent Component	Form HUD-50058				Form HUD-50059			
	Verified		Matched Within $100		Verified		Matched Within $100	
	FY 2014	FY 2015	FY 2014	FY 2015	FY 2014	FY 2015	FY 2014	FY 2015
Earned Income	83%	85%	58%	59%	88%	93%	60%	66%
Pensions	96%	94%	85%	80%	97%	96%	89%	86%
Public Assistance	88%	83%	69%	67%	78%	63%	72%	55%
Other Income	71%	67%	56%	45%	68%	57%	58%	43%
Asset Income	79%	88%	64%	74%	97%	92%	86%	84%
Child Care Expense	66%	98%	55%	69%	93%	100%	75%	90%
Medical Expense	77%	89%	51%	61%	87%	93%	69%	76%

Source: Table 15h, Appendix C

Tenant File Verification Compared With QC Error. Errors identified through the QC process were investigated to determine whether they were associated with sources of income and expenses. Exhibit IV-21 presents the percentage of households with QC error for which verification was missing in the tenant file. Each error is presented by rent component. The data indicate that missing verification in both PHA- and Owner-administered programs continues to be strongly associated with households that have QC error. This was observed for every rent component for both the PHA- and Owner-administered programs.

- Within PHA-administered programs, the percentage of households in error with missing verification decreased the most for those with child care expense rent components, with a decrease of 44 percent, from 85 percent in FY 2014 to 41 percent in FY 2015. Public assistance components with missing verification increased from 47 percent in FY 2014 to 66 percent in FY 2015. Rates across years stayed relatively stable for the remaining five of seven rent components.
- Owner-administered households in error with missing verification were most common within those with public assistance income rent components, followed by other income rent components. Households with child care expense rent components showed the largest decrease in households in error with missing verification between FY 2014 and FY 2015 (53 percent to 31 percent, respectively).

Across all program types, the percentage of households in error with missing verification was lowest among households with pension income rent components, which was also the lowest percentage in FY 2014. However, for some of these components, the number of households in error was relatively small; therefore, the estimates may vary substantially from year to year and may not be reliable.

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

Rent Component	Form HUD-50058				Form HUD-50059			
	Percentage of Households With QC Error		Percentage of Households With QC Errors and Missing Verification		Percentage of Households With QC Error		Percentage of Households With QC Errors and Missing Verification	
	FY 2014	FY 2015	FY 2014	FY 2015	FY 2014	FY 2015	FY 2014	FY 2015
Earned Income	11%	12%	52%	48%	6%	6%	54%	38%
Pensions	6%	7%	33%	31%	5%	6%	36%	29%
Public Assistance	2%	2%	47%	66%	1%	1%	76%	100%
Other Income	5%	6%	52%	47%	3%	3%	73%	67%
Asset Income	2%	2%	62%	57%	3%	3%	39%	37%
Child Care Expense	1%	1%	85%	41%	1%	< 1%	53%	31%
Medical Expense	6%	6%	69%	79%	8%	8%	62%	64%
No Component Error	77%	75%	—	—	82%	80%	—	—

Source: Tables 16a and 16b, Appendix C

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

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

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

- Exhibit IV-22b shows that several individual types of Form HUD-50058/50059 errors were not closely associated with QC Rent error, such as allowance calculation, income calculation, and other calculation errors.
- Form HUD-50058/50059 with only transcription errors were associated with QC Rent error in 49 percent of households.
- Any type of administrative error, which includes transcription, consistency, calculation, or overdue recertifications, was associated with QC Rent error in 57 percent of the households. This increase over those households in error with only transcription errors is primarily due to the small number of households with income calculation error, resulting in estimates with variances that are rather large from year to year.
- When compared to FY 2014, there is an increase in FY 2015 in the percentage of households in error for both recalculated Form HUD-50058/50059 and for households with QC Rent

error, while the average dollars in error have decreased for households with recalculated Form HUD-50058/50059.

- The highest average dollar error decrease for recalculated Form HUD-50058/50059 pertains to income calculation error. This was $106 in FY 2014 and has decreased to $40 in FY 2015.
- In addition, the average dollar error for households with any recalculated Form HUD-50058/50059 error was $13.
- In contrast, the average dollar error for households with QC Rent error was $51.

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

To understand the reason for the change in the average dollar error for households with recalculated Form HUD-50058/50059 error, it is important to review how this number is calculated. The number is the average dollar rent error for all cases with error in the category (based on recalculated Form HUD-50058/50059 rent error, not QC Rent error).

So, for example, although the average rent error dollars for households with allowance calculation error is $70, 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 allowance calculation error is small (2 percent of households in error), the average dollar error is large. The combination of a small number of cases with allowance calculation errors and a large dollar value of rent error leads to a comparatively large average dollar error.

Exhibit IV-22a
Form HUD-50058/50059 Administrative Error: Percentage of Households, Average Dollars in Error (Non-MTW Households)

Error Type Based on Form HUD50058/50059 Recalculation	Non-MTW Households With Recalculated Form HUD-50058/50059 Error			
	Percentage of Households in Error	Standard Error of Percent	Average Dollar Error	Standard Error of Mean
Households With Transcription Error	49%	4.7%	$12	$3.27
Households With Consistency Error	16%	3.8%	$15	$6.06
Households With Allowance Calculation Error	2%	0.7%	$70	$43.72
Households With Income Calculation Error	3%	1.2%	$40	$28.45
Households With Other Calculation Error	7%	2.8%	$20	$14.31
Overdue Recertifications	2%	1.2%	$5	$5.14
Unduplicated Count, Any Type of Administrative Error	57%	5.0%	$11	$2.88
Total Households	**100%**	**—**	**$13**	**$4.54**

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

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

Error Type Based on Form HUD50058/50059 Recalculation	Households With QC Rent Error			
	Percentage of Households in Error	Standard Error of Percent	Average Dollar Error	Standard Error of Mean
Households With Transcription Error	82%	2.7%	$51	$4.55
Households With Consistency Error	22%	2.4%	$46	$7.47
Households With Allowance Calculation Error	2%	0.6%	$68	$36.80
Households With Income Calculation Error	3%	0.9%	$94	$29.81
Households With Other Calculation Error	6%	1.3%	$89	$24.22
Overdue Recertifications	4%	1.0%	$113	$35.28
Unduplicated Count, Any Type of Administrative Error	86%	2.8%	$51	$4.26
Total Households	**100%**	**—**	**$51**	**$4.09**

Source: Table 17b, Appendix C

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

Exhibit IV-23 shows the Gross Rent Error and Net Rent Error for households with each type of administrative error.

- In FY 2015, the percentage of households in error was generally very similar to the percentage in FY 2014 for all error types, though households with transcription error decreased by 2 percent between FY 2014 and FY 2015.
- Gross Rent Error calculated from specific types of error increased slightly in FY 2015 as compared to FY 2014 values for all seven categories.
- Net Rent Error calculated from the various types of error increased in FY 2015 for the majority of error types as compared to FY 2014.
- Overdue recertifications had large differences in error amounts due to the small number of overdue cases.

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

Error Type	Percentage of Households in Error	Gross Rent Error		Net Rent Error	
		Average Dollars in Error	Standard Error of Mean	Average Dollars in Error	Standard Error of Mean
Households With Transcription Error	42%	$26	$2.68	-$8	$2.69
Households With Consistency Error	21%	$13	$2.65	-$5	$1.64
Households With Allowance Calculation Error	1%	$32	$16.45	-$23	$16.60
Households With Income Calculation Error	2%	$34	$11.72	-$15	$12.51
Households With Other Calculation Error	4%	$39	$10.36	$9	$11.70
Overdue Recertifications	2%	$77	$25.58	$23	$25.78
Unduplicated Count, Any Type of Administrative Error	53%	$22	$2.12	-$7	$2.15
Total Households	**100%**	**$13**	**$1.29**	**-$4**	**$1.17**

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.

- Sixteen percent of all households occupied a unit with too many or too few bedrooms in FY 2015, compared to 17 percent in FY 2014.
- Sixteen percent of Public Housing households were over- or under-housed in FY 2015.
- Twenty-two percent of PHA-administered Section 8 program households were under- or over-housed in FY 2015, the same percentage found in FY 2014.
- Eight percent of Owner-administered households were under- or over-housed in FY 2015.

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					
	FY 2014	FY 2015	FY 2014	FY 2015	FY 2014	FY 2015	FY 2014	FY 2015
0	98%	99%	100%	97%	96%	98%	98%	98%
1	98%	99%	100%	100%	99%	99%	99%	100%
2	73%	73%	63%	68%	78%	75%	69%	71%
3	78%	78%	83%	72%	79%	81%	81%	74%
4	68%	59%	46%	65%	57%	56%	53%	62%
5+	24%	8%	47%	29%	—	—	53%	22%
All Units	83%	84%	78%	78%	91%	92%	83%	84%

Source: Table 19, Appendix C

Exhibits IV-24b and IV-24c show the percentage of households that met these guidelines for each bedroom size for FY 2014 and FY 2015, respectively. The shaded cells indicate the percentage of households that fell within study guidelines.

Exhibit IV-24b
Percentage of All Households in FY 2014 by Number of Bedrooms and Number of Household Members*

Number of Bedrooms	FY 2014 Number of Household Members							
	1	2	3	4	5	6	7	8+
0	98%	2%						
1	91%	8%	1%					
2	29%	40%	24%	5%	2%	1%		
3	7%	12%	35%	26%	13%	6%	1%	
4	2%	5%	14%	24%	25%	15%	4%	11%
5+	9%				26%	12%	6%	46%

Source: Table 19a, Appendix D of the *HUDQC Final Report for FY 2014*, delivered on September 25, 2015.
*Row totals may not add up 100 percent to due to rounding.

Exhibit IV-24c
Percentage of All Households in FY 2015 by Number of Bedrooms and Number of Household Members*

Number of Bedrooms	FY 2015 Number of Household Members							
	1	2	3	4	5	6	7	8+
0	98%	1%	1%					
1	91%	9%	< 1%		< 1%	< 1%		
2	27%	43%	20%	7%	2%	1%	< 1%	
3	9%	13%	33%	24%	12%	6%	2%	1%
4	3%	5%	9%	22%	27%	18%	10%	9%
5+	3%		6%	9%	36%	18%	13%	14%

Source: Table 19a, Appendix C
*Row totals may not add up 100 percent to due to rounding.

F. Rent Reasonableness

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

Rent reasonableness is an important factor in determining participant subsidies and is critical for effective, PHA-administered Section 8 Voucher program operations. If PHAs approve rents that are low compared to the private market, landlords may only participate with their lowest cost, lowest quality units, or they may not rent out their units at all to program participants. 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 5 percent. Our analysis examines whether PHAs fulfilled the requirement for documenting rent reasonableness determinations, but does not investigate whether rents were in fact reasonable.

Methodology. We surveyed PHAs administering the Section 8 Voucher program in our study. This year, 137 projects[26] in our study fall into this category. The projects were asked about their standard rent reasonableness processes and file documentation from the project's household sample were reviewed.

We instructed field interviewers to review tenant files for 787 Voucher households in order to locate the documents supporting the rent reasonableness certification. For 113 new certifications,[27] field interviewers reviewed the file for the initial rent reasonableness certification and recorded the date it was conducted. For the 674 annual recertifications we reviewed, field interviewers were asked to ascertain when the current rent to the owner became effective and to locate the

[26] For the 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.

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

relevant supporting rent reasonableness documentation. If this documentation (relative to the date that the rent to the owner became effective) was not found, field interviewers were asked to search for any rent reasonableness certification in the file and enter the date of certification. The owner's rent certification on the Request for Tenancy Approval form was considered a certification of rent reasonableness.

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

Exhibit IV-25
PHAs by Predominant Rent Reasonableness Method*

Method	FY 2013		FY 2014		FY 2015	
	Number	Percent	Number	Percent	Number	Percent
Unit-to-unit Comparison	96	69%	91	64%	85	62%
Unit-to-market Comparison	21	15%	25	17%	25	18%
Point System	17	12%	17	12%	20	15%
Other or Rent Control	6	4%	6	4%	5	4%
No Single Predominant Method	0	—	2	1%	2	1%
No Information	0	—	2	1%	0	1%
Total	**140**	**100%**	**143**	**100%**	**143**	**100%**

*Column totals may not add to 100 percent because of 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. Eighteen percent of housing authorities reported primarily using this method. Valuation adjustments are based on typical units in the private market. Fifteen percent of housing authorities indicated that their primary method of making rent reasonableness determinations was based on a point system. Using this system, units are assigned points based on their condition and attributes, and comparisons are made to unassisted units.

We asked PHA staff to identify only the primary method used to determine whether rents to owners were comparable to the private market, rather than enter a percentage use of various methods. When asked to identify a single predominant method, most PHAs selected only one. Two PHAs selected "no single method predominates," the same number of PHAs as in FY 2014 as opposed to none in FY 2013. PHAs were also asked whether they used a software program and/or an outside contractor to determine whether the rent to owner was reasonable. Eighty-eight of the 137 voucher projects (64 percent) use rent reasonableness software. GoSection8.com remained the most commonly used software vendor, cited by 33 projects in FY 2015 and 37 projects in FY 2014, followed by Nelrod EZ Reasonable Rent Determination, used by 9 projects in FY 2015 and 10 projects

in FY 2014. Three PHAs reported using software and systems developed in-house in FY 2015, compared with seven in FY 2014.

Findings Pertaining to Rent Reasonableness Documentation Found in Tenant Files for New Admissions and Annual Recertifications. In FY 2015, 96 percent of new admission files contained rent reasonableness documents, up from 90 percent in FY 2014 and 91 percent in FY 2013 (see Exhibit IV-26a). Annual recertifications require rent reasonableness documents only when owners increase rental rates. We examined case files to determine when the current rent to owner first became effective and reviewed the file for the rent reasonableness documentation specific to that rent determination. If no rent reasonableness documentation was found within this specific timeframe, we reviewed any rent reasonableness documentation in the file. In FY 2015, 89 percent of these case files had certified rent reasonableness documents, compared to 87 percent in FY 2014 and 82 percent in FY 2013 (see Exhibit IV-26a).

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

Status	FY 2013		FY 2014		FY 2015	
	New Admissions	Recertifications	New Admissions	Recertifications	New Admissions	Recertifications
Determination Documented	91%	82%	90%	87%	96%	89%
No Determination Documented	9%	18%	10%	13%	4%	11%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

The absence of rent reasonableness documentation does not necessarily indicate that a determination was not completed, only that it was not properly documented. Of new admission files that had documentation, 53 percent contained a statement signed by the PHA staff member certifying that the rent was reasonable. For recertifications with rent reasonableness documentation, 70 percent contained a statement signed by the PHA staff member certifying that the rent was reasonable (see Exhibit IV-26b). The increase in the use of Form HUD-52517 as a rent reasonableness source document among new admissions may be a result of study procedure that directed the data collector to locate the Request for Tenancy Approval as a utility document. Thirty-three percent of new admission rent reasonableness forms found were documented on the Form HUD-52517 in FY 2015, compared to 12 percent in FY 2014 and 14 percent in FY 2013.

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

Type of Documentation	FY 2013		FY 2014		FY 2015	
	New Admissions	Recertifications	New Admissions	Recertifications	New Admissions	Recertifications
A signed statement certifying the rent is reasonable	50%	54%	61%	62%	53%	70%
Comparable units documented by the property owner in Section 12a of Form HUD-52517	14%	10%	12%	11%	33%	16%
Comparable units documented on other documents	33%	30%	22%	21%	9%	11%
Any other reference to rent reasonableness	3%	5%	6%	6%	6%	3%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

*Totals may not add up to 100% due to rounding.

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

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

Determination: Certification Chronology	FY 2013		FY 2014		FY 2015	
	New Admissions	Recertifications	New Admissions	Recertifications	New Admissions	Recertifications
More than 4 months before lease date	7%	40%	5%	28%	0%	22%
Up to 4 months before lease date	82%	50%	86%	47%	84%	60%
Up to 2 months after lease date	10%	3%	3%	3%	8%	4%
Greater than 2 months after lease date	0%	2%	1%	15%	1%	11%
Date missing	2%	5%	5%	7%	7%	3%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

*Totals may not add up to 100% due to rounding.

If the effective date of the lease with the current contract rent occurred prior to the date of the rent reasonableness documentation, rent reasonableness may not have been considered as a factor in approving the unit's rent. In FY 2013, ICF changed the data collection methodology slightly, as discussed in Section II, and we collected the date the rent was in effect. This explains the greater number of cases with certifications occurring more than 4 months before the lease date in FY 2013, a trend that continued in FY 2014 and FY 2015. The percentage of rent reasonable determinations made after the rent had been established as part of the initial lease agreement increased for new admissions from 4 percent in FY 2014 to 9 percent in FY 2015. For annual recertifications in FY 2015, the percentage of rent reasonable documentation dated after the effective date of a lease decreased from the previous study year: 15 percent in FY 2015 compared to 18 percent in FY 2014.

Conclusion. PHAs are not fully documenting rent reasonableness determinations as required by HUD regulations, and a large number of existing rent determinations may have been made on the basis of less formal means of evaluating rents. Timely reviews decreased slightly in FY 2015 compared to FY 2014 for new admissions and increased for recertification transactions. The proportion of cases lacking any rent reasonableness decreased compared to FY 2014. Four percent of new admissions and 12 percent of annual recertification transactions lacked a rent reasonableness document in FY 2015, compared to 10 percent and 13 percent, respectively, in FY 2014. These findings may be attributed in part to PIH 2003-12, issued May 16, 2003, which supports a more simplified rent reasonableness determination process. PIH 2003-12 states that a PHA need not consider all nine criteria cited in 24 C.F.R. 982.507(b) to fully comply with the regulation. It justifies less formal methods of rent determination, stating that "each PHA should use appropriate and practical procedures for determining rental values in the local market."

G. Utility Allowance Analysis

As part of the FY 2015 HUDQC Study, ICF conducted two separate analyses on the utility allowances provided to households through the PHA-administered Section 8 Voucher program. For the first analysis, we focused on whether there was documentation in the tenant file indicating how the utility allowance amount used in the rent determination was calculated, and whether those documents were used correctly in calculating the utility allowance amounts. For the second analysis, we focused on identifying discrepancies between the utility allowance on the Form HUD-50058 and the appropriate utility allowance as listed on a PHA staff-provided utility allowance schedule. These schedules often varied within a county by unit type, effective date of recertification, and location.

Documentation of Utilities and Utility Allowance Values. We asked PHAs to provide information about the forms that were used to document and calculate the utility allowance and to provide the utility allowance schedules that were used for actions effective in FY 2015. In addition, we asked field interviewers to copy documents showing calculation of utility allowances found in tenant files at the PHA office.

ICF staff selected 137 distinct PHA-administered Section 8 Voucher projects for the study sample. These projects, administered by 120 housing authorities (several of which administered projects in multiple counties), participated in the FY 2015 HUDQC Study. According to information provided at the PHA level by 128 projects, 33 percent of the projects used Form HUD-52667 (Allowance Schedule) as the official source for identifying the utilities for which the households were responsible. This

was a change from FY 2014, when Form HUD-52517 (Request for Tenancy Approval) was the most commonly used document.

In FY 2015, 24 percent of projects used Form HUD-52641 (HAP Contract) for identification purposes, an increase from 14 percent in FY 2014. With respect to the document used to calculate utility allowance value, the most common document was Form HUD-52667 (Allowance Schedule) in FY 2015. In Exhibit IV-28a, we provide information on the type of documents used as the official source for identifying utilities for which the households were responsible.

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

	Identifying Utilities			
	FY 2014		FY 2015	
Document Used	Number	Percent	Number	Percent
Form HUD-52517 (Request for Tenancy Approval)	46	34%	36	28%
Form HUD-52641(HAP Contract)	19	14%	31	24%
Form HUD-52667 (Allowance Schedule)	43	32%	42	33%
Other (e.g., lease, reports, comparisons)	11	8%	14	11%
Various combinations of documents above	15	11%	5	4%
Total	**134**	**100%**	**128**	**100%**

*Totals may not add up to 100% due to rounding.

Comparison of Form HUD-50058 Utility Allowance Values to Worksheets Found in the Household File. Seven hundred and ninety-nine (799) households from the PHA-administered Section 8 Voucher program were selected for this study. Field interviewers were able to locate worksheets or other documents indicating how the utility allowance was calculated for 753 households (94 percent).

For each household with utility allowance documentation available, we compared the utility allowance amount from the Form HUD-50058 to the amount on the utility allowance worksheet obtained from the tenant file. For 627 households (83 percent) the Form HUD-50058 utility allowance amount matched the worksheet amount. For 11 percent of the households, the worksheet provided was for the incorrect period of time or was missing critical information. For these 79 households, we could not determine whether the utility allowance amount used in the rent calculation was correct. In the remaining 6 percent of the households, there were discrepancies between the amounts on the worksheet and on the Form HUD-50058.

In FY 2015, there were slightly more households with matching values than in FY 2014 (83 percent and 81 percent, respectively). There were fewer inadequate worksheets in FY 2015 (11 percent) as compared to FY 2014 (17 percent). Exhibit IV-28b presents a summary comparing the utility allowance listed on the Form HUD-50058 and the amount on worksheets found in tenant files.

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

Outcome	Number	Percent
Form HUD-50058 (AC) amount matched with worksheet amount	627	83%
Worksheet in file for incorrect period of time or is missing critical information	79	11%
Discrepancy due to mathematical error or other clerical errors	25	3%
Discrepancy—Unable to determine reasons	22	3%
Total	**753**	**100%**

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

We matched the utility allowance amount on Form HUD-50058 to the QC utility allowance amount. We were unable to calculate the QC utility allowance for 2 percent of the households (15 households) because worksheets were not available; consequently, the specific utilities paid by the household could not be identified. Furthermore, we were unable to calculate the QC utility allowance in an additional 1 percent of households because the worksheets in the files did not include specific utilities or other critical information needed for QC allowance calculation. Another 1 percent could not be calculated because the appropriate utility allowance schedule was not available. Exhibit IV-28c differentiates between the households in which we were able to calculate the QC allowance amount and lists the reasons and number of households where we were unable to calculate the QC utility allowance amount.

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

Outcome	QC UA Amount Calculated	Number	Percent
Appropriate worksheet and schedule available	Yes	771	97%
UA worksheet or other comparable document not available	No	15	2%
Appropriate UA schedule not available	No	4	1%
Worksheet was missing critical information	No	9	1%
Total		**799**	**100%**

*Column totals may not add up 100 percent to due to rounding.

We calculated the QC utility allowance amounts for 771 households and then compared the QC utility allowance to the Form HUD-50058 utility allowance amount. In 87 percent of these households, Form HUD-50058 and the QC utility allowance values matched. We categorized the remaining 13 percent of households where the values did not match into two broad categories: administrative error or unknown (i.e., ICF was unable to determine the reason for the discrepancy in utility allowance amounts). The majority of these errors were categorized as administrative. We present the findings from this analysis in Exhibit IV-28d.

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

Outcome	Number	Percent
QC UA matched amount on Form HUD-50058	671	87%
Discrepancy due to math error/transfer error	84	11%
Discrepancy—Unable to determine reasons	16	2%
Total	**771**	**100%**

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

H. Payment Standard Analysis

As part of the FY 2015 HUDQC study, ICF conducted a special analysis to determine whether PHAs are using the correct payment standard amount. This special analysis was independent of the rent calculation error findings presented in another section in this report, and it did not affect rent calculation determinations. The payment standard analysis consisted of three parts:

1. The payment standard on Form HUD-50058 was compared to the payment standard schedules provided by the PHA.
2. The payment standard on Form HUD-50058 was compared to the Fair Market Rent (FMR) for the appropriate geographical area.
3. The payment standards were compared to the FMRs to ensure that they fell between 90 percent and 110 percent of FMR for each project.

The findings from these comparisons are presented below.

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

PHAs can apply payment standards incorrectly in a variety of ways that will result in errors in tenant rent. A PHA may have several payment standards for different geographic areas with complex borders and/or based on groups of ZIP codes or municipalities that change every few years. This can make it difficult to select the correct payment standard for any given address within the jurisdiction. Additionally, a household can rent a unit whose number of bedrooms differs from the authorized number of bedrooms on the voucher, which is based on family size. In such a case, program administrators must remember to use the lower of the payment standard based on the voucher bedroom size or the payment standard for the actual size of the unit leased. Annual changes in payment standards can cause similar confusion; payment standard increases take effect immediately, but administrators may forget that there is a 1-year delay before decreases affect the determination of household rents or assume that the delay extends to increases as well.

Other potential areas for error include whether a PHA has been authorized to use FMRs based on the 50th percentile of the rents in the area, whether the PHA has been authorized to use Success Rate Payment Standards based on the 50th percentile of rents, and whether the PHA continues to be

eligible for these higher subsidy standards. Moreover, PHAs are allowed to change a household's payment standard only at the time of the annual recertification or before the household moves to a new address. Thus, even if a change in the family composition requires an interim recertification with several family members moving in or out, the payment standard used to determine the rent should not be changed at the interim recertification. Yet, despite the complexity of payment standard guidelines, most of the errors found in this review were not due to this reason.

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

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

In previous years, for every household where the AC and QC payment standard did not match, we placed a call to the PHA staff for clarification and collected payment standard schedules when appropriate. Historical discussions with projects on the determination of the QC payment standard uncovered a host of other issues that required consideration when selecting the QC payment standard. While time restraints prevented us from conducting calls to PHA staff for FY 2015, types of past complications considered during the analysis included the following:

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

The study included 791 PHA-administered households. Of these, ICF was able to determine a QC payment standard for 661 households, or 84 percent. For the majority of these households (82 percent), the AC payment standard matched the QC payment standard. There were 118 households with discrepant payment standards; 74 (63 percent) of the households with discrepant payment standards were elderly or disabled households. Elderly and disabled households are identified separately because they are often entitled to individual exemptions to the payment standard rules. We attributed discrepancies to one of seven common reasons, as listed

in Exhibit IV-29a. The most typical reason for a discrepancy between the AC and QC payment standard was for reasons categorized as Other: overdue recertifications, a PHA using the FMR rather than the payment standard, and/or enhanced vouchers, etc. (32 percent). The use of incorrect payment standard schedules accounted for a cumulative 24 percent of the discrepancies found, while approximately a fifth of discrepancies (22 percent) were attributable to the use of a project-based voucher. Exhibit IV-29a summarizes the number and percentage of households with payment standard discrepancies and indicates the reasons for these discrepancies.

Exhibit IV-29a
Number and Percentage of Households With Payment Standard Discrepancies

Reason	Number of Households (Elderly/ Disabled)	Number of Households (Non-Elderly/ Non-Disabled)	Percent of Households With Discrepancies
Used incorrect number of bedrooms/household members	7	1	7%
Used incorrect payment standard schedule	15	13	24%
Used gross rent instead of the payment standard amount	4	2	5%
Project staff made a typographical error	4	7	9%
Section 12 of Form HUD-50058 was incomplete/missing	1	0	1%
Project-based voucher: No payment standard (Section 11 filled out)	19	7	22%
Other reasons (e.g., overdue recertification, enhanced voucher)	24	14	32%
Total	**44**	**74**	**100%**

Comparison of the Payment Standard on Form HUD-50058 to the Fair Market Rent for the Appropriate Geographic Area. In the second analysis, we compared the payment standard on Form HUD-50058 to the FMRs for the appropriate geographic area. The payment standard for 552 households (70 percent) fell within the 90 percent to 110 percent FMR band; 39 of the households (5 percent) that fell outside the 90 percent to 110 percent band used an amount that exceeded 110 percent of the FMR; and 34 of the households (4 percent) that fell outside the band used an amount that was less than 90 percent of the FMR. Exhibit IV-29b summarizes the number and percentage of households by the relationship of the payment standard to the acceptable FMR. The table is based on data for the 661 cases where we were able to determine correct payment standards.

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

Characteristic	Fair Market Rent			Percent of *Total* Cases Outside the 90% to 110% Band
	Under 90%	90%–110%	Over 110%	
Non-elderly or Non-Disabled	10	292	17	3%
Elderly or Disabled	24	260	22	6%
Total	**34**	**552**	**39**	**9%**

The analysis of cases that fell outside the 90 percent to 110 percent FMR band revealed that 12 percent of cases fell outside the FMR band for four general reasons: (1) the incorrect number of bedrooms or household members was used; (2) the incorrect payment standard schedule was used; (3) project staff used gross rent instead of the payment standard; or other reasons. Exhibit IV-29c summarizes the number and percentage of households that fall outside the 90 percent to 110 percent FMR band by category.

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

Reason	Fair Market Rent		Percent of Cases Outside the 90% to 110% Band
	Under 90%	Over 110%	
Used incorrect number of bedrooms or household members	6	0	8%
Used incorrect payment standard schedule	3	2	7%
Used gross rent instead of the payment standard amount	0	4	5%
Other reasons—overdue recertification, used 105% of FMR, software limitations, original payment standard over 110%, unable to determine a reason for the discrepancy	25	33	79%
Total	**34**	**39**	**100%**

*Totals may not add up 100% to due to rounding.

Comparison of the FY 2014 to the FY 2015 Payment Standard Analysis Results. ICF conducted the same payment standard analysis for the FY 2014 study. Of the 791 PHA-administered Section 8 Voucher households in FY 2015, 661 had a QC payment standard determination. Of these, the AC and the QC payment standard matched for 543 of the households (82 percent), compared to 75 percent in FY 2014. Also, 73 (11 percent) of the households had payment standards that did not fall within the 90 percent to 110 percent FMR band. Therefore, a total of 11 percent of the PHA-administered Section 8 Voucher households included in the FY 2015 study did not meet HUD's payment standard requirements, which indicates a 3 percent decrease from FY 2014. Exhibit IV29d summarizes the results from the FY 2014 and FY 2015 payment standard analysis.

Exhibit IV-29d
Comparison of the FY 2014 to FY 2015 Payment Standard Analysis

Characteristic	FY 2014		FY 2015	
	Number	Percent of Total Cases	Number	Percent of Total Cases
PHA-administered Section 8 Voucher sample	782	100%	791	100%
Households where QC payment standard was determined	670	86%	661	82%
Households where the AC and QC payment standard did not match	171	26%	118	18%
Households where the AC payment standard did not meet the 90% to 110% FMR threshold	91	14%	73	11%
Households that were not exempt from the 90% to 110% FMR threshold and did not meet HUD's payment standard requirements	91	14%	73	11%

I. PIC/TRACS Analysis

A special analysis was conducted to determine whether cases for which Form HUD-50058/50059 data had been submitted to HUD were more or less likely to have errors than those for which data had not been submitted. These households were compared using two methods. The first was based on whether household identifiers used by ICF were present in the PIC/TRACS data for the selected households (i.e., social security number, name, and date of birth). The second method of comparison examined whether the specific Form HUD-50058/50059 certification or recertification action used by ICF for the selected households was present in the PIC/TRACS data.

In previous years, HUD provided PIC/TRACS head of household data for only those households in the HUDQC Study. For the second study in a row, ICF requested PIC/TRACS data for all assisted households with transaction data present within the FY 2015 study period in November 2015. These data were used for both household sampling and the PIC/TRACS analysis. Due to nonstandard recertification cycles permitted by various MTW PHAs, the PIC/TRACS data for MTW households were not requested. Certain MTW PHAs selected for the FY 2015 study allow tenants to have biennial or triennial recertifications, so those tenants would not have been included on the data file if included in the request. For this reason, 2,211 of the 2,400 households (92 percent) were included in the PIC/TRACS analysis (i.e., analytical sample).

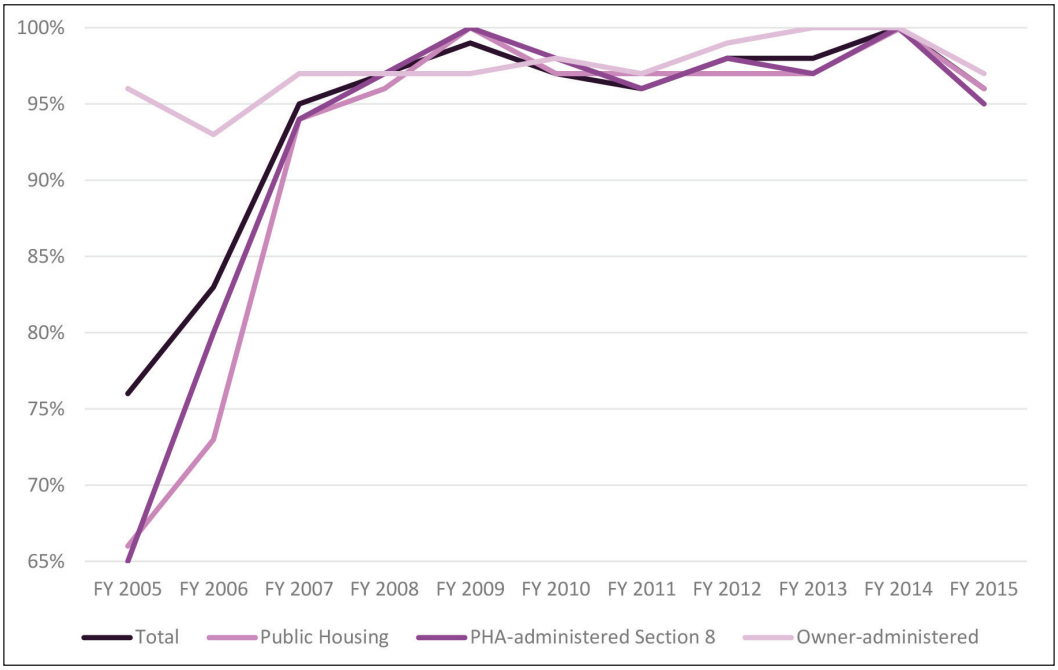
Matching the HUDQC Study to the PIC/TRACS Data. Head of household data were provided for all actions and updates from November 1, 2014, to October 31, 2015, resulting in multiple observations per household. The households included in the HUDQC Study were matched against these PIC/TRACS data using identifying information (a combination of the social security number, name, and date of birth) for each head of household in the analytical sample. Using these criteria, PIC records were found for just under 100 percent of households in PHA-administered projects (99.9 percent), while TRACS records were found for exactly 100 percent of households in Owner-administered projects. However, due to the use of PIC/TRACS data for household sample selection, a near-100-percent match rate was anticipated. Figure IV-4 shows the change in percentage of households in which PIC/TRACS was present over time, as identified in the HUDQC

Study, beginning in FY 2005. PHA-administered percentages have increased since FY 2005, while Owner-administered percentages have remained fairly steady over time.

In addition to the match described above, ICF further compared household data obtained during the HUDQC study to PIC/TRACS data with the following certification information: program type, type of action, and effective date. If duplicate observations for each head of household remained, the transaction with the closest PIC/TRACS update date following the certification effective date was selected. Using this more explicit matching technique and including the additional certification elements, 2,124 of the 2,211 QC households in the PIC/TRACS analysis, or about 96 percent, were fully represented by both head of household identifying information and certification data. This matching rate was a slight increase from the previous rate of 95 percent in FY 2014 and a decrease from the 98 percent found in FY 2013 and FY 2012. The current match rate of 96 percent is still a substantial increase from rates in FY 2011 and FY 2010, in which 70 and 71 percent of households, respectively, were fully represented by a match on both identifying information and certification data.

In past years, most of the PIC/TRACS analysis was based on the broader match using identifying information to maintain consistency with past years. However, with the new PIC/TRACS data request process and nearly all households matching on identifying information, the PIC/TRACS analysis presented in this report is based on the more explicit matching technique. Using these criteria, PIC action records were found for 95 percent of the households in PHA-administered projects, while TRACS action records were found for 97 percent of the households in Owner-administered projects. Of the 2,211 households in this analysis, 2,124 households (or 96 percent) were successfully matched with PIC/TRACS.

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



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

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

Administration Type	PIC/TRACS Action Present		PIC/TRACS Action Absent	
	Percentage of Households	Average Dollars in Error	Percentage of Households	Average Dollars in Error
Public Housing	95.7%	$11.83	4.3%	$68.04
PHA-administered Section 8	95.5%	$13.47	4.5%	$31.15
Total PHA-administered	*95.6%*	*$12.93*	*4.4%*	*$42.99*
Total Owner-administered	97.3%	$9.21	2.7%	$7.89
Total	**96.1%**	**$11.74**	**3.9%**	**$35.24**

As presented in Exhibit IV-30b, the average dollars in Gross Rent Error for PHA-administered projects were higher for households in error when PIC/TRACS action data were absent ($90) than when PIC/TRACS action data were present ($47). More specifically, the largest difference in average gross error dollars was found for Public Housing households, with and without PIC/TRACS action data present ($51 and $192, respectively). However, because the number of households with actions absent from PIC/TRACS is relatively low, these estimates are less reliable and more volatile from year to year. In FY 2015, 96 percent of Owner-administered households in error had PIC/TRACS data present. This rate is lower than in recent years, when the rate of Owner-administered households in error with PIC/TRACS data present ranged from 97 percent to 100 percent between FY 2010 and FY 2014.

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

Administration Type	PIC/TRACS Action Present		PIC/TRACS Action Absent	
	Percentage of Households	Average Dollars in Error	Percentage of Households	Average Dollars in Error
Public Housing	93.6%	$50.59	6.4%	$192.07
PHA-administered Section 8	93.1%	$48.89	6.9%	$71.35
Total PHA-administered	*93.2%*	*$49.39*	*6.8%*	*$104.84*
Total Owner-administered	96.0%	$41.61	4.0%	$23.89
Total	**94.0%**	**$47.19**	**6.0%**	**$89.79**

Exhibit IV-30c presents the percentage of households and average dollars in error for households action matched/not action matched with PIC/TRACS by payment type. Although the percentages of underpayment, overpayment, and proper payment are similar, both where PIC/TRACS action

was present and where it was absent, there was a large difference in overpayment amounts (e.g., $28 average overpayment error when PIC/TRACS action data could be matched, compared to $118 overpayment error when PIC/TRACS action data were not matched). Interestingly, for households with underpayments, average dollar in error was slightly less when PIC/TRACS action was absent than when it was present (e.g., $66 compared to $63). However, because there are fewer households in which PIC/TRACS data were absent, the average dollars in error amounts can vary substantially from year to year.

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

Payment Type	PIC/TRACS Action Present		PIC/TRACS Action Absent	
	Percentage of Households	Average Dollars in Error*	Percentage of Households	Average Dollars in Error*
Underpayment	94.0%	$65.54	6.0%	$63.26
Overpayment	96.8%	$27.67	3.2%	$118.13
Proper payment	94.0%	$0	6.0%	$0
Total	**96.1%**	**$11.74**	**3.9%**	**$35.24**

*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 action match. This exhibit illustrates the importance of reviewing net error and gross error separately, as their average dollar errors are substantially different.

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

Administration Type	Average Net Rent Error		Average Gross Rent Error	
	PIC/TRACS Action Present	PIC/TRACS Action Absent	PIC/TRACS Action Present	PIC/TRACS Action Absent
Public Housing	-$3.63	$47.89	$11.83	$68.04
PHA-administered Section 8	-$6.47	-$5.31	$13.47	$31.15
Total PHA-administered	*-$5.54*	*$11.78*	*$12.93*	*$42.99*
Total Owner-administered	-$4.06	$1.87	$9.21	$7.89
Total	**-$5.07**	**$9.59**	**$11.74**	**$35.24**

To further illuminate details of those households in which PIC/TRACS data matched on specific study effective date and type of action (2,124 of 2,211 households), an additional analysis was conducted to determine whether certain key variables matched. The key variables included gross income, net income, total tenant payment, and tenant rent. Exhibit IV30e provides the percentage of households in which the data gathered through the QC process matched those in PIC/TRACS.

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

	Gross Income		Net Income		Total Tenant Payment		Tenant Rent	
Match Status	PIC	TRACS	PIC	TRACS	PIC	TRACS	PIC	TRACS
No Match	1.7%	2.3%	2.0%	3.1%	2.6%	11.5%	10.9%	30.7%
Match	98.3%	97.7%	98.0%	96.9%	97.4%	88.5%	89.1%	69.3%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

J. Project Staff Questionnaire Analysis

The purpose of the Project Staff Questionnaire (PSQ), a self-administered, Web-based questionnaire, was to obtain project-level information concerning the characteristics and processes that enable PHA/project staff to precisely and accurately calculate rent during certification transactions, including both initial/move-in certifications and annual recertifications. PHA/project staff identified as the point of contact for the FY 2015 study were surveyed on topics related to PHA/project characteristics, certification staff training and development, and performance management during the study period of November 1, 2014, to October 31, 2015. The results were analyzed separately for the three major program types: Public Housing, PHA-administered Section 8, and Owner-administered programs.

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

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

- PHAs/projects that answered the survey based on project-specific information reported that they employed an average of 11 staff members and served 1,238 households during the study period. It is worth noting that each of the program types differed markedly in average size. PHA-administered Section 8 projects averaged 26 employees and administered rental assistance to 4,199 households, Public Housing projects had an average of 9 employees and served 470 units on average, and Owner-administered projects averaged 4 employees with 130 rental assistance units. Compared with FY 2014, the ratio of households to a single staff member decreased slightly.
- PHAs/projects reported an average of 8 certification staff members on site, with an average of 7 having more than 1 year of certification experience at the project. Thirty-one percent of PHAs/projects in the study had at least 1 certification staff member stop working on certification activities at the project during the study period. On average, PHAs/projects that experienced turnover had 3 certification staff leave the PHA/project during the study period.

- The most frequently used methods for assigning cases to certification staff were by transaction type (e.g., initial certifications, annual recertifications, transfers, and interims) and by random assignment based on staff availability (19 percent and 16 percent, respectively). Compared with FY 2014, more PHAs/projects reported that their staff had a manageable workload, while fewer PHAs/projects reported a high workload. However, answers varied by program type. PHA-administered Section 8 projects were most likely to report a high workload (59 percent), while Owner-administered projects were most likely to report a steady workload (66 percent). Less than 1 percent of respondents in all program types reported that their certification staff had a low workload.
- Eighty-nine percent of all PHAs/projects responded that they did not outsource certification activities to outside organizations during the study period. PHAs/projects were equally likely to contract out certification activities to private companies and nonprofit organizations (4 percent each), and somewhat less likely to choose a government organization (3 percent).
- Automated systems and computer software continued to play an increasingly integral part in the daily tasks of PHAs/projects. PHAs/projects used computers most frequently to print letters to tenants (98 percent), print Form HUD-50058/50059 (97 percent), calculate income, expenses, and allowances (96 percent), and record tenant demographics (92 percent). Overall, rates of computer usage remained stable since FY 2014. The largest increase was found in keeping track of pending verification documents (from 59 percent to 62 percent), and the largest decrease was found in keeping other types of statistics (from 72 percent to 67 percent).
- During the study period, almost all PHAs/projects used computer software when performing rent calculations (96 percent). Additionally, a majority of PHAs/projects used computer software for other administrative tasks, including storing household data from previous Form HUD-50058/50059 (96 percent), submitting data to the Public and Indian Housing (PIH) Information Center/Tenant Rental Assistance Certification System (PIC/TRACS) (92 percent), and annualizing income or expenses (91 percent).

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

- Overall, 59 percent of PHAs/projects in FY 2015 had a training department or staff trainer for certification staff, a decrease from FY 2014 (67 percent). By program type, 53 percent of Public Housing sites reported having a training department or staff trainer, compared to 50 percent of PHA-administered Section 8 projects and 71 percent of Owner-administered projects. On average, each new certification staff member received 49 hours of training prior to performing rent calculations unassisted (the lowest in the last 6 years). In addition, 50 training hours were provided to new staff in FY 2014, 55 hours in FY 2013, 65 hours in FY 2012, and an average of 89 hours of training in FY 2011.[28]

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

- Most PHAs/projects trained new certification staff members by providing them with policies and procedural guides to read independently and by having them shadow or receive mentoring from more experienced staff members (96 percent and 94 percent, respectively). During the study period, PHAs/projects reported that a typical new certification employee spent an average of 36 hours self-training with manuals and 127 hours shadowing experienced staff. Additionally, the training hours dedicated to mentorship and classroom-style training administered by an outside organization increased substantially since FY 2014.
- More than 90 percent of PHAs/projects trained new certification staff in calculating fixed income sources, earned income sources, deductions, and/or assets, as well as in Enterprise Income Verification (EIV) reports and EIV security. The average number of training hours spent on each topic area per new staff member during the study period was about evenly distributed among the topics listed in the PSQ, ranging from 24 to 36 hours for each topic area. This was a substantial increase from FY 2014, when between 16 and 25 training hours were spent on each topic area.
- The vast majority of PHAs/projects trained experienced staff by providing policies and procedural guides to read (86 percent), while more than half of PHAs/projects had experienced staff attend classroom training administered by an outside organization (52 percent) and/or shadow more experienced staff (55 percent). A typical experienced certification staff member in the Public Housing program spent an average of 15 hours on training on the job with other experienced staff, compared to an average of 47 hours in Owner-administered projects and 79 hours in PHA-administered Section 8 projects.
- PHAs/projects most frequently endorsed training an experienced certification staff member on the topics of EIV reports and EIV security as well as calculating deductions (81 percent and 66 percent, respectively). It was reported that the most training hours were spent on entering Form HUD-50058/50059 (10 hours), while the fewest training hours were spent on interviewing tenants (7 hours). On average, an experienced certification staff member received approximately 25 fewer training hours for each topic than a new certification staff member. This is a substantial increase from FY 2014, when experienced staff typically received 13 fewer hours of training per topic area than new staff. Furthermore, in FY 2013, experienced staff received only 7 fewer training hours than new certification staff.
- Twenty-seven percent of PHAs/projects typically implemented a new rent calculation policy immediately following the issuance of a PIH Notice or Housing Notice, and 44 percent implemented a new rent calculation policy between 1 and 30 days after the issuance of the notice. In January 2013, PIH Notice 2013-03 (HA)[29] was issued, affecting Public Housing, Moderate Rehabilitation, and Housing Choice Voucher programs. These programs reported that the primary methods used to notify certification staff about the policy change were discussing the policy with staff in a meeting and providing a paper

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

or electronic copy of the notice (62 percent and 52 percent, respectively). Twenty-two percent of Public Housing respondents stated that there was no discussion of this policy with staff, and that staff did not receive a notice of the policy, compared to only 3 percent of PHA-administered Section 8 projects.

- PHAs/projects overwhelmingly rated their certification staff as having average or above average work behaviors during the study period. Ninety-eight percent of PHAs/projects rated their certification staff as either organized or very organized when working on certification activities in FY 2015. Similarly, 96 percent of PHAs/projects indicated that their staff had either good or very good time management skills, and 98 percent reported that their staff paid some or a lot of attention to detail while working on certification activities. Additionally, compared to FY 2014, PHAs/projects in FY 2015 were more likely to indicate that their staff was very organized, had very good time management skills, and paid a lot of attention to detail.

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

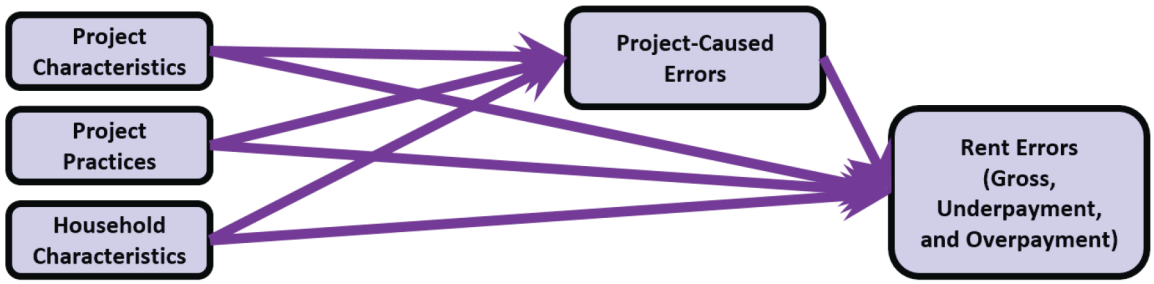
- Eighty-nine percent of PHAs/projects reviewed move-in and annual certifications as a QC measure. On average, these PHAs/projects reviewed 47 percent of certifications. PHAs/projects most frequently selected files randomly for QC review and conducted the reviews prior to Form HUD-50058/50059 approval (79 percent and 27 percent, respectively).
- Sixty-eight percent of PHAs/projects had a dedicated QC staff to monitor tenant files and certification activities, a decrease since FY 2014 (74 percent). Most often, PHAs/projects had a team leader or supervisor conducting QC checks (83 percent), who conducted an average of 266 file reviews during the study period.
- Twenty-six percent of PHAs/projects reported that they reviewed not only move-in certifications and annual recertifications, but all tenant files during QC reviews. By program type, 23 percent of PHA-administered Section 8 projects selected all cases for QC review, compared to 27 percent for Public Housing and 29 percent of Owner-administered sites.
- Among PHAs/projects that conducted dedicated QC reviews, at least 88 percent had reviewers check tenant files for correct income calculation, the presence of verification documents, and/or proper core household documentation. Five percent or less of PHAs/projects reported that verification, income calculation, expense calculation, or other errors were made often or very often by certification staff, a decrease since FY 2014. Of all rent calculation errors, late annual recertifications were reported as occurring often or very often at the highest rate (5 percent of PHAs/projects).
- In order to provide performance feedback to staff regarding errors found during the QC process, PHAs/projects provided monthly rent calculation performance feedback to staff (25 percent) and had one-on-one conversations with staff to discuss QC findings (73 percent). Additionally, PHAs/projects overwhelmingly required that the certification staff member who made the error be responsible for making file corrections (83 percent).

- Twenty-eight percent of PHAs/projects reported that they do not track any of the certification errors listed in the PSQ. PHAs/projects that did track errors most frequently monitored late annual recertification transactions (78 percent), errors in earned income calculations (57 percent), errors in calculating assets (56 percent), and errors in calculating medical expenses (54 percent).
- The majority of PHAs/projects had error mitigation strategies in place: 69 percent had a formal or informal goal-setting process related to rent calculations for certification staff, and 73 percent required that certification staff review a household's previous Form HUD-50058/50059 prior to beginning a new certification transaction.

K. Multivariate Analysis

The FY 2015 HUDQC multivariate modeling followed a similar conceptual approach to the one used in previous years by analyzing variables representing project characteristics, project practices, tenant characteristics, and project-caused errors. In previous years, we suggested a two-part modeling approach consisting of examining the relationships of the variables affecting (1) gross error, underpayment, and overpayment and (2) project-caused errors. However, in reality we were more interested in an overall conceptual model that would examine the impact of variables through the system in which we believe it interacts. As such, the conceptual model we currently propose is presented in Figure IV-5.

Figure IV-5
Conceptual Model Used in Multivariate Analysis



Our approach to constructing the analytic model followed a pattern that was similar to the model used in the past by initially examining the relationship between individual variables and the identified outcomes (i.e., project-caused errors, gross rent error, underpayment error, and overpayment error). The benefit in creating a single model is that we can examine the impacts of the project and household characteristics in conjunction with both the probability and direction of rent error and the intensity (amount) of gross rent error concurrently with the impact of the household and project characteristics on project-caused errors. (See *Appendix F* for more information on the multivariate analysis.)

Project-Caused Errors. Project-caused errors continue to represent the largest effects in measuring rent error. Overall, two indicators were salient to the gross rent error (continuous), subsidy underpayment (dichotomous) and subsidy overpayment (dichotomous). Applications that had a transcription error led to a higher amount of gross rent error and were more likely to demonstrate

subsidy overpayment error and subsidy underpayment error. Additionally, overdue recertification errors showed an increase in both gross rent error and the likelihood of subsidy underpayment.

Given the high correlation of project-caused errors with improper rent payment, high priority should be placed on reducing project-caused errors. We also found that transcription error was significantly affected by both financial and membership household characteristics. Higher annual income, more allowances, more income sources, and being an older head of household had an increased likelihood of transcription error, while fewer expenses and household characteristics (e.g., dependents, minor children, and adults over age 62) decreased the likelihood of a transcription error. Additionally, if the project was Owner-administered there was a lesser likelihood of a transcription error. Alternatively, overdue recertification errors increased slighted as the number of experienced, certified staff on a project increased.

Household Characteristics. Household background variables were strong predictors of gross rent error and subsidy overpayment and underpayment. Significant relationships between a few of the financial indicators directly affected gross rent error and the underpayment and overpayment subsidies. Specifically, a higher household annual income increased both the amount of gross rent error and the likelihood of subsidy underpayment. Alternatively, our results indicated that an increase in the total amount received in allowances (e.g., medical, child care, and disability) reduced the amount of gross rent error. We found a more circumspect result with household rent. An increase in household rent indicated an increase in the amount of gross rent error; however, the same increase in household rent also demonstrated a lower likelihood of subsidy underpayment but did not have a significant effect on subsidy overpayment. This finding would suggest that as the amount of rent on applications increased, the likelihood of underpayment decreased, but when the subsidy underpayment did occur the amount of gross rent error increased with respect to the amount of rent.

The results also demonstrated that a couple of the household membership variables were significantly related to the subsidy errors. Households with an individual over age 62 were less likely to have subsidy underpayment. Alternatively, households reporting any dependents were more likely to have received a subsidy overpayment.

Project Characteristics and Practices. The impact of project characteristics and project practices on improper payments remained elusive within the current data analysis. As in previous years, most key indicators of project resources, staff capacity, training, certification procedures, computer application, and a broad array of quality control efforts were not found to be statistically significant, and no substantial relationships were found with rent error measures.

Of the numerous project practices examined, two continued to be significant when examined using a multilevel modeling approach. Similar to FY 2014 results, FY 2015 results showed a relationship between EIV training for new staff and rent error. Additionally, we found that as the caseloads of certified staff increased so did the likelihood of subsidy overpayment.

As was the case in FY 2013 and FY 2014, the project practices are much less predictive of rent error than project-caused errors and household characteristics. Further, the project practices that emerged from the modeling seem to be inconsistent in their relationship with rent errors (e.g., increased training associated with increased rent error). Investigating these counterintuitive effects could

help identify whether the effect is truly associated with rent error or whether there are underlying factors that are confounded with rent error. This will improve clarity on specific challenges facing certification staff that lead to processing errors and payment errors.

This new conceptual and modeling approach to examining the impact of household characteristics, project practices and characteristics, and project-caused errors on the gross amount of rent error and overpayment and underpayment of rent subsidies continues to enhance our understanding of these rent errors. While our results are similar to prior studies, concurrent modeling of these outcomes and indicators has changed our understanding of their effects on amount and direction of rent error. However, our findings suggest that many of the household variables affect the amount and direction of the rent error through the project-caused transcription and overdue recertification errors. Using these characteristics (e.g., large sources of income, large households) to identify cases that could be at risk for improper payment in advance of the (re)certification process could allow for increased quality control of these cases, or the development of specific training around these at-risk units.

L. The 20 Largest PHAs Study

The 20 Largest PHAs Study aims to provide additional information about the 20 largest PHAs. Included in this study were the 18 largest PHAs and the 2 largest state PHAs in the project-level sample selected for the HUDQC Study. There were 32 households selected from most PHAs, but two PHAs had more. Specifically, NY005, which had 189 households selected, and IL002, which had 40 selected households. The study of the 20 largest PHAs ultimately included a total of 806 households.

Most PHAs represented both Public Housing and PHA-administered Section 8 households. MI901, NY110, CA063, and NY904 only represented PHA-administered Section 8 households. Weights for the 20 Largest PHAs Study were not calculated, and as a result all data presented in the exhibits in this section that pertain to the 20 largest PHAs are not weighted.[30]

Administrative Error in the 20 Largest PHAs. Exhibit IV-31a provides the percentage of households that had overdue recertification and transcription errors and the percentage of income and expense items that were verified by PHA staff using both written third-party verification only and verbal or written third-party verification, documentation, or EIV/UIV. These types of administrative errors were examined because they are typically associated with overall Gross Rent Error and Net Rent Error.

- Compared to all HUDQC Study PHAs selected, the 20 largest PHAs had a higher percentage of overdue recertification errors (2 percent and 4 percent, respectively) and a slightly lower transcription error rate (43 percent and 37 percent, respectively).
- Overdue recertification errors had low rates in most PHAs.
- While most of the 20 largest PHAs had slightly lower transcription error percentages than the HUDQC Study mean of 37 percent, NY005 had a markedly higher transcription error rate (68 percent).

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

- The 20 largest PHAs verified items using third-party verbal or in writing, documentation, or EIV/UIV at a slightly higher rate than the HUDQC Study overall, at 88 percent compared to 87 percent.
- The 20 largest PHAs verified items using only third-party in-writing verification, slightly less than the PHAs in the HUDQC Study overall (10 percent and 14 percent, respectively).
- DC001 verified items using only third-party in-writing verification at the greatest rate (26 percent), while IL025 and PA002 used this method rarely (a rate of 2 percent for each).

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

PHA	Number of Households	Percentage of Overdue Recertification Error*	Percentage of Transcription Error	Percentage of Verified Items	
				Third-Party Verbal or In Writing, Documentation, or EIV/UIV	Third-Party In Writing
CA002	32	—	50%	88%	0%
CA004	32	3%	34%	83%	6%
CA063	32	—	34%	91%	9%
DC001	32	6%	38%	92%	26%
IL002	40	5%	35%	89%	11%
IL025	32	—	47%	89%	2%
MA002	32	—	44%	88%	5%
MD002	32	6%	34%	95%	10%
MI901	32	3%	9%	85%	20%
NY005	189	5%	68%	83%	17%
NY110	32	6%	31%	96%	4%
NY904	32	3%	53%	88%	8%
OH001	32	6%	44%	92%	15%
OH003	32	3%	16%	78%	14%
OH004	32	—	31%	84%	11%
PA002	33	—	30%	87%	2%
TX005	32	3%	31%	93%	3%
TX009	32	3%	31%	89%	4%
WA001	32	—	38%	84%	14%
WA002	32	—	41%	76%	13%
Total	**806**	**4%**	**37%**	**88%**	**10%**
QC Study Total	**2,400**	**2%**	**43%**	**87%**	**14%**

Note: Data in this exhibit for the 20 largest PHAs are not weighted (see Appendix B), although HUDQC Study total data are weighted.
*Those PHAs without a percentage in this column had no cases overdue for recertifications.

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

- Compared to PHAs in the HUDQC Study as a whole, the 20 largest PHAs had a slightly lower percentage of households with proper payments (73 percent and 70 percent, respectively), as well as a higher average gross dollar error (about $20 for the 20 largest PHAs versus about $13 for the HUDQC Study).
- The PHA with the highest percentage of proper payments was MI901, which had proper payments for 91 percent of households.
- OH004 had the lowest average gross dollar error, at $2.03.

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

PHA	Underpayment	Proper Payment	Overpayment	Average Gross Dollar Error
CA002	25%	66%	9%	$14.78
CA004	13%	72%	16%	$22.81
CA063	16%	72%	13%	$5.69
DC001	19%	69%	13%	$8.66
IL002	23%	73%	5%	$26.42
IL025	25%	66%	9%	$14.62
MA002	13%	81%	6%	$19.63
MD002	16%	72%	13%	$24.94
MI901	9%	91%	0%	$3.78
NY005	18%	62%	20%	$28.96
NY110	13%	84%	3%	$16.84
NY904	6%	69%	25%	$57.34
OH001	13%	84%	3%	$7.72
OH003	3%	88%	9%	$7.87
OH004	16%	84%	0%	$2.03
PA002	12%	36%	52%	$10.91
TX005	13%	75%	13%	$19.47
TX009	13%	81%	6%	$21.19
WA001	19%	66%	16%	$24.25
WA002	6%	50%	44%	$18.50
Total/Average	**15%**	**70%**	**15%**	**$20.07**
QC Study Total/Average	**14%**	**73%**	**13%**	**$13.39**

Note: Data in this exhibit for the 20 largest PHAs are not weighted (see Appendix B), although HUDQC Study total data are weighted.
*Row totals may not add up 100 percent to due to rounding.

In FY 2015, a smaller proportion of proper payments seemed to lead to a higher average gross dollar error within the PHA.

- The PHA with the lowest percentage of proper payments was PA006, with a 33 percent rate of proper payment. PA002 had an Average Gross Dollar error rate of $11. This indicates that although there was a large rate of mispayment within PA002, the amount of dollars in errors was relatively low for most tenants.
- Alternatively, the PHA with the lowest average gross dollar amount, OH004 ($2.03), had a higher rate of proper payments than the average across the 20 largest PHAs, at 84 percent.

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

V. Recommendations

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

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

A. Recommended Policy Actions

It should be noted that the study was not designed to provide recommendations regarding program policies and procedures. However, findings from the study suggest general actions that should be continued or policies that should be considered to maintain or improve PHA/project performance in rent determination. Below we present recommendations that may improve administrative error rates in HUD programs, based on insights we have gathered during this and previous studies.

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

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

   We recommend that HUD require PHA/Owners to perform their own QC reviews on income determinations and rent calculations. Agencies that have aggressively sought to improve

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

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

3. **Continue to Streamline the Program Requirements.** Continue to simplify Federal laws, regulations, and HUD requirements to the extent possible. The new regulations outlined in Notice PIH 2016-05 provide much needed clarification on previous regulations, such as the time period associated with the Earned Income Disregard calculations. The implementation of triennial certification for fixed income households will save time for PHA staff, allowing them to spend more time conducting required reexaminations, following up on suspected cases of fraud, and conducting more internal reviews of tenant files. Office of Housing should implement similar changes.

4. **Create an Online Community to Share Best Practices and Tools.** HUD should provide PHA/Owners with an online venue to support the sharing of best practices for its assisted housing programs. A Web-based resource could facilitate communication between HUD and program administrators regarding identifying ways to improve and address challenges related to proposed policies. Comprehensive supporting documents, including forms for interviewing tenants, obtaining verification, and determining rent, could be posted to the site for downloading. Manuals and training materials describing how to implement requirements and accurately calculate rent could also be available electronically, with online webcasts providing an additional training resource for local program offices.

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

5. **Develop a technical assistance platform for rent calculation staff.** HUD should develop a technical assistance hotline for project/PHA staff to call about particularly difficult policies related to completing (re)certifications. The assistance could be a Web-based support system, where the PHA/project staff would be given a time estimate of when they will receive an answer after submitting a question, or a live telephone system staffed by experienced HUD policy advisors. This open dialogue would help avoid common errors that contribute to rent error. Additionally, HUD should keep detailed records for each call to determine if there

were commonly asked questions, and provide written guidance on these issues to all PHA/ projects for future use.

6. **Develop a calculation worksheet for use in annualizing income.** This electronic worksheet would be programmed to calculate annual income to be used for rent calculation. It would also serve as documentation of the methodology used by the PHA/project staff to annualize income. A physical copy could be kept in the tenant file after it is dated and signed by the certification staff. This would help to avoid calculation errors and thus reduce rent error.

B. Modifying the Quality Control Study

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

7. **Continue to Measure Improper Payment Associated With Billing Error.** HUD should conduct billing error studies to obtain a more accurate assessment of improper payments. In the *FY 2014 HUD Agency Financial Report*, billing error estimates are based on FY 2004 data for the Public Housing program and FY 2009 data for Owner-administered programs. In FY 2015, ICF conducted billing studies for both the Office of Public and Indian Housing and the Office of Housing. This work should continue to be conducted. Current error estimates could be obtained by conducting primary data collection or by using statistical modeling to update the existing data. However, an updated study will provide HUD with a better assessment of billing error associated with rental assistance programs in order to understand one of the main contributors to improper payments. The information from these billing studies could strengthen financial management controls so that HUD can better detect and prevent improper payments.

8. **Incorporate Additional Objectives in the HUDQC Study.** Data collected through the HUDQC Study provide details that are not available through other HUD sources (e.g., PIC/ TRACS) that could be used to track trends, such as the extent to which income and expense items are verified or the number of sources of employment income for a particular household or household member. Furthermore, because a statistically valid nationwide sample of projects and households is created for the study, other HUD-related topics could be investigated using the HUDQC Study's research mechanisms and data collection processes. The rental integrity monitoring (RIM) review validation, identified in the July 2013 issuance of the HUD Research Roadmap for FY 2014–FY 2018, is a task that could be incorporated into the HUDQC Study's data collection process. Additional topics could include a review of the changing demographics of HUD tenants, participant satisfaction surveys, and a more in-depth review and evaluation of MTW programs.

9. **Continue to Conduct a Utility Allowance Comparison Study.** In response to tightening budgets and overall concerns with energy efficiency, HUD should undertake a study to better understand utility costs and consumption in subsidized housing. ICF conducted this work in FY 2015, and this work should continue. HUD should consider conducting an

in-depth quality control study of how utility allowance values are calculated and used in rent calculation. This study could involve collecting data from utility companies regarding utility use for a given fiscal year and comparing actual consumption with the utility allowance subsidy calculated by program administrators.

The FY 2015 Utility Allowance Comparison Study found that current HUD Utility Schedule Model (HUSM) users produce incorrect allowances via the tool. HUD should consider making improvements to the HUSM tool to increase accuracy of data entry and calculated utility allowances. Additionally, performing project-level reviews and approvals of utility allowance levels would improve accountability in updating allowances in a timely manner and would likely reduce subsidy error in utility allowances.

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

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

Appendix A: Rent Calculations

Appendix A: Rent Calculations

1. Public Housing

a. Obtain the Total Tenant Payment (TTP).

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

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

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

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

e. Obtain the Utility Allowance.

f. The amount of the tenant's rent (QC RENT) is the lower of: a. (TTP) minus e. (Utility Allowance), or the Flat Rent.[1]

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

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

2. Section 8 Voucher Program

a. Obtain TTP.

b. Obtain the Gross Rent.

c. Obtain Utility Allowance.

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

e. Obtain Payment Standard[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.

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

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

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

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

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

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

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

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

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

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

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

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

3. Section 8 Enhanced Voucher

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

b. Obtain the TTP.

c. Obtain the Gross Rent.

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

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

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

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

g. Obtain the Utility Allowance.

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

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

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

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

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

b. Obtain the TTP.

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

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

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

e. Obtain the Utility Allowance.

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

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

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

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

5. Manufactured Home Space Rental for Section 8 Vouchers

a. Obtain the Rent to Owner.

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

c. Obtain the Utility Allowance.

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

e. Obtain the TTP.

f. Obtain the Payment Standard.

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

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

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

j. Obtain the household's Adjusted Monthly Income.

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

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

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

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

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

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

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

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

Special Calculations for Household With Ineligible Noncitizens

6. Continuation of Assistance

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

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

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

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

7. Temporary Deferral of Termination of Assistance

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

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

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

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

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

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

8. Proration Formula for Public Housing

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

b. Determine the number of FAMILY members.

c. Determine the number of eligible FAMILY members.

d. Obtain the TTP.

e. Obtain the 95th percentile of Gross Rents for similarly sized Public Housing units in order to determine the Public Housing maximum rent.[3]

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

g. Obtain the Flat Rent.

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

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

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

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

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

l. Obtain the Utility Allowance.

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

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

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

9. Proration Formula for All Section 8 Programs

a. *For Voucher Projects Only:* Obtain the Rent to Owner.

b. Obtain the Utility Allowance.

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

d. Obtain the TTP.

e. *For Voucher Projects Only:* Obtain the Payment Standard.

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

g. Record the number of FAMILY members.

h. Record the number of eligible FAMILY members.

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

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

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

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

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

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

Appendix B: Weighting Procedure

Appendix B: Weighting Procedure

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

Study Population. The universe of the Improper Payment for Quality Control for Rental Subsidy Determination (HUDQC) Study included all projects and households located in the continental United States, Alaska, Hawaii, and Puerto Rico. In fiscal year (FY) 2015, Moving to Work (MTW) Public Housing Authorities (PHAs) were included in the study population.

The following programs were included in the sample:

- PHA-administered Public Housing (Public Housing)
- PHA-administered Section 8 (PHA-administered Section 8)
    - Moderate Rehabilitation
    - Housing Choice Voucher 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
    - Section 811 PRAC

The initial universe files used to draw the sample occasionally reflected out-of-date or incorrect information, including out-of-scope projects such as demolished projects, projects undergoing renovation, projects that were no longer assisted, projects that had merged or split, and other special circumstances. Many of these projects were identified prior to drawing the sample. For example, in FY 2015, at the request of HUD, projects newly converted to Owner-administered assistance through the Rental Assistance Demonstration (RAD) program were excluded from the sampling frame, due to unique rent calculation rules while households phase into the new program type. However, other out-of-scope projects were identified later during data collection. Depending on the circumstance of those identified during data collection, sampling decisions were made to either replace the project, to subselect the project, or to make adjustments during weighting. The use of replacement projects for out-of-scope projects complicated the sample weight calculations. The determination of an actual probability of selection for these replacements was impossible to make. A sampling weight that is proportional to what the probability would have been, had the project been selected originally, was used as a reasonable estimate.

Population Totals. The same population totals were used in studies for FY 2012–2014, and in order to provide accurate estimates based on the current assisted housing population, these population totals were updated for FY 2015. The use of the same population counts from year to year has had the advantage of increasing comparability of gross dollar estimates; any change from year to year would not have been due to a change in the number of households in the program, but to

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

Estimates of averages and percentages within program types have the advantage of being comparable regardless of changes in population counts from year to year. This approach of using the same population counts for multiple study years was used for FY 2005 through FY 2010 and again from FY 2012 to FY 2014 to allow for comparability across years.

Exhibit B-1 provides the population totals by program type for the FY 2012 through FY 2015 studies.

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

Administration Type	FY 2012–FY 2014 Population	FY 2015 Population
Public Housing, non-MTW	1,040,708	959,766
Public Housing, MTW	114,088	101,924
PHA-administered Section 8, non-MTW	1,935,597	1,916,735
PHA-administered Section 8, MTW	263,125	292,561
Owner-administered	1,378,158	1,382,453
Total	**4,731,676**	**4,653,439**

Weighting Methodology. The procedure to determine the final weights involved several steps, including: 1) calculating the project weight (w_1); 2) calculating the household weight (w_3); 3) accounting for nonresponding households (f_n); 4) poststratifying (f_p); and, 5) finally, trimming the weights.

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

1) The probability of selection of the cluster (p_1)
2) The probability of selection of the subcluster if the cluster was divided (p_2)
3) The probability of selection of the project from its respective cluster (p_3)

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

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

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

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

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

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

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

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

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

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

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

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

$$f_n = \frac{\sum_{n_{p_e}} w_3}{\sum_{n_{p_r}} w_3}$$

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

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

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

1) Public Housing projects
2) PHA-administered Section 8 projects
3) Owner-administered projects

Population totals for each of the programs were obtained from the FY 2012 sampling frame. The population estimates after weighting did not correspond exactly to these FY 2012 population totals and required adjustments. The weights were adjusted to sum to the known external population totals, so the sum of the weights would have been the same had a different sample been selected. In the past, this was due partially to special circumstances, such as the exclusion of geographic areas affected by the 2005 hurricanes and the Owner-administered projects from Alaska that were excluded from the frame but included during the weighting process. Alaska was excluded from the sample frame in the past because the state typically did not meet the parameters for creating a sample cluster. Prior to FY 2012, all Public Housing and PHA-administered Section 8 projects in the state were out of the scope of the study since they were part of the MTW program, leaving just Owner-administered projects. With the inclusion of MTW projects, more Alaska projects were

considered in the scope of the study, and, therefore, Alaska was once again included. In FY 2015, Alaska was included in the frame but was not selected.

To poststratify the weights, the nonresponse adjusted household weights within program type were summed to estimate the population totals from the HUD sample. For example, the sum of weights for all Owner-administered households in the sample is an estimate of the total number of Owner-administered households in the nation. A poststratification factor (f_p) was calculated by dividing the known external population totals ($N_{program\ type}$) by the estimated population totals from the HUD sample ($\sum_{program\ type} w_4$):

$$f_p = \frac{N_{program\ type}}{\sum_{program\ type} w_4}$$

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

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

Effective Sample Size Due to Weighting. In FY 2015, the weights led to an effective sample size (because of the weighting) of 757 (down from an actual size of 799) for the Owner-administered projects, 774 for the Public Housing projects (down from 805), and 777 for the PHA-administered Section 8 projects (down from 796). The effective sample size is the size of a random sample that would yield confidence intervals of the same size as the current sample. The design effect calculates what the sample size would be when the variance produced by weighting is accounted for, and this calculation yielded the same effective sample sizes as those cited above. The effective sample size will often be smaller than the actual sample, partly because of clustering and partly because of weighting.

Variance Estimation. Standard errors were obtained for a number of estimates using a delete-a-group Jackknife procedure. This was implemented by using 20 replicate groups and creating 20 sets of replicate weights. This procedure is available starting with SAS 9.4, and is considered more robust with respect to design characteristics than the Taylor Series method.[1]

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

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

A self-weighting sample has several advantages, including:

- Permitting more precise estimates for the 20 largest PHAs. To the extent that the sample departs from equal weights, the design effect will increase, causing correspondingly less precise estimates.
- Facilitating reporting because unweighted means and proportions for the sample will be estimates of the same means and proportions for the weighted population so as not to confuse the reader.

Appendix C: Source Tables

Source Tables Based on Quality Control Data

Throughout these Source Tables, empty cells indicate that either the result was zero or the analysis was not applicable.

The following tables include all data collected for the Quality Control study.

HUDQC FY 2015
Table 1a. Verification of QC Rent Components
Third-Party Verbal or in Writing, Documentation, or EIV/UIV

Rent Component	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	71	(4.6%)	84	(5.4%)	1,395	(90.0%)
Pension, Etc.	8	(0.3%)	86	(3.0%)	2,745	(96.7%)
Public Assistance	15	(4.1%)	2	(0.5%)	352	(95.5%)
Other Income	100	(12.6%)	81	(10.3%)	612	(77.1%)
Asset Income	5	(1.2%)	36	(8.2%)	395	(90.6%)
Child Care Expense					166	(100.0%)
Disability Expense					10	(100.0%)
Medical Expense	3	(0.3%)	43	(3.4%)	1,238	(96.4%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 1b. Verification of QC Rent Components
Third Party in Writing

Rent Component	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	969	(61.2%)	129	(8.2%)	485	(30.6%)
Pension, Etc.	2,237	(78.8%)	290	(10.2%)	312	(11.0%)
Public Assistance	342	(77.8%)	3	(0.7%)	94	(21.5%)
Other Income	682	(73.5%)	72	(7.7%)	174	(18.8%)
Asset Income	130	(29.5%)	135	(30.7%)	175	(39.8%)
Child Care Expense	71	(42.9%)			95	(57.1%)
Disability Expense	4	(38.5%)			6	(61.5%)
Medical Expense	355	(27.6%)	393	(30.6%)	536	(41.8%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 1c. Verification of QC Rent Components
Third Party in Writing or EIV/UIV

Rent Component	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	898	(56.7%)	141	(8.9%)	545	(34.4%)
Pension, Etc.	690	(24.3%)	416	(14.6%)	1,735	(61.1%)
Public Assistance	211	(47.9%)	3	(0.7%)	226	(51.3%)
Other Income	621	(66.9%)	67	(7.3%)	240	(25.8%)
Asset Income	125	(28.5%)	136	(31.0%)	178	(40.5%)
Child Care Expense	71	(42.9%)			95	(57.1%)
Disability Expense	4	(38.5%)			6	(61.5%)
Medical Expense	250	(19.5%)	342	(26.6%)	692	(53.9%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 1d. Verification of QC Rent Components
Third Party Verbal

Rent Component	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	1,556	(98.2%)	4	(0.2%)	24	(1.5%)
Pension, Etc.	2,830	(99.7%)	6	(0.2%)	2	(0.1%)
Public Assistance	438	(99.6%)			2	(0.4%)
Other Income	907	(97.7%)	4	(0.5%)	17	(1.8%)
Asset Income	437	(99.6%)	2	(0.4%)		
Child Care Expense	164	(98.9%)			2	(1.1%)
Disability Expense	10	(100.0%)				
Medical Expense	1,267	(98.7%)	15	(1.2%)	2	(0.1%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 1e. Verification of QC Rent Components
Documentation

Rent Component	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	707	(44.7%)	136	(8.6%)	740	(46.8%)
Pension, Etc.	1,814	(63.9%)	363	(12.8%)	662	(23.3%)
Public Assistance	315	(71.6%)	1	(0.3%)	123	(28.0%)
Other Income	523	(56.4%)	68	(7.3%)	337	(36.3%)
Asset Income	200	(45.5%)	135	(30.6%)	105	(23.8%)
Child Care Expense	97	(58.1%)			70	(41.9%)
Disability Expense	6	(61.5%)			4	(38.5%)
Medical Expense	710	(55.3%)	334	(26.0%)	240	(18.7%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 1f. Verification of QC Rent Components
EIV (Enterprise Income Verification)

Rent Component	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	1,584	(100.0%)				
Pension, Etc.	1,128	(39.7%)	471	(16.6%)	1,240	(43.7%)
Public Assistance	436	(99.2%)			4	(0.8%)
Other Income	928	(100.0%)				
Asset Income	439	(100.0%)				
Child Care Expense	166	(100.0%)				
Disability Expense	10	(100.0%)				
Medical Expense	1,030	(80.3%)	179	(13.9%)	75	(5.8%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 1g. Verification of QC Rent Components
UIV (Upfront Income Verification)

Rent Component	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	1,471	(94.9%)	21	(1.3%)	58	(3.7%)
Pension, Etc.	2,804	(98.8%)	31	(1.1%)	4	(0.1%)
Public Assistance	241	(65.4%)			128	(34.6%)
Other Income	723	(91.1%)	14	(1.7%)	56	(7.1%)
Asset Income					13	(100.0%)
Medical Expense					15	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
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	139	(13.1%)	(22.1%)	799	(75.2%)	(23.3%)	124	(11.7%)	(20.8%)	1,062	(100.0%)	(22.8%)
	Section 8	326	(14.8%)	(51.8%)	1,560	(70.6%)	(45.5%)	323	(14.6%)	(54.0%)	2,209	(100.0%)	(47.5%)
	Total	465	(14.2%)	(73.9%)	2,359	(72.1%)	(68.8%)	447	(13.7%)	(74.9%)	3,271	(100.0%)	(70.3%)
Owner-administered	Owner-administered	165	(11.9%)	(26.2%)	1,068	(77.2%)	(31.2%)	150	(10.9%)	(25.1%)	1,382	(100.0%)	(29.7%)
	Total	165	(11.9%)	(26.2%)	1,068	(77.2%)	(31.2%)	150	(10.9%)	(25.1%)	1,382	(100.0%)	(29.7%)
Total		630	(13.5%)	(100.0%)	3,427	(73.6%)	(100.0%)	597	(12.8%)	(100.0%)	4,653	(100.0%)	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
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	198	(18.6%)	(22.4%)	671	(63.2%)	(23.5%)	193	(18.2%)	(21.1%)	1,062	(100.0%)	(22.8%)
	Section 8	445	(20.1%)	(50.4%)	1,279	(57.9%)	(44.8%)	485	(22.0%)	(53.1%)	2,209	(100.0%)	(47.5%)
	Total	642	(19.6%)	(72.8%)	1,950	(59.6%)	(68.3%)	678	(20.7%)	(74.2%)	3,271	(100.0%)	(70.3%)
Owner-administered	Owner-administered	241	(17.4%)	(27.3%)	905	(65.5%)	(31.7%)	236	(17.1%)	(25.8%)	1,382	(100.0%)	(29.7%)
	Total	241	(17.4%)	(27.3%)	905	(65.5%)	(31.7%)	236	(17.1%)	(25.8%)	1,382	(100.0%)	(29.7%)
Total		883	(19.0%)	(100.0%)	2,856	(61.4%)	(100.0%)	915	(19.7%)	(100.0%)	4,653	(100.0%)	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
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	1,062	(22.8%)	292,018	275.05	1,062	(22.8%)	293,178	276.14	1,062	(22.8%)	15,274	14.39
	Section 8	2,209	(47.5%)	586,239	265.35	2,209	(47.5%)	600,714	271.90	2,209	(47.5%)	33,398	15.12
	Total	3,271	(70.3%)	878,258	268.50	3,271	(70.3%)	893,893	273.28	3,271	(70.3%)	48,672	14.88
Owner-administered	Owner-administered	1,382	(29.7%)	340,759	246.49	1,382	(29.7%)	345,912	250.22	1,382	(29.7%)	13,646	9.87
	Total	1,382	(29.7%)	340,759	246.49	1,382	(29.7%)	345,912	250.22	1,382	(29.7%)	13,646	9.87
Total		4,653	(100.0%)	1,219,016	261.96	4,653	(100.0%)	1,239,804	266.43	4,653	(100.0%)	62,318	13.39

2016.08.17 [Weighted]

HUDQC FY 2015
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	139	(22.1%)	8,238	59.36	124	(20.8%)	7,035	56.57	1,062	(22.8%)	293,178	276.14
	Section 8	326	(51.8%)	23,954	73.44	323	(54.0%)	9,444	29.26	2,209	(47.5%)	600,714	271.90
	Total	465	(73.9%)	32,193	69.24	447	(74.9%)	16,479	36.86	3,271	(70.3%)	893,893	273.28
Owner-administered	Owner-administered	165	(26.2%)	9,419	57.21	150	(25.1%)	4,228	28.18	1,382	(29.7%)	345,912	250.22
	Total	165	(26.2%)	9,419	57.21	150	(25.1%)	4,228	28.18	1,382	(29.7%)	345,912	250.22
Total		630	(100.0%)	41,612	66.10	597	(100.0%)	20,707	34.68	4,653	(100.0%)	1,239,804	266.43

2016.08.17 [Weighted]

HUDQC FY 2015
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	198	(22.4%)	8,387	42.43	193	(21.1%)	7,179	37.20	1,062	(22.8%)	293,178	276.14
	Section 8	445	(50.4%)	24,255	54.56	485	(53.1%)	9,780	20.15	2,209	(47.5%)	600,714	271.90
	Total	642	(72.8%)	32,642	50.83	678	(74.2%)	16,959	25.00	3,271	(70.3%)	893,893	273.28
Owner-administered	Owner-administered	241	(27.3%)	9,605	39.91	236	(25.8%)	4,452	18.84	1,382	(29.7%)	345,912	250.22
	Total	241	(27.3%)	9,605	39.91	236	(25.8%)	4,452	18.84	1,382	(29.7%)	345,912	250.22
Total		883	(100.0%)	42,248	47.85	915	(100.0%)	21,411	23.40	4,653	(100.0%)	1,239,804	266.43

2016.08.17 [Weighted]

HUDQC FY 2015
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	1,062	(22.8%)	15,274	14.39	1,062	(22.8%)	-1,203	-1.13	1,062	(22.8%)	293,178	276.14
	Section 8	2,209	(47.5%)	33,398	15.12	2,209	(47.5%)	-14,511	-6.57	2,209	(47.5%)	600,714	271.90
	Total	3,271	(70.3%)	48,672	14.88	3,271	(70.3%)	-15,713	-4.80	3,271	(70.3%)	893,893	273.28
Owner-administered	Owner-administered	1,382	(29.7%)	13,646	9.87	1,382	(29.7%)	-5,191	-3.76	1,382	(29.7%)	345,912	250.22
	Total	1,382	(29.7%)	13,646	9.87	1,382	(29.7%)	-5,191	-3.76	1,382	(29.7%)	345,912	250.22
Total		4,653	(100.0%)	62,318	13.39	4,653	(100.0%)	-20,905	-4.49	4,653	(100.0%)	1,239,804	266.43

2016.08.17 [Weighted]

HUDQC FY 2015
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	1,062	(22.8%)	15,566	14.66	1,062	(22.8%)	-1,209	-1.14	1,062	(22.8%)	293,178	276.14
	Section 8	2,209	(47.5%)	34,035	15.41	2,209	(47.5%)	-14,475	-6.55	2,209	(47.5%)	600,714	271.90
	Total	3,271	(70.3%)	49,601	15.16	3,271	(70.3%)	-15,684	-4.79	3,271	(70.3%)	893,893	273.28
Owner-administered	Owner-administered	1,382	(29.7%)	14,057	10.17	1,382	(29.7%)	-5,153	-3.73	1,382	(29.7%)	345,912	250.22
	Total	1,382	(29.7%)	14,057	10.17	1,382	(29.7%)	-5,153	-3.73	1,382	(29.7%)	345,912	250.22
Total		4,653	(100.0%)	63,659	13.68	4,653	(100.0%)	-20,837	-4.48	4,653	(100.0%)	1,239,804	266.43

2016.08.17 [Weighted]

HUDQC FY 2015
Table 6. Certifications and Recertifications by Administration Type

Program Type		Certifications			Recertifications/Non-Overdue			Recertifications/Overdue			Total		
		# of Cases (in 1,000)	Row % of Cases	Col. % of Cases	# of Cases (in 1,000)	Row % of Cases	Col. % of Cases	# of Cases (in 1,000)	Row % of Cases	Col. % of Cases	# of Cases (in 1,000)	Row % of Cases	Col. % of Cases
PHA-administered	Public Housing	136	(12.8%)	(22.9%)	895	(84.3%)	(22.4%)	30	(2.9%)	(42.3%)	1,062	(100.0%)	(22.8%)
	Section 8	262	(11.9%)	(44.1%)	1,909	(86.4%)	(47.9%)	38	(1.7%)	(53.0%)	2,209	(100.0%)	(47.5%)
	Total	398	(12.2%)	(67.1%)	2,805	(85.7%)	(70.3%)	68	(2.1%)	(95.3%)	3,271	(100.0%)	(70.3%)
Owner-administered	Owner-administered	196	(14.1%)	(32.9%)	1,184	(85.6%)	(29.7%)	3	(.2%)	(4.7%)	1,382	(100.0%)	(29.7%)
	Total	196	(14.1%)	(32.9%)	1,184	(85.6%)	(29.7%)	3	(.2%)	(4.7%)	1,382	(100.0%)	(29.7%)
Total		594	(12.8%)	(100.0%)	3,988	(85.7%)	(100.0%)	72	(1.5%)	(100.0%)	4,653	(100.0%)	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 7. Percent of Newly Certified Households Meeting Certification Criteria

Certification Criteria	Met Criterion		Did Not Meet Criterion	
	# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households
Citizenship	594	(100.0%)		
Social Security Number	587	(98.9%)	7	(1.1%)
Consent Form	573	(96.6%)	20	(3.4%)
Low and Very Low Income	594	(100.0%)		
Meets All Eligibility Criteria	568	(95.7%)	25	(4.3%)

2016.08.17 [Weighted]

HUDQC FY 2015

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

Certification Criteria		Met Criterion		Did Not Meet Criterion	
		# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households
Public Housing	Citizenship	136	(100.0%)		
	Social Security Number	135	(98.9%)	1	(1.1%)
	Consent Form	126	(92.7%)	10	(7.3%)
	Low and Very Low Income	136	(100.0%)		
	Meets All Eligibility Criteria	126	(92.7%)	10	(7.3%)
PHA-administered Section 8	Citizenship	262	(100.0%)		
	Social Security Number	262	(100.0%)		
	Consent Form	253	(96.7%)	9	(3.3%)
	Low and Very Low Income	262	(100.0%)		
	Meets All Eligibility Criteria	253	(96.7%)	9	(3.3%)
Owner-administered	Citizenship	196	(100.0%)		
	Social Security Number	190	(97.4%)	5	(2.6%)
	Consent Form	194	(99.2%)	2	(.8%)
	Low and Very Low Income	196	(100.0%)		
	Meets All Eligibility Criteria	189	(96.6%)	7	(3.4%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 8. Dollar Error Amount by Payment Type and Case Type

Case Type		Underpayment (Monthly)				Overpayment (Monthly)				QC Rent (Monthly)			
		# of Cases (in 1,000s)	Col. % of Cases	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount	# of Cases (in 1,000s)	Col. % of Cases	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount	# of Cases (in 1,000s)	Col. % of Cases	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount
Certification	Total	83	(13.2%)	5,182	62.28	82	(13.7%)	2,327	28.42	594	(12.8%)	140,958	237.50
Recertification	Non-Overdue	520	(82.6%)	34,514	66.34	493	(82.5%)	14,800	30.05	3,988	(85.7%)	1,077,248	270.11
	Overdue	26	(4.1%)	1,915	73.46	23	(3.8%)	3,580	157.71	72	(1.5%)	21,598	301.20
	Total	546	(86.8%)	36,429	66.68	515	(86.3%)	18,380	35.68	4,060	(87.2%)	1,098,846	270.66
Total		630	(100.0%)	41,612	66.10	597	(100.0%)	20,707	34.68	4,653	(100.0%)	1,239,804	266.43

2016.08.17 [Weighted]

HUDQC FY 2015
Table 8(S). Dollar Error Amount by Payment Type and Case Type
(Proper Payment Based on Exact Match of Actual and QC Rent)

Case Type		Underpayment (Monthly)				Overpayment (Monthly)				QC Rent (Monthly)			
		# of Cases (in 1,000s)	Col. % of Cases	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount	# of Cases (in 1,000s)	Col. % of Cases	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount	# of Cases (in 1,000s)	Col. % of Cases	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount
Certification	Total	115	(13.0%)	5,251	45.86	121	(13.2%)	2,417	20.00	594	(12.8%)	140,958	237.50
Recertification	Non-Overdue	733	(83.0%)	35,051	47.81	770	(84.2%)	15,413	20.02	3,988	(85.7%)	1,077,248	270.11
	Overdue	35	(4.0%)	1,946	55.29	24	(2.6%)	3,582	148.82	72	(1.5%)	21,598	301.20
	Total	768	(87.0%)	36,997	48.15	794	(86.8%)	18,994	23.92	4,060	(87.2%)	1,098,846	270.66
Total		883	(100.0%)	42,248	47.85	915	(100.0%)	21,411	23.40	4,653	(100.0%)	1,239,804	266.43

2016.08.17 [Weighted]

HUDQC FY 2015

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

Rent Component	# of Households (in 1,000s)	Col. % of Households	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount
Earned Income	408	(33.3%)	1,575,799	3,860
Pension, Etc.	188	(15.4%)	484,639	2,572
Public Assistance	50	(4.0%)	105,865	2,133
Other Income	158	(12.9%)	387,683	2,453
Asset Income	30	(2.4%)	17,865	596
Dependent Allowance	57	(4.6%)	29,620	522
Elderly Household Allowance	69	(5.6%)	27,457	400
Child Care Allowance	24	(2.0%)	51,653	2,148
Disability Allowance				
Medical Allowance	191	(15.6%)	173,009	905
No Error	52	(4.2%)	0	0
Total	1,227	(100.0%)	2,853,591	2,326

2016.08.17 [Weighted]

HUDQC FY 2015

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

Program Type		Total Dollar In Error				Largest Dollar Error			
		# of Cases (in 1,000s)	Col. % of Cases	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount	# of Cases (in 1,000s)	Col. % of Cases	Sum Dollar Amount (in 1,000s)	Avg. Dollar Amount
PHA-administered	Public Housing	263	(21.5%)	895,080	3,401.41	263	(21.5%)	745,524	2,833.08
	Section 8	649	(52.9%)	1,674,109	2,580.06	649	(52.9%)	1,472,832	2,269.86
	Total	912	(74.4%)	2,569,189	2,817.05	912	(74.4%)	2,218,356	2,432.37
Owner-administered	Owner-administered	315	(25.7%)	763,830	2,427.56	315	(25.7%)	635,235	2,018.87
	Total	315	(25.7%)	763,830	2,427.56	315	(25.7%)	635,235	2,018.87
Total		1,227	(100.0%)	3,333,019	2,717.15	1,227	(100.0%)	2,853,591	2,326.31

2016.08.17 [Weighted]

HUDQC FY 2015

Table 11. QC Rent Components by Payment Type and Administration Type

Rent Component		PHA-administered			Owner-administered			Total		
		# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases
Underpayment	Earned Income	235	(7.2%)	(81.6%)	53	(3.9%)	(18.4%)	289	(6.2%)	(100.0%)
	Pension, Etc.	118	(3.6%)	(73.9%)	42	(3.0%)	(26.3%)	160	(3.4%)	(100.0%)
	Public Assistance	26	(.8%)	(100.0%)				26	(.6%)	(100.0%)
	Other Income	109	(3.3%)	(82.6%)	23	(1.7%)	(17.4%)	131	(2.8%)	(100.0%)
	Asset Income	37	(1.1%)	(57.3%)	28	(2.0%)	(42.7%)	65	(1.4%)	(100.0%)
	Dependent Allowance	34	(1.0%)	(88.0%)	5	(.3%)	(12.0%)	38	(.8%)	(100.0%)
	Elderly Household Allowance	16	(.5%)	(90.2%)	2	(.1%)	(9.8%)	18	(.4%)	(100.0%)
	Child Care Allowance	16	(.5%)	(76.6%)	5	(.4%)	(23.4%)	21	(.5%)	(100.0%)
	Disability Allowance									
	Medical Allowance	66	(2.0%)	(48.3%)	71	(5.1%)	(51.7%)	137	(3.0%)	(100.0%)
	No Error	17	(.5%)	(70.9%)	7	(.5%)	(29.1%)	24	(.5%)	(100.0%)
Proper Payment	Earned Income	228	(7.0%)	(85.9%)	38	(2.7%)	(14.1%)	266	(5.7%)	(100.0%)
	Pension, Etc.	285	(8.7%)	(63.7%)	162	(11.7%)	(36.3%)	447	(9.6%)	(100.0%)
	Public Assistance	58	(1.8%)	(63.8%)	33	(2.4%)	(36.2%)	91	(1.9%)	(100.0%)
	Other Income	171	(5.2%)	(79.5%)	44	(3.2%)	(20.5%)	215	(4.6%)	(100.0%)
	Asset Income	88	(2.7%)	(61.3%)	56	(4.0%)	(38.7%)	143	(3.1%)	(100.0%)
	Dependent Allowance	22	(.7%)	(80.6%)	5	(.4%)	(19.4%)	28	(.6%)	(100.0%)
	Elderly Household Allowance	16	(.5%)	(83.5%)	3	(.2%)	(16.5%)	20	(.4%)	(100.0%)
	Child Care Allowance	13	(.4%)	(100.0%)				13	(.3%)	(100.0%)
	Disability Allowance									
	Medical Allowance	156	(4.8%)	(53.1%)	138	(10.0%)	(46.9%)	294	(6.3%)	(100.0%)
	No Error	1,617	(49.4%)	(69.0%)	725	(52.5%)	(31.0%)	2,342	(50.3%)	(100.0%)

HUDQC FY 2015
Table 11. QC Rent Components by Payment Type and Administration Type (continued)

Rent Component		PHA-administered			Owner-administered			Total		
		# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases
Overpayment	Earned Income	154	(4.7%)	(83.6%)	30	(2.2%)	(16.4%)	184	(4.0%)	(100.0%)
	Pension, Etc.	108	(3.3%)	(72.9%)	40	(2.9%)	(27.1%)	149	(3.2%)	(100.0%)
	Public Assistance	34	(1.0%)	(79.7%)	9	(.6%)	(20.3%)	42	(.9%)	(100.0%)
	Other Income	102	(3.1%)	(83.3%)	20	(1.5%)	(16.7%)	123	(2.6%)	(100.0%)
	Asset Income	28	(.9%)	(59.0%)	20	(1.4%)	(41.0%)	48	(1.0%)	(100.0%)
	Dependent Allowance	34	(1.0%)	(70.7%)	14	(1.0%)	(29.3%)	48	(1.0%)	(100.0%)
	Elderly Household Allowance	46	(1.4%)	(56.3%)	36	(2.6%)	(43.7%)	82	(1.8%)	(100.0%)
	Child Care Allowance	22	(.7%)	(100.0%)				22	(.5%)	(100.0%)
	Disability Allowance									
	Medical Allowance	85	(2.6%)	(58.1%)	62	(4.5%)	(41.9%)	147	(3.2%)	(100.0%)
	No Error	27	(.8%)	(100.0%)				27	(.6%)	(100.0%)
Total with Rent Error Calculation		3,271	(100.0%)	(70.3%)	1,382	(100.0%)	(29.7%)	4,653	(100.0%)	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 12a. Elderly/Disabled Allowances

Allowances	Non-Elderly/Disabled Household			Elderly/Disabled Household			Total		
	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases
No Allowance	1,946	(99.2%)	(100.0%)				1,946	(41.8%)	(100.0%)
Incorrect Allowance	16	(.8%)	(13.2%)	104	(3.9%)	(86.8%)	120	(2.6%)	(100.0%)
Correct Allowance				2,588	(96.1%)	(100.0%)	2,588	(55.6%)	(100.0%)
Total	1,961	(100.0%)	(42.1%)	2,692	(100.0%)	(57.9%)	4,653	(100.0%)	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 12b. Dependent Allowances

Allowances	Households Without Dependent(s)			Households With Dependent(s)			Total		
	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases	# of Cases (in 1,000s)	Col. % of Cases	Row % of Cases
No Allowance	2,781	(99.8%)	(100.0%)				2,781	(59.8%)	(100.0%)
Incorrect Allowance	4	(.2%)	(3.8%)	110	(5.9%)	(96.2%)	114	(2.5%)	(100.0%)
Correct Allowance				1,758	(94.1%)	(100.0%)	1,758	(37.8%)	(100.0%)
Total	2,785	(100.0%)	(59.9%)	1,868	(100.0%)	(40.1%)	4,653	(100.0%)	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 13. Calculation Errors on Form HUD-50058/50059

Items	Form HUD-50058		Form HUD-50059		Total	
	# of Errors	# of Households (in 1,000s)	# of Errors	# of Households (in 1,000s)	# of Errors	# of Households (in 1,000s)
Household Composition	173	171		0	173	171
Net Family Assets and Income	378	310	161	73	540	383
Allowances and Adjusted Income	1,542	1,380		0	1,542	1,380
Family Rent and Subsidy Information	545	302		0	545	302

2016.08.17 [Weighted]

HUDQC FY 2015
Table 14. Consistency Errors on Form HUD-50058/50059

Items	Form HUD-50058		Form HUD-50059		Total	
	# of Errors	# of Households (in 1,000s)	# of Errors	# of Households (in 1,000s)	# of Errors	# of Households (in 1,000s)
General Information	46	46	203	159	250	205
Household Composition	313	139	344	316	657	454
Net Family Assets and Income	111	58		0	111	58
Allowances and Adjusted Income	323	307	7	7	330	314
Family Rent and Subsidy Information	69	69	5	5	74	74

2016.08.17 [Weighted]

HUDQC FY 2015
Table 15a. Verification of Form HUD-50058/50059 Rent Components
Third-Party Verbal or in Writing, Documentation, or EIV

Rent Component	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	215	(13.7%)	410	(26.1%)	949	(60.3%)	1,575	(100.0%)
Pension, Etc.	143	(5.0%)	368	(13.0%)	2,328	(82.0%)	2,839	(100.0%)
Public Assistance	93	(21.5%)	60	(14.0%)	278	(64.5%)	432	(100.0%)
Other Income	323	(35.0%)	191	(20.7%)	410	(44.4%)	924	(100.0%)
Asset Income	41	(10.3%)	42	(10.5%)	316	(79.2%)	399	(100.0%)
Child Care Expense	3	(1.8%)	37	(24.8%)	110	(73.4%)	151	(100.0%)
Disability Expense			9	(80.3%)	2	(19.7%)	12	(100.0%)
Medical Expense	83	(8.8%)	213	(22.7%)	641	(68.4%)	937	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 15b. Verification of Form HUD-50058/50059 Rent Components
Third Party in Writing

Rent Component	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	1,253	(79.5%)	74	(4.7%)	248	(15.8%)	1,575	(100.0%)
Pension, Etc.	2,815	(99.2%)	4	(.2%)	19	(.7%)	2,839	(100.0%)
Public Assistance	362	(83.9%)	10	(2.2%)	60	(13.9%)	432	(100.0%)
Other Income	790	(85.5%)	31	(3.3%)	103	(11.2%)	924	(100.0%)
Asset Income	257	(64.5%)	14	(3.5%)	128	(32.1%)	399	(100.0%)
Child Care Expense	75	(49.8%)	14	(9.6%)	61	(40.6%)	151	(100.0%)
Disability Expense	5	(47.6%)	4	(32.7%)	2	(19.7%)	12	(100.0%)
Medical Expense	801	(85.5%)	20	(2.2%)	116	(12.3%)	937	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 15c. Verification of Form HUD-50058/50059 Rent Components
Third Party in Writing or EIV/UIV

Rent Component	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	1,191	(75.6%)	101	(6.4%)	283	(18.0%)	1,575	(100.0%)
Pension, Etc.	1,317	(46.4%)	196	(6.9%)	1,325	(46.7%)	2,839	(100.0%)
Public Assistance	230	(53.2%)	34	(7.9%)	168	(38.9%)	432	(100.0%)
Other Income	724	(78.4%)	53	(5.8%)	146	(15.8%)	924	(100.0%)
Asset Income	256	(64.1%)	14	(3.5%)	129	(32.4%)	399	(100.0%)
Child Care Expense	75	(49.8%)	14	(9.6%)	61	(40.6%)	151	(100.0%)
Disability Expense	5	(47.6%)	4	(32.7%)	2	(19.7%)	12	(100.0%)
Medical Expense	642	(68.5%)	54	(5.8%)	241	(25.7%)	937	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 15d. Verification of Form HUD-50058/50059 Rent Components
Third Party Verbal

Rent Component	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	1,550	(98.5%)	3	(.2%)	22	(1.4%)	1,575	(100.0%)
Pension, Etc.	2,834	(99.8%)			4	(.2%)	2,839	(100.0%)
Public Assistance	430	(99.6%)			2	(.4%)	432	(100.0%)
Other Income	905	(98.0%)			18	(2.0%)	924	(100.0%)
Asset Income	399	(100.0%)					399	(100.0%)
Child Care Expense	149	(98.8%)			2	(1.2%)	151	(100.0%)
Disability Expense	12	(100.0%)					12	(100.0%)
Medical Expense	935	(99.8%)			2	(.2%)	937	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 15e. Verification of Form HUD-50058/50059 Rent Components
Documentation

Rent Component	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	669	(42.5%)	282	(17.9%)	624	(39.6%)	1,575	(100.0%)
Pension, Etc.	1,984	(69.9%)	92	(3.2%)	763	(26.9%)	2,839	(100.0%)
Public Assistance	297	(68.8%)	26	(6.1%)	108	(25.1%)	432	(100.0%)
Other Income	549	(59.5%)	132	(14.3%)	243	(26.3%)	924	(100.0%)
Asset Income	253	(63.3%)	13	(3.2%)	133	(33.4%)	399	(100.0%)
Child Care Expense	80	(53.2%)	23	(15.3%)	48	(31.6%)	151	(100.0%)
Disability Expense	6	(52.4%)	5	(47.6%)			12	(100.0%)
Medical Expense	568	(60.6%)	99	(10.6%)	270	(28.8%)	937	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 15f. Verification of Form HUD-50058/50059 Rent Components
EIV (Enterprise Income Verification)

Rent Component	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	1,575	(100.0%)					1,575	(100.0%)
Pension, Etc.	1,455	(51.3%)	147	(5.2%)	1,237	(43.6%)	2,839	(100.0%)
Public Assistance	428	(99.1%)	1	(.3%)	2	(.5%)	432	(100.0%)
Other Income	924	(100.0%)					924	(100.0%)
Asset Income	399	(100.0%)					399	(100.0%)
Child Care Expense	151	(100.0%)					151	(100.0%)
Disability Expense	12	(100.0%)					12	(100.0%)
Medical Expense	826	(88.1%)	25	(2.6%)	87	(9.3%)	937	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 15g. Verification of Form HUD-50058/50059 Rent Components
UIV (Upfront Income Verification)

Rent Component	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Earned Income	1,513	(96.1%)	27	(1.7%)	35	(2.2%)	1,575	(100.0%)
Pension, Etc.	2,835	(99.9%)	4	(.1%)			2,839	(100.0%)
Public Assistance	303	(70.1%)	23	(5.4%)	106	(24.5%)	432	(100.0%)
Other Income	863	(93.4%)	23	(2.5%)	38	(4.1%)	924	(100.0%)
Asset Income	388	(97.3%)	4	(.9%)	7	(1.8%)	399	(100.0%)
Child Care Expense	151	(100.0%)					151	(100.0%)
Disability Expense	12	(100.0%)					12	(100.0%)
Medical Expense	922	(98.4%)	4	(.4%)	12	(1.2%)	937	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 15h. Verification of Form HUD-50058/50059 Rent Components
Third-Party Verbal or in Writing, Documentation, or EIV

Rent Component by Program Type		No Verification		Verification				Total	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Public Housing	Earned Income	83	(21.7%)	104	(27.2%)	195	(51.1%)	381	(100.0%)
	Pension, Etc.	37	(6.2%)	98	(16.7%)	454	(77.1%)	589	(100.0%)
	Public Assistance	24	(20.6%)	19	(16.8%)	72	(62.6%)	115	(100.0%)
	Other Income	86	(41.3%)	30	(14.6%)	91	(44.0%)	207	(100.0%)
	Asset Income	8	(11.7%)	14	(20.0%)	48	(68.3%)	70	(100.0%)
	Child Care Expense			11	(30.7%)	25	(69.3%)	36	(100.0%)
	Disability Expense			2	(100.0%)			2	(100.0%)
	Medical Expense	29	(15.1%)	48	(24.6%)	117	(60.3%)	193	(100.0%)
PHA-administered Section 8	Earned Income	110	(12.3%)	226	(25.3%)	557	(62.3%)	894	(100.0%)
	Pension, Etc.	66	(5.3%)	167	(13.5%)	1,001	(81.2%)	1,233	(100.0%)
	Public Assistance	35	(15.6%)	34	(15.1%)	155	(69.3%)	224	(100.0%)
	Other Income	156	(29.5%)	134	(25.3%)	238	(45.2%)	528	(100.0%)
	Asset Income	17	(12.4%)	13	(9.9%)	104	(77.7%)	134	(100.0%)
	Child Care Expense	3	(3.3%)	23	(28.4%)	55	(68.3%)	81	(100.0%)
	Disability Expense			4	(62.5%)	2	(37.5%)	6	(100.0%)
	Medical Expense	23	(8.4%)	80	(29.8%)	165	(61.8%)	268	(100.0%)
Owner-administered	Earned Income	22	(7.4%)	80	(26.7%)	197	(65.9%)	300	(100.0%)
	Pension, Etc.	40	(4.0%)	103	(10.1%)	873	(85.9%)	1,017	(100.0%)
	Public Assistance	34	(37.2%)	7	(7.8%)	51	(55.0%)	92	(100.0%)
	Other Income	81	(43.2%)	27	(14.3%)	80	(42.6%)	189	(100.0%)
	Asset Income	16	(8.4%)	14	(7.4%)	164	(84.2%)	194	(100.0%)
	Child Care Expense			3	(10.2%)	30	(89.8%)	34	(100.0%)
	Disability Expense			4	(100.0%)			4	(100.0%)
	Medical Expense	31	(6.6%)	86	(18.0%)	359	(75.5%)	476	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 15i. Verification of Form HUD-50058/50059 Rent Components
Third Party in Writing

Rent Component by Program Type		Verification							
		No Verification		Dollar Amount Not Matched		Dollar Amount Matched		Total	
		# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Public Housing	Earned Income	264	(69.3%)	32	(8.4%)	85	(22.2%)	381	(100.0%)
	Pension, Etc.	589	(100.0%)					589	(100.0%)
	Public Assistance	93	(80.5%)	4	(3.5%)	18	(16.0%)	115	(100.0%)
	Other Income	172	(83.0%)	11	(5.4%)	24	(11.7%)	207	(100.0%)
	Asset Income	51	(72.3%)	5	(6.7%)	15	(21.0%)	70	(100.0%)
	Child Care Expense	14	(37.9%)	5	(13.3%)	17	(48.8%)	36	(100.0%)
	Disability Expense	2	(100.0%)					2	(100.0%)
	Medical Expense	176	(91.1%)	4	(1.9%)	14	(7.0%)	193	(100.0%)
PHA-administered Section 8	Earned Income	797	(89.1%)	27	(3.0%)	70	(7.8%)	894	(100.0%)
	Pension, Etc.	1,222	(99.1%)	3	(.2%)	9	(.7%)	1,233	(100.0%)
	Public Assistance	194	(86.3%)	6	(2.5%)	25	(11.2%)	224	(100.0%)
	Other Income	483	(91.5%)	12	(2.3%)	33	(6.2%)	528	(100.0%)
	Asset Income	119	(88.4%)	7	(5.2%)	9	(6.4%)	134	(100.0%)
	Child Care Expense	58	(71.5%)	8	(9.8%)	15	(18.6%)	81	(100.0%)
	Disability Expense	4	(62.5%)			2	(37.5%)	6	(100.0%)
	Medical Expense	258	(96.5%)			9	(3.5%)	268	(100.0%)
Owner-administered	Earned Income	192	(63.9%)	15	(4.9%)	93	(31.2%)	300	(100.0%)
	Pension, Etc.	1,004	(98.8%)	2	(.2%)	11	(1.1%)	1,017	(100.0%)
	Public Assistance	76	(82.1%)			16	(17.9%)	92	(100.0%)
	Other Income	135	(71.4%)	7	(3.9%)	47	(24.7%)	189	(100.0%)
	Asset Income	88	(45.1%)	2	(1.1%)	105	(53.8%)	194	(100.0%)
	Child Care Expense	3	(10.3%)	2	(5.0%)	29	(84.7%)	34	(100.0%)
	Disability Expense			4	(100.0%)			4	(100.0%)
	Medical Expense	366	(77.0%)	17	(3.5%)	93	(19.5%)	476	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 15j. Verification of Form HUD-50058/50059 Rent Components
Third Party in Writing or EIV/UIV

Rent Component by Program Type		No Verification		Verification				Total	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Public Housing	Earned Income	258	(67.8%)	35	(9.2%)	87	(23.0%)	381	(100.0%)
	Pension, Etc.	271	(46.0%)	58	(9.9%)	260	(44.1%)	589	(100.0%)
	Public Assistance	42	(36.7%)	16	(14.1%)	57	(49.2%)	115	(100.0%)
	Other Income	158	(76.4%)	15	(7.1%)	34	(16.6%)	207	(100.0%)
	Asset Income	50	(70.6%)	5	(6.7%)	16	(22.8%)	70	(100.0%)
	Child Care Expense	14	(37.9%)	5	(13.3%)	17	(48.8%)	36	(100.0%)
	Disability Expense	2	(100.0%)					2	(100.0%)
	Medical Expense	121	(62.6%)	16	(8.3%)	56	(29.2%)	193	(100.0%)
PHA-administered Section 8	Earned Income	758	(84.8%)	44	(4.9%)	92	(10.3%)	894	(100.0%)
	Pension, Etc.	560	(45.4%)	83	(6.7%)	590	(47.9%)	1,233	(100.0%)
	Public Assistance	126	(56.3%)	16	(7.2%)	82	(36.6%)	224	(100.0%)
	Other Income	441	(83.6%)	28	(5.4%)	58	(11.0%)	528	(100.0%)
	Asset Income	119	(88.4%)	7	(5.2%)	9	(6.4%)	134	(100.0%)
	Child Care Expense	58	(71.5%)	8	(9.8%)	15	(18.6%)	81	(100.0%)
	Disability Expense	4	(62.5%)			2	(37.5%)	6	(100.0%)
	Medical Expense	204	(76.2%)	14	(5.1%)	50	(18.7%)	268	(100.0%)
Owner-administered	Earned Income	175	(58.2%)	22	(7.2%)	104	(34.5%)	300	(100.0%)
	Pension, Etc.	486	(47.8%)	55	(5.4%)	475	(46.8%)	1,017	(100.0%)
	Public Assistance	61	(66.2%)	2	(1.9%)	29	(31.9%)	92	(100.0%)
	Other Income	125	(66.1%)	10	(5.5%)	54	(28.4%)	189	(100.0%)
	Asset Income	88	(45.1%)	2	(1.1%)	105	(53.8%)	194	(100.0%)
	Child Care Expense	3	(10.3%)	2	(5.0%)	29	(84.7%)	34	(100.0%)
	Disability Expense			4	(100.0%)			4	(100.0%)
	Medical Expense	317	(66.6%)	24	(5.1%)	135	(28.3%)	476	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 15k. Verification of Form HUD-50058/50059 Rent Components
Third-Party Verbal

Rent Component by Program Type		No Verification		Verification				Total	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Public Housing	Earned Income	369	(96.8%)	3	(.7%)	10	(2.5%)	381	(100.0%)
	Pension, Etc.	589	(100.0%)					589	(100.0%)
	Public Assistance	115	(100.0%)					115	(100.0%)
	Other Income	202	(97.5%)			5	(2.5%)	207	(100.0%)
	Asset Income	70	(100.0%)					70	(100.0%)
	Child Care Expense	34	(94.9%)			2	(5.1%)	36	(100.0%)
	Disability Expense	2	(100.0%)					2	(100.0%)
	Medical Expense	193	(100.0%)					193	(100.0%)
PHA-administered Section 8	Earned Income	889	(99.4%)			5	(.6%)	894	(100.0%)
	Pension, Etc.	1,231	(99.8%)			2	(.2%)	1,233	(100.0%)
	Public Assistance	224	(100.0%)					224	(100.0%)
	Other Income	515	(97.5%)			13	(2.5%)	528	(100.0%)
	Asset Income	134	(100.0%)					134	(100.0%)
	Child Care Expense	81	(100.0%)					81	(100.0%)
	Disability Expense	6	(100.0%)					6	(100.0%)
	Medical Expense	268	(100.0%)					268	(100.0%)
Owner-administered	Earned Income	293	(97.7%)			7	(2.3%)	300	(100.0%)
	Pension, Etc.	1,015	(99.8%)			2	(.2%)	1,017	(100.0%)
	Public Assistance	90	(98.1%)			2	(1.9%)	92	(100.0%)
	Other Income	189	(100.0%)					189	(100.0%)
	Asset Income	194	(100.0%)					194	(100.0%)
	Child Care Expense	34	(100.0%)					34	(100.0%)
	Disability Expense	4	(100.0%)					4	(100.0%)
	Medical Expense	475	(99.7%)			2	(.3%)	476	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 15l. Verification of Form HUD-50058/50059 Rent Components Documentation

Rent Component by Program Type		Verification						Total	
		No Verification		Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Public Housing	Earned Income	236	(61.8%)	55	(14.3%)	91	(23.9%)	381	(100.0%)
	Pension, Etc.	417	(70.8%)	22	(3.7%)	150	(25.5%)	589	(100.0%)
	Public Assistance	97	(83.8%)	3	(2.7%)	16	(13.5%)	115	(100.0%)
	Other Income	146	(70.3%)	12	(6.0%)	49	(23.7%)	207	(100.0%)
	Asset Income	40	(57.2%)	5	(7.4%)	25	(35.4%)	70	(100.0%)
	Child Care Expense	24	(67.1%)	6	(17.4%)	6	(15.5%)	36	(100.0%)
	Disability Expense			2	(100.0%)			2	(100.0%)
	Medical Expense	144	(74.7%)	15	(7.6%)	34	(17.7%)	193	(100.0%)
PHA-administered Section 8	Earned Income	270	(30.2%)	172	(19.3%)	452	(50.6%)	894	(100.0%)
	Pension, Etc.	879	(71.3%)	51	(4.1%)	304	(24.6%)	1,233	(100.0%)
	Public Assistance	133	(59.3%)	18	(7.9%)	73	(32.7%)	224	(100.0%)
	Other Income	258	(48.9%)	103	(19.5%)	167	(31.6%)	528	(100.0%)
	Asset Income	44	(32.5%)	6	(4.7%)	84	(62.8%)	134	(100.0%)
	Child Care Expense	26	(31.8%)	15	(18.5%)	40	(49.7%)	81	(100.0%)
	Disability Expense	2	(37.5%)	4	(62.5%)			6	(100.0%)
	Medical Expense	102	(38.0%)	53	(19.8%)	113	(42.1%)	268	(100.0%)
Owner-administered	Earned Income	164	(54.8%)	55	(18.4%)	81	(26.9%)	300	(100.0%)
	Pension, Etc.	689	(67.7%)	19	(1.9%)	309	(30.4%)	1,017	(100.0%)
	Public Assistance	67	(72.9%)	5	(5.9%)	20	(21.2%)	92	(100.0%)
	Other Income	145	(77.0%)	17	(8.8%)	27	(14.2%)	189	(100.0%)
	Asset Income	169	(86.8%)	1	(.7%)	24	(12.5%)	194	(100.0%)
	Child Care Expense	30	(89.7%)	2	(5.2%)	2	(5.1%)	34	(100.0%)
	Disability Expense	4	(100.0%)					4	(100.0%)
	Medical Expense	322	(67.6%)	32	(6.6%)	123	(25.8%)	476	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 15m. Verification of Form HUD-50058/50059 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 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Public Housing	Earned Income	381	(100.0%)					381	(100.0%)
	Pension, Etc.	286	(48.6%)	51	(8.7%)	251	(42.6%)	589	(100.0%)
	Public Assistance	113	(98.0%)			2	(2.0%)	115	(100.0%)
	Other Income	207	(100.0%)					207	(100.0%)
	Asset Income	70	(100.0%)					70	(100.0%)
	Child Care Expense	36	(100.0%)					36	(100.0%)
	Disability Expense	2	(100.0%)					2	(100.0%)
	Medical Expense	144	(74.3%)	11	(5.9%)	38	(19.9%)	193	(100.0%)
PHA-administered Section 8	Earned Income	894	(100.0%)					894	(100.0%)
	Pension, Etc.	615	(49.9%)	64	(5.2%)	554	(44.9%)	1,233	(100.0%)
	Public Assistance	223	(99.4%)	1	(.6%)			224	(100.0%)
	Other Income	528	(100.0%)					528	(100.0%)
	Asset Income	134	(100.0%)					134	(100.0%)
	Child Care Expense	81	(100.0%)					81	(100.0%)
	Disability Expense	6	(100.0%)					6	(100.0%)
	Medical Expense	224	(83.6%)	11	(4.3%)	33	(12.2%)	268	(100.0%)
Owner-administered	Earned Income	300	(100.0%)					300	(100.0%)
	Pension, Etc.	554	(54.5%)	31	(3.0%)	432	(42.5%)	1,017	(100.0%)
	Public Assistance	92	(100.0%)					92	(100.0%)
	Other Income	189	(100.0%)					189	(100.0%)
	Asset Income	194	(100.0%)					194	(100.0%)
	Child Care Expense	34	(100.0%)					34	(100.0%)
	Disability Expense	4	(100.0%)					4	(100.0%)
	Medical Expense	459	(96.3%)	2	(.4%)	16	(3.3%)	476	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 15n. Verification of Form HUD-50058/50059 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 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases	# of Cases (in 1,000s)	Row % of Cases
Public Housing	Earned Income	375	(98.5%)	3	(.8%)	3	(.8%)	381	(100.0%)
	Pension, Etc.	589	(100.0%)					589	(100.0%)
	Public Assistance	67	(58.2%)	12	(10.6%)	36	(31.2%)	115	(100.0%)
	Other Income	195	(94.1%)	4	(1.7%)	9	(4.2%)	207	(100.0%)
	Asset Income	68	(96.5%)			2	(3.5%)	70	(100.0%)
	Child Care Expense	36	(100.0%)					36	(100.0%)
	Disability Expense	2	(100.0%)					2	(100.0%)
	Medical Expense	192	(99.2%)	1	(.8%)			193	(100.0%)
PHA-administered Section 8	Earned Income	855	(95.7%)	17	(1.9%)	22	(2.5%)	894	(100.0%)
	Pension, Etc.	1,229	(99.7%)	4	(.3%)			1,233	(100.0%)
	Public Assistance	158	(70.5%)	9	(4.1%)	57	(25.4%)	224	(100.0%)
	Other Income	489	(92.6%)	16	(3.1%)	23	(4.3%)	528	(100.0%)
	Asset Income	130	(96.6%)			5	(3.4%)	134	(100.0%)
	Child Care Expense	81	(100.0%)					81	(100.0%)
	Disability Expense	6	(100.0%)					6	(100.0%)
	Medical Expense	260	(97.3%)	2	(.9%)	5	(1.9%)	268	(100.0%)
Owner-administered	Earned Income	283	(94.3%)	7	(2.3%)	10	(3.4%)	300	(100.0%)
	Pension, Etc.	1,017	(100.0%)					1,017	(100.0%)
	Public Assistance	78	(84.1%)	2	(1.9%)	13	(14.0%)	92	(100.0%)
	Other Income	179	(94.7%)	3	(1.6%)	7	(3.7%)	189	(100.0%)
	Asset Income	191	(98.1%)	4	(1.9%)			194	(100.0%)
	Child Care Expense	34	(100.0%)					34	(100.0%)
	Disability Expense	4	(100.0%)					4	(100.0%)
	Medical Expense	470	(98.6%)			7	(1.4%)	476	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015

Table 16a. QC Rent Component for Households With QC Rent Error (>$5)

Rent Component		Form HUD-50058		Form HUD-50059		Total	
		# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households
Earned Income	No Error	2,882	(88.1%)	1,299	(94.0%)	4,181	(89.8%)
	With Error	389	(11.9%)	83	(6.0%)	473	(10.2%)
Pension, Etc.	No Error	3,044	(93.1%)	1,300	(94.1%)	4,345	(93.4%)
	With Error	227	(6.9%)	82	(5.9%)	309	(6.6%)
Public Assistance	No Error	3,211	(98.2%)	1,374	(99.4%)	4,585	(98.5%)
	With Error	60	(1.8%)	9	(.6%)	68	(1.5%)
Other Income	No Error	3,060	(93.6%)	1,339	(96.9%)	4,400	(94.5%)
	With Error	211	(6.4%)	43	(3.1%)	254	(5.5%)
Asset Income	No Error	3,205	(98.0%)	1,335	(96.6%)	4,540	(97.6%)
	With Error	66	(2.0%)	47	(3.4%)	113	(2.4%)
Child Care Expense	No Error	3,231	(98.8%)	1,377	(99.6%)	4,608	(99.0%)
	With Error	40	(1.2%)	5	(.4%)	45	(1.0%)
Disability Expense	No Error	3,271	(100.0%)	1,382	(100.0%)	4,653	(100.0%)
	With Error						
Medical Expense	No Error	3,067	(93.8%)	1,271	(92.0%)	4,338	(93.2%)
	With Error	204	(6.2%)	111	(8.0%)	315	(6.8%)
All Components	No Error	2,446	(74.8%)	1,107	(80.1%)	3,553	(76.3%)
	With Error	825	(25.2%)	276	(20.0%)	1,101	(23.7%)
Total		3,271	(100.0%)	1,382	(100.0%)	4,653	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015

Table 16b. QC Error Households With Missing Verification in Tenant File

Rent Component		Form HUD-50058		Form HUD-50059		Total	
		# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households
Earned Income	Verified	202	(51.9%)	52	(62.5%)	254	(53.8%)
	Not Verified	187	(48.1%)	31	(37.5%)	218	(46.2%)
Pension, Etc.	Verified	157	(69.4%)	59	(71.3%)	216	(69.9%)
	Not Verified	69	(30.6%)	24	(28.7%)	93	(30.1%)
Public Assistance	Verified	20	(33.8%)			20	(29.6%)
	Not Verified	40	(66.2%)	9	(100.0%)	48	(70.4%)
Other Income	Verified	113	(53.5%)	14	(33.0%)	127	(50.0%)
	Not Verified	98	(46.5%)	29	(67.0%)	127	(50.0%)
Asset Income	Verified	28	(43.2%)	30	(63.1%)	58	(51.6%)
	Not Verified	37	(56.8%)	17	(36.9%)	55	(48.4%)
Child Care Expense	Verified	24	(59.0%)	3	(69.0%)	27	(60.1%)
	Not Verified	16	(41.0%)	2	(31.0%)	18	(39.9%)
Disability Expense	Verified						
	Not Verified						
Medical Expense	Verified	44	(21.3%)	40	(36.1%)	84	(26.5%)
	Not Verified	161	(78.7%)	71	(63.9%)	232	(73.5%)

2016.08.17 [Weighted]

HUDQC FY 2015

Table 17a. Administrative Error: Number and Percent of Households, Average Dollars in Error For Non-MTW Households With Recalculated Form HUD-50058/50059 Rent Error by Administrative Error Type

Error Type	Non-MTW Households with Recalculated Form HUD-50058/50059 Rent Error		
	# of Households in Error	% of Households in Error	Average Gross Dollar Error
Transcription Error	144	(49.3%)	11.70
No Transcription Error	148	(50.7%)	14.50
Consistency Error	46	(15.6%)	15.42
No Consistency Error	247	(84.4%)	12.70
Allowances Calculation Error	5	(1.8%)	69.72
No Allowances Calculation Error	287	(98.2%)	12.10
Income Calculation Error	9	(3.2%)	40.06
No Income Calculation Error	283	(96.8%)	12.24
Other Calculation Error	21	(7.0%)	19.66
No Other Calculation Error	272	(93.0%)	12.63
Overdue Recertification	6	(2.1%)	5.37
On-time Recertification	229	(78.1%)	12.13
Certification	58	(19.8%)	17.88
Any Administrative/Procedural Error	166	(56.7%)	10.88
No Administrative/Procedural Error	127	(43.3%)	16.06
Total Households	293	(100.0%)	13.12

Note: Data presented above exclude Moving to Work households.
2016.08.17 [Weighted]

HUDQC FY 2015

Table 17b. Administrative Error: Number and Percent of Households, Average Dollars in Error For Households With QC Rent Error by Administrative Error Type

Error Type	Households with QC Rent Error		
	# of Households in Error	% of Households in Error	Average Gross Dollar Error
Transcription Error	1,002	(81.7%)	50.72
No Transcription Error	224	(18.3%)	51.16
Consistency Error	270	(22.0%)	45.95
No Consistency Error	956	(78.0%)	52.17
Allowances Calculation Error	24	(2.0%)	68.36
No Allowances Calculation Error	1,202	(98.0%)	50.45
Income Calculation Error	39	(3.2%)	93.81
No Income Calculation Error	1,188	(96.8%)	49.39
Other Calculation Error	75	(6.1%)	89.09
No Other Calculation Error	1,151	(93.9%)	48.30
Overdue Recertification	49	(4.0%)	112.67
On-time Recertification	1,013	(82.6%)	48.69
Certification	165	(13.5%)	45.48
Any Administrative/Procedural Error	1,047	(85.4%)	51.18
No Administrative/Procedural Error	179	(14.6%)	48.63
Total Households	1,227	(100.0%)	50.80

2016.08.17 [Weighted]

HUDQC FY 2015

Table 18. Administrative Error: Number and Percent of Households, Average Dollars in Error For All Households by Administrative Error Type

Error Type	Gross QC Rent Error			Net QC Rent Error		
	# of Households	% of Households	Average Dollar Error	# of Households	% of Households	Average Dollar Error
Transcription Error	1,949	(41.9%)	26.08	1,949	(41.9%)	-8.25
No Transcription Error	2,704	(58.1%)	4.25	2,704	(58.1%)	-1.79
Consistency Error	976	(21.0%)	12.73	976	(21.0%)	-4.69
No Consistency Error	3,677	(79.0%)	13.57	3,677	(79.0%)	-4.44
Allowances Calculation Error	52	(1.1%)	31.69	52	(1.1%)	-23.44
No Allowances Calculation Error	4,601	(98.9%)	13.18	4,601	(98.9%)	-4.28
Income Calculation Error	108	(2.3%)	33.89	108	(2.3%)	-15.49
No Income Calculation Error	4,545	(97.7%)	12.90	4,545	(97.7%)	-4.23
Other Calculation Error	171	(3.7%)	39.38	171	(3.7%)	8.57
No Other Calculation Error	4,483	(96.3%)	12.40	4,483	(96.3%)	-4.99
Overdue Recertification	72	(1.5%)	76.64	72	(1.5%)	23.22
On-time Recertification	3,988	(85.7%)	12.36	3,988	(85.7%)	-4.94
Certification	594	(12.8%)	12.65	594	(12.8%)	-4.81
Any Administrative/Procedural Error	2,479	(53.3%)	21.62	2,479	(53.3%)	-7.04
No Administrative/Procedural Error	2,174	(46.7%)	4.01	2,174	(46.7%)	-1.58
Total	4,653	(100.0%)	13.39	4,653	(100.0%)	-4.49

2016.08.17 [Weighted]

HUDQC FY 2015

Table 19. Occupancy Standards on Form HUD-50058/50059

Number of Bedrooms by Occupancy Standard		Public Housing		PHA-administered Section 8		Owner-administered		Total	
		# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households	# of Households (in 1,000s)	% of Households
Under-Housed	0	1	(1.3%)	3	(3.5%)	2	(2.5%)	6	(2.4%)
	1	2	(.6%)	1	(.2%)	5	(.6%)	9	(.5%)
	2	6	(1.9%)	23	(2.9%)	5	(1.9%)	33	(2.5%)
	3	5	(2.3%)	23	(3.7%)	2	(1.6%)	30	(3.1%)
	4	2	(3.2%)					2	(.9%)
	5+			2	(7.6%)			2	(5.1%)
	All Units	16	(1.5%)	52	(2.4%)	14	(1.0%)	82	(1.8%)
Correct	0	82	(98.7%)	70	(96.5%)	78	(97.5%)	230	(97.6%)
	1	357	(99.4%)	592	(99.8%)	890	(99.4%)	1,838	(99.5%)
	2	221	(73.2%)	536	(68.0%)	192	(74.9%)	950	(70.5%)
	3	186	(78.3%)	440	(71.6%)	97	(81.3%)	722	(74.4%)
	4	31	(58.9%)	66	(65.2%)	17	(56.3%)	115	(61.9%)
	5+	1	(8.1%)	8	(29.3%)			9	(22.1%)
	All Units	878	(83.9%)	1,712	(77.9%)	1,274	(92.1%)	3,864	(83.5%)
Over-Housed	0								
	1								
	2	75	(24.8%)	229	(29.1%)	59	(23.2%)	364	(27.0%)
	3	46	(19.4%)	152	(24.7%)	20	(17.1%)	218	(22.5%)
	4	20	(37.9%)	35	(34.8%)	13	(43.7%)	69	(37.2%)
	5+	11	(91.9%)	18	(63.1%)	1	(100.0%)	31	(72.7%)
	All Units	152	(14.6%)	434	(19.7%)	95	(6.8%)	681	(14.7%)

2016.08.17 [Weighted]

HUDQC FY 2015
Table 19a. Frequency and Percent of All Households
by Number of Bedrooms and Number of Household Members

Number of Bedrooms	Number of Household Members																					
	1		2		3		4		5		6		7		8		9		10		11	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
0	230	97.6%	3	1.3%	3	1.1%																
1	1675	90.7%	163	8.8%	5	0.3%			2	0.1%	2	0.1%										
2	364	27.0%	579	43.0%	273	20.3%	98	7.3%	24	1.8%	7	0.5%	2	0.2%								
3	88	9.0%	130	13.4%	318	32.8%	237	24.4%	114	11.8%	53	5.5%	23	2.4%	6	0.6%	2	0.2%				
4	5	2.5%	9	4.6%	16	8.5%	40	21.5%	50	27.0%	33	17.7%	18	9.5%	14	7.7%					2	0.9%
5+	1	3.4%			2	5.9%	4	9.2%	15	35.8%	8	18.4%	6	13.2%	3	6.6%	1	2.4%			2	5.1%

2016.08.17 [Weighted]

Source Tables Based on Tenant File Data

Source Tables Based on Tenant File Data
Throughout these Source Tables, empty cells indicate that either the result was zero or the analysis was not applicable.

The following tables are based solely on data collected from tenant files.

HUDQC FY 2015 [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	139	(13.1%)	(23.9%)	811	(76.4%)	(23.4%)	112	(10.5%)	(18.6%)	1,062	(100.0%)	(22.8%)
	Section 8	305	(13.8%)	(52.4%)	1,620	(73.3%)	(46.7%)	284	(12.8%)	(47.2%)	2,209	(100.0%)	(47.5%)
	Total	444	(13.6%)	(76.2%)	2,431	(74.3%)	(70.1%)	395	(12.1%)	(65.8%)	3,271	(100.0%)	(70.3%)
Owner-administered	Owner-administered	139	(10.0%)	(23.8%)	1,038	(75.1%)	(29.9%)	206	(14.9%)	(34.2%)	1,382	(100.0%)	(29.7%)
	Total	139	(10.0%)	(23.8%)	1,038	(75.1%)	(29.9%)	206	(14.9%)	(34.2%)	1,382	(100.0%)	(29.7%)
Total		583	(12.5%)	(100.0%)	3,469	(74.6%)	(100.0%)	601	(12.9%)	(100.0%)	4,653	(100.0%)	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015 [Tenant File]
Table 2(S). Percent of Households by Payment Type and Program Type
(Proper Payment Based on Exact Match of Actual and DC Rent)

Program Type		Underpayment			Proper Payment			Overpayment			Total		
		# of Cases (in 1,000)	Row % of Cases	Col. % of Cases	# of Cases (in 1,000)	Row % of Cases	Col. % of Cases	# of Cases (in 1,000)	Row % of Cases	Col. % of Cases	# of Cases (in 1,000)	Row % of Cases	Col. % of Cases
PHA-administered	Public Housing	196	(18.5%)	(24.0%)	690	(65.0%)	(23.3%)	176	(16.6%)	(20.0%)	1,062	(100.0%)	(22.8%)
	Section 8	405	(18.3%)	(49.5%)	1,367	(61.9%)	(46.3%)	437	(19.8%)	(49.7%)	2,209	(100.0%)	(47.5%)
	Total	601	(18.4%)	(73.5%)	2,056	(62.9%)	(69.6%)	614	(18.8%)	(69.7%)	3,271	(100.0%)	(70.3%)
Owner-administered	Owner-administered	217	(15.7%)	(26.5%)	899	(65.0%)	(30.4%)	267	(19.3%)	(30.3%)	1,382	(100.0%)	(29.7%)
	Total	217	(15.7%)	(26.5%)	899	(65.0%)	(30.4%)	267	(19.3%)	(30.3%)	1,382	(100.0%)	(29.7%)
Total		818	(17.6%)	(100.0%)	2,955	(63.5%)	(100.0%)	881	(18.9%)	(100.0%)	4,653	(100.0%)	(100.0%)

2016.08.17 [Weighted]

HUDQC FY 2015 [Tenant File]
Table 3. Dollar Rent Error by Program Type

Program Type		Actual Rent (Monthly)				C 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	1,062	(22.8%)	292,018	275.05	1,062	(22.8%)	293,477	276.42	1,062	(22.8%)	15,188	14.31
	Section 8	2,209	(47.5%)	586,239	265.35	2,209	(47.5%)	592,732	268.29	2,209	(47.5%)	34,158	15.46
	Total	3,271	(70.3%)	878,258	268.50	3,271	(70.3%)	886,209	270.93	3,271	(70.3%)	49,346	15.09
Owner-administered	Owner-administered	1,382	(29.7%)	340,759	246.49	1,382	(29.7%)	338,366	244.76	1,382	(29.7%)	15,480	11.20
	Total	1,382	(29.7%)	340,759	246.49	1,382	(29.7%)	338,366	244.76	1,382	(29.7%)	15,480	11.20
Total		4,653	(100.0%)	1,219,016	261.96	4,653	(100.0%)	1,224,575	263.15	4,653	(100.0%)	64,826	13.93

2016.08.17 [Weighted]

HUDQC FY 2015 [Tenant File]
Table 4. Dollar Error Amount by Payment Type and Program Type

Program Type		Underpayment (Monthly)				Overpayment (Monthly)				DC Rent (Monthly)			
		# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount
PHA-administered	Public Housing	139	(23.9%)	8,346	60.02	112	(18.6%)	6,842	61.30	1,062	(22.8%)	293,477	276.42
	Section 8	305	(52.4%)	20,338	66.61	284	(47.2%)	13,820	48.72	2,209	(47.5%)	592,732	268.29
	Total	444	(76.2%)	28,684	64.55	395	(65.8%)	20,662	52.27	3,271	(70.3%)	886,209	270.93
Owner-administered	Owner-administered	139	(23.8%)	6,521	47.06	206	(34.2%)	8,959	43.51	1,382	(29.7%)	338,366	244.76
	Total	139	(23.8%)	6,521	47.06	206	(34.2%)	8,959	43.51	1,382	(29.7%)	338,366	244.76
Total		583	(100.0%)	35,205	60.39	601	(100.0%)	29,621	49.27	4,653	(100.0%)	1,224,575	263.15

2016.08.17 [Weighted]

HUDQC FY 2015[Tenant File]
Table 4(S). Dollar Error Amount by Payment Type and Program Type
(Proper Payment Based on Exact Match of Actual and DC Rent)

Program Type		Underpayment (Monthly)				Overpayment (Monthly)				DC Rent (Monthly)			
		# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount
PHA-administered	Public Housing	196	(24.0%)	8,483	43.30	176	(20.0%)	6,976	39.60	1,062	(22.8%)	293,477	276.42
	Section 8	405	(49.5%)	20,596	50.84	437	(49.7%)	14,103	32.24	2,209	(47.5%)	592,732	268.29
	Total	601	(73.5%)	29,078	48.38	614	(69.7%)	21,079	34.35	3,271	(70.3%)	886,209	270.93
Owner-administered	Owner-administered	217	(26.5%)	6,730	31.07	267	(30.3%)	9,122	34.14	1,382	(29.7%)	338,366	244.76
	Total	217	(26.5%)	6,730	31.07	267	(30.3%)	9,122	34.14	1,382	(29.7%)	338,366	244.76
Total		818	(100.0%)	35,808	43.80	881	(100.0%)	30,201	34.29	4,653	(100.0%)	1,224,575	263.15

2016.08.17 [Weighted]

HUDQC FY 2015 [Tenant File]
Table 5. Gross and Net Rent Error by Program Type

Program Type		Gross Rent Error (Monthly)				Net Rent Error (Monthly)				DC Rent (Monthly)			
		# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount
PHA-administered	Public Housing	1,062	(22.8%)	15,188	14.31	1,062	(22.8%)	-1,504	-1.42	1,062	(22.8%)	293,477	276.42
	Section 8	2,209	(47.5%)	34,158	15.46	2,209	(47.5%)	-6,518	-2.95	2,209	(47.5%)	592,732	268.29
	Total	3,271	(70.3%)	49,346	15.09	3,271	(70.3%)	-8,022	-2.45	3,271	(70.3%)	886,209	270.93
Owner-administered	Owner-administered	1,382	(29.7%)	15,480	11.20	1,382	(29.7%)	2,437	1.76	1,382	(29.7%)	338,366	244.76
	Total	1,382	(29.7%)	15,480	11.20	1,382	(29.7%)	2,437	1.76	1,382	(29.7%)	338,366	244.76
Total		4,653	(100.0%)	64,826	13.93	4,653	(100.0%)	-5,585	-1.20	4,653	(100.0%)	1,224,575	263.15

2016.08.17 [Weighted]

HUDQC FY 2015 [Tenant File]
Table 5(S). Gross and Net Rent Error by Program Type
(Proper Payment Based on Exact Match of Actual and DC Rent)

Program Type		Gross Rent Error (Monthly)				Net Rent Error (Monthly)				DC Rent (Monthly)			
		# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount	# of Cases (in 1,000)	Col. % of Cases	Sum Dollar Amount (in 1,000)	Avg. Dollar Amount
PHA-administered	Public Housing	1,062	(22.8%)	15,458	14.56	1,062	(22.8%)	-1,507	-1.42	1,062	(22.8%)	293,477	276.42
	Section 8	2,209	(47.5%)	34,699	15.71	2,209	(47.5%)	-6,493	-2.94	2,209	(47.5%)	592,732	268.29
	Total	3,271	(70.3%)	50,157	15.33	3,271	(70.3%)	-8,000	-2.45	3,271	(70.3%)	886,209	270.93
Owner-administered	Owner-administered	1,382	(29.7%)	15,852	11.47	1,382	(29.7%)	2,392	1.73	1,382	(29.7%)	338,366	244.76
	Total	1,382	(29.7%)	15,852	11.47	1,382	(29.7%)	2,392	1.73	1,382	(29.7%)	338,366	244.76
Total		4,653	(100.0%)	66,009	14.18	4,653	(100.0%)	-5,607	-1.21	4,653	(100.0%)	1,224,575	263.15

2016.08.17 [Weighted]

Appendix D: Consistency and Calculation Errors

Appendix D: Consistency and Calculation Errors

Exhibit D-1
Form HUD-50058—Consistency Errors

Form HUD-50058 Item		Error
General Information		
1c.	Program	Must equal P, CE, VO, or MR
2a.	Type of Action	Must equal 1 through 15
2b.	Effective Date of Action	Cannot be earlier than Date of Admission to the Program (2h)
Household Composition		
3g.	Sex	Must equal M or F
3h.	Relationship	Must equal H, S, K, F, Y, E, L, or A
3i.	Citizenship	Must equal EC, EN, IN, PV
3k.	Race	Must equal 1 through 5
3m.	Ethnicity	Must equal 1 or 2
3u.	Family Subsidy Status	Must equal C, E, F, P
3v.	Effective Date	Should not be blank if 3u equals C
Net Family Assets and Income		
6a.	Family Member No.	Must equal a number used in Section 3. Household
7a.	Family Member No.	Must equal a number used in Section 3. Household
7b.	Income Code	Must equal B, F, HA, M, W, G, IW, T, P, S, SS, C, E, I, N, or U
8a.	Total Annual Income	Must equal Total Annual Income recorded in 7i
8i.	Earnings Made Possible by Disability Assistance Expense	Must be ≤ the sum of Dollars per Year (7d) for Income Codes (7b) HA, F, W, B, or M
Allowances and Adjusted Income		
8h.	Maximum Disability Allowance	Should only be completed if any member is disabled
8j.	Allowable Disability Assistance Expense	• Should be ≤ Maximum Disability Allowance (8h) • Should be 0 if Medical/Disability Threshold (8f) is > Maximum Disability Allowance (8h) • Should be 0 or blank if Maximum Disability Allowance (8h) is 0 or blank
8k.	Total Medical Expenses	Should only be completed if the head, spouse, or co-head is 62 or over, or disabled; otherwise it should be blank
8n.	Medical/Disability Assistance Allowance	• Should equal Total Annual Disability Assistance and Medical Expense (8m) minus Medical/Disability Threshold (8f) if Allowable Disability Assistance 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 Assistance Expense (8j) is ≥ Medical/Disability Threshold (8f)
8p.	Elderly/Disabled Allowance	Should be $400 if head, spouse, or co-head is 62 or over, or disabled; otherwise it should be 0 or blank
8s.	Dependent Allowance	Must be completed if the household contains a member under age 18, a member who is disabled, or a full-time student (excluding the head, spouse, foster child, or adult, or live-in attendant)

Exhibit D-1
Form HUD-50058—Consistency Errors, continued

Form HUD-50058 Item		Error
8t.	Yearly Child Care Cost That Is Not Reimbursed (Child Care Allowance)	Should only be completed if any member is less than 13 years old
Family Rent and Subsidy Information		
10a.	TTP (Public Housing and Turnkey III)	Items 10a, 11q, 12r, 13j, or 14s must equal TTP (9j) or be blank
11q.	TTP (Section 8: Project Based Certificates and Vouchers)	
12r.	TTP (Housing Choice Vouchers: Tenant Based Vouchers)	
13j.	TTP (Section 8: Moderate Rehabilitation [Mod Rehab])	
14s.	TTP (Manufactured Home Owner Renting the Space)	
Rent Calculations (item numbers include 10a through 14ag)		• If Program (1c) = P: o TTP (10a) must be completed o Flat Rent (10b), Tenant Rent (10f), or Mixed Family Tenant Rent (10s) must be completed o Sections 11 through 14 must be blank • If Program (1c) = VO or C: o Section 11 or 12 must be completed o Tenant Rent (11s or 12k) or Mixed Family Tenant Rent (11ak or 12ai) must be completed o Sections 10, 13, and 14 must be blank • If Program (1c) = MR: o Contract Rent to Owner must be completed o Tenant Rent (13k) or Mixed Family Tenant Rent (13x) must be completed o Sections 10, 11, 12, and 14 must be blank

Exhibit D-2
Form HUD-50058 MTW*—Consistency Errors

Form HUD-50058 MTW Item		Error
General Information		
1c.	Program	Must equal P, PR, or T
2a.	Type of Action	Must equal 1 through 15
2b.	Effective Date of Action	Cannot be earlier than Date of Admission to the Program (2h)
Household Composition		
3g.	Sex	Must equal M or F
3h.	Relationship	Must equal H, S, K, F, Y, E, L, or A
3i.	Citizenship	Must equal EC, EN, IN, PV
3k.	Race	Must equal 1 through 5
3m.	Ethnicity	Must equal 1 or 2
3u.	Family Subsidy Status	Must equal C, E, F, P
3v.	Eligibility Effective Date	Should not be blank if 3u equals C
Net Family Assets and Income		
18a.	Family Member No.	Must equal a number used in Section 3. MTW Household
19a.	Family Member No.	Must equal a number used in Section 3. MTW Household
19b.	Income Code	Must equal B, F, HA, M, W, G, IW, T, P, S, SS, C, E, I, N, U, or X

*For the purpose of the study, we implemented a Moving to Work (MTW) exception if a case was flagged as using Form HUD-50058 MTW. As a result, there were 112 MTW cases (representing 27 projects) that did not use Form HUD-50058 MTW, but did adhere to MTW policies. There were no non-MTW cases that used Form HUD-50058 MTW.

Exhibit D-3
Form HUD-50059—Consistency Errors

Form HUD-50059 Item		Error
General Information		
2.	Subsidy Type	Must equal 1 through 9
13.	Effective Date	Cannot be earlier than Date Tenant Moved into Project (16)
18.	Certification Type	Must equal 1 through 5
19.	Action Processed	Must equal 1 through 4, or blank
40.	Race of Head of Household	Must equal 1 through 4
41.	Ethnicity of Head of Household	Must equal 1 or 2
Household Composition		
39.	Sex	Must equal M or F
44.	Special Status Code	Must equal E, S, H, F, I, J, or blank; should be E if Age > 61
46.	Eligibility Code (Citizenship)	Must equal EC, EN, IC, IN, IP, PV, or XX
Net Family Assets and Income		
66. 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
98. 99.	Child Care Expense (work) 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, spouse, or co-head = H or E, or if the head, spouse, or co-head is 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

Exhibit D-4
Form HUD-50058—Calculation Errors

Form HUD-50058 Item		Error Calculation
Household Composition		
3f.	Age	Must equal the age calculated based on Date of Birth (3e) and Effective Date of Action (2b)
8q.	Number of Dependents	Must equal the number of household members who are under age 18, have a disability, or are full-time students (other than head, spouse, co-head, foster child/adult, or live-in aide)
Net Family Assets and Income		
6f.	Total Asset Value	Must equal the sum of all values in Cash Value of Asset (6d)
6i.	Imputed Asset Income	Must equal Total Cash Value of Asset (6f) times the Passbook Rate (6h) if Total Value of Assets (6f) is > $5,000. If Total Value of Assets (6f) is ≤ $5,000 Imputed Asset Income (6i) = 0
6j.	Income From Asset	Must equal the larger of Total Anticipated Income (6g) or Imputed Asset Income (6i)
7g.	Total Non-Asset Income	Must equal the sum of all values in Income After Exclusions (7f)
7i.	Total Annual Income	Must equal Final Asset Income (6j) + Total Income Other Than Assets (7g)
Allowances and Adjusted Income		
8e.	Total Permissible Deductions	Must equal the sum of all values in Amount of Permissible Deduction (8d)
8f.	3% of Annual Income	Must equal 3% * Total Annual Income (8a)
8h.	Disability Allowance	Must equal Total Annual Unreimbursed Disability Assistance Expense (8g) minus Medical/Disability Threshold (8f) if there is a disabled household member and an earned income greater than or equal to the disability expense
8n.	Medical Allowance	Must equal Total Annual Disability Assistance and Medical Expense (8m) minus Medical/Disability Threshold (8f) if Allowable Disability Assistance Expense (8j) is blank or Total Annual Unreimbursed Disability Assistance Expense (8g) is less than Medical/Disability Threshold (8f); or equal Total Annual Disability Assistance and Medical Expense (8m) if Total Annual Unreimbursed Disability Assistance Expense (8g) and Allowable Disability Assistance Expense (8j) is ≥ Medical/Disability Threshold (8f); if the head, spouse, or co-head is elderly or disabled
8p.	Elderly/Disabled Allowance	Must equal $400 if head, spouse, or co-head is elderly or disabled
8s.	Dependent Allowance	Must equal Number of Dependents (8q) * $480
8t.	Child Care Costs	Must be 0 or blank if no household member is under age 13
8x.	Total Allowance	Must equal Total Permissible Deductions (8e) + Medical/Disability Assistance Allowance (8n) + Elderly/Disability Allowance (8p) + Dependent Allowance (8s) + Total Annual Unreimbursed Child Care Costs (8t) + Total Annual Travel Cost to Work/School (8u)
8y.	Adjusted Annual Income	Must equal Total Annual Income (8a) minus Total Allowances (8x)

Exhibit D-4
Form HUD-50058—Calculation Errors, continued

Form HUD-50058 Item	Error Calculation
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.

Exhibit D-5
Form HUD-50058 MTW—Calculation Errors

Form HUD-50058 MTW Item	Error Calculation
Household Composition	
3f. Age	Must equal the age calculated based on Date of Birth (3e) and Effective Date of Action (2b)
Net Family Assets and Income	
18f. Total Asset Value	Must equal the sum of all values in Cash Value of Asset (18d)
18i. Imputed Asset Income	Must equal Total Cash Value of Asset (18f) times the Passbook Rate (18h) if Total Value of Assets (18f) is > $5,000. If Total Value of Assets (18f) is ≤ $5,000 Imputed Asset Income (18i) = 0
18j. Income From Asset	Must equal the larger of Total Anticipated Income (18g) or Imputed Asset Income (18i)
19h. Total Non-Asset Income	Must equal the sum of all values in Income After Exclusions (19f)
19i. Total Annual Income	Must equal Final Asset Income (18j) + Total Income Other Than Assets (19h)
Allowances and Adjusted Income	
19k. Adjusted Annual Income	Must equal Total Annual Income (19i) minus Total Deductions (19j)
Family Rent and Subsidy Information	
21k. Gross Rent	Must equal Rent to Owner (21i) + Utility Allowance/estimate (21j)

Note: With the exception of tenant rent, negative numbers are always converted to 0.

Exhibit D-6
Form HUD-50059—Calculation Errors

Form HUD-50059 Item	Error Calculation
Household Composition	
48. Age	Must equal the age calculated based on Date of Birth (42) and Effective Date of Action (13)
53. Number of Family Members	Must equal the number of family members listed
54. Number of Non-Family Members	Must equal the number of family members listed with a relationship code of “L” or “F”
55. Number of Dependents	Must equal the number of household members who are under age 18, have a disability, or are full-time students (other than head, spouse, co-head, foster child/adult, or live-in aide)

Exhibit D-6
Form HUD-50059—Calculation Errors, continued

Form HUD-50059 Item		Error Calculation
Net Family Assets and Income		
81.	Total Asset Value	Must equal the sum of the asset values in Cash Value of Assets (78)
82.	Actual Income From Asset	Must equal the sum of the income values in Actual Yearly Income From Assets (79)
84.	Imputed Asset Income	Must equal Total Asset Value (81) * 2%, if Total Value of Assets is > $5,000
70.	Earned Income Sum	Must equal the sum of income values (in item 68) for items with codes B, F, M, or W in Income Type Code (67)
71.	Pension Income Sum	Must equal the sum of the income values (in item 68) for items with codes PE, SI, or SS in Income Type Code (67)
72.	Public Assistance Income Sum	Must equal the sum of the income values (in item 68) for items with codes TA or G in Income Type Code (67)
73.	Other Income Sum	Must equal the sum of the income values (in item 68) for items with codes CS, I, N, or U in Income Type Code (67)
74.	Total Non-Asset Income	Must equal Earned Income Sum (70) + Pension Income Sum (71) + Public Assistance Income Sum (72) + Other Income Sum (73)
85.	Asset Income	Must equal the greater of Imputed Asset Income (84) or Actual Income from Asset (82)
86.	Total Annual Income	Must equal Total Non-Asset Income (74) + Income from Asset (85)
Allowances and Adjusted Income		
97.	Dependent Allowance	Must equal Number of Dependents (55) * $480
98. 99.	Child Care Expense (work) Child Care Expense (school)	Must be 0 or blank if no household member is under age 13
100.	3% of Annual Income	Must equal Total Annual Income (86) * .03
102.	Disability Allowance	Must equal Total Disability Expenses (101) minus 3% of Annual Income (100) if there is a disabled household member and if there is earned income greater than or equal to the disability expense
104.	Medical Allowance	Must equal Total Medical Expenses (103) minus 3% of Annual Income (100) if Total Disability Expense (101) = 0; or if (Disability Deduction (102) = 0, then Medical Deduction (104) = Total Medical Expenses (103) + Total Disability Expenses (101) - 3% of Annual Income (86), if the head, spouse, or co-head is elderly or disabled
105.	Elderly Household Allowance	Must equal $400 if head, spouse, or co-head is elderly or disabled
106.	Total Allowance	Must equal Deduction for Dependents (97) + Child Care Expense Allowance (98 + 99) + Allowance for Disability Expenses (101) + Deduction for Medical Expenses (104) + Elderly Family Deduction (105)
107.	Adjusted Annual Income	Must equal Total Annual Income (86) minus Total Allowances (106)
Family Rent and Subsidy Information		
33.	Gross Rent	Must equal Contract Rent (31) + Utility Allowance (32)
108.	Total Tenant Payment	Must equal the higher of 30% of Adjusted Income (107), 10% of Total Annual Income (86), Welfare Rent (112), or $25 (Minimum Rent)
109.	Tenant Rent	Tenant Rent must equal the recalculated tenant rent based on the Rent Calculation rules provided in Appendix A

Note: With the exception of tenant rent, negative numbers are always converted to 0.

Appendix E: Project Staff Questionnaire Descriptive Analysis

Appendix E: Project Staff Questionnaire Descriptive Analysis

The Project Staff Questionnaire (PSQ) was designed to obtain project-level information about the characteristics and processes that support the Public Housing Authority (PHA) and project staff's calculation of rent during certification transactions, including initial and annual certifications. The questionnaire aimed to identify structural procedures, standards, and policies that may hinder accurate rent determination to uncover potential areas of improvement. The PSQ is a self-administered online questionnaire sent to managers and executive directors of PHAs/projects included in the fiscal year (FY) 2015 Quality Control (QC) Study.

A. Methodology

The PSQ was administered as a Web questionnaire using a survey package called SelectSurvey. In February 2016, ICF staff contacted PHAs/projects via email with instructions on how to access and complete the survey. Follow-up emails and telephone calls were made through the end of May to PHAs/projects, reminding staff to complete the PSQ survey. Assistance was requested from HUD to encourage some of the nonresponsive PHAs/projects to complete the questionnaire. Overall, these efforts led to a response rate of 94 percent: 501 out of 531 PHAs/projects completed the PSQ. After data collection, we examined the data to confirm the completeness and validity of responses. PSQ surveys containing questionable responses or skip patterns were individually investigated and data issues were resolved. Three cases were removed due to missing data, which resulted in a total of 498 cases and a response rate of 94 percent.[1] The PSQ responses were analyzed separately for three major program types: Public Housing (179 projects), PHA-administered Section 8 (130 projects), and Owner-administered Section 8 (189 projects). This analysis was conducted using SPSS, version 22.

The content of the FY 2015 PSQ was similar to the FY 2014 PSQ. It consisted of a combination of open-ended and closed-ended questions. Topics included project characteristics, software usage, training and development, performance management, and QC procedures. The results presented in this report reflect the project's response for the study period of November 1, 2014, to October 31, 2015.

B. Results

The results of the PSQ are presented in three sections that correspond to the three sections in the survey:

1. **PHA/Project Characteristics.** The PSQ surveyed respondents on PHA/project characteristics that may help to explain differences in error rates. This section included questions about the number and types of staff, number of project units/tenants and certifications conducted, staff work experience, staff work assignments and workload, and staff use of software and computer technology related to certification tasks.
2. **Training and Development.** The second section of the survey gathered information about the nature and extent of rent calculation training for new and experienced certification staff,

[1] Two of these projects only responded to the first question of the PSQ; the third project only responded to the first six questions.

procedures for implementing new policies related to rent calculation, and certification staff work practices.

3. **Performance Management.** The PSQ also inquired about various aspects of performance management of certification activities and QC reviews, including the timing of reviews, methods used to select cases for review, the type of certification information reviewed for QC, the prevalence of various types of rent calculation errors, and performance feedback methods and timing.

Our highlights of the survey findings are presented in the sections that follow.

1. PHA/Project Characteristics

Type and Number of Staff. Beginning in FY 2008, the PSQ has collected information from projects about whether or not they can provide information about the administration of rental assistance in the project specifically selected for the QC Study review. Some PHAs/projects cannot provide information about practices for a specific project because PHA/project staff work across multiple counties or across a number of assisted housing units beyond the site or county selected for QC review. In FY 2015, 75 percent of PHAs/projects could provide information specific to the project selected for the QC Study review (see Exhibit E-1a). PHAs/projects that could not provide project-specific information, but offered information about their entire organization, indicated that they employed an average of 22 staff members who supported an average total of 3,320 units/households.[2] These organizations reported an average ratio of 78 assisted units/households per total staff. PHA-administered Section 8 projects had the highest average ratio of units per total staff at 129, Owner-administered projects had the smallest average ratio at 32, and Public Housing projects were in the middle, with an average of 76 units per total staff in the organization.

In FY 2015, PHAs and management companies that could provide information on a specific project averaged 11 employees (see Exhibit E-1a). With respect to program type, PHA-administered Section 8 projects averaged 26 employees, followed by Public Housing with 9 employees and Owner-administered projects with 4 employees. On average, PHA/project staff across all three program types supported 1,238 units over a 12-month period, with an average ratio of 88 units per total staff. As above, PHA-administered Section 8 projects had the highest ratio of units per total staff at 166, Owner-administered projects had the smallest ratio at 40, and Public Housing sites averaged 88 units per total staff.

In addition to the general ratio of total employed staff to units/households served, the PSQ collected information about certification staff members who performed move-in and annual certifications. In FY 2015, PHAs/projects averaged 8 certification staff members who conducted an average of

[2] In the analysis tables, medians are presented alongside averages because, for this data, the medians may be a more accurate measure of central tendency. Since the data is consistently skewed to the right, the averages tend to be much larger than the medians. For example, the average total number of staff at entire organizations is 22.2, while the median is 5.0 staff members. In other words, while the average is 22.2 staff, half of PHAs/projects employ five staff members or less. While the medians are presented in the tables, only averages will be discussed in the analysis so that FY 2015 PSQ results can easily be compared with FY 2014 PSQ results.

164 move-in/initial certifications and 1,516 annual certifications over a 12-month period (see Exhibit E-1a). PHA-administered Section 8 projects had the highest average number of certification staff at 23, but these sites also performed the most work overall, with an average of 531 initial certifications and 5,065 annual certifications completed during the study period. Owner-administered projects had the smallest average with 2 certification staff members who conducted an average of 20 initial certifications and 112 annual certifications. Public Housing sites had an average of 4 certification staff members and managed an average of 43 initial certifications and 422 annual certifications conducted in FY 2015.

Exhibit E-1a
Number of Staff and Certifications, by Program Type

Number of Staff and Number of Certifications Performed		Program Type			All Program Types
		Public Housing	PHA-administered Section 8	Owner-administered	
PHA/Project Can Provide Information About Staff and Certifications at Individual Projects		76.5%	68.5%	76.7%	74.5%
Entire Organizations					
Total Number of Staff the Entire Organization Employs	Mean	7.4	55.4	5.4	22.2
	Median	4.0	12.0	3.0	5.0
Total Number of Assisted Units Supported by These Staff	Mean	380.1	9,802.8	85.8	3,320.1
	Median	203.0	1,089.0	64.0	197.0
Units per Entire Organization Staff Ratio	Mean	76.1	128.6	31.6	77.7
	Median	39.6	99.9	20.0	38.8
Individual Projects					
Total Number of Staff the Individual Project Employs	Mean	8.8	25.8	3.9	11.0
	Median	4.0	11.0	3.0	4.0
Total Number of Assisted Units Supported by These Staff	Mean	470.1	4,198.7	129.7	1,237.5
	Median	256.0	1,908.0	100.0	200.0
Units per Individual Project Staff Ratio	Mean	87.6	166.0	39.6	87.8
	Median	56.7	163.3	32.3	52.1
Entire Organizations and Individual Projects					
Number of Certification Staff Who Work at the PHA/Project	Mean	3.6	23.2	2.4	8.3
	Median	3.0	9.0	2.0	3.0
Number of Initial/Move-in Certifications Conducted Over a 12-Month Period	Mean	42.7	531.0	19.6	163.7
	Median	33.5	189.0	11.5	31.0
Number of Annual Certifications Conducted Over a 12-Month Period	Mean	421.8	5,065.0	112.1	1,516.4
	Median	207.0	1,379.0	89.0	176.0

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

Experienced Certification Staff and Certification Staff Turnover. Additionally, the PSQ collected information specifically about the number of experienced certification staff at PHAs/projects. In the survey, "experienced certification staff" was defined as certification staff members with more than 1 year of certification experience at the project. On average, PHA-administered Section 8 projects

reported having 18 experienced staff, while Public Housing had 3 experienced certification staff and Owner-administered projects had 2 experienced staff during the study period (see Exhibit E-1b).

PHAs/projects were also asked about the rate of certification staff turnover. Thirty-one percent of PHAs/projects in the study indicated that they had at least 1 certification employee stop working on certification activities at the specified project from November 1, 2014, to October 31, 2015 (see Exhibit E-1b), the same rate as in FY 2014. Among those PHAs/projects that had turnover, an average of 3 certification staff stopped working on certification activities at the project during the study period. PHA-administered Section 8 projects were most likely to have certification staff turnover during the study period (44 percent) and reported the largest turnover (an average of 5 certification staff). Public Housing sites were least likely to have certification staff turnover (26 percent) and reported turnover of 2 certification staff. Twenty-eight percent of Owner-administered projects had some turnover, with an average of 1 certification staff member who stopped working on certification activities at the specified project in FY 2015.

Exhibit E-1b
Experienced Certification Staff and Staff Turnover, by Program Type

Average Number of Certification Staff		Program Type			All Program Types
		Public Housing	PHA-administered Section 8	Owner-administered	
Experienced Certification Staff					
Certification Staff With More Than 1 Year of Experience	Mean	3.1	18.2	2.2	6.7
	Median	3.0	7.0	2.0	3.0
Certification Staff Turnover					
PHAs/Projects With At Least One Certification Staff Member Who Stopped Working on Certification Activities		26.3%	43.8%	27.5%	31.3%
Number of Certification Staff Members Who Stopped Working on Certification Activities*	Mean	1.6	4.6	1.3	2.6
	Median	1.0	2.0	1.0	1.0

Note: Averages, medians, and percentages were calculated based on the number of PHAs/projects that responded to the specific items.
* Averages and medians were calculated based on the PHAs/projects that had staff turnover.

Certification Staff Assignments and Workload. The FY 2015 PSQ asked PHAs/projects to indicate how work was assigned to certification staff. The most frequently employed methods for assigning cases were by certification transaction type (19 percent) and by random assignment of cases based on staff availability (16 percent) (see Exhibit E-1c). Methods with less frequently reported use included assignment of cases by certification activity type and by tenant last name (12 percent and 10 percent, respectively), while almost no projects assigned cases by household characteristics (less than 1 percent). Although the question provided a variety of case assignment methods, nearly half of PHAs/projects reported that they use case assignment methods other than those provided in the survey (43 percent).

A look at program-specific breakdowns indicates that PHA-administered Section 8 projects were by far the most likely to assign work alphabetically by tenant last name (35 percent), while just 1 percent of Owner-administered projects and Public Housing projects relied on this method

(see Exhibit E-1c). Owner-administered projects were most likely to assign work by certification transaction type (20 percent) and by certification activity type (18 percent). Public Housing projects were also most likely to assign cases by certification transaction type (22 percent), followed by random assignment based on staff availability (18 percent).

Exhibit E-1c
Certification Staff Case Assignment Methods, by Program Type

Certification Staff Case Assignment Methods	Program Type			All Program Types
	Public Housing	PHA-administered Section 8	Owner-administered	
By Transaction Type (e.g., some staff work on move-ins only, some staff work on annual certifications only)	22.3%	14.6%	19.6%	19.3%
Random Assignment Based on Staff Availability	18.4%	10.8%	16.4%	15.7%
By Activity Type (e.g., some certification staff perform interviews and send out initial third-party verifications, while other staff perform rent calculations and enter data from Form HUD-50058/50059)	8.4%	7.7%	18.0%	11.8%
Alphabetical by Tenant Last Name (e.g., households with a last name that starts with any letter between "A" through "E" belong to one certification staff member/staff team)	1.1%	34.6%	1.1%	9.8%
By Household Characteristic (e.g., more complicated cases go to particular staff)	0.6%	0.0%	1.6%	0.8%
Other Assignment Method Not Listed	49.2%	32.3%	43.4%	42.6%

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

In addition to methods of assigning work, PHAs/projects were asked to comment on the average workload for certification staff at the specified project (see Exhibit E-1d). The results show that most certification staff had either a manageable workload (56 percent) (i.e., a workload that is neither too low nor too high) or a high workload (44 percent). In FY 2014, each category described 49 percent of PHAs/projects, suggesting that more certification staff had a manageable workload in FY 2015. With respect to program type, Owner-administered projects were most likely to report a manageable workload (66 percent) from November 1, 2014, to October 31, 2015, while PHA-administered Section 8 projects were most susceptible to heavy workloads (59 percent).

Exhibit E-1d
Certification Staff Average Workload, by Program Type

Certification Staff Average Workload	Program Type			All Program Types
	Public Housing	PHA-administered Section 8	Owner-administered	
The Workload Was High	43.6%	58.5%	33.9%	43.8%
The Workload Was Not Too Low or Too High	55.9%	40.8%	65.6%	55.6%
The Workload Was Low	0.6%	0.8%	0.5%	0.6%

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

Organizations Contracted to Perform Certification Activities. Despite the moderate to heavy workloads experienced by certification staff, a large majority of PHAs/projects (89 percent) indicated that they do not contract out certification activities to outside organizations (see Exhibit E-1e). PHAs/projects that did have a certification contractor in the past year were more likely to hire a private company or nonprofit organization to handle certifications (4 percent each), as opposed to the government (3 percent). With respect to program type, Public Housing projects were least likely to use a contractor, with 92 percent of projects performing certifications themselves. PHA-administered Section 8 and Owner-administered projects reported similar numbers (88 percent and 86 percent, respectively). Owner-administered sites that did contract out certification activities were most likely to choose a nonprofit organization (9 percent), while an equal number of PHA-administered Section 8 projects contracted out certification activities to private companies and government agencies (5 percent each).

Exhibit E-1e
Organizations Contracted to Perform Certification Activities by Program Type

Organizations Contracted to Perform Certifications	Program Type			All Program Types
	Public Housing	PHA-administered Section 8	Owner-administered	
PHA/Project Does Not Contract Out Certification Activities	92.2%	87.7%	85.7%	88.6%
Private Company	4.5%	4.6%	3.7%	4.2%
Nonprofit Organization	0.0%	3.1%	8.5%	4.0%
Government	3.4%	4.6%	2.1%	3.2%

Note: Percentages were calculated for PHAs/projects that responded to the specific item.

Utilization and Capabilities of Computer Software in the Certification Process. Automated systems and computer software continued to play an integral part in daily tasks at the PHAs/projects surveyed. PHAs/projects were asked to describe the tasks for which certification staff used computer systems. Virtually all of the PHAs/projects reported using computers to print letters to tenants (98 percent) and Form HUD-50058/50059 (97 percent); calculate income, expenses, and allowances (96 percent); and record tenant demographics (92 percent) (see Exhibit E-1f). The majority of PHAs/projects also acknowledged using computer software to input certification interview information (81 percent), determine certification dates/appointments (70 percent), record other types of statistics (67 percent), and keep track of pending verification

documents (62 percent). Less than half of PHAs/projects reported using computer systems to store electronic copies of verification documents (44 percent), conduct rent reasonableness comparisons (40 percent), and conduct computer-assisted interviews with tenants (36 percent). The largest increase from FY 2014 to FY 2015 was found in keeping track of pending verification documents (from 59 percent to 62 percent), and the largest decrease in keeping other types of statistics (72 percent to 67 percent).

Exhibit E-1f
Use of Computer Systems for Key Tasks, by Program Type

Use of Computer Systems	Program Type			All Program Types
	Public Housing	PHA-administered Section 8	Owner-administered	
Printing Letters to Tenants	96.1%	99.2%	97.9%	97.6%
Printing Form HUD-50058/50059	96.6%	93.8%	98.9%	96.8%
Calculating Income, Expenses, and Allowances	95.0%	96.2%	95.8%	95.6%
Recording Tenant Age, Ethnicity, Family Size, or Other Demographics	88.8%	97.7%	92.1%	92.4%
Inputting Certification Interview or Application Responses	77.7%	86.9%	78.8%	80.5%
Determining Certification Appointment Dates	73.7%	73.8%	63.5%	69.9%
Keeping Other Types of Statistics	60.3%	76.2%	67.2%	67.1%
Keeping Track of Pending Verification Documents	62.0%	60.8%	61.9%	61.6%
Storing Electronic Verification Documents	39.1%	53.8%	40.7%	43.6%
Conducting Rent Reasonableness Comparisons	34.6%	79.2%	16.9%	39.6%
Conducting Computer-Assisted Interviews with Tenants	39.1%	37.7%	32.3%	36.1%

Note: Percentages were calculated for PHAs/projects that responded to the specific items.

In addition to the tasks shown in Exhibit E-1f, 96 percent of PHAs/projects indicated that they use computer software to help calculate tenant rent, with PHA-administered Section 8 being most likely (99 percent), and Public Housing sites being the least likely (91 percent) (see Exhibit E-1g). Of that 96 percent, a large portion reported having software capable of assisting staff by storing household-specific information from previous Form HUD-50058/50059s (96 percent), submitting data to PIC/TRACS (92 percent), annualizing individual sources of income and/or expenses (91 percent), and containing pre-loaded information that identifies the appropriate payment standard or utility allowance (86 percent). However, 70 percent of PHAs/projects reported that their software was limited in its capabilities by requiring users to enter Form HUD-50058/50059 after its manual completion.

Program-specific results show that PHA-administered Section 8 and Owner-administered projects were both very likely to report using software that is capable of submitting data to PIC/TRACS (93 percent and 97 percent, respectively), while only 85 percent of Public Housing projects had software with this capability (see Exhibit E-1g). Furthermore, PHA-administered Section 8 and Owner-administered projects were about equally likely to report using software containing

pre-loaded information that identifies the appropriate payment standard or utility allowance (90 percent and 89 percent, respectively), while only 80 percent of Public Housing projects had software with this capability.

Exhibit E-1g
Functionalities of Computer Software, by Program Type

Tasks Performed Using Computer Software	Program Type			All Program Types
	Public Housing	PHA-administered Section 8	Owner-administered	
Certification Staff Use Computer Software to Help Calculate Tenant Rent	91.1%	99.2%	98.4%	96.0%
Functionalities				
Stores Household-Specific Information From Previous Form HUD-50058/50059s and Allows Updating With Current Information*	91.4%	98.4%	97.8%	95.8%
Submits Data to PIC/TRACS*	84.7%	93.0%	96.8%	91.6%
Annualizes Individual Sources of Income/ Expenses When Information Is Entered*	87.1%	94.6%	93.0%	91.4%
Contains Pre-Loaded Information that Identifies the Appropriate Payment Standard/Utility Allowance for Each Household Based on Information Entered*	80.4%	89.9%	88.7%	86.2%
User Must Enter Form HUD-50058/50059 Data After Its Manual Completion*	68.1%	67.4%	74.2%	70.3%

Note: Percentages were calculated for PHAs/projects that responded to the specific item.
* Percentages were calculated based on PHAs/projects that indicated using computer software to help calculate rent.

2. Training and Development

Certification Staff Training and Development. The PSQ collected information about the amount and type of training provided to both new and experienced certification staff during the study period. Fifty-nine percent of PHAs/projects reported having a training department or staff trainer that provided guidance to staff working on rent calculation activities, a decrease from 67 percent in FY 2014. Owner-administered programs were most likely to have a training department or staff trainer for certification staff (71 percent), followed by Public Housing (53 percent) and PHA-administered Section 8 projects (50 percent) (see Exhibit E-2a).

Training for New Staff. The average number of hours of training provided to each new certification staff member prior to performing rent calculations unassisted varied greatly by program type. On average, PHA-administered Section 8 projects provided the most training hours to new certification staff (69 hours), followed by Public Housing sites (60 hours), and Owner-administered programs (25-hours) (see Exhibit E-2a). The overall average for all program types was 49 hours of training, which is the lowest in the last 6 years (50 average hours were provided to staff in FY 2014,

55-average hours in FY 2013, 65 average hours in FY 2012, 89 hours on average in FY 2011, and about 85 training hours in FY 2010).[3]

Exhibit E-2a
Presence of Training Staff in PHA/Project and Average Training Hours for Certification Staff, by Program Type

Training Staff Present in PHA/Project and Training Hours for Certification Staff		Program Type			All Program Types
		Public Housing	PHA-administered Section 8	Owner-administered	
Training Department					
PHA/Project Has a Training Department or Staff Trainer for Certification Staff		52.5%	50.0%	71.4%	59.0%
Training Hours					
Number of Training Hours Before Staff Can Perform Rent Calculations Unassisted	Mean	59.6	68.6	24.8	48.8
	Median	8.0	33.5	16.0	16.0

Note: Percentages, averages, and medians were calculated for PHAs/projects that responded to the specific item.

PHAs/projects were asked to explain in further detail how the number of training hours provided to one certification staff member were typically allocated. PHAs/projects reported the approximate number of rent calculation training hours that a typical new staff member is provided via various training methods (see Exhibit E-2b). In FY 2012, FY 2011, and FY 2010, PHAs/projects were asked to rank the three most frequently used training methods so that percentages of training utilization within each PHA/project could be calculated. Beginning in FY 2013, any training hours reported for the methods indicated utilization. The reported hours were used to calculate the average percentage of PHAs/projects that have used the various methods during the study period, where zero hours indicated that the method was not used.

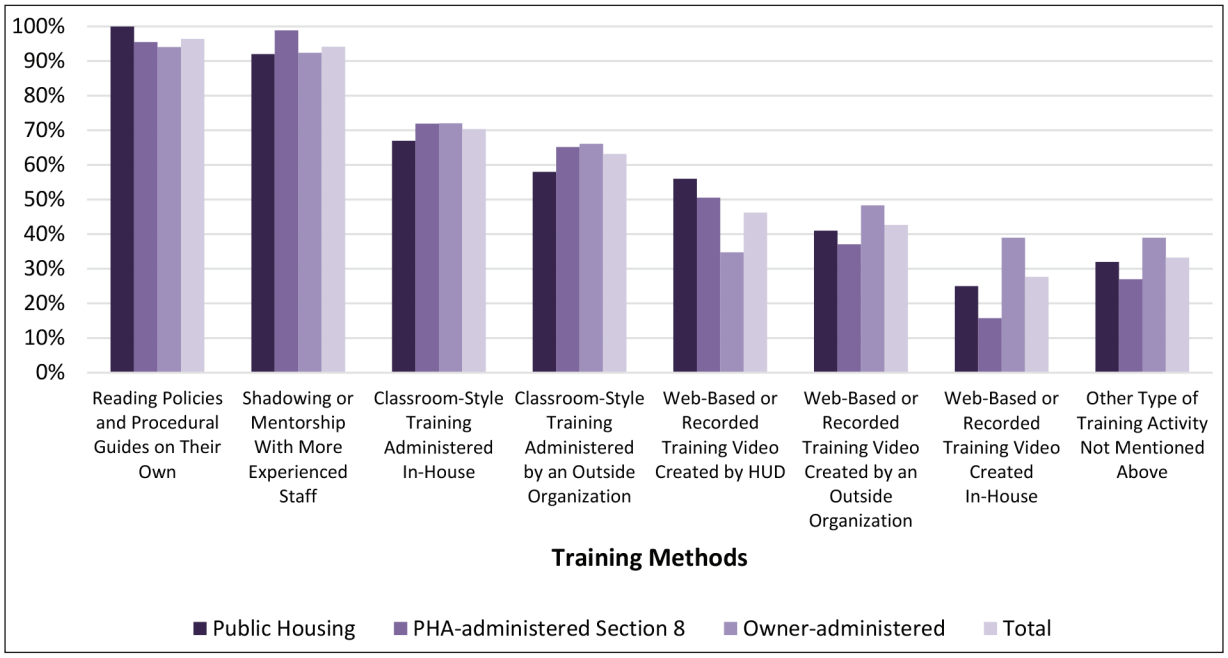
The most commonly used training method was reading policies and procedural guides on their own (96 percent), followed by shadowing or mentorship with experienced staff (94 percent) and classroom-style training administered in-house (70 percent) (see Exhibit E-2b). Web-based or recorded training video created in-house was the method least likely to be used (28 percent). The use of most of the training methods presented has remained stable since FY 2014. There was, however, a marked increase in the use of shadowing or mentorship with more experienced staff (91 percent to 94 percent) and in classroom-style training administered by an outside organization (56 percent to 63 percent) since FY 2014.

In FY 2015, all Public Housing projects prepared new certification employees by having them read policies and procedural guides on their own (100 percent). This method was also used by the vast majority of PHA-administered Section 8 and Owner-administered projects (96 percent and 94 percent, respectively). PHA-administered Section 8 projects were most likely to prepare new certification staff by having them shadow experienced staff (99 percent). Owner-administered projects were the least likely to use a Web-based or recorded training video created by HUD

[3] Training hour averages for FY 2012, FY 2011, and FY 2010 were calculated as the average for new recertification staff and reassigned staff.

(35 percent), while more than half of Public Housing and PHA-administered Section 8 projects employed this method (56 percent and 51 percent, respectively). Conversely, Owner-administered projects were more likely to use Web-based or recorded training videos created by an outside organization (48 percent) or in-house (39 percent) than both Public Housing projects (41 percent and 25 percent, respectively) and PHA-administered Section 8 (37 percent and 16 percent, respectively).

Exhibit E-2b
Methods Used to Train New Certification Staff, by Program Type



Note: Percentages were calculated for those PHAs/projects that had new certification staff in FY 2015.

Although most PHAs/projects relied on new staff to self-train by reading policies and procedural guides, an average of only 36 total hours per staff member was spent on this training method (see Exhibit E-2c). PHAs/projects dedicated the most training hours to shadowing and mentorship with more experienced staff, with an average of approximately 127 hours for each new certification staff member from November 1, 2014, to October 31, 2015. While this was an increase from FY 2014 (98 hours), it is consistent with the results from the FY 2013 PSQ (120 hours). The fewest hours of training were spent using Web-based or recorded training videos created by HUD (3 hours) and created in-house (3 hours).

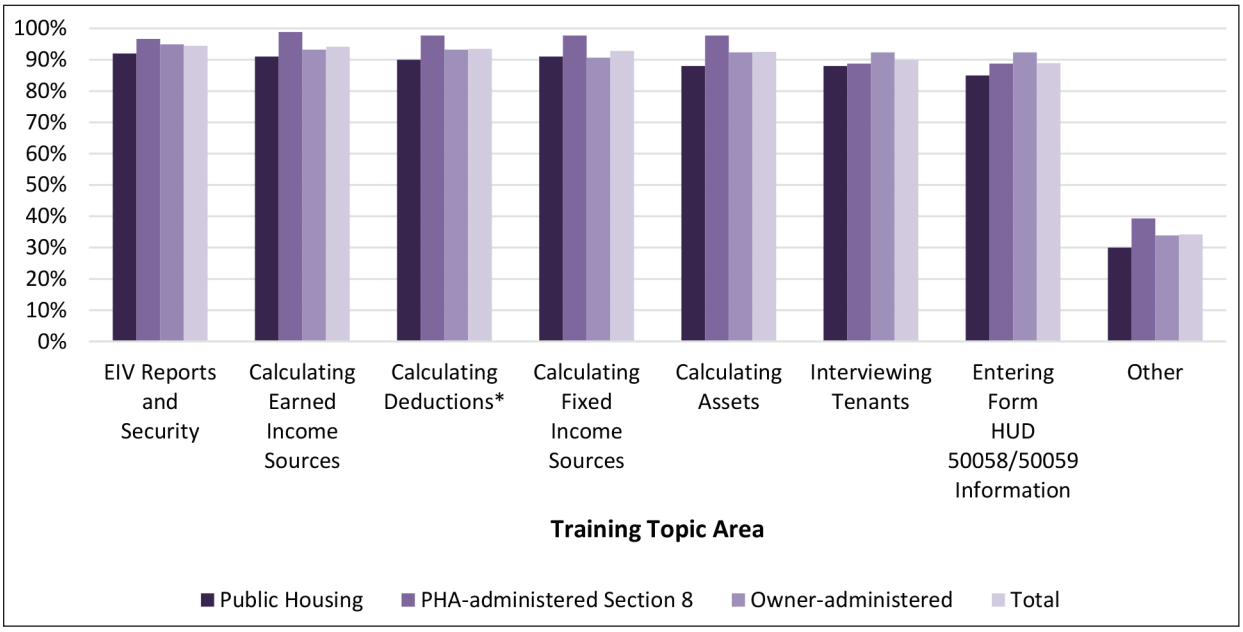
Exhibit E-2c
Training Hours per Training Method for New Certification Staff, by Program Type

Training Methods for New Staff		Program Type			All Program Types
		Public Housing	PHA-administered Section 8	Owner-administered	
Shadowing or Mentorship With More Experienced Staff	Mean	106.1	207.8	83.7	127.0
	Median	25.0	70.0	24.0	36.0
Reading Policies and Procedural Guides on Their Own	Mean	26.7	77.3	12.8	36.1
	Median	8.0	16.0	4.0	8.0
Classroom-Style Training Administered In-House	Mean	23.4	33.4	14.1	22.7
	Median	6.0	12.0	8.0	8.0
Classroom-Style Training Administered by an Outside Organization	Mean	15.2	21.4	10.6	15.2
	Median	4.5	24.0	8.0	8.0
Web-Based or Recorded Training Video Created by an Outside Organization	Mean	3.4	5.6	3.9	4.2
	Median	0.0	0.0	0.0	0.0
Web-Based or Recorded Training Video Created In-House	Mean	1.5	0.7	5.5	2.8
	Median	0.0	0.0	0.0	0.0
Web-Based or Recorded Training Video Created by HUD	Mean	3.5	3.9	1.4	2.8
	Median	1.0	1.0	0.0	0.0
Other Type of Training Activity Not Mentioned Above	Mean	5.8	11.2	10.0	9.0
	Median	0.0	0.0	0.0	0.0

Note: Averages and medians were calculated for those PHAs/projects that had new certification staff in FY 2014.

PHA/project training topics used to educate staff on conducting certifications are also important in determining activities that support proper rent calculation. PHAs/projects reported the approximate number of rent calculation training hours for a typical new staff member on various training topics. These hours were used to calculate the average percentage of PHAs/projects that provided various training topics related to certification activities from November 1, 2014, to October 31, 2015, where zero hours indicated that the training topic was not presented to certification staff. For each training topic area, most PHAs/projects (at least 88 percent) provided training (see Exhibit E-2d). The average number of hours spent on each topic per staff member was, for the most part, evenly distributed among the topic areas, with averages ranging from 24 to 36 hours during the study period, with the most time spent on entering Form HUD-50058/50059 and the least amount of time spent on Enterprise Income Verification (EIV) reports and security (see Exhibit E-2e). This was a substantial increase in training hours for each training topic area from FY 2014, when training hours ranged from 16 to 25 hours among the seven topics.

Exhibit E-2d
Training Topic Areas for New Certification Staff, by Program Type



Note: Percentages were calculated for those PHAs/projects that had new certification staff in FY 2015.
* Deductions refer to medical, disability, and childcare deductions.

Among the three program types, Owner-administered projects were the most likely to provide training in interviewing tenants and entering Form HUD-50058/50059 (92 percent each), while PHA-administered Section 8 projects were the most likely to provide training in calculating deductions, assets, and earned and fixed income sources, as well as in EIV reports and security (98 percent, 98 percent, 99 percent, 98 percent, and 97 percent, respectively) (see Exhibit E-2d). Furthermore, PHA-administered Section 8 projects spent, on average, the most training hours per training topic area, ranging from 36 to 52 hours, with the exception of EIV reports and security (see Exhibit E-2e).

Exhibit E-2e
Average Training Hours per Training Topic for New Certification Staff, by Program Type

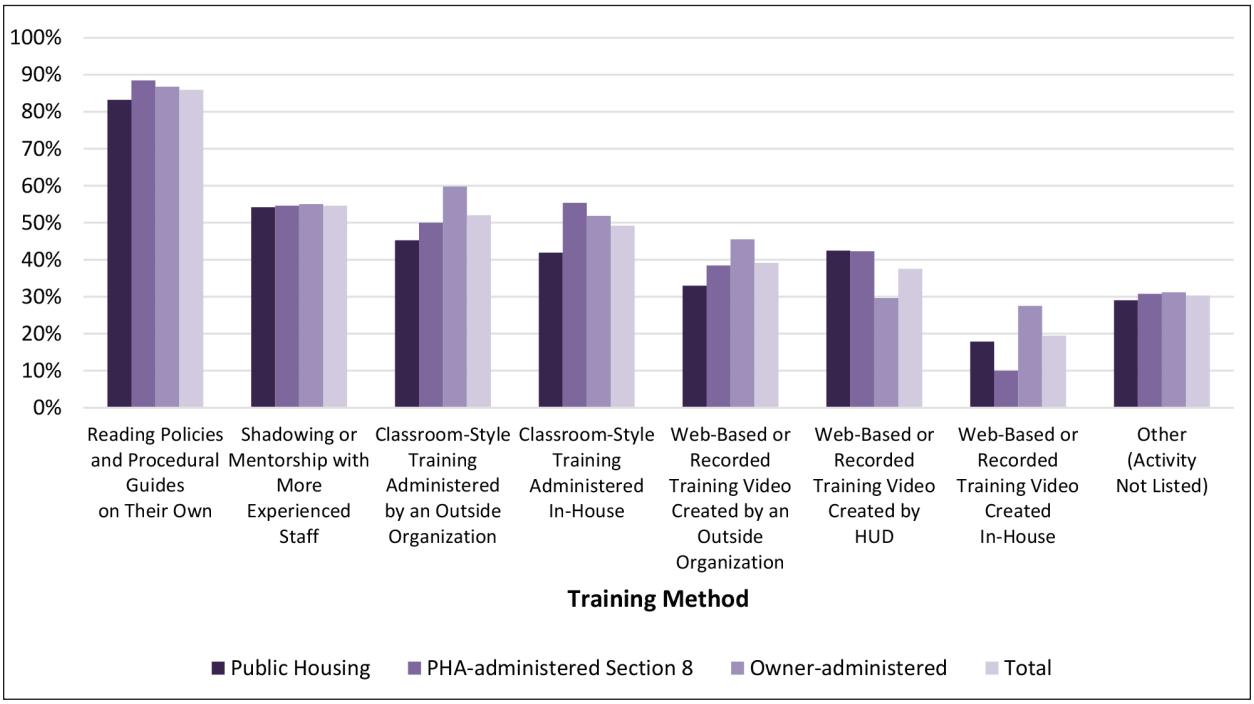
Training Topics for New Staff		Program Type			All Program Types
		Public Housing	PHA-administered Section 8	Owner-administered	
Entering Form HUD-50058/50059 Information	Mean	28.6	51.8	29.7	35.8
	Median	4.0	10.0	4.0	5.0
Calculating Earned Income Sources	Mean	31.6	47.7	29.1	35.3
	Median	7.0	14.0	4.0	8.0
Calculating Deductions (Medical, Disability, Childcare)	Mean	32.2	38.9	29.0	32.9
	Median	5.0	14.0	4.0	5.0
Calculating Fixed Income Sources	Mean	30.1	38.6	28.5	32.0
	Median	5.0	12.0	4.0	5.0
Calculating Assets	Mean	28.9	37.0	28.7	31.2
	Median	4.0	12.0	4.0	5.0
Interviewing Tenants	Mean	30.1	35.5	26.8	30.4
	Median	4.3	10.0	4.0	5.0
EIV Reports and EIV Security	Mean	15.8	25.7	28.8	23.7
	Median	4.8	6.0	4.0	5.0
Other	Mean	8.8	12.1	7.5	9.3
	Median	0.0	4.0	0.0	1.0

Note: Averages and medians were calculated for those PHAs/projects that had new certification staff in FY 2014.

Training for Experienced Staff. PHAs/projects were also asked to report the approximate number of rent calculation training hours for a typical experienced staff member for each training method. These reported hours were used to calculate the average percentage of PHAs/projects that have used the various methods, where zero hours indicated that the method was not used. As for new certification staff, PHAs/projects were most likely to have experienced staff read policies and procedural guides on their own (86 percent), shadow more experienced staff (55 percent), and attend classroom-style training administered by an outside organization (52 percent) (see Exhibit E-2f).

Compared to FY 2014, the data showed a pronounced increase in the use of Web-based or recorded training videos created by HUD (22 percent to 38 percent) and by outside organizations (33 percent to 39 percent). However, there was a dramatic decrease in the use of Web-based or recorded training videos created in-house (34 percent to 20 percent). Additionally, there were slight decreases in the use of shadowing more experienced staff (58 percent to 55 percent), reading policies and procedural guides alone (88 percent to 86 percent), and classroom-style training administered in-house (53 percent to 50 percent) (see Exhibit E-2f). The use of classroom-style training administered in-house remained stable (52 percent).

Exhibit E-2f
Methods Used to Train Experienced Certification Staff, by Program Type



Note: Percentages were calculated for PHAs/projects that responded to the specific items.

An analysis by program type found that PHA-administered Section 8 projects were most likely to provide policies and procedural guides to experienced staff for self-training (89 percent) and to use classroom-style training administered in-house (55 percent) (see Exhibit E-2f). Owner-administered projects were most likely to have an experienced employee attend classroom-style training administered by an outside organization (60 percent) and use Web-based or recorded training videos created by an outside organization (46 percent). All three program types were about equally likely to have experienced staff shadow more experienced staff members (ranging from 54 percent to 55 percent). Additionally, Public Housing and PHA-administered Section 8 projects were about equally likely to use Web-based or recorded training videos created by HUD (43 percent and 42 percent, respectively). In contrast, only 30 percent of Owner-administered projects used this method.

Exhibit E-2g
Training Hours per Training Method for Experienced Certification Staff, by Program Type

Training Methods for Experienced Staff		Program Type			All Program Types
		Public Housing	PHA-administered Section 8	Owner-administered	
Shadowing or Mentorship With More Experienced Staff	Mean	15.2	78.7	47.3	44.0
	Median	1.0	2.0	2.0	2.0
Reading Policies and Procedural Guides on Their Own	Mean	28.0	55.9	25.3	34.3
	Median	5.0	9.5	4.0	5.0
Classroom-Style Training Administered by an Outside Organization	Mean	11.7	9.8	18.8	13.9
	Median	0.0	0.5	4.0	2.0
Classroom-Style Training Administered In-House	Mean	8.2	10.1	7.3	8.3
	Median	0.0	2.0	1.0	0.0
Web-Based or Recorded Training Video Created by an Outside Organization	Mean	2.5	3.5	3.3	3.1
	Median	0.0	0.0	0.0	0.0
Web-Based or Recorded Training Video Created by HUD	Mean	3.1	2.5	1.8	2.4
	Median	0.0	0.0	0.0	0.0
Web-Based or Recorded Training Video Created In-House	Mean	0.7	1.2	2.7	1.6
	Median	0.0	0.0	0.0	0.0
Other (Activity Not Listed)	Mean	14.7	3.8	3.7	7.7
	Median	0.0	0.0	0.0	0.0

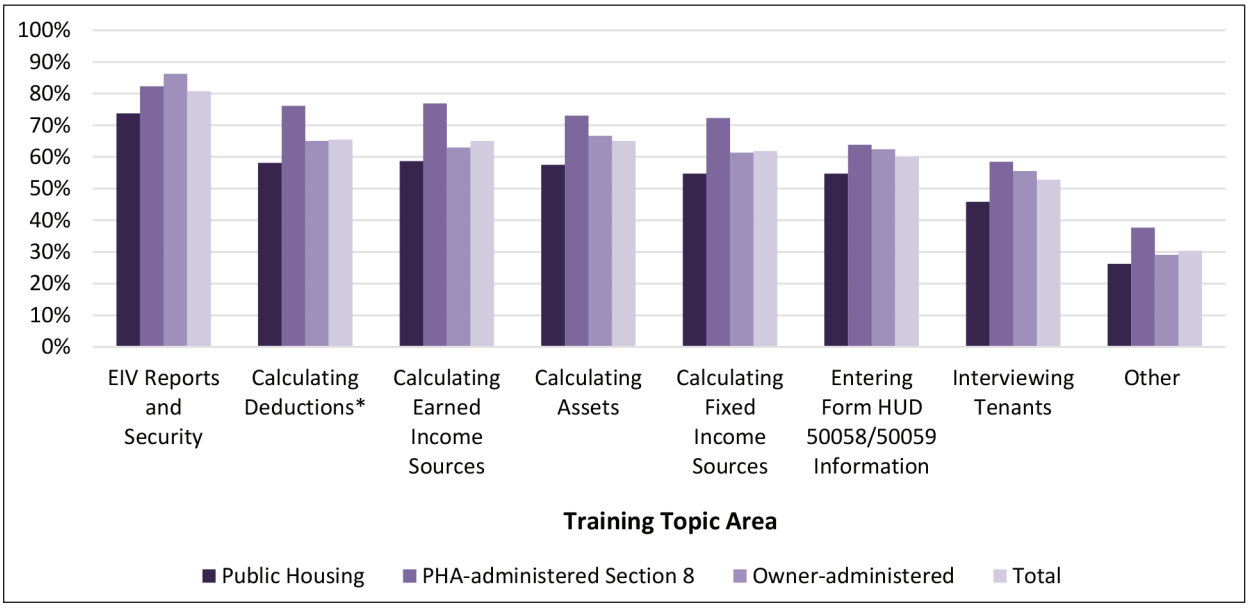
Note: Averages were calculated for PHAs/projects that responded to the specific items.

The average number of training hours provided to an experienced certification staff member was considerably less than those provided to a new staff member. PHAs/projects dedicated the most training hours to shadowing and mentorship with more experienced staff, with an average of approximately 44 hours per experienced certification staff over the study period (see Exhibit E-2g). This is an increase from an average of 29 hours in FY 2014, but is consistent with FY 2013 PSQ results (43 hours). The remaining training for experienced staff throughout the study period consisted of an average of 34 hours of self-training, 14 hours for classroom-style training administered by an outside organization, and less than 10 hours for each remaining training method.

As mentioned above, PHA/project training topics used to educate staff on conducting certifications are also important in determining activities that support proper rent calculation. PHAs/projects reported the approximate number of rent calculation training hours for a typical experienced staff member on various training topics. These hours served to calculate the average percentage of PHAs/projects that provided various training topics related to certification activities from November 1, 2014, to October 31, 2015, where zero hours indicated that the training topic was not presented to certification staff. At least 53 percent of PHAs/projects provided training to experienced certification staff for each topic listed (see Exhibit E-2h). PHAs/projects were most likely to train experienced certification staff in EIV reports and security (81 percent) and calculating deductions (66 percent), earned income sources, and assets (65 percent each) (see Exhibit E-2h). Of the topics listed, PHAs/projects were least likely to train on interviewing tenants (53 percent). With respect to program type,

Owner-administered projects were the most likely to train on EIV reports and security (86 percent), and PHA-administered Section 8 projects were the most likely to train on all other training topics.

Exhibit E-2h
Training Topic Areas for Experienced Certification Staff, by Program Type



Note: Percentages were calculated for PHAs/projects that responded to the specific items.
* Deductions refer to medical, disability, and childcare deductions.

The average number of hours spent on each topic listed was fairly evenly distributed among the topic areas (see Exhibit E-2i). On average, the most time was spent on entering Form HUD-50058/50059 information (10 hours) and the least amount of time on interviewing tenants (7 hours). Interestingly, the most training time for experienced staff in FY 2014 was spent on interviewing tenants (12 hours).

In comparison to a new certification staff member, an experienced certification staff member received approximately 25 fewer hours of training for each topic (see Exhibit E-2i). This was a considerable increase from FY 2014, when experienced staff received 13 fewer hours of training than new staff per topic. Furthermore, in FY 2013, experienced staff only received 7 fewer training hours, on average, than new certification staff. This is primarily due to the substantial increase in training hours for new staff, though the number of training hours for experienced staff did slightly decrease as well.

With respect to program type, Public Housing sites provided the most training in calculating earned income sources, fixed income sources, deductions, assets, and in interviewing tenants (11 hours each) (see Exhibit E-2i). PHA-administered Section 8 projects provided the most training hours on entering Form HUD-50058/50059 (15 hours). Public Housing and PHA-administered Section 8 project offered, on average, the same number of training hours in EIV reports and security (8 hours). Owner-administered projects provided the least amount of training to experienced certification staff, with an average of 6 hours or less spent on each topic.

Exhibit E-2i
Training Hours per Training Topic for
Experienced Certification Staff, by Program Type

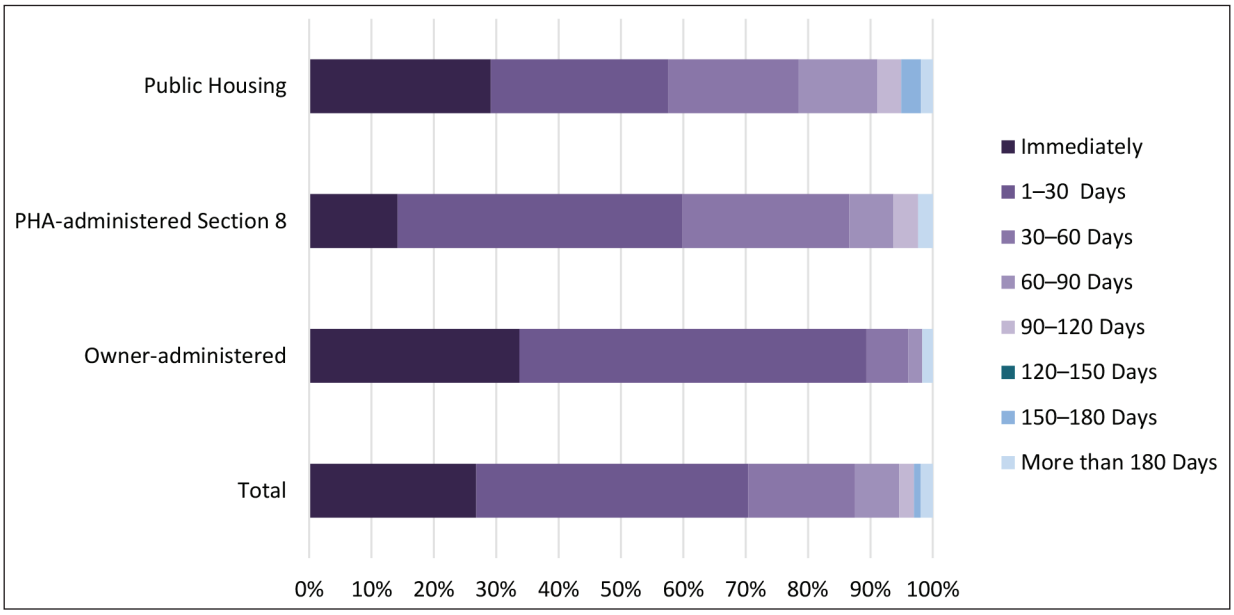
Training Topics for Experienced Staff		Program Type			All Program Types
		Public Housing	PHA-administered Section 8	Owner-administered	
Entering Form HUD-50058/50059 Information	Mean	10.9	14.5	5.5	9.8
	Median	1.0	1.0	1.0	1.0
Calculating Earned Income Sources	Mean	11.4	10.6	5.1	8.8
	Median	1.0	3.0	1.0	2.0
Calculating Fixed Income Sources	Mean	11.3	8.6	5.1	8.3
	Median	1.0	2.0	1.0	1.0
Calculating Deductions (Medical, Disability, Childcare)	Mean	11.1	8.1	4.9	8.0
	Median	1.0	3.0	1.0	2.0
Calculating Assets	Mean	11.3	7.3	4.8	7.8
	Median	1.0	2.0	1.0	1.0
EIV Reports and EIV Security	Mean	7.7	7.7	6.2	7.1
	Median	2.0	3.0	3.0	2.0
Interviewing Tenants	Mean	11.2	5.8	3.8	7.0
	Median	0.0	1.0	1.0	1.0
Other	Mean	4.2	6.2	4.8	5.0
	Median	0.0	0.0	0.0	0.0

Note: Averages and medians were calculated for PHAs/projects that responded to the specific items.

Policy Implementation. In FY 2015, the PSQ aimed to capture information from PHAs/projects on the typical time it takes to implement a new policy related to rent calculation. An analysis of the qualitative data collected found that most PHAs/projects implement a new policy between 1 and 30 days once an Office of Public and Indian Housing (PIH) Notice or Housing Notice is issued (44 percent) (see Exhibit E-2j). Many PHAs/projects also stated that implementation of a new policy related to rent calculation began immediately after issuance of a notice (27 percent), and only 4 percent of projects reported that they take longer than 90 days to implement a new rent calculation policy.

With respect to program type, Owner-administered projects were most likely to immediately implement a new policy and most likely to have full implementation of a new policy within 30 days (34 percent and 89 percent, respectively) (see Exhibit E-2j). By comparison, 60 percent of PHA-administered Section 8 projects and 58 percent of Public Housing sites achieved full implementation of a new policy within 30 days.

Exhibit E-2j
Implementation Time for a New Rent Calculation Policy, by Program Type



Certification Staff Work Behaviors. Another goal of the FY 2015 PSQ was to gain insight into PHA/project assessments of the quality of certification staff work behaviors. Ninety-eight percent of PHAs/projects rated their certification staff as either organized or very organized when working on certification activities, an increase from FY 2014 (95 percent) (see Exhibit E-2k). Owner-administered projects were most likely to rate staff as very organized (59 percent), while more Public Housing and PHA-administered Section 8 projects rated their staff as organized (55 percent and 52 percent, respectively). Less than 1 percent of PHA-administered Section 8 projects, as well as no Public Housing sites or Owner-administered projects, rated their staff as very unorganized.

Similarly, about 96 percent of PHAs/projects reported certification staff as having either good or very good time management (see Exhibit E-2k). As with organization, Owner-administered projects were most likely to select a rating of very good (57 percent), while Public Housing sites and PHA-administered Section 8 projects were more likely to report good time management (58 percent and 52 percent, respectively). Public Housing sites were most likely to report certification staff as having poor time management (7 percent). No PHAs/projects reported certification staff as having very poor time management.

Eighty percent of PHAs/projects indicated that their certification staff had a lot of attention to detail (see Exhibit E-2k). This is an increase from FY 2014, when 72 percent of PHAs/projects rated their staff as having a lot of attention to detail. Following trends from previous questions, Owner-administered projects were the most likely to rate their staff as having a lot of attention to detail (86 percent) when compared with Public Housing sites and PHA-administered Section 8 projects (74 percent and 78 percent, respectively). Overall, 19 percent of PHAs/projects rated staff as having some attention to detail, and just 2 percent as having little attention to detail. Less than 1 percent of Public Housing sites, and no PHA-administered Section 8 or Owner-administered projects, indicated that certification staff had very little or no attention to detail.

Exhibit E-2k
Certification Staff Work Behaviors, by Program Type

Certification Staff Organization, Attention to Detail, and Quality of Time Management	Program Type			All Program Types
	Public Housing	PHA-administered Section 8	Owner-administered	
Certification Staff Organization				
Very Organized	41.3%	46.9%	58.7%	49.4%
Organized	55.3%	51.5%	39.7%	48.4%
Unorganized	3.4%	0.8%	1.1%	1.8%
Very Unorganized	0.0%	0.8%	0.0%	0.2%
Certification Staff Attention to Detail				
A Lot	73.7%	77.7%	86.2%	79.5%
Some	23.5%	20.0%	12.7%	18.5%
Little	2.2%	2.3%	0.5%	1.6%
Very Little/None	0.6%	0.0%	0.0%	0.2%
Certification Staff Quality of Time Management				
Very Good	35.2%	45.4%	56.6%	46.0%
Good	58.1%	52.3%	39.7%	49.6%
Poor	6.7%	2.3%	3.2%	4.2%
Very Poor	0.0%	0.0%	0.0%	0.0%

Note: Percentages were calculated for PHAs/projects that responded to the specific items.

3. Performance Management

Quality Control Review and Timing of Reviews. The PSQ inquired about PHA/project practices on the review of tenant files as a QC measure. Most PHAs/projects indicated that they reviewed move-in and annual recertifications as a QC measure (89 percent) (see Exhibit E-3a). PHA-administered Section 8 projects were most likely to review tenant files (95 percent), compared with Public Housing sites and Owner-administered projects (87 percent each). The PHAs/projects that performed QC reviews reviewed an average of 47 percent of all move-in and annual certification transactions, and were most likely to conduct reviews prior to Form HUD-50058/50059 approval (27 percent) or within 30 calendar days of submitting Form HUD-50058/50059 to PIC/TRACS (25 percent).[4]

Public Housing sites and Owner-administered projects both reviewed the majority of all move-in and annual certification transactions (52 percent and 51 percent, respectively), while PHA-administered Section 8 projects reviewed an average of 36 percent of transactions (see Exhibit E-3a). Additionally, Owner-administered projects were most likely to conduct reviews prior to Form HUD-50059 approval (40 percent). By comparison, 21 percent of Public Housing sites and 18 percent of PHA-administered Section 8 projects reviewed transactions prior to Form HUD-50058 approval. Public Housing sites were the most likely to conduct QC reviews within

[4] This percentage was calculated by combining the percentages of PHAs/projects that indicated that they conducted QC reviews within 7 calendar days and within 30 calendar days of Form HUD-50058/50059 submission.

30 calendar days (32 percent), followed closely by PHA-administered Section 8 projects (30 percent), while Owner-administered projects were least likely to conduct reviews within 30 days (14 percent). Additionally, 22 percent of PHAs/projects indicated that QC reviews were typically conducted between 6 months and 1 year after submitting Form HUD-50058/50059.

Exhibit E-3a
Quality Control Reviews and Timing of Reviews, by Program Type

Percentage and Timing of Quality Control Reviews	Program Type			All Program Types
	Public Housing	PHA-administered Section 8	Owner-administered	
Percentage of PHAs/Projects That Perform QC Reviews of Move-in and Annual Certification transactions	87.2%	95.4%	86.8%	89.2%
Average Percentage of Move-in and Annual Certification Transactions Reviewed for QC*	51.8%	36.3%	51.3%	47.3%
Primary Period When QC Review Was Conducted				
Prior to Form HUD-50058/50059 approval*	21.4%	17.7%	39.9%	27.2%
Within 7 calendar days of Form HUD-50058/50059 submission*	5.8%	1.6%	1.2%	2.9%
Within 30 calendar days of Form HUD-50058/50059 submission*	26.0%	28.2%	12.9%	21.8%
Within 60 calendar days of Form HUD-50058/50059 submission*	11.0%	12.9%	6.1%	9.8%
Within 3 months of Form HUD-50058/50059 submission*	7.8%	11.3%	10.4%	9.8%
Within 6 months of Form HUD-50058/50059 submission*	5.8%	8.9%	6.1%	6.8%
Within 1 year of Form HUD-50058/50059 submission*	22.1%	19.4%	23.3%	21.8%

Note: Percentages were calculated for PHAs/projects that responded to the specific items.
* Percentages were calculated for PHAs/projects that reviewed certification transactions as a QC measure.

Selecting Cases for Review. Of PHAs/projects that conducted QC reviews, 26 percent reported that they reviewed not only move-in and annual certifications, but all tenant files as a QC measure (see Exhibit E-3b). This is consistent with FY 2014 results. As in FY 2014, FY 2013, and FY 2012, Owner-administered projects were most likely to review all cases (29 percent), and PHA-administered Section 8 projects were least likely to do so (23 percent). The percentage of Owner-administered projects that reviewed all tenant files decreased since FY 2014 (38 percent), while PHA-administered Section 8 projects were more likely to complete comprehensive reviews this year compared to FY 2014 (16 percent).

PHAs/projects that did not report performing QC reviews on all tenant files stated that they used the following methods most frequently to select cases for QC: randomly selecting cases for review (79 percent), selecting move-in transactions (50 percent), and selecting annual certification transactions (40 percent) (see Exhibit E-3b). With respect to program type, PHA-administered Section 8 projects were most likely to select tenant files randomly for QC review (89 percent). This is a slight decrease from FY 2014, when 92 percent of PHA-administered Section 8 projects selected

tenant files randomly. Additionally, PHA-administered Section 8 projects were the most likely of the three program types to select annual certification transactions, transfer/move transactions, interim transactions, files from new staff, files from staff with high error rates, and files based on household characteristics for review (49 percent, 33 percent, 32 percent, 39 percent, 33 percent, and 8 percent, respectively). Owner-administered projects were the most likely to select move-in transactions (61 percent), as well as the most likely to use another method of selecting cases for review that was not listed (10 percent).

Exhibit E-3b
Methods Used by PHAs/Projects to Select Cases for Review, by Program Type

Methods Used to Select Cases for Review	Program Type			All Program Types
	Public Housing	PHA-administered Section 8	Owner-administered	
All Transactions That Were Processed Were Reviewed by Another Staff Member	26.6%	22.6%	28.8%	26.3%
All Transactions Were Not Reviewed				
Files Were Randomly Sampled*	77.0%	88.5%	72.4%	78.8%
Move-In Transactions Were Chosen for Review*	35.4%	54.2%	61.2%	50.2%
Annual Certification Transactions Were Chosen for Review*	37.2%	49.0%	36.2%	40.3%
Transfer/Move Transactions Were Chosen for Review*	17.7%	33.3%	21.6%	23.7%
Interim Transactions Were Chosen for Review*	22.1%	32.3%	16.4%	23.1%
Files Were Chosen From New Staff*	13.3%	38.5%	6.9%	18.5%
Files Were Chosen From Staff With High Error Rates or Who Seem to Have More Trouble*	8.8%	33.3%	1.7%	13.5%
Files Were Chosen Based on Household Income, Asset, and Expense Characteristics*	4.4%	8.3%	0.9%	4.3%
PHA/Project Chose Another Method of Selecting Cases for Review That Is Not Listed*	6.2%	6.3%	10.3%	7.7%

Note: Percentages were calculated for PHAs/projects that indicated they review tenant files as a QC measure.
* Percentages were calculated based on PHAs/projects that indicated they did not review all (100%) tenant files.

File Reviewers. The majority of PHAs/projects indicated that they have a dedicated QC staff to review data submitted on Form HUD-50058/50059 (68 percent) (see Exhibit E-3c). This is, however, a decrease since FY 2014 (74 percent). PHA-administered Section 8 projects were most likely to have QC staff (80 percent), compared with Public Housing sites (62 percent) and Owner-administered projects (65 percent). PHAs/projects reported that, during the study period, the review or monitoring of tenant files was conducted primarily by the team leader or supervisor (83 percent) or internal QC staff (47 percent), who reviewed a yearly average of 266 and 233 tenant files, respectively (see Exhibits E-3d and E-3c).

Public Housing sites were the most likely to rely on a supervisor or HUD-affiliated auditor (87 percent and 26 percent, respectively) when compared to other program types. Owner-administered projects were the most likely to use internal staff reviewers, other certification staff, contract administers, and Office of the Inspector General (OIG) auditors (55 percent,

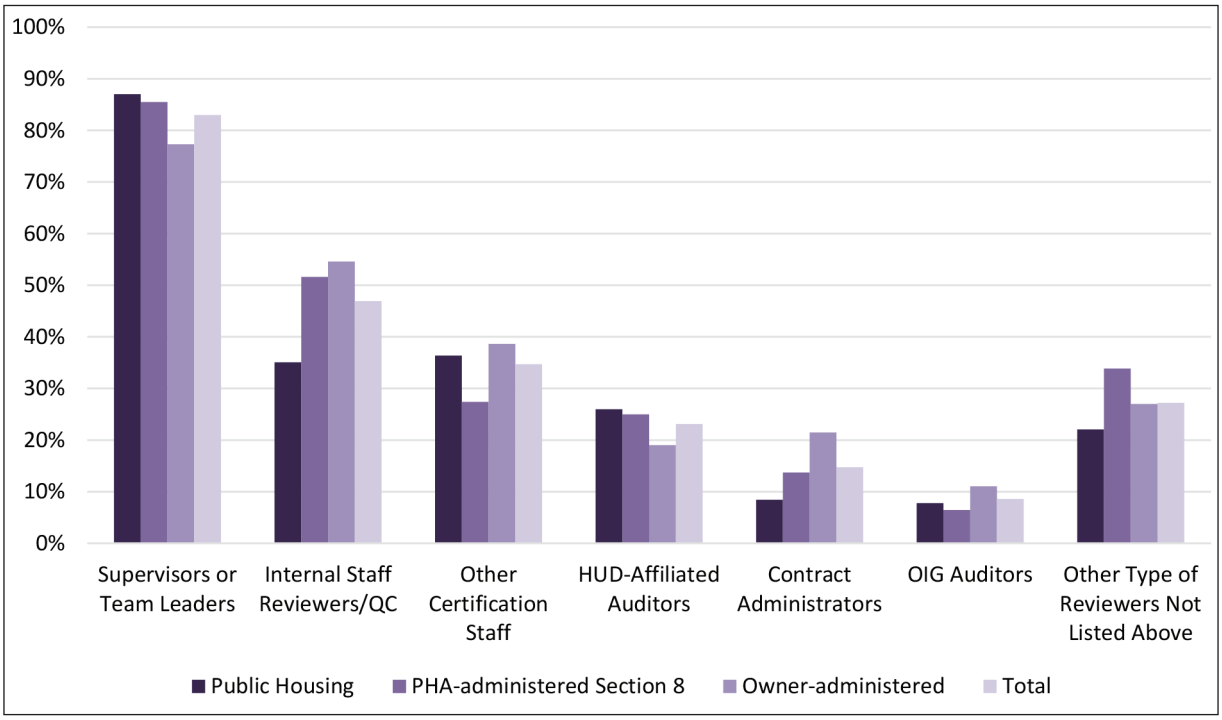
39 percent, 22 percent, and 11 percent, respectively). Supervisors and internal staff reviewers at PHA-administered projects reviewed the most files, with an average of 681 and 643 files a year, respectively. In contrast, supervisors and internal staff reviewers at Public Housing sites reviewed an average of 165 and 117 files, respectively, and Owner-administered projects only 44 and 30 files, respectively. However, as seen in Exhibit E-1a, PHA-administered Section 8 staff have a much larger workload of certifications to perform yearly, so it is reasonable that they also QC a larger number of files.

Exhibit E-3c
Quality Control Staff and Average
Number of Tenant Files Reviewed, by Program Type

Quality Control Staff and Files Reviewed		Program Type			All Program Types
		Public Housing	PHA-administered Section 8	Owner-administered	
Percentage of PHAs/projects With a Dedicated QC Staff		62.0%	80.0%	65.1%	67.9%
Number of Files Reviewed					
Supervisors or Team Leaders*	Mean	164.9	680.7	44.0	265.8
	Median	42.0	85.5	15.0	30.0
Internal Staff Reviewers/QC*	Mean	116.7	642.9	29.5	232.9
	Median	0.0	3.0	3.5	0.0
Contract Administrators*	Mean	54.9	153.0	23.8	71.1
	Median	0.0	0.0	0.0	0.0
Other Certification Staff*	Mean	3.6	96.6	7.2	31.2
	Median	0.0	0.0	0.0	0.0
HUD-Affiliated Auditors*	Mean	3.4	8.3	4.2	5.1
	Median	0.0	0.0	0.0	0.0
OIG Auditors*	Mean	0.6	1.5	2.5	1.6
	Median	0.0	0.0	0.0	0.0
Other Type of Reviewers Not Listed Above*	Mean	5.2	22.0	8.5	11.1
	Median	0.0	0.0	0.0	0.0

Note: Percentages, averages, and medians were calculated for PHAs/projects that responded to the specific items.
* Averages and medians were calculated for the PHAs/projects that indicated that they review tenant files as a QC measure.

Exhibit E-3d
Sources of Monitoring or Reviewing of Tenant Files, by Program Type



Note: Data presented in the figure were calculated for the PHAs/projects that indicated that they review tenant files as a QC measure.

File Information Reviewed. For those PHAs/projects that conducted dedicated QC reviews, the most common file information typically checked during QC reviews included correct income calculations (91 percent), presence of verification documents in the tenant file (90 percent), proper core household documentation in the tenant file (89 percent), correct medical expense calculations (88 percent), and accurate completion of documentation in the tenant file (88 percent) (see Exhibit E-3e). PHAs/projects were least likely to report that a general spot check of the file was performed (15 percent), indicating that specific file information was confirmed during QC checks. This is a decrease from FY 2014, when 19 percent of PHAs/projects performed general spot checks.

Exhibit E-3e provides a complete breakdown of documentation, verification, calculations, and other information typically checked during the QC process. The exhibit illustrates that PHA-administered Section 8 projects were most likely to review file information for most categories than other program types. However, Public Housing sites were most likely to review proper core household documentation in the tenant file (90 percent), and Owner-administered projects were most likely to review accurate completion of documentation in the tenant file (89 percent), the presence of verification documents (93 percent), that verification documents meet their program's timeframe for acceptable documentation (81 percent), and that data on the Form HUD-50058/50059 was properly entered (88 percent). Compared to FY 2014, the percentage of PHAs/projects that reviewed items related to documentation increased for each category. Additionally, more PHAs/projects reviewed correct income calculations (91 percent), correct medical expense calculations (88 percent), and correct childcare expense calculations (77 percent) than in FY 2014 (88 percent, 84 percent, and 72 percent, respectively).

Exhibit E-3e
File Information Typically Reviewed During Quality Control, by Program Type

File Information Typically Reviewed During QC	Program Type			All Program Types
	Public Housing	PHA-administered Section 8	Owner-administered	
Documentation				
Proper Core Household Documentation in the Tenant File	89.8%	87.2%	89.1%	88.8%
Accurate Completion Of Documentation in the Tenant File	87.9%	86.4%	88.5%	87.7%
Consistency of a Household's Certification/ Interview Application to Tenant File Documentation	66.9%	80.8%	79.4%	75.4%
Proper Unit Documentation in the Tenant File	63.7%	83.2%	70.9%	71.8%
Verification				
Presence of Verification Documents in the Tenant File	85.4%	92.0%	92.7%	89.9%
Appropriate Type of Verification Documentation (Follows Verification Policy) Is in the Tenant File	78.3%	89.6%	88.5%	85.2%
Verification Documents Meet Your Program's Timeframe for Acceptable Documentation	70.7%	79.2%	81.2%	77.0%
Calculations				
Correct Income Calculation	88.5%	93.6%	90.9%	90.8%
Correct Medical Expense Calculation	87.3%	88.8%	87.9%	87.9%
Correct Disability Expense Calculation	86.6%	92.8%	80.6%	86.1%
Correct Childcare Expense Calculation	84.7%	92.0%	58.8%	77.2%
Other Information				
Properly Entered Data on the Form HUD-50058/50059	77.1%	83.2%	87.9%	82.8%
Accuracy of the Rent Adjustment or HAP Amendment Letter in the Tenant File	51.6%	85.6%	72.1%	68.7%
General Spot Check of the File Is Performed	14.6%	12.8%	15.8%	14.5%
Correct Utility Allowance Amount Applied to Rent Calculation, if Applicable to Your Program Type	N/A	90.4%	N/A	90.4%
Correct Payment Standard Amount Applied to Rent Calculation, if Applicable	N/A	89.6%	N/A	89.6%

Note: Percentages were calculated for PHAs/projects that indicated they review tenant files as a QC measure.

Prevalence of Various Types of Errors. All PHAs/projects, regardless of whether they conduct quality reviews, were asked to rate the frequency of errors made by the staff as a whole for various types of rent calculation activities during the study period. They were asked whether errors in verifications, errors in calculations, and human errors were made very often, often, sometimes, or rarely. For each type of error related to verifications, at least 1 percent of the PHAs/projects reported that the error occurred often or very often (see Exhibit E-3f). Missing, incomplete, or incorrect verification of income was most likely to be reported as often or very often (4 percent). These findings are consistent with FY 2014 results. Additionally, errors in verification of income

were sometimes found (15 percent of PHAs/projects), as were errors in verification of deductions (16 percent), verification of assets (15 percent), and verification of allowances (11 percent).

By program type, PHA-administered Section 8 projects were most likely to report income verification errors occurring often or very often (7 percent), while Public Housing projects were the most likely to report the often or very often occurrence of errors in verifying assets, allowances, and deductions (3 percent, 2 percent, and 3 percent, respectively) (see Exhibit E-3f). This is a shift from FY 2013 and FY 2014, when PHA-administered Section 8 projects were the most likely to report each type of verification error as occurring often or very often. Furthermore, in FY 2015, PHA-administered Section 8 projects were most likely to report that errors in verification of income, assets, allowances, and deductions were sometimes found (21 percent, 18 percent, 17 percent, and 23 percent, respectively). Owner-administered projects were least likely to report errors occurring often or very often in each category; furthermore, they were least likely to report errors occasionally occurring in each category.

Exhibit E-3f
Frequency of Missing, Incomplete, or Incorrect Verifications, by Program Type
(PH = Public Housing, VO = PHA-administered Section 8, OA = Owner-administered)

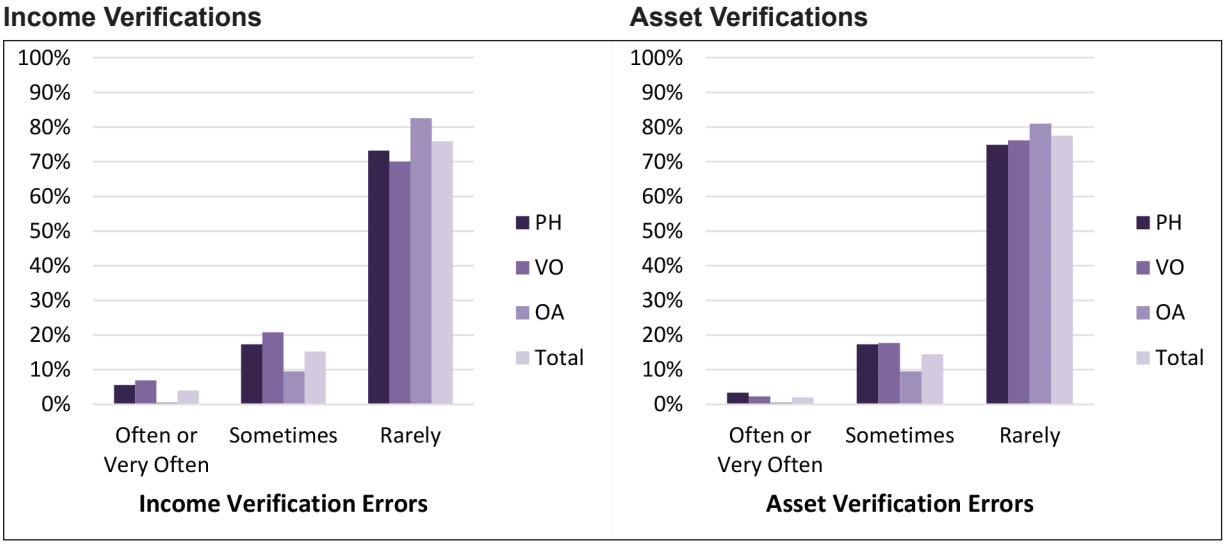
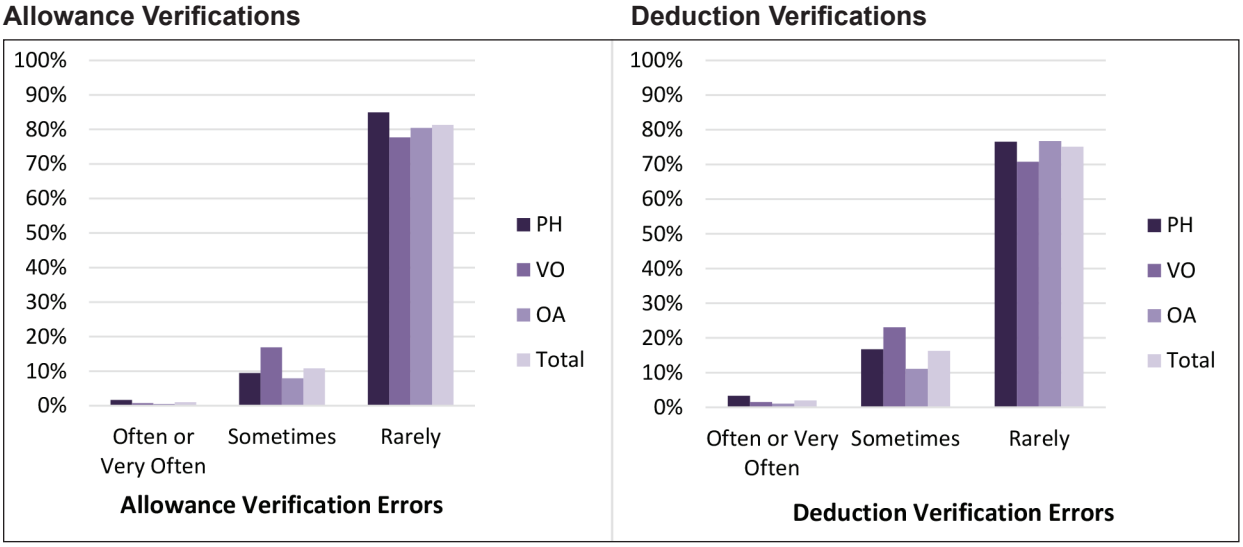


Exhibit E-3f
Frequency of Missing, Incomplete, or Incorrect Verifications, by Program Type, cont.
(PH = Public Housing, VO = PHA-administered Section 8, OA = Owner-administered)

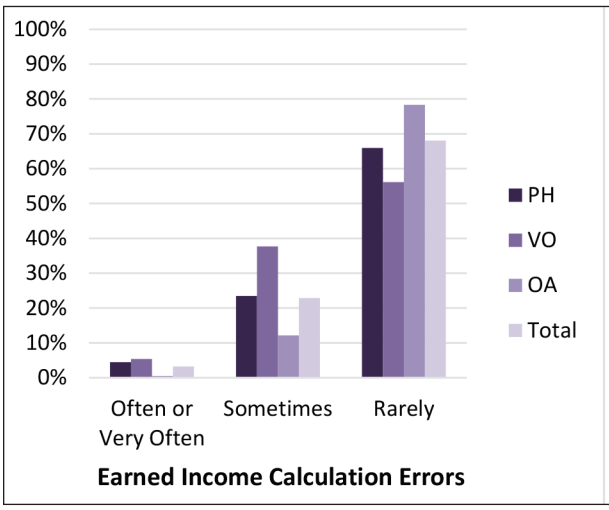


Note: Percentages were calculated for PHAs/projects that responded to the specific items.

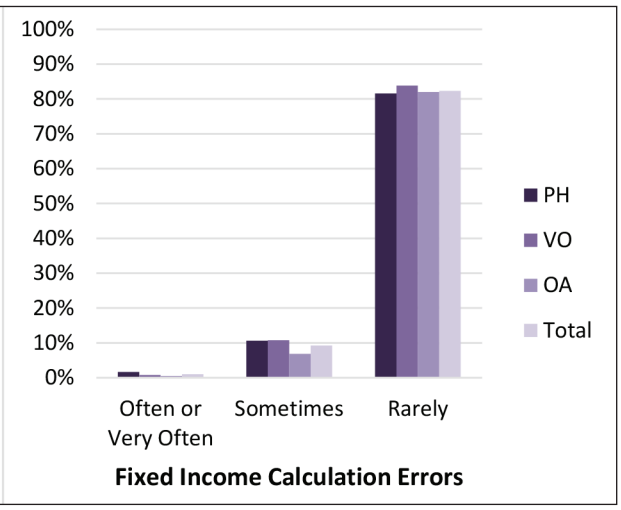
Among errors related to calculations, PHAs/projects were most likely to report earned income calculation errors as occurring often or very often (3 percent), as well as occasionally (23 percent). This is a decrease from 5 percent and 26 percent in FY 2014, respectively. Errors were also found often or very often in calculating fixed income (1 percent), assets (2 percent), and student income or financial aid (2 percent) (see Exhibit E-3g). By program type, PHA-administered Section 8 projects were most likely to report making earned income calculation errors often or very often (5 percent), while Public Housing sites were most likely to report making errors in calculating fixed income and assets often or very often (2 percent and 3 percent, respectively). Owner-administered projects were the most likely to report making errors often or very often in calculating student income or financial aid (2 percent). PHA-administered Section 8 projects were the most likely to report occasional errors for each type of calculation.

Exhibit E-3g
Frequency of Missing, Incomplete, or Incorrect Income Calculations, by Program Type
(PH = Public Housing, VO = PHA-administered Section 8, OA = Owner-administered)

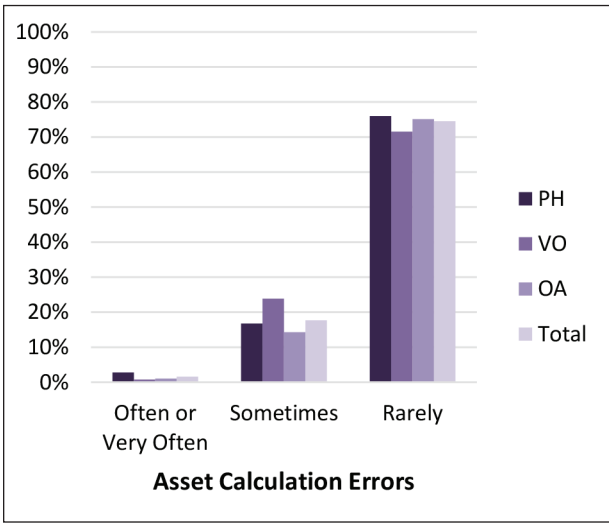
Earned Income Calculations



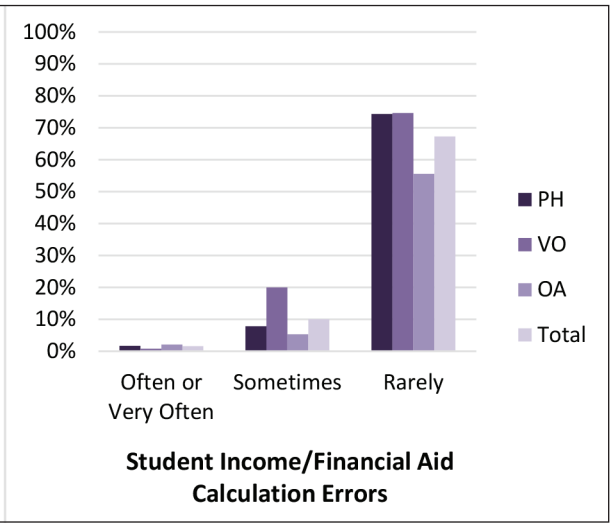
Fixed Income Calculations



Asset Calculations



Student Income/Financial Aid Calculations

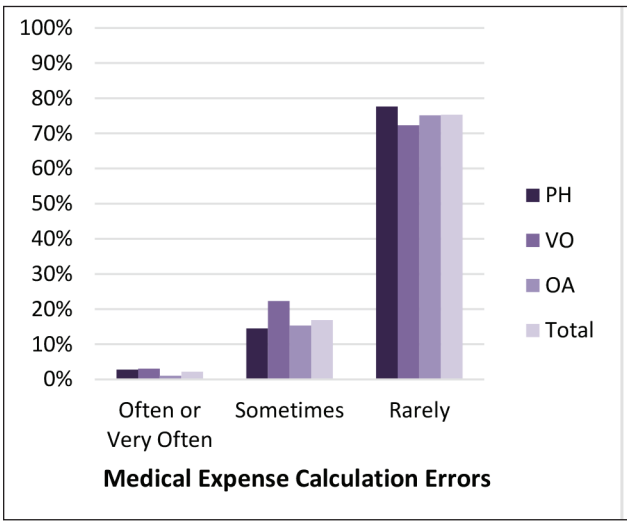


Note: Percentages were calculated for PHAs/projects that responded to the specific items.

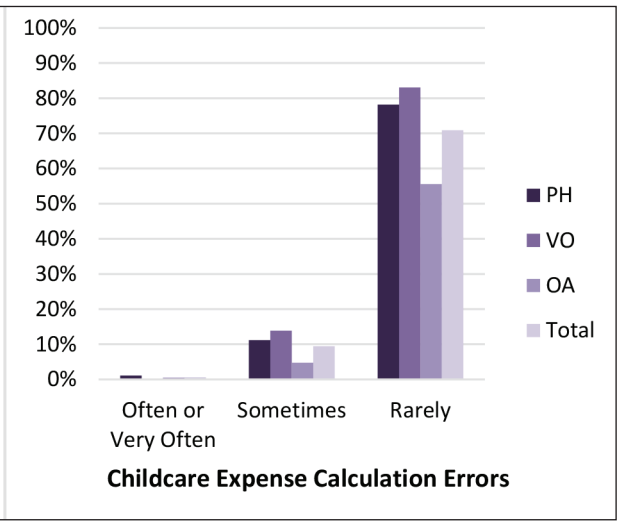
For errors related to expenses, 2 percent of PHAs/projects reported making medical expense calculation errors often or very often, while less than 1 percent reported making childcare expense calculation or disability expense calculation errors often or very often (see Exhibit E-3h). This is a decrease since FY 2014, when at least 1 percent of PHAs/projects reported finding errors in each category often or very often. Additionally, medical expense calculations were identified as having the highest occasional error rate (17 percent). PHA-administered Section 8 projects reported the highest rate of occasional errors in medical, childcare, and disability expense calculations (22 percent, 14 percent, and 13 percent, respectively) compared with other program types.

Exhibit E-3h
Frequency of Missing, Incomplete, or Incorrect Expense Calculations, by Program Type
(PH = Public Housing, VO = PHA-administered Section 8, OA = Owner-administered)

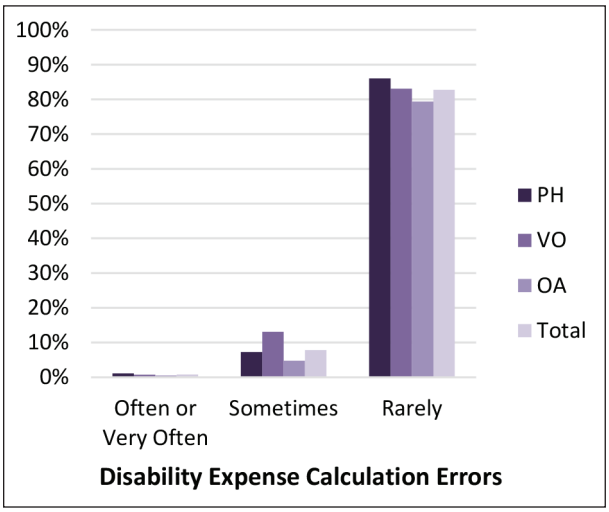
Medical Expense Calculations



Childcare Expense Calculations



Disability Expense Calculations

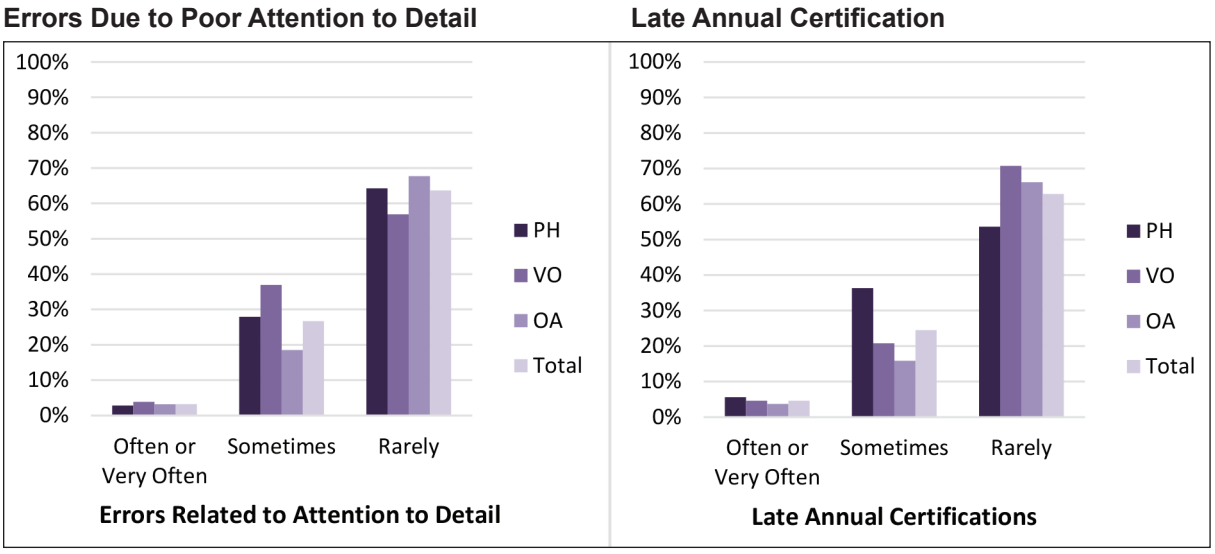


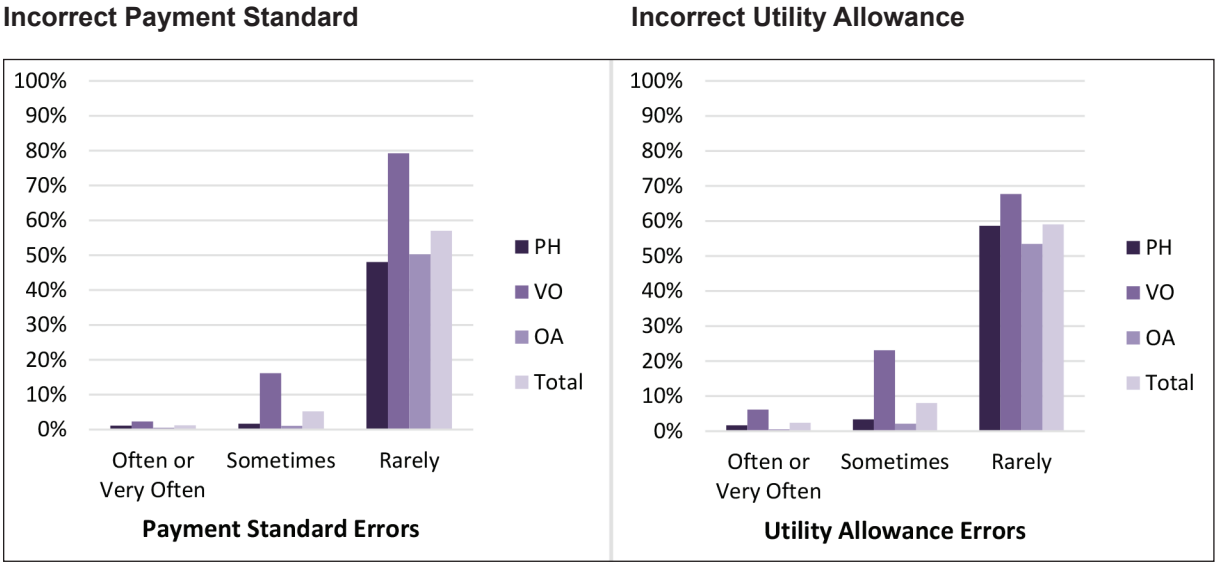
Note: Percentages were calculated for PHAs/projects that responded to the specific items.

Three percent of PHAs/projects reported that errors occurred due to poor attention to detail often or very often. With respect to program type, 3 percent of Public Housing and Owner-administered projects reported that these errors occurred often or very often, along with 4 percent of PHA-administered Section 8 projects (see Exhibit E-3i). This is a shift from FY 2014, when no Owner-administered sites reported this issue often or very often, while Public Housing and PHA-administered Section 8 sites reported relatively high numbers (7 percent and 5 percent, respectively). Furthermore, these errors were considerably more likely to occur occasionally compared to other types of calculation and verification errors (27 percent). Late annual certifications had the highest reported often or very often error rates of all rent calculation

activities among PHAs/projects (5 percent), with Public Housing projects being most likely to have certification staff frequently complete late annual certification transactions (6 percent). On the calculation of payment standards and utility allowances, errors were made very often or often at 1 percent and 2 percent of PHAs/projects, respectively. Payment standard and utility allowance errors were identified as sometimes being made less than 10 percent of the time (5 percent and 8 percent, respectively).

Exhibit E-3i
Frequency of Other Errors, by Program Type
(PH = Public Housing, VO = PHA-administered Section 8, OA = Owner-administered)





Note: Percentages were calculated for PHAs/projects that responded to the specific items.
Note: Traditional Payment Standards are not applicable to Public Housing or Owner-administered projects. However, a proportion of survey respondents within these programs responded to the question.

Performance Feedback to Staff. In order to provide performance feedback to staff on errors found during QC, PHAs/projects were most likely to have one-on-one conversations to discuss QC findings with staff (73 percent) (see Exhibit E-3j. This is an increase from FY 2014, when 65 percent of PHAs/projects provided feedback with staff in this way. Many PHAs/projects also recorded file errors and made that information available to certification staff (49 percent), conducted team/group meetings to discuss QC issues (39 percent), and provided general reports of QC findings to staff (17 percent). As in FY 2014, PHA-administered Section 8 projects were most likely to use each performance feedback method compared to other program types, while Owner-administered projects were most likely to use a feedback method not listed (15 percent).

Exhibit E-3j
Methods of Feedback to Staff Regarding Errors Found During QC, by Program Type

Methods of Feedback	Program Type			All Program Types
	Public Housing	PHA-administered Section 8	Owner-administered	
One-On-One Conversations to Discuss QC Findings (Phone or In-Person)	76.6%	78.0%	66.7%	73.4%
Specific Deficiencies for Each File Are Recorded and Made Available to Certification Staff	40.3%	56.1%	51.6%	48.9%
Team/Group Meetings to Discuss QC Issues	39.6%	63.4%	20.1%	39.2%
A General Report on QC Findings Is Provided to All Certification Staff	15.6%	22.8%	14.5%	17.2%
Other Feedback Method Not Mentioned Above	7.1%	8.1%	14.5%	10.1%

Note: Percentages were calculated for PHAs/projects that reviewed tenant files as a QC measure.

PHAs/projects were asked to comment on the frequency with which they provided feedback to staff on their performance in calculating rent. Twenty-five percent of PHAs/projects reported they provided monthly feedback, followed by weekly (14 percent), annually (12 percent), daily (11 percent), quarterly (10 percent), and semi-annually (4 percent) (see Exhibit E-3k). Only 7 percent of PHAs/projects reported that they did not provide any performance feedback to staff. With respect to program type, housing projects were most likely to provide daily and weekly feedback (12 percent and 19 percent, respectively), Owner-administered projects were most likely to provide feedback quarterly (12 percent) and annually (18 percent), and PHA-administered Section 8 projects were most likely to provide monthly feedback (33 percent).

Exhibit E-3k
Frequency of Rent Calculation Performance Feedback to Staff, by Program Type

Frequency of Feedback to Certification Staff	Program Type			All Program Types
	Public Housing	PHA-administered Section 8	Owner-administered	
Daily	12.3%	10.5%	9.8%	10.9%
Weekly	18.8%	16.1%	6.7%	13.6%
Monthly	22.7%	33.1%	22.1%	25.4%
Quarterly	9.1%	8.1%	11.7%	9.8%
Semi-Annually	2.6%	3.2%	4.9%	3.6%
Annually	7.8%	9.7%	18.4%	12.2%
Other Time Period	17.5%	17.7%	16.6%	17.2%
Performance Feedback Is Not Provided to Staff	9.1%	1.6%	9.2%	7.0%

Note: Percentages were calculated for PHAs/projects that responded to the specific items.

PHAs/projects were asked which staff were responsible for file corrections when errors were found during QC review. Overwhelmingly, the certification staff member who made the error was responsible for making the file corrections (83 percent), while only 12 percent of PHAs/projects required the file reviewer to make the correction (see Exhibit E-3l). PHA-administered Section 8 projects were most likely to have the certification staff member who made the error complete the file corrections (91 percent), compared to Owner-administered projects (78 percent) and Public Housing projects (82 percent). Owner-administered projects were most likely to have the QC reviewer correct file errors (17 percent), compared to other program types (7 percent for PHA-administered Section 8 and 10 percent for Public Housing).

Exhibit E-3l
Staff Members Responsible for File Corrections During Quality Control, by Program Type

Staff Responsible for File Corrections When Errors Were Found During Quality Control	Program Type			All Program Types
	Public Housing	PHA-administered Section 8	Owner-administered	
The Certification Staff Who Made the Error	82.4%	91.0%	78.2%	83.3%
The Person Who Performed QC of the File	10.1%	6.6%	17.3%	11.7%
Other Correction Staff Member Not Mentioned Above	7.4%	2.5%	4.5%	4.9%

Note: Percentages were calculated for PHAs/projects that reviewed certification transactions as a QC measure.

Error Tracking and Mitigation. Twenty-eight percent of PHAs/projects reported that they do not track any of the listed certification errors (see Exhibit E-3m). PHA-administered Section 8 projects were least likely to report that they do not track certification errors (16 percent), compared to Owner-administered projects (37 percent) and Public Housing projects (29 percent). PHAs/projects that did track the types of certification errors monitored the following types of errors most frequently: late annual certification transactions (78 percent), errors in earned income calculations (57 percent), errors in calculating assets (56 percent), and errors in calculating medical expenses (54 percent).

Public Housing sites were most likely to track late annual certification transactions (86 percent), while PHA-administered Section 8 projects were most likely to track errors in all other categories, at considerably higher rates than both Public Housing and Owner-administered projects.

Exhibit E-3m
Types of Rent Calculation Errors Tracked, by Program Type

Types of Certification Errors Tracked or Recorded	Program Type			All Program Types
	Public Housing	PHA-administered Section 8	Owner-administered	
None—The Project Does Not Track Any of the Listed Information	28.5%	16.2%	36.5%	28.3%
Projects That Tracked Rent Calculation Errors				
Late Annual Certification Transactions*	85.9%	80.7%	66.7%	77.9%
Errors in Earned Income Calculation*	43.8%	81.7%	47.5%	56.6%
Errors in Asset Calculation*	38.3%	72.5%	59.2%	55.7%
Errors in Medical Expense Calculation*	39.8%	71.6%	54.2%	54.3%
Errors in Maintaining Accurate Tenant File Documentation That Is Not Related to Verification of Income, Assets, and Expenses*	44.5%	68.8%	40.0%	50.4%
Errors Related to Accurate Verification of Income, Assets, and Expenses*	39.8%	67.0%	46.7%	50.4%
Errors in Fixed Income Calculation*	31.3%	67.0%	45.8%	47.1%
Errors in Elderly/Disability Allowance Determination*	33.6%	66.1%	33.3%	43.4%
Errors in Childcare Expense Calculation*	32.0%	67.0%	30.0%	42.0%
Errors in Dependent Allowance Determination*	31.3%	63.3%	30.8%	40.9%
Errors in Disability Expense Calculation*	29.7%	59.6%	30.8%	39.2%

* Percentages were calculated based on PHAs/projects that indicated they track rent calculation errors.

Overall, the majority of PHAs/projects, regardless of whether they conducted quality checks, had a formal or informal goal-setting process in place during the study period (69 percent) (see Exhibit E-3n). Furthermore, 73 percent of PHAs/projects required certification staff to review the household's previous Form HUD-50058/50059 before beginning a new certification transaction. With respect to program type, Owner-administered projects were least likely to have a goal-setting process in place, but most likely to require certification staff to review the previous Form HUD-50058/50059 (64 percent and 81 percent, respectively). While neither of these strategies are formal or thorough QC measures, implementing and enforcing these performance targets may help reduce rent calculation error.

Exhibit E-3n
Percentage of PHAs/Projects With Certification Performance Goals and Form HUD-50058/50059 Review Requirements, by Program Type

Rent Calculation Error Mitigation Strategies	Program Type			All Program Types
	Public Housing	PHA-administered Section 8	Owner-administered	
Percentage of Certification Staff That Undergo a Formal or Informal Goal-Setting Process Related to Performing Certifications	70.9%	71.5%	64.0%	68.5%
PHA/Project Requires Certification Staff to Review Household's Previous Form HUD-50058/50059 Prior to Starting New Certification Transaction	69.3%	66.9%	81.0%	73.1%

Note: Percentages were calculated for PHAs/projects that responded to the specific items.

C. Conclusion

Overall, PSQ questions on PHA/project characteristics, certification staff training and development, and performance management revealed a complex and interesting picture of PHAs/projects. Demographically, there was a decrease in the number of units/households from past years, with a slight increase in the average number of certification staff. This resulted in a declining ratio of units per individual staff member. Since FY 2014, there has been a decrease in projects reporting a too-high workload (49 percent to 44 percent), and an increase in projects reporting a manageable workload (49 percent to 56 percent). The percentage of PHAs/projects that had at least one staff member leave remained constant in FY 2015, though the average number of staff that stopped working on certification activities at projects with turnover increased slightly (2 staff to 3 staff). In addition, staff were much more likely than in previous years to be rated as very organized (43 percent to 50 percent), to have very good time management (36 percent to 46 percent), and to pay a lot of attention to detail (72 percent to 80 percent). With respect to project characteristics, virtually all of the PHA/project respondents indicated that they did not contract out their certification activities. Additionally, almost all of the PHAs/projects indicated that they used computer software to help calculate tenant rents and reported that the software conducts a wide variety of tasks, with minimal limitations.

PHAs/projects were less likely to have a dedicated training department or staff trainer for certification staff than in FY 2014 (67 percent to 59 percent). Additionally, there has been a pronounced downward trend in the average number of hours of training provided to each new certification staff member before performing rent calculations unassisted, with FY 2015 contributing the lowest average in the last 6 years. Self-training and mentorship with more experienced staff were still the most utilized training methods. For new certification staff, the training hours dedicated to mentorship and classroom-style training administered by an outside organization increased substantially since FY 2014, while the average number of training hours dedicated to other methods remained stable. Additionally, there was a notable increase in training hours spent on each training topic area listed. In contrast, for experienced certification staff, most training methods were used at fewer projects than in FY 2014. Interestingly, there was an increase in the average number of training hours allocated to mentoring with more experienced staff, self-training, and classroom-style training, and a decrease in hours spent watching training videos. The gap between the average number of

training hours on specific topics given to a new staff member and to an experienced staff member has further widened.

Fewer PHAs/projects in FY 2015 had a dedicated QC staff than in FY 2014 (74 percent to 68 percent). With respect to implementing QC procedures, about the same percentage of PHA/projects as found previously reported performing QC reviews, with the percentage of transactions reviewed increasing slightly. The PSQ also provided some specific information on the experiences and issues of PHAs/projects with the certification process. For instance, during the QC monitoring of certifications, the majority of PHAs/projects reported randomly sampling files for review and, furthermore, that the most effective QC technique was to review the files prior to Form HUD-50058/50059 approval. As in FY 2014, most of these files were reviewed by supervisors or team leaders. These results, among others, suggest that QC has become more systematic; for example, only 15 percent reported that a general spot check was performed, compared to 19 percent in FY 2014 and 40 percent in FY 2013. Overall, rent calculation errors were not found very often. The most common errors made by certification staff were late annual certification transactions and incorrect calculations of earned income. Compared to FY 2014, projects were less likely to report errors occurring often or very often in most categories. When errors did occur, they were usually discussed monthly in one-on-one conversations and corrected by the staff member who made the error.

For future HUDQC studies, it would be helpful to develop and validate additional items that specifically target potential difficulties or barriers to conducting training, managing staff performance, and collecting best practices for error mitigation. Specifically, a dual approach could be used for training methods and hours. Questions about the desired amount of training and the actual amount of training could determine the perceived importance of each topic and method. The discrepancy between the two would likely be due to barriers that would be discussed in an open-ended question. In addition, to provide a richer view of project practices to HUD, the development of questions that directly link staffing and staff performance to certification and QC procedures is desirable. Moreover, it may be useful to reinitiate questions that were asked in previous years and dropped, particularly for project characteristics. Currently, the survey is lacking a question on whether or not the PHA/project had new staff, which resulted in projects having to answer questions that may not have applied. Furthermore, it may be constructive to ask about the reasons behind staff turnover. While focus groups and cognitive interviewing may be optimal in supporting the revision of the PSQ items by focusing attention on the specific circumstances and issues faced by the PHAs/projects, open-ended questions also help identify and explain these issues. For example, given the number of projects reporting that another case assignment method is used (43 percent), transforming this question to an open-ended format may glean more insights to assignment methods. Gathering detailed descriptions of these aspects of the certification process would lead to a more complete and detailed picture of the issues faced by the PHAs/projects and would provide a better link between PHA/project practices and characteristics and the estimation of payment and income error.

Appendix F: Multivariate Analysis

Appendix F: Multivariate Analysis

A. Introduction

ICF International conducted multivariate analyses to identify project and household factors related to rent error and project-caused errors in the certification/recertification process. The multivariate analyses also aimed to address the extent to which error rates in projects that use an automated rent calculation system differ from errors in those that do not and to determine whether error rates and error costs had statistically significant difference between program types. Multivariate analysis allows us to examine characteristics related to rent error and determine corrective actions that can be taken to lessen improper payment.

Using measures of project characteristics and practices combined with household variables, the multiple regression analysis sought to systematically assess the net effects of project and household variables *on the rent error and project-caused errors*.[1] We addressed two research questions:

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

We developed a single conceptual model to address the stated research questions. Results from previous years have demonstrated the relationship between project factors and project-caused errors in connection to rent errors. In this year, we attempted to demonstrate the impact of the household and project factors on the project-caused errors and how these factors work through project-caused errors to impact rent error. It is hoped that these analyses will demonstrate specific areas on which projects and quality control staffs can reduce project-caused errors and overall reduce rent error. We used data obtained from our Project Staff Questionnaire (PSQ) and tenant data collection to conduct this analysis.

Modeling Rent Errors. We measured the dollar amount of rent error in terms of subsidy overpayment, subsidy underpayment, and gross rent error. Subsidy underpayment is the dollar error caused by the household paying more than it should have (tenant overpayment); thus, HUD's contribution was less than it should have been. Subsidy overpayment, conversely, is the dollar error caused by the household's contribution being less than it should have been (tenant underpayment), and HUD's contribution being more. Gross error is the dollar amount of either overpayment or

[1] The term "net effect" refers to the relationship between a given independent variable and the outcome variable, statistically controlling for other independent variables in the model. A net effect is the estimated regression coefficient *b* or slope for a given predictor in multiple regression modeling. The term does not necessarily imply a causal effect, as this cross-sectional, survey-based design does not warrant causal conclusions.

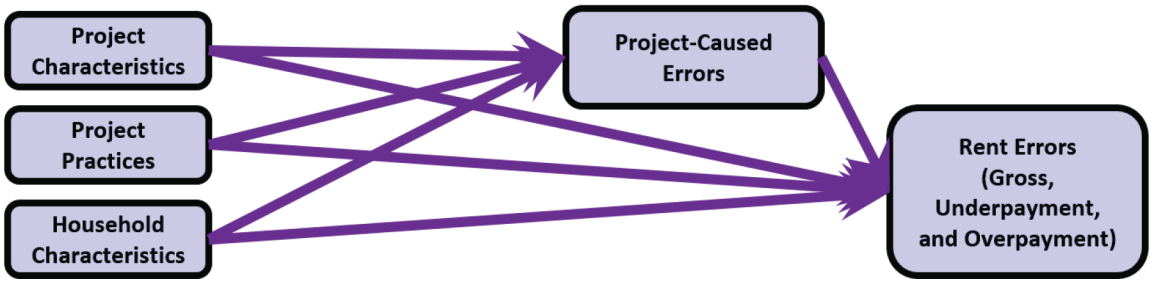
[2] Estimation of the "effect size" for predictor variables requires valid measurement of each variable, sensible model specifications, and a good model fit. In survey data analysis, however, it is always challenging to obtain accurate measures of every variable and specify models that generate robust estimates of effect sizes.

underpayment (in absolute value) for a given household. These three measures of rent error may relate to project and household factors in different patterns; therefore, it is necessary to model each rent error measure.

We modeled the rent error measures using a single multilevel, multivariate model that estimates both the probability of overpayment and underpayment subsidy concurrently with amount of gross rent error. In addition, we have also included in the model the relationships between household/project characteristics and project-caused errors. Combining these analyses will help us better understand the system of characteristics, practices, and project-caused errors that have either a direct or indirect relationship on rent error measures.

Hypothetically, dollar amounts of rent errors are affected by four sets of factors: (1) project characteristics, (2) project practices, (3) project-caused errors, and (4) household characteristics (see Figure F-1). Project characteristics include organizational and staffing features (e.g., program type, caseload for all staff, certification staff, and staff experience). Project practices cover different ways to assign cases (i.e., by transaction type, certification activities, or complexity levels); training hours and methods/topics for new and experienced staff; information technology applications; contracting certification to outside entities; and a set of performance management or quality control (QC) measures. QC measures range from setting performance goals, dedicating a department or personnel to QC, or reviewing certification and recertification to a certain extent, to measuring staff-perceived frequency of making various errors in the process.

Figure F-1
Conceptual Framework for Modeling Rent Errors



The project-caused errors will be used as predictors of rent error and as the outcomes to be modeled through project variables and household characteristics. In previous years, we have examined individual project-caused errors and have also developed composite scales of these errors in an effort to understand the impact of these errors or types of errors on rent error measurement. This year, we have tried to maintain the independence of these variables so that we are better able to differentiate impact of these errors.

Also, as we suggested earlier, we have chosen to combine the two conceptual models from last year to include project-caused errors not only as predictors of rent error but also as the intermediate outcome of household characteristics and project characteristics and practices. In doing so, we consider project-caused errors as an essential system within the model predicting rent error. Project-caused errors were identified through investigation of household records conducted by the field work. By default, project-caused errors are related to rent errors to a varying extent.

Project-caused errors occur due to limitations in organizational resources, insufficient staff skills, a lack of rigorous quality control, and complicated household financial situations, among other problems. Although, in previous analyses, we have found differing effects upon rent errors, we chose to model the independent project-caused errors to better understand the effect upon the overall system. Examining the pattern in which project and household factors account for project-caused errors may help housing management reduce such errors.

B. Data and Variables

We combined household and project data to conduct data processing, including examining data quality, missing data imputation, data editing and rescaling, and derived or composite variable construction. Before testing final multiple regression models, we conducted extensive initial data analysis in iteration with data processing to examine data quality of key measures, the bivariate relationship between predictor variables and outcome variables, and issues in preliminary multiple regression models.

We matched the household records with the affiliated projects using the project identification code. The resulting data set contains 2,400 household cases affiliated with 531 projects.[3] However, only 498 projects that were affiliated with these household responded to the PSQ survey. Replicate weights were attached to each record to calculate delete-a-group Jackknife variance estimates that account for the stratified, multistage cluster selection of the tenant sample.

The Household Data. The household survey gathered detailed information about household characteristics as well as final measure of rent errors. An algorithm was developed to recode/rescale raw data items and construct composite variables.4 Using the algorithm, we produced measures of the following:

- Project-caused errors
- Household financial conditions (e.g., income and expenses)
- Demographics (e.g., household size, number of bedrooms, elderly household with disabilities)

The Project Data. The PSQ file contained more than 200 raw data items, with many having a large number of categories that describe project characteristics and practices.

[3] Of the 538 sampled projects (or project-like entities, hereafter referred to as projects) for the PSQ, 33 projects failed to respond; consequently, 148 households under these projects did not have PSQ data matched. A sensitivity analysis suggested that excluding these households may introduce bias to the analysis. Although they differed in some household variables, no difference was found in the rent error dependent variables. Due to the lack of difference in the dependent variables and due to the lack of knowledge about the type of these missing projects, we did not impute these records.

[4] Although, in previous years, we have used this algorithm to take the logarithm of the dollar value in order to tighten variables with skewed distribution, this year we chose to use a Tobit regression model, which effectively accounted for the skewed distribution of the gross error dollar amount and, therefore, did not use the logarithmic variable.

C. Methodology

Model Specification and Estimation. We conducted a combined multilevel, multivariate analysis to account for rent errors (gross rent error, subsidy overpayment, and subsidy underpayment) and project-caused errors. We used a multivariate regression model with logistic and linear (Tobit) regression outcomes to model both the probability and amount of the error. Modeling the probability (subsidy underpayment and subsidy overpayment) and amount together allowed us to differentiate the impact of the household and project characteristics and practices on both the direction and amount (intensity) of the rent error. In addition, we used a Tobit modeling approach to estimate the linear regression coefficients in order to account for the skewness of the data (i.e., a large majority of HUD applications do not have any rent error). We considered variables from all four factors: (1) project characteristics, (2) project practices, (3) project-caused errors, and (4) household characteristics.

The full set of variables eligible for the model are presented in Exhibit F-1. We selected the final variables for the model in two steps. First, we calculated individual models for each variable and identified those that had a significant relationship with gross rent error, subsidy underpayment, or subsidy overpayment at $p < 0.10$. Second, we entered all the resultant variables into the model and used a backward selection algorithm to identify the final variables for the model.[5] Only the variables from step 1 were included in the backward algorithm. Any variable that was significant at $p < 0.05$ was included in the model.

To examine factors underlying project-caused errors, we conducted multivariate analyses using project characteristics, project practices, and household characteristics to account for each measure of project-caused errors. There were five project-caused errors that were included in the model: overdue recertification error, allowance calculation error, income calculation error, other calculation error, and transcription error. These project-caused errors were coded so that an error was indicated by 1 and a 0 indicated no error and included in the model as intermediary variables (i.e., outcomes of household characteristics and predictors of rent errors).

Unless otherwise noted, we conducted statistical analyses using MPLUS with underpayment subsidy and overpayment subsidy as categorical outcomes and gross rent error as a censored outcome with a floor effect. Additionally, we used a two-level complex analysis type with project characteristics and practices identified as *between* variables and household characteristics and project-caused errors in the *within* level of the model. Models were executed with the weight variable, cluster variable, and stratification variable identified.

For descriptive statistics, we used SAS 9.4, specifically PROC SURVEYMEANS and PROC SURVEYFREQ. All statistics presented here were generated with sample weights and replicate weights, using the Jackknife procedure.

[5] The backward algorithm introduces all variables into the model and test for significance. Variables with the weakest non-significant relationship with the outcome measure (i.e., p value) are removed from the model. After each variable is removed from the model, the algorithm reevaluates the significance of other effects in the model. Those effects that are no longer significant are removed from the model one at a time, in order of the weakest relationship.

D. Findings

To address the first research question of identifying predictor variables that accounted for rent error and project-caused errors, we present bivariate tabulation, regression coefficients, and related significance test statistics to establish whether or not an effect exists beyond chance (i.e., whether the effect is statistically significant).

Gross Rent Error

We tabulate descriptive statistics for the eligible predictor variables separately by two groups of households: those with and those without gross rent error. This approach offers a preliminary view of the predictor variables differentiated by gross rent error. Exhibit F-1 presents statistics of the variables[6] by the indicator of subsidy underpayment (with or without an error of $5 or more). Exhibit F-2 presents statistics of the variables by the indicator of overpayment subsidy (with or without an error of $5 or more). Statistically significant differences at the $p < 0.05$ level are noted by an asterisk.

The proportion of Public Housing Authority (PHA)-administered Section 8 projects is higher for households with subsidy underpayment errors, while the percentage of both PHA-administered Section 8 and Owner-administered projects is higher for households with subsidy overpayment errors. There are no project practices that are significant between households with rent error and those without error (underpayment or overpayment). There are a number of significant differences on both subsidy overpayment and underpayment for tenant characteristics and project-caused errors.

Exhibit F-1
Variables Evaluated For Rent Error Modeling: Households With and Without Underpayment Error (Original Scales, Weighted)

	Households Without Error (Underpayment)						Households With Error (Underpayment)				
Variable Label	n	Mean	Standard Error	Lower 95%	Upper 95%		n	Mean	Standard Error	Lower 95%	Upper 95%
Project Characteristics											
Public Housing	2,081	0.229	0.004	0.222	0.237		319	0.221	0.023	0.173	0.269
PHA-administered Section 8	2,081	0.468	0.004	0.459	0.476	*	319	0.520	0.027	0.464	0.576
Owner-administered	2,081	0.303	0.003	0.296	0.310		319	0.259	0.020	0.217	0.302
Response Across Project	2,081	0.948	0.013	0.922	0.975		319	0.932	0.020	0.890	0.974
Cases per Staff (in 100s)	1,957	1.038	0.043	0.948	1.127	*	295	1.158	0.091	0.968	1.349
Cases per Certification Staff (in 100s)	1,949	1.522	0.097	1.320	1.725		295	1.676	0.155	1.352	2.000
Cases per Experienced Certification Staff (in 100s)	1,948	2.361	0.405	1.516	3.207		292	2.579	0.403	1.738	3.421

[6] For dummy variables (coded 1 for a "yes" and 0 for a "no" response), the means are equivalent to the percentage of households that had a value of 1.

	Households Without Error (Underpayment)						Households With Error (Underpayment)				
Variable Label	**n**	**Mean**	**Standard Error**	**Lower 95%**	**Upper 95%**		**n**	**Mean**	**Standard Error**	**Lower 95%**	**Upper 95%**
Move-in Cases (in 100s) per Staff Member	1,957	0.140	0.008	0.123	0.157		295	0.146	0.013	0.119	0.174
Move-in Cases (in 100s) per Certification Staff Member	1,949	0.200	0.010	0.180	0.220		295	0.203	0.017	0.168	0.238
Move-in Cases (in 100s) per Experienced Certification Staff Member	1,948	0.303	0.046	0.208	0.399		292	0.308	0.052	0.198	0.417
Percentage of Experienced Certification Staff	1,949	85.124	1.731	81.513	88.735		295	84.313	2.733	78.612	90.015
Certification Staff Turnover Rate	1,957	1.684	0.447	0.751	2.616		295	1.964	0.835	0.223	3.706
Project Practices											
Assigned Case by Transaction Type	1,957	0.199	0.028	0.140	0.258		295	0.169	0.030	0.106	0.232
Assigned Case by Activity	1,957	0.006	0.003	-0.001	0.013		295	0.008	0.006	-0.004	0.021
Assign Case Randomly	1,957	0.157	0.020	0.115	0.199		295	0.153	0.030	0.090	0.215
Assigned Case Nonsystematically	1,957	0.380	0.034	0.309	0.452		295	0.356	0.046	0.261	0.452
Number of Activities Using a Computer	1,957	7.799	0.084	7.624	7.974		295	7.814	0.106	7.593	8.035
Number of Activities Using Software	1,957	5.253	0.051	5.146	5.360		295	5.212	0.093	5.018	5.406
Project Characteristics											
Contracted Out to Perform Certifications	1,957	0.116	0.019	0.077	0.154		295	0.123	0.032	0.056	0.190
Dedicated Training Department or Staff Trainer Within Organization	1,957	0.589	0.034	0.518	0.659		295	0.638	0.043	0.547	0.728
Number Reported Training Hours for New Staff	1,957	63.290	8.602	45.346	81.233		295	61.920	13.067	34.663	89.177
Total Number of Training Hours for New Staff on Specific Topics	1,957	195.381	25.604	141.973	248.790		295	195.127	29.602	133.377	256.876
Count of Methods for Training Used for New Staff	1,957	34.122	10.192	12.861	55.383		295	33.940	12.427	8.019	59.862
1+ Web-Based Training for New Staff	1,957	0.493	0.029	0.432	0.554		295	0.499	0.049	0.397	0.601

	Households Without Error (Underpayment)						Households With Error (Underpayment)				
Variable Label	n	Mean	Standard Error	Lower 95%	Upper 95%		n	Mean	Standard Error	Lower 95%	Upper 95%
Shadowing/ Mentoring Training for New Staff	1,957	0.725	0.028	0.666	0.784		295	0.729	0.041	0.644	0.814
Enterprise Income Verification (EIV) Training for New Staff	1,957	0.642	0.028	0.583	0.701		295	0.657	0.044	0.566	0.748
1+ Calculation Training for New Staff	1,957	0.627	0.031	0.562	0.691		295	0.636	0.045	0.541	0.730
Interviewing Tenants Training for New Staff	1,957	0.587	0.035	0.515	0.660		295	0.590	0.051	0.485	0.696
Total Number of Training Hours for Experienced Staff on Specific Topics	1,957	123.507	22.021	77.572	169.442		295	133.718	31.845	67.292	200.145
Count of Methods for Training Used for Experienced Staff	1,957	3.755	0.102	3.541	3.969		295	3.820	0.164	3.478	4.162
1+ Web-Based Training for Experienced Staff	1,957	0.562	0.023	0.514	0.611		295	0.573	0.046	0.477	0.669
Shadowing/ Mentoring Training for Experienced Staff	1,957	0.558	0.028	0.499	0.617		295	0.533	0.039	0.451	0.615
EIV Training for Experienced Staff	1,957	0.830	0.016	0.797	0.864		295	0.826	0.028	0.767	0.885
1+ Calculation Training for Experienced Staff	1,957	0.631	0.035	0.558	0.703		295	0.640	0.036	0.566	0.714
Interviewing Tenants Training for Experienced Staff	1,957	0.547	0.030	0.484	0.610		295	0.537	0.039	0.456	0.618
Staff With Goal-Setting Process for Performing Certifications	1,957	0.712	0.028	0.653	0.771		295	0.697	0.040	0.614	0.781
Dedicated QC Staff	1,957	0.736	0.027	0.679	0.792		295	0.772	0.030	0.708	0.835
Number of Errors Tracked	1,957	5.244	0.308	4.601	5.887		295	5.424	0.361	4.672	6.177
Certification Review Rate	1,951	39.248	2.456	34.125	44.371		293	40.033	3.322	33.103	46.963
Frequency Making Errors	1,950	17.119	0.362	16.364	17.873		292	16.913	0.393	16.094	17.732
100% Certifications Reviewed	1,957	0.162	0.026	0.107	0.218		295	0.150	0.031	0.086	0.214
Randomly Select for Review	1,957	0.632	0.020	0.590	0.674		295	0.669	0.038	0.589	0.748
New/Error-Prone/ Household Factor Select for Review	1,957	0.247	0.029	0.187	0.308		295	0.277	0.028	0.219	0.335
Review 5 Key Info	1,957	0.654	0.026	0.601	0.707		295	0.617	0.045	0.522	0.711

	Households Without Error (Underpayment)						Households With Error (Underpayment)				
Variable Label	n	Mean	Standard Error	Lower 95%	Upper 95%		n	Mean	Standard Error	Lower 95%	Upper 95%
Review in 30 Days Form HUD-50058/50059 Submit	1,957	0.886	0.015	0.854	0.917		295	0.878	0.029	0.818	0.939
Review 3-12 Months Form HUD-50058/50059 Submit	1,957	0.882	0.018	0.845	0.919		295	0.867	0.031	0.802	0.933
Feedback Specifics and in Person	1,957	0.348	0.032	0.282	0.415		295	0.337	0.040	0.253	0.421
Feedback Monthly or Shorter	1,957	0.619	0.033	0.551	0.688		295	0.620	0.042	0.532	0.708
Feedback Quarterly or Longer	1,950	0.288	0.026	0.234	0.341		292	0.290	0.031	0.224	0.355
Review by Supervisor/ Leader	1,957	0.801	0.027	0.743	0.858		295	0.793	0.036	0.718	0.867
Review by Contract Administrator	1,957	0.150	0.032	0.083	0.217	*	295	0.192	0.037	0.115	0.269
Review by Office of Inspector General (OIG) Auditor	1,957	0.086	0.018	0.049	0.123		295	0.088	0.021	0.045	0.132
Review Prior Form HUD-50058/50059	1,957	0.732	0.028	0.674	0.790		295	0.692	0.045	0.599	0.785
Household Characteristics											
Number of Household Members	2,081	2.031	0.040	1.947	2.116	*	319	2.535	0.105	2.316	2.754
Total Annual Income in thousands	2,081	12.932	0.385	12.129	13.736	*	319	19.014	0.713	17.526	20.502
Earned Income	593	16.905	0.877	15.074	18.735	*	166	19.681	1.089	17.409	21.953
Other Income	307	3.970	0.279	3.388	4.552	*	68	5.030	0.436	4.120	5.939
Public Assistance Income	158	4.046	0.419	3.173	4.920		22	3.445	0.593	2.207	4.683
Pension Income	1,302	11.763	0.177	11.393	12.133	*	174	13.378	0.619	12.087	14.669
Medical Expense	589	1.223	0.099	1.016	1.430	*	93	1.694	0.252	1.168	2.219
Total Number of Sources of Income/ Expenses	2,081	1.291	0.019	1.251	1.332	*	319	1.565	0.050	1.460	1.669
Total Number of Allowances	2,081	1.147	0.022	1.102	1.192	*	319	1.224	0.043	1.135	1.312
Age of Head of Household	2,081	53.152	0.619	51.861	54.443	*	319	50.170	1.115	47.843	52.496
Moving to Work	2,081	0.065	0.019	0.026	0.104	*	319	0.091	0.028	0.032	0.149
Elderly Household	2,081	0.599	0.021	0.557	0.642	*	319	0.444	0.030	0.381	0.507
Dependent in Household	2,081	0.380	0.014	0.350	0.409	*	319	0.542	0.030	0.479	0.604
Minor in Household	2,081	0.286	0.014	0.258	0.315	*	319	0.393	0.035	0.321	0.465
Disabled in Household	2,081	0.484	0.015	0.453	0.515	*	319	0.397	0.025	0.345	0.450
Total Number of Expenses	2,081	0.311	0.017	0.275	0.347		319	0.332	0.029	0.273	0.392

	Households Without Error (Underpayment)						Households With Error (Underpayment)				
Variable Label	n	Mean	Standard Error	Lower 95%	Upper 95%		n	Mean	Standard Error	Lower 95%	Upper 95%
Total Amount of Allowances	2,081	0.978	0.038	0.898	1.058	*	319	1.379	0.126	1.116	1.643
Actual Rent Paid by the Household	2,081	0.254	0.009	0.234	0.274	*	319	0.313	0.022	0.267	0.358
Project-Caused Errors											
Percent of Items With Transcription Errors	2,081	0.352	0.013	0.324	0.380	*	319	0.849	0.030	0.786	0.912
Overdue Recertification Error	2,081	0.011	0.003	0.006	0.017		319	0.042	0.012	0.017	0.066
Allowance Calculation Error	2,081	0.010	0.002	0.005	0.015	*	319	0.020	0.006	0.007	0.033
Consistency Error	2,081	0.208	0.014	0.178	0.238		319	0.222	0.027	0.166	0.278
Income Calculation Error	2,081	0.022	0.006	0.011	0.034		319	0.029	0.009	0.010	0.048
Other Calculation Error	2,081	0.034	0.005	0.023	0.045	*	319	0.055	0.012	0.030	0.080

* The two groups differ significantly in the predictor variable ($p < 0.05$).

Source: HUDQC FY 2015 household-level data collection and PSQ

Exhibit F-2
Variables Evaluated For Rent Error Modeling: Households With and Without Overpayment Error
(Original Scales, Weighted)

	Households Without Error (Overpayment)						Households with Error (Overpayment)				
Variable Label	n	Mean	Standard Error	Lower 95%	Upper 95%		n	Mean	Standard Error	Lower 95%	Upper 95%
Project Characteristics											
Public Housing	2,099	0.231	0.003	0.226	0.237		301	0.207	0.018	0.170	0.244
PHA-administered Section 8	2,099	0.465	0.003	0.458	0.472	*	301	0.541	0.021	0.498	0.585
Owner-administered	2,099	0.304	0.003	0.298	0.310	*	301	0.252	0.018	0.213	0.290
Response Across Project	2,099	0.945	0.014	0.915	0.975		301	0.952	0.011	0.930	0.974
Cases per Staff (in 100s)	1,969	1.022	0.040	0.939	1.105	*	283	1.267	0.105	1.047	1.486
Cases per Certification Staff (in 100s)	1,962	1.481	0.089	1.295	1.667	*	282	1.958	0.202	1.537	2.380
Cases per Experienced Certification Staff (in 100s)	1,958	2.275	0.353	1.539	3.011	*	282	3.168	0.731	1.644	4.693
Move-in Cases (in 100s) per Staff Member	1,969	0.139	0.008	0.123	0.155		283	0.152	0.016	0.118	0.186
Move-in Cases (in 100s) per Certification Staff Member	1,962	0.197	0.009	0.178	0.216	*	282	0.225	0.022	0.179	0.270
Move-in Cases (in 100s) per Experienced Certification Staff Member	1,958	0.295	0.040	0.212	0.378	*	282	0.365	0.089	0.179	0.550
Percent of Experienced Certification Staff	1,962	85.051	1.813	81.269	88.833		282	84.782	2.297	79.990	89.573
Certification Staff Turnover Rate	1,969	1.771	0.546	0.632	2.909		283	1.384	0.325	0.707	2.062
Project Practices											
Assigned Case by Transaction Type	1,969	0.195	0.028	0.137	0.252		283	0.198	0.042	0.109	0.286
Assigned Case by Activity	1,969	0.007	0.004	-0.001	0.015		283	0.004	0.004	0.004	0.012
Assign Case Randomly	1,969	0.161	0.021	0.117	0.205		283	0.125	0.035	0.053	0.198
Assigned Case Nonsystematically	1,969	0.374	0.034	0.304	0.444		283	0.402	0.043	0.312	0.491
Number of Activities Using a Computer	1,969	7.799	0.079	7.635	7.963		283	7.817	0.132	7.541	8.092
Number of Activities Using Software	1,969	5.232	0.056	5.115	5.350		283	5.352	0.074	5.197	5.507

	Households Without Error (Overpayment)						Households with Error (Overpayment)				
Variable Label	n	Mean	Standard Error	Lower 95%	Upper 95%		n	Mean	Standard Error	Lower 95%	Upper 95%
Project Characteristics											
Contracted Out to Perform Certifications	1,969	0.118	0.020	0.077	0.159		283	0.104	0.027	0.048	0.160
Dedicated Training Department or Staff Trainer Within Organization	1,969	0.590	0.033	0.521	0.658		283	0.632	0.047	0.534	0.730
Number Reported Training Hours for New Staff	1,969	62.396	8.939	43.750	81.043		283	67.917	11.200	44.555	91.279
Total Number of Training Hours for New Staff on Specific Topics	1,969	200.840	26.935	144.654	257.025	*	283	158.226	20.162	116.169	200.284
Count of Methods for Training Used for New Staff	1,969	35.989	11.374	12.263	59.716	*	283	21.312	2.463	16.174	26.449
1+ Web-Based Training for New Staff	1,969	0.490	0.030	0.428	0.553		283	0.521	0.047	0.423	0.618
Shadowing/ Mentoring Training for New Staff	1,969	0.723	0.029	0.664	0.783		283	0.738	0.034	0.666	0.809
EIV Training for New Staff	1,969	0.638	0.028	0.579	0.697		283	0.683	0.041	0.598	0.769
1+ Calculation Training for New Staff	1,969	0.624	0.031	0.558	0.689		283	0.657	0.043	0.567	0.746
Interviewing Tenants Training for New Staff	1,969	0.586	0.036	0.512	0.661		283	0.599	0.041	0.513	0.684
Total Number of Training Hours for Experienced Staff on Specific Topics	1,969	125.737	23.722	76.254	175.220		283	118.962	28.583	59.339	178.586
Count of Methods for Training Used for Experienced Staff	1,969	3.762	0.104	3.545	3.979		283	3.775	0.161	3.440	4.110
1+ Web-Based Training for Experienced Staff	1,969	0.567	0.025	0.515	0.619		283	0.541	0.036	0.465	0.617
Shadowing/ Mentoring Training for Experienced Staff	1,969	0.560	0.029	0.500	0.621		283	0.517	0.037	0.441	0.593
EIV Training for Experienced Staff	1,969	0.826	0.017	0.792	0.861		283	0.853	0.019	0.813	0.893
1+ Calculation Training for Experienced Staff	1,969	0.629	0.033	0.560	0.697		283	0.656	0.043	0.566	0.745
Interviewing Tenants Training for Experienced Staff	1,969	0.547	0.029	0.486	0.609		283	0.533	0.043	0.444	0.623
Staff With Goal-Setting Process for Performing Certifications	1,969	0.709	0.027	0.653	0.765		283	0.720	0.045	0.626	0.814

	Households Without Error (Overpayment)						Households with Error (Overpayment)				
Variable Label	n	Mean	Standard Error	Lower 95%	Upper 95%		n	Mean	Standard Error	Lower 95%	Upper 95%
Dedicated QC Staff	1,969	0.736	0.025	0.684	0.788		283	0.771	0.041	0.687	0.856
Number of Errors Tracked	1,969	5.241	0.296	4.624	5.858		283	5.451	0.382	4.654	6.248
Certification Review Rate	1,961	39.652	2.498	34.442	44.862		283	37.336	3.154	30.758	43.915
Frequency Making Errors	1,960	16.906	0.338	16.201	17.611	*	282	18.351	0.600	17.099	19.603
100% Certifications Reviewed	1,969	0.161	0.027	0.106	0.217		283	0.156	0.029	0.096	0.216
Random Select for Review	1,969	0.634	0.021	0.591	0.676		283	0.662	0.030	0.600	0.723
New/Error-Prone/ Household Factor Select for Review	1,969	0.247	0.027	0.191	0.304		283	0.278	0.036	0.202	0.353
Review 5 Key Info	1,969	0.651	0.026	0.596	0.706		283	0.635	0.038	0.556	0.715
Review in 30 Days Form HUD-50058/50059 Submit	1,969	0.880	0.017	0.845	0.915	*	283	0.917	0.018	0.880	0.955
Review 3-12 Months Form HUD-50058/50059 Submit	1,969	0.875	0.020	0.833	0.917	*	283	0.918	0.019	0.879	0.957
Feedback Specifics and in Person	1,969	0.352	0.032	0.286	0.418		283	0.310	0.036	0.235	0.384
Feedback Monthly or Shorter	1,969	0.616	0.032	0.549	0.683		283	0.643	0.041	0.557	0.729
Feedback Quarterly or Longer	1,960	0.287	0.024	0.237	0.338		282	0.290	0.030	0.227	0.353
Review by Supervisor/ Leader	1,969	0.797	0.026	0.742	0.851		283	0.821	0.047	0.722	0.919
Review by Contract Administrator	1,969	0.158	0.032	0.091	0.224		283	0.142	0.034	0.072	0.213
Review by OIG Auditor	1,969	0.088	0.018	0.050	0.126		283	0.074	0.024	0.024	0.123
Review Prior Form HUD-50058/50059	1,969	0.730	0.028	0.670	0.789		283	0.709	0.041	0.623	0.795

	Households Without Error (Overpayment						Households with Error (Overpayment)				
Variable Label	n	Mean	Standard Error	Lower 95%	Upper 95%		n	Mean	Standard Error	Lower 95%	Variable Label
Household Characteristics											
Number of Household Members	2,099	2.050	0.044	1.959	2.141	*	301	2.436	0.102	2.224	2.649
Total Annual Income in Thousands	2,099	13.601	0.399	12.770	14.432		301	14.787	0.486	13.774	15.800
Earned Income	637	18.256	0.807	16.573	19.939	*	122	13.794	0.953	11.806	15.781
Other Income	324	4.233	0.262	3.687	4.779	*	51	3.867	0.397	3.040	4.694
Public Assistance Income	154	3.889	0.415	3.022	4.756		26	4.461	0.906	2.571	6.351
Pension Income	1,295	11.808	0.231	11.325	12.291	*	181	12.886	0.483	11.878	13.894
Medical Expense	588	1.117	0.120	0.867	1.367	*	94	2.259	0.283	1.668	2.850
Total Number of Sources of Income/ Expenses	2,099	1.304	0.020	1.262	1.346	*	301	1.492	0.043	1.402	1.581
Total Number of Allowances	2,099	1.124	0.022	1.078	1.170	*	301	1.384	0.052	1.275	1.494
Age of Head of Household	2,099	52.980	0.666	51.591	54.369	*	301	51.180	1.091	48.904	53.456
Moving to Work	2,099	0.063	0.018	0.026	0.100		301	0.104	0.041	0.019	0.190
Elderly Household	2,099	0.580	0.022	0.535	0.625		301	0.568	0.034	0.496	0.640
Dependent in Household	2,099	0.383	0.015	0.352	0.413	*	301	0.530	0.034	0.459	0.600
Minor in Household	2,099	0.292	0.014	0.262	0.322	*	301	0.359	0.034	0.287	0.430
Disabled in Household	2,099	0.466	0.015	0.434	0.497		301	0.516	0.038	0.438	0.595
Total Number of Expenses	2,099	0.306	0.018	0.269	0.343	*	301	0.369	0.032	0.302	0.435
Total Amount of Allowances	2,099	0.963	0.036	0.888	1.038	*	301	1.501	0.111	1.269	1.733
Actual Rent Paid by the Household	2,099	0.255	0.010	0.234	0.276	*	301	0.308	0.016	0.275	0.341
Project-Caused Errors											
Percentage of Items With Transcription Errors	2,099	0.365	0.011	0.342	0.388	*	301	0.786	0.038	0.706	0.865
Overdue Recertification Error	2,099	0.012	0.003	0.006	0.018		301	0.038	0.014	0.009	0.067
Allowance Calculation Error	2,099	0.010	0.002	0.005	0.015	*	301	0.020	0.009	0.002	0.038
Consistency Error	2,099	0.209	0.015	0.178	0.239		301	0.218	0.032	0.151	0.284
Income Calculation Error	2,099	0.022	0.005	0.011	0.032		301	0.034	0.013	0.007	0.060
Other Calculation Error	2,099	0.032	0.003	0.025	0.039	*	301	0.069	0.022	0.023	0.114

* The two groups differ significantly in the predictor variable ($P < 0.05$).
Source: HUDQC FY 2015 household-level data collection and PSQ

Multiple Logistic Regression Model Elements. In the multiple logistic regression elements, the regression coefficient estimates are typically evaluated in terms of odds ratios.[7] The odds ratio represents the odds that an event (e.g., gross rent error) will occur given a particular characteristic (e.g., administrative error), relative to the odds of the event occurring in the absence of that characteristic. The odds ratio is simply the probability of the event occurring divided by the probability of the event not occurring: $OR = p/(1-p)$. For example, if the probability of a gross rent error without an administrative error is 25 percent, the odds of the event are 25 percent/75 percent, or 1 to 3. If an administrative error increases the probability of a gross rent error to 50 percent, the odds are 1 to 1. The odds ratio is the odds with the administrative error relative to the odds without an administrative error, or:

$$OR = (50\%/50\%)/(25\%/75\%) = 3$$

The odds ratio is estimated as the given predictor's relationship with the rent error, net of other predictor effects (hereafter, statements to interpret regression coefficient estimates are all qualified such that the estimated effect exists while holding other effects equal).

Multiple Linear Regression Models Elements. In the multiple linear regression elements of the rent error model, the regression coefficient estimate indicates the given predictor's relationship with the rent error, net of other predictor effects (hereafter, statements to interpret regression coefficient estimates are all qualified such that the estimated effect exists while holding other effects equal).

The estimated intercept represented a reference point for interpreting estimates of predictor effects on gross rent error from each model. For example, the intercept estimated for gross rent error in the final model was -0.01, which, although below the threshold of 0, still indicates expected average gross error of a "reference" group of households that had a zero value on each predictor variable in the model. For binary-coded predictors such as program type (e.g., Public Housing), the zero value represented the projects in programs other than the given one—in this case, PHA-administered Section 8 or Owner-administered programs. For project-caused errors, the zero value indicates there was not an instance of a particular error for that observation.

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 ($p \leq 0.05$), as they represented effects that were unlikely to be due to chance.

Gross Error Element. Overall, the final model differed from previous years in that no project characteristics were found to significantly impact gross rent error. Alternatively, project practices, tenant characteristics, and project-caused errors continued to have significant findings. In the multilevel multivariate model, we found the following variables were significant predictors of the amount of gross rent error (n = 2,157):

- **Project characteristics:** No project characteristics were significant as related to the amount of gross rent error.

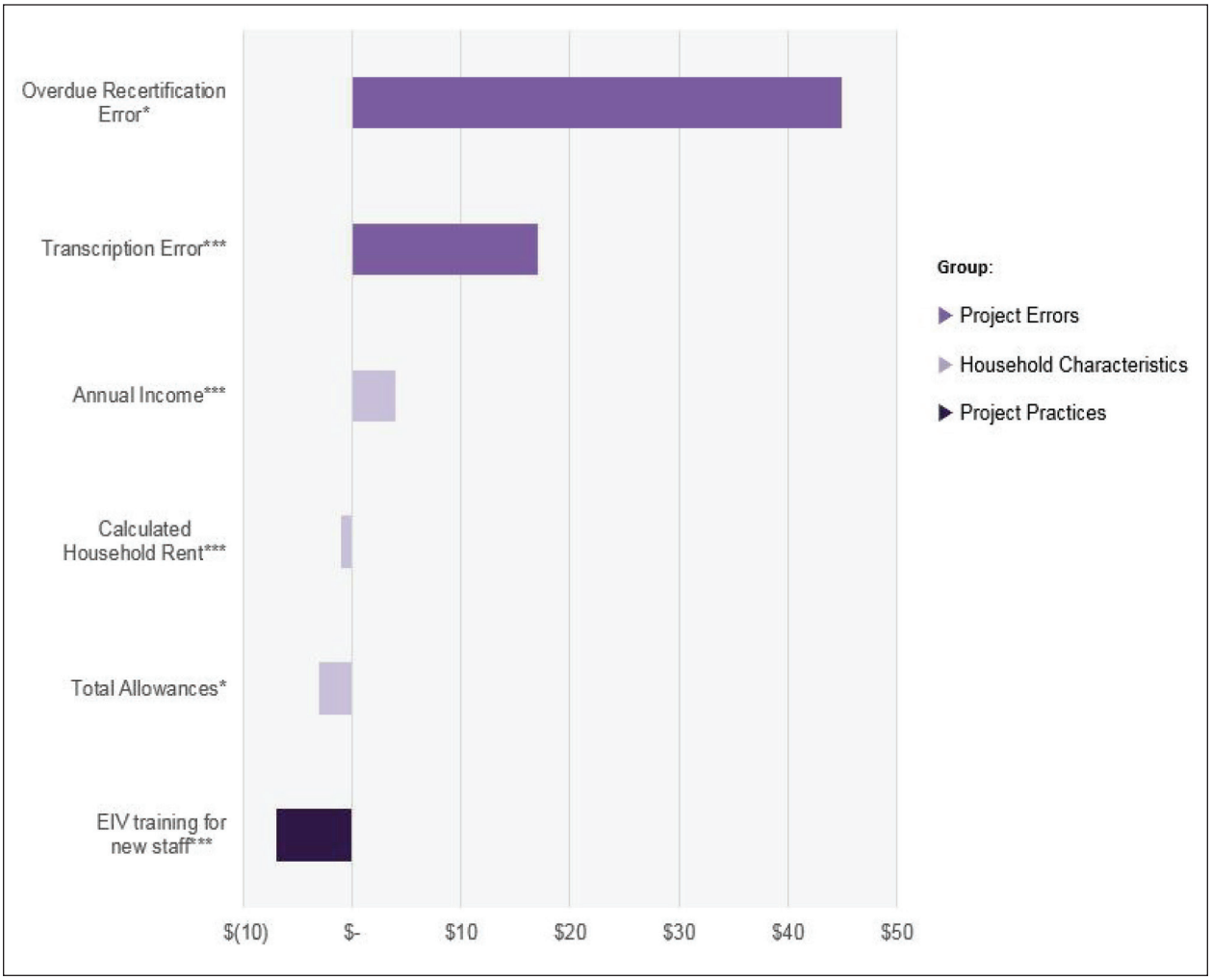
[7] The estimated coefficients in the logistic model are the log odds ratios, log (OR). The odds ratios are obtained as e^b, where e is a constant of approximately 2.718 and b is the estimated logistic regression coefficient.

- **Project practices**: A single project practice was associated with the amount of rent error, when EIV training is conducted with new staff. However, the result suggests that conducting the training increases the amount of gross rent error ($6.54). One reason for this relationship is that staff may focus on the EIV as a resource and neglect to use other sources of income verification.
- **Tenant characteristics**: The amount of the rent error increases for households as household income increases ($3.74). Gross rent error also increases with the actual amount rent paid by the household ($0.15). Alternatively, increases in the amount of total allowances decreases the amount of gross rent error ($3.07).
- **Project errors:** Two project errors were significant predictors: overdue recertification error and transcription errors. Overdue recertification errors have the largest impact on the value of the rent error, with a $45.48 increase. Transcription errors also have a large impact on the amount of the error, with an increase in $16.62.

The model continued to suggest that the amount of gross rent error is tied to the household financial measures, including annual income, rent, and total amount of allowances. While these metrics tend to conform to the models from previous years, more sociodemographic tenant measures seem to impact the amount of gross rent error indirectly through the project-caused transcription error. We will explore these indirect relationships later in this section.

Figure F-1 presents the predictors found to be statistically significant in the gross rent error model.

Figure F-1
Statistically Significant Predictors of Gross Rent Error:
Multiple Regression Dollar Value Net Effects From the Final Model



*p < 0.05, **p < 0.01, *** p < 0.001 (test with the null hypothesis that a coefficient = 0; a significant result indicates that the corresponding predictor is associated with the gross rent error)
Estimate represents the unique effect of a given predictor, net of other effects in the model.
Significant effects based on design adjusted variance using delete-a-group Jackknife.
Source: HUDQC FY 2015 household-level data collection and PSQ

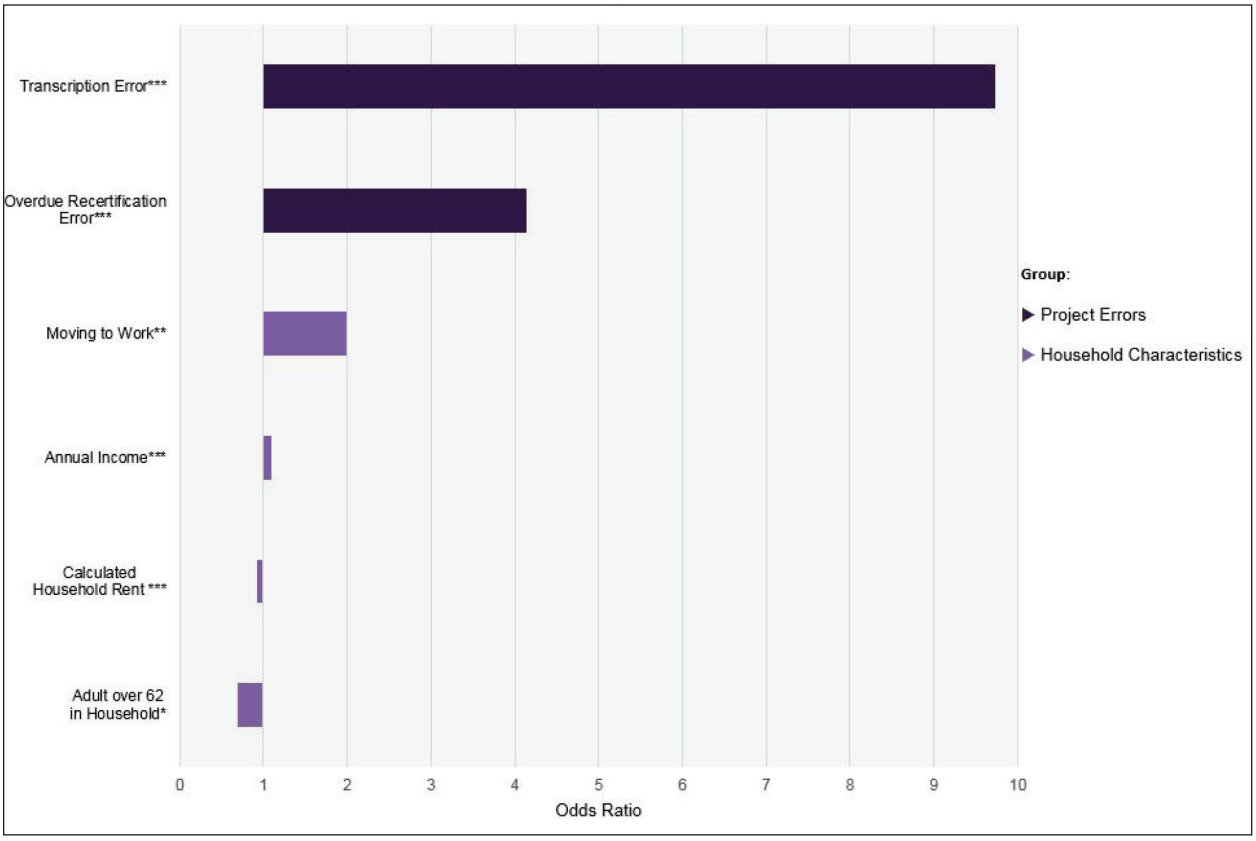
Overpayment and Underpayment

As described earlier, we incorporated these two subsidy errors into the final model to help determine variables that impact the direction of gross rent error. As with the amount of gross rent error, we initially included all tenant characteristics, project characteristics, practices, and errors as predictors of the direction of rent error. Each of these rent errors were modeled using logistic regression analyses that were elements of the iterative full model. Figures F-4a and F-4b present statistically significant results.

An analysis of overpayment and underpayment rent errors produced additional information that may improve program ability to deal with more specific rent errors. We estimated two equations with the same four sets of predictors, rescaled into a logarithm, as those used in modeling gross rent error to explain overpayment and underpayment. Figures F-4a and F-4b present the statistically significant results of underpayment and overpayment respectively. Many of the effects, especially in regard to subsidy underpayment, are similar to the amount of gross rent error, including transcription error, overdue recertification error, total annual household income, and household rent. Alternatively, the number of dependents in the household, number of allowances, and certified staff caseload also increase the possibility of subsidy overpayment, while having a transcription error also increases the likelihood of overpayment.

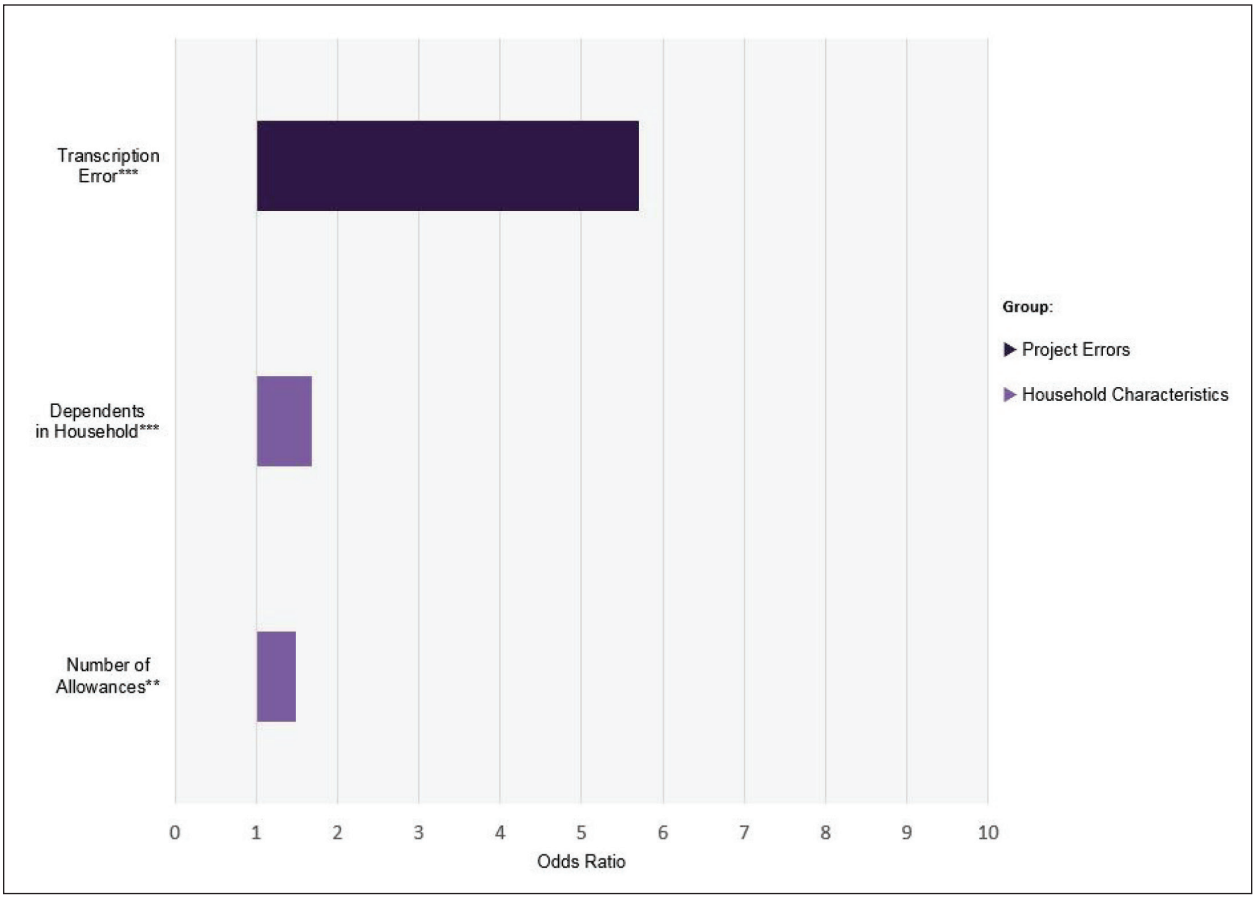
Figure F-2a and F-2b present the log odds of the statistically significant predictors of underpayment and overpayment.

Figure F-2a
Statistically Significant Predictors of Underpayment Rent Error Indicators (1 = Error, 0 = No error): Logistic Regression Odds Ratios From the Final Model



*p < 0.05, **p < 0.01, *** p < 0.001 (test with the null hypothesis that a coefficient = 0; a significant result indicates that the corresponding predictor is associated with the subsidy underpayment)
Estimate represents the unique effect of a given predictor, net of other effects in the model.
Significant effects based on design adjusted variance using delete-a-group Jackknife.
Source: HUDQC FY 2015 household-level data collection and PSQ

Figure F-2b
Statistically Significant Predictors of Overpayment Rent Error Indicators (1 = Error, 0 = No error): Logistic Regression Odds Ratios From the Final Model



*p < 0.05, **p < 0.01, *** p < 0.001 (test with the null hypothesis that a coefficient = 0; a significant result indicates that the corresponding predictor is associated with the subsidy overpayment)
Estimate represents the unique effect of a given predictor, net of other effects in the model.
Significant effects based on design adjusted variance using delete-a-group Jackknife.
Source: HUDQC FY 2015 household-level data collection and PSQ

Underpayment. A number of predictors of household characteristics and project-caused errors were associated with underpayment in patterns similar to those for gross error. We present the significant effects for modeling the probability of an underpayment (n = 2,147):

- **Project characteristics:** There are no significant effects based on project characteristics. This is consistent with the FY 2013 and FY 2014 analyses.
- **Project practices:** There are no significant effects based on project practices differing from the findings in FY 2014.
- **Tenant characteristics**: The odds of subsidy underpayment is 1.99 times higher when a tenant is in the Moving to Work program. In addition, the odds of underpayment are also increased by 1 percent for each $1,000 increase in the tenant's total income. Alternatively, we see decreases in the probability of underpayment by 7 percent with incremental increases in actual rent paid by the household, and by 31 percent if there is an adult over 62 in the household.
- **Project errors:** Two project errors were significant predictors: transcription error and overdue recertification error. Transcription error was the largest effect in the model with an odds ratio of 9.74. An overdue recertification error increased the likelihood of a subsidy underpayment by 4.14 times.

Overpayment. In modeling overpayment error, there were fewer significant predictors than the underpayment and gross error model. We present the significant effects for modeling the probability of an underpayment and then the significant effects for modeling the value of the effect (n = 2,147):

- **Project characteristics:** A higher number of cases per certified staff is associated with an increase in the possibility of overpayment. An increase of 100 cases per staff increases the possibility of overpayment by 10 percent.
- **Project practices:** No project practices are significant predictors of the probability of a subsidy overpayment.
- **Tenant characteristics:** There is a 69 percent increase in the odds of a subsidy overpayment for each increase in the number of tenant allowances. In addition, there is a 47 percent increase in the likelihood of a subsidy overpayment if there are dependents in the household.
- **Project errors:** Transcription error is the only significant project error predicting the likelihood of subsidy overpayment. It had the largest effect on overpayment, increasing the odds of overpayment 5.70 times.

While the probability of overpayment and underpayment subsidy only shared the transcription project-caused error, in both cases it appeared to have significant impact on the likelihood of subsidy error. While no household characteristics were identified as predictors of subsidy error, this may be an effect of modeling household characteristics as a predictor of project-caused errors as intermediate variables.

Project Error Models

In modeling gross rent errors, underpayments, and overpayments, we included five project-caused errors: overdue recertification error, transcription error, consistency error, income calculation error, allowance calculation error, and other calculation error. Of these, we found only overdue recertification error and transcription error to be significant predictors of the amount or direction of gross rent error. As this analysis is focused on the impact of variables directly and indirectly on gross rent error, we focus on the variables that were significantly related to these two project-caused errors.

Overdue Recertification Error: While only a small number of cases reported overdue recertification error, the impact of overdue recertifications was significant on the amount of gross rent error and the likelihood of subsidy underpayment. Our model indicated that higher numbers of experienced certified project staff increased the percent likelihood (0.1%) of an overdue recertification error. While this finding may be counter-intuitive, it may suggest that although rare, larger projects may run the risk of not getting certifications or recertifications completed on time.

Transcription Error: In contrast to overdue recertification error, transcription error was found to be a significant predictor of both the amount and direction (via subsidy underpayment and overpayment) of gross rent error. Additionally, our findings seem to suggest that the majority of household indicators and the Owner-administrator project type identified in previous years as significant predictors of gross rent error may actually effect rent error through transcription error. Specifically, household member characteristics reduced the likelihood of a transcription error by 79 percent if there was at least one adult aged 62 or older, by 52 percent if there were dependents in the household, and by 40 percent if household included a minor. Alternatively, we did see that an increase in the age of the head of household increased the likelihood of a transcription error by 1 percent.

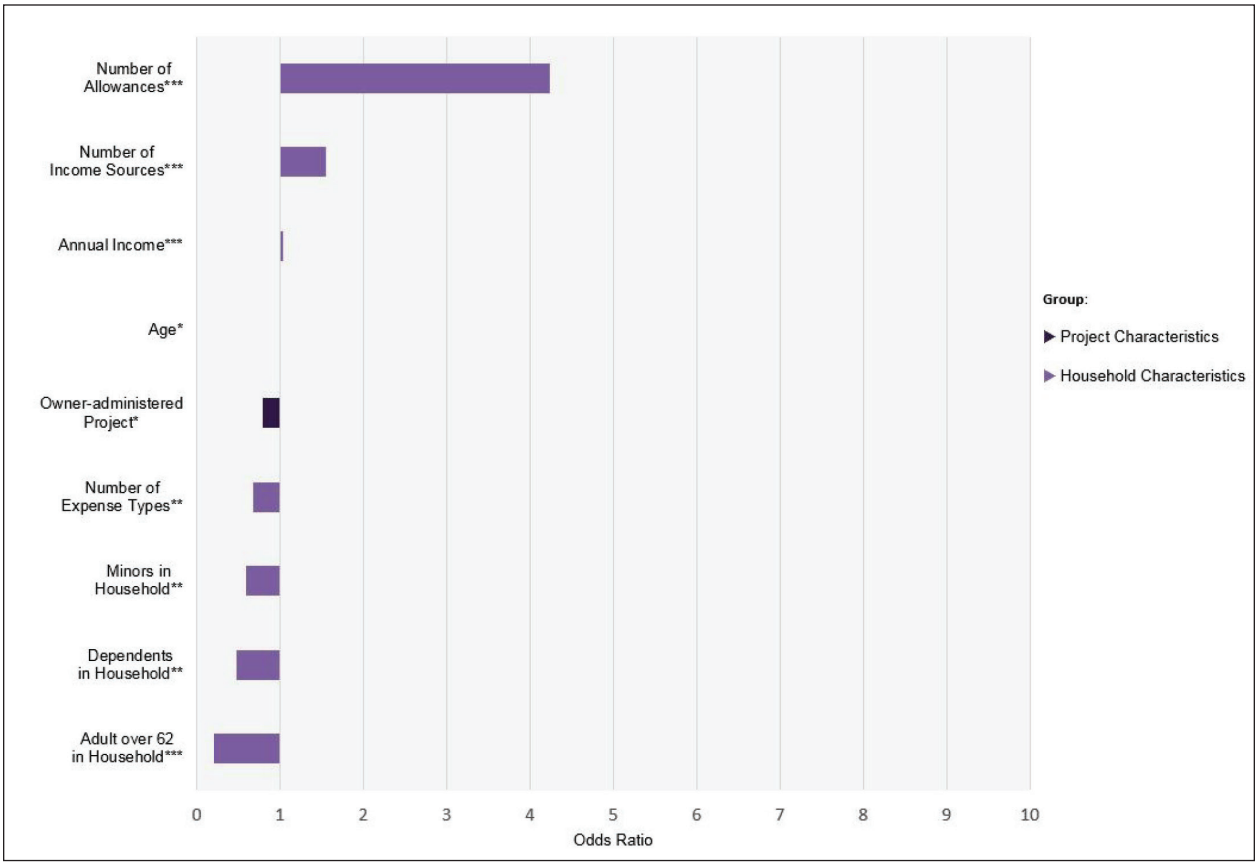
Alternatively, our findings showed that household financial variables were more complex in their impact on transcription errors. While the greater increase in expenses (e.g., medical, childcare, disability) a household had reduced the likelihood of a transcription error by approximately 33 percent, total annual income and the number of sources of income increased the likelihood of a transcription error by 3 percent and 55 percent, respectively. In addition, we found that the number of different allowances a household reported was the largest predictor of likelihood, with each additional allowance increasing the likelihood of a transcription error by 4.24 times.

Finally, the results also depicted that Owner-administered projects were 21 percent less likely to have a transcription error than other types of projects.

Indirect Effects. The combined model allowed us to determine if the household characteristics, project practices and project characteristics that impact project-caused errors as proximal outcomes also significantly impacted gross rent error measures through project-caused errors. We found that all significant indicators of project-caused errors (previously described) also had significant indirect effects on gross rent errors and subsidy overpayment and underpayment. These results confirm our reasoning that household characteristics appear to act through project-caused errors and, therefore, were not found as significant direct indicators (i.e., differing from previous year models).

Figure F-3 presents the log odds of the statistically significant predictors of transcription error.

Figure F-3
Statistically Significant Predictors of Transcription Error Indicators (1 = Error, 0 = No error): Logistic Regression Odds Ratios From the Final Model



*p < 0.05, **p < 0.01, *** p < 0.001 (test with the null hypothesis that a coefficient = 0; a significant result indicates that the corresponding predictor is associated with having a transcription error)Estimate represents the unique effect of a given predictor, net of other effects in the model.
Significant effects based on design adjusted variance using delete-a-group Jackknife.
Source: HUDQC FY 2015 household-level data collection and PSQ

E. Summary of Findings

The FY 2015 HUDQC multivariate modeling modified the approach used in previous years by creating a single combined model. The new approach continued to analyze variables representing project characteristics, project practices, tenant characteristics, and project-caused errors as they relate to gross rent error, subsidy underpayments, and subsidy overpayments. In addition, this year's approach continued to examine the relationship between household and project characteristics and project-caused errors. However, instead of examining the relationships in separate models, we included all the relationships in a single iterative model that allowed us to perform logistic and linear modeling concurrently. We suggested that examining the full system of variables using an integrated modeling approach would allow us to better understand the impact of the predictor variables on project-caused errors and the amount and direction of gross rent error while accounting for the covariance between the outcome variables. Key findings are highlighted as follows.

Rent Errors

Project characteristics were not generally found to be predictive of the probability of a rent error. The only characteristic found significant was the cases per certified staff, which was positively associated with the likelihood of subsidy overpayment (more cases per certified staff caused an increasing likelihood of subsidy overpayment).

Of numerous *project practice* indicators, only projects that conduct EIV training for new staff are associated with an increase in the probability of rent error.

Project-caused errors represented the largest effects in measuring rent error. Two indicators were most salient: (1) transcription errors and (2) overdue recertification errors (just 2 percent of recertifications in FY 2015). Both predicted substantially higher rent error. With regards to the amount of gross rent error, overdue recertification errors had the largest effect. However, for underpayment and overpayment subsidy, transcription errors were more salient. The rent error model suggests that reducing project-caused errors will reduce rent errors. The model elements focused on predicting project-caused errors may demonstrate significant impacts on rent errors.

Household characteristics play a significant role in explaining project errors, and were, thereby, also found to impact gross rent error. Both household financial conditions and demographics present varying levels of challenge to transcription and overdue recertification processing. Over the years, the basic patterns have been quite consistent and fit common sense (i.e., a household's complex financial situations raise the risk of errors in determining rent). Some key predictors are:

- Households with higher total income and fewer total allowances had higher amounts of gross rent error.
- Households with higher total income and without an elderly member were more likely to have subsidy underpayment; while those that had dependents were more likely to have subsidy overpayment.
- Household membership, including an adult over age 62, minors, and at least one dependent, decreased the likelihood of a transcription error.

- Complex household finances, including higher total income, more types of allowances, and more sources of income, indicated a higher likelihood of transcription error; however, fewer types of expenses decreased the possibility of a transcription error.

Implications for Program Improvement

We underscored a number of implications for HUD's subsidy improper payment management.

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

Project-caused errors in certification processing represent the largest effects with rent error, particularly transcription errors. Such errors can lead to increased amounts of subsidy overpayment or underpayment. Reducing project-caused errors should be a priority for reducing the rate of improper payment. The significant project-caused variables are highly related to household characteristics (sources of income/expenses, number of allowances, household with elderly members or other dependents). Households with more complex financial situations are more susceptible to project errors and, thus, more susceptible to rent errors.

Underpayment and overpayment relate to different issues, and may require different strategies to remedy. The only common effect among the two is transcription error. This is the strongest predictor of rent error probability for both the amount and direction (underpayment and overpayment) of rent error. Total annual income, actual household-paid rent, and overdue recertification processing are significant factors contributing to the amount of rent error and subsidy underpayment. In addition, the total amount of allowances also significantly impacts the amount of rent error, while having an adult over 62 in the household and being part of the Moving to Work program indicated potential for subsidy underpayment. Alternatively, having dependents in the household and large numbers of allowances increased the possibility of subsidy overpayment.

Future Research

The new approach evaluated the effects of both direction and amount of rent error by examining both the logistic and linear relationships and the proximal (project-caused errors) and distal (gross rent errors) concurrently within the model. While a number of results are consistent with prior studies, the path through which these predictors impact the distal outcome of rent errors may have emerged. Increasing our understanding of these effects on rent errors as well as their relationship with other predictors (e.g., project-caused errors) will allow focused efforts to reduce errors. Our findings have shown that a number of housing characteristics impact rent error through the project-caused transcription error. Using these characteristics (e.g., large sources of income, large numbers of allowances) to identify specific households that could be at risk for improper payment in advance of the (re)certification process could allow for increased quality control for these cases or the development of specific training around these at-risk households.

The project practices that emerged from the modeling seem to be inconsistent in their relationship with rent errors (e.g., increased training associated with increased rent error). Further investigating these counterintuitive effects could help identify whether the effect is truly associated with rent error or whether there are underlying factors that are confounded with rent error. This will improve clarity on specific challenges facing certification staff that lead to processing errors and payment errors.

As stated in the FY 2014 report, historical analysis of the HUDQC data seems both feasible and desirable. Thus far, the analytic task has focused solely on a single year. With more than a decade of data accumulated by the annual surveys, a great deal of comparable measures of improper payment errors, project background/activities, and household characteristics are available. The large amount of data would allow in-depth analyses to describe the changing patterns of these important measures and their relationships. In a broad chronological framework, historical data analysis may shed light on how much progress HUD has made in dealing with housing subsidy improper payment, and how such progress can be attributed to changes in housing program practices in relation to changes in the sociodemographic characteristics of program participants. Information yielded from historical analysis could be useful for HUD's long-term planning and program development to improve financial integrity.

References

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Harrell, F. E. (2001). *Regression modeling strategies*. New York: Springer.

Hosmer, D. W. & Lemeshow, S. (2001). *Applied logistic regression, textbook and solutions manual*. New York: Wiley & Sons.

Raudenbush, S. W. & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oak, CA: Sage Publishing.