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Quality Control for Rental Assistance Subsidy Determinations

Final Report for FY 2009

Contract #: GS-23F-9777H
Task Order #: C-CHI-00829, CHI-T0001




Prepared for:

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

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Executive Summary

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

The errors we evaluated in this study affect the rent contributions tenants should have been charged. *The findings presented in this report are a result of data collected from February through June 2010 for actions taken by Public Housing Authority (PHA) and project staff during Federal FY 2009 (October 2008 through September 2009)*. These findings show that the percent of errors, and the gross erroneous payments in the Public Housing, Section 8 Housing Choice Voucher, Moderate Rehabilitation, owner-administered Section 8, Section 202 and Section 811 (PRAC) and Section 202/162 (PAC) tenant subsidies continue to remain stable when compared with results from previous studies.

HUD's rental housing assistance programs are administered on HUD's behalf by 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 (rent plus utilities), with HUD providing the balance of the rental payment. New program applicants are required to provide certain information on household characteristics, income, assets, and expenses that is used to determine what rent they should pay. Existing tenants are required to recertify this information annually and also, in some circumstances, when there are significant changes in household income or composition. Applicant or tenant failure to correctly report income may result in HUD's over- or underpayment of housing assistance. The failure of the responsible program administrator to correctly interview the tenant or process and calculate the tenant's rental assistance may also result in HUD's over- or underpayment of housing assistance.

In 2000, HUD began to establish 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, and (3) errors in program administrator billings for assistance payments. Eight studies have been conducted to identify program administrator income and rent determination error. In addition to the 2000 study, studies were conducted in FYs 2003 through 2009. The study referenced in this report covers FY 2009, and is being used to update the FY 2008 measurement of errors in program administrator income and rent determinations. The tenant data collected for this study were also used to provide the sample for the Income Match Study to measure the extent of intentionally unreported tenant income and the Billing Study to measure error associated with billing errors for the owner-

administered program. The findings from this Income Match and Billing Studies will be published as separate reports. The balance of this report relates solely to program administrator income and rent determination error.

For purposes of this study, "error" is defined as any rent calculation or eligibility determination that differs from what would have occurred if the PHA or other program administrator had followed all HUD income certification and rent calculation requirements during the income certification or annual recertification conducted in FY 2009. 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 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. The replacement household may be entitled to a smaller or a larger subsidy than the household that left the program. Therefore, the most direct benefit of identifying households with rent error is making sure those households who are eligible for the program are receiving the correct subsidy, rather than reducing the amount of funds needed to administer the programs. The most appropriate use of this study is as a tool for strengthening HUD's procedures for ensuring administrative compliance with regulations. The recommendations presented in this report may require greater rather than fewer resources to provide HUD, PHAs, and owners with the written policy guidelines, training, standardized forms, and ongoing monitoring needed to assure the programs are administered correctly. HUD's objective of providing the right subsidies to the right families is a worthy one that this study can assist in achieving.

A. Methodology

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

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

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

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

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 more than 60 field interviewers, and selecting the project and tenant sample. Field interviewers obtained data from tenant files, and interviewed tenants using computer-assisted personal interviewing software developed for this study. The automated data collection process included built-in consistency and edit checks that prompted interviewers to probe inconsistent and anomalous responses. Collected data were electronically transferred daily to ICF Macro headquarters for review. Requested third-party verifications related to income, assets and expenses were also processed at ICF Macro headquarters.

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

B. Major Rent Error Findings

National Rent Error Estimates. The analysis of the FY 2009 tenant files, tenant interview, and income verification data indicates that—

- Sixty-three percent of all households paid the correct amount of rent within $5 (51 percent paid exactly the right amount)
- Eighteen percent of all households paid in excess of $5 less than they should have (with an average error of $54 per month)
- Nineteen percent of all households paid in excess of $5 more than they should (with an average error of $32 per month).

Rent Error Estimates by Program Type. The rate of rent underpayments was highest, at 21 percent, in the PHA–administered Section 8 program followed by the owner-administered program with 16 percent error, and the Public Housing program with 14 percent error. The PHA–administered Section 8 program had the highest overpayment rate of 21 percent followed by the owner-administered program at 20 percent and Public Housing at 14 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	14%	14%
PHA-Administered Section 8	21%	21%
Owner-Administered	16%	20%
Total	**18%**	**19%**

Dollar Error Effect of Rent Errors. All summary error estimates represent the summation of net case-level errors. That is, a case is determined to have a net overpayment error, no error, or a net underpayment error. Major findings were[1]—

- **Rent underpayments of approximately $476 million annually (up from $433 million in FY 2008).** For tenants who paid less monthly rent than they should pay (18 percent), the average monthly underpayment was $54. For purposes of generalization, total underpayment errors spread across all households (including those with no error and overpayment error) produces a program-wide average monthly underpayment error of $9.61 ($115 annually). Multiplying and weighting the $115 by the approximately 4.1 million units represented by the study sample results in an overall annual underpayment dollar error of approximately $476 million per year.
- **Rent overpayments of approximately $304 million annually (down from $342 million in FY 2008).** For tenants who paid more monthly rent than they should pay (19 percent), the average monthly overpayment was $32. When this error is spread across all households, it produces an average monthly overpayment of $6.12 ($73 annually). Multiplying and weighting the $73 by the approximately 4.1 million assisted housing units represented by the study sample results in an overall annual overpayment dollar error of approximately $304 million per year.
- **Aggregate net rent error of $173 million annually. When combined, the average gross rent error per case is $16 ($10 + $6).** Over- and underpayment errors partly offset each other. The net overall average monthly rent error is -$4 (-$10 + $6). HUD subsidies for Public Housing and Section 8 programs equal the allowed expense level or payment standard minus the tenant rent, which means that rent errors have a dollar-for-dollar correspondence with subsidy payment errors, 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-

[1] National annual totals in the text and exhibits are calculated using exact values and weighted. While household level numbers are presented below, using them to calculate national annual totals will result in different amounts due to both rounding and weighting and should not be used. Similarly, the source tables in Appendix C are rounded to the nearest integer for formatting purposes.

for-dollar effect). The study found that the net subsidy cost of the under- and overpayments was approximately $173 million per year ($476 million - $304 million).[2]

Subsidy over- and underpayment dollars are summarized in Exhibit ES-2. This data responds to study Objective 1 (identify the various types of errors and 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	$54 (18% of cases)	$32 (19% of cases)
Average Monthly Per Tenant Error Across All Households	$10	$6
Total Annual Program Errors	$476 million	$304 million
Total Annual Errors—95% Confidence Interval	**$363 - 590 million**	**$227 - 380 million**

Exhibit ES-3 provides estimates of program administrator error by program type. These data respond to study Objectives 3 (estimate national-level net costs for total errors and major error types), 8 (provide information on the extent to which errors are concentrated in projects and programs), and 11 (estimate total positive and negative errors in terms of HUD subsidies).

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

Administration Type	Subsidy Overpayments	Subsidy Underpayments	Net Erroneous Payments	Gross Erroneous Payments
Public Housing	$85,040	$45,227	$39,813	$130,268
PHA-Administered Section 8	$268,791	$171,497	$97,294	$440,288
Total PHA-Administered	$353,832	$216,725	$137,107	$570,556
Owner-Administered	$122,667	$86,788	$35,880	$209,455
Total	**$476,499**	**$303,512**	**$172,987**	**$780,011**
95% Confidence Interval	**±$113,911**	**±$76,928**	**±$107,263**	**±$162,116**

Comparison with Prior Studies. Seven prior studies (2000 baseline and the FYs 2003, 2004, 2005, 2006, 2007 and 2008) estimated erroneous payments attributed to program administrator rent calculation and processing errors, using the same methodology, sampling procedures, and sample sizes as this FY 2009 study. The 2000 "Quality Control for Rental Assistance Subsidy Determinations" study was published as a final report in June 2001. The FY 2003 final report—Quality Control for Rental Assistance Subsidies Determinations—was completed in August 2004. The FY 2004, 2005, 2006, 2007 and 2008 final reports were completed in July 2005, October 2006, October 2007, October 2008 and October 2009 respectfully. While the FY 2003

[2] The actual estimate of annual rent underpayments is $476.50 million. The actual estimate of annual rent overpayments is $303.51 million. Therefore the actual estimate of net rent error is $172.99 million ($476.50 − $303.51 = $172.99).

and FY 2004 studies demonstrated significant reductions in erroneous payments attributed to program administrator income and rent determinations, the FY 2005 findings indicated a smaller reduction in the gross dollars in erroneous payments that did not represent a statistically significant decrease from FY 2004. The FY 2006 study indicated a small increase in the gross dollars in erroneous payments which also did not represent a statistically significant difference. The FY 2007 study once again indicated a decrease in gross dollars in erroneous payments with significant reductions in PHA-administered programs.

The FY 2009 findings are on par with the findings from FY 2004 through FY 2008. Although the estimates for these years vary somewhat, they do not represent statistically significant differences. Statistically, the gross dollars in erroneous payments has remained the same since the FY 2004 study. Exhibit ES-4 presents a comparison of the gross erroneous payments for the QC studies from 2000 to FY 2009.

Exhibit ES-4
Comparative 2000 through FY 2009 Gross Erroneous Payments*

Gross Erroneous Payments (in $1,000's)	Administration Type				Total
	Public Housing	PHA-Administered Section 8	Total PHA-Administered	Owner-Administered	
FY 2009	$130,268	$440,288	$570,556	$209,455	$780,011 ±$162,116
FY 2008	$183,305	$400,248	$583,553	$191,723	$775,276 ±$153,447
FY 2007	$149,364	$435,012	$584,376	$199,104	$783,480 ±$157,292
FY 2006	$172,824	$520,020	$692,844	$261,324	$954,168 ±$192,000
FY 2005	$220,464	$456,240	$676,704	$248,580	$925,232^ ±$164,000
FY 2004	$242,076	$521,220	$763,292	$224,460	$987,744^ (±$131,000)
FY 2003	$316,116	$730,956	$1,047,072	$368,796	$1,415,844^ (±$163,000)
2000	$602,556	$1,096,524	$1,699,092	$539,160	$2,238,252^ (±$275,000)
Percent Reduction from 2000 to FY 2009	78.38%	59.85%	66.42%	61.15%	65.15%

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

C. Sources of Errors

Rent errors are often a result of a mix of different types of errors. This study also examined administrative and component errors. For purposes of this study, administrative errors are analyzed separately from specific component errors. Administrative errors are errors that result from administrative mistakes. They consist of—

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

Component errors are related to the income and expense components used to calculate rent. The income components are employment income, Social Security benefits and pensions, public assistance, other income, and asset income. The expense/allowance components are elderly/disabled allowance, dependent allowance, medical allowance, child care allowance, and disability allowance. Component errors often occur when project staff do not conduct a thorough tenant interview or do not verify the information obtained during the interview. However, component error may also occur when the tenant supplies incorrect information, either intentionally or unintentionally. The discussion below responds to study Objectives 2 (identify the dollar costs of the various types of errors), and 6 (determine the apparent cause of significant rent errors).

Administrative Errors. The two most common administrative errors are consistency errors and transcription errors. The HUD PIC and TRACS data systems check the rent calculations on Forms 50058 and 50059. For tenants for whom data are submitted (and corrected if required); these systems virtually eliminate rent determination calculation errors for the items included on the forms. However, not all cases are reported and some cases returned to program sponsors for correction are ignored or are changed in HUD systems but not actually implemented.

Verification Errors. The percentage of income and expense items verified by PHA/owner staff in FY 2009 was comparable to FY 2008 with the exception of public assistance and asset income verification which both declined by 11 percent and 3 percent, respectively. In FY 2009 public assistance had the lowest overall verification rate (74 percent) while in FY 2008 the lowest verification rate was for other income (76 percent). The percent of items where the verified amounts matched the amount reported on the 50058 and 50059 Forms decreased for three rent components: public assistance, earned income and asset income and remained relatively stable for the other rent components.

Obtaining income verification is often difficult. Even when repeated requests are made, employers sometimes do not respond to requests for verification. Some program sponsors do a much better job than others in achieving third-party compliance with written verification. The QC study shows that it is reasonable to expect all program sponsors to have as high a success rate as the current high performers. The study also shows that there is significant room for improvement in using the verification data obtained, which are often collected consistent with procedures but then filed and never used.

Overdue Recertifications. HUD requires that every household be recertified annually. Less than 1 percent of households had overdue recertifications in FY 2009 compared to 2 percent in FY 2008.

Component Errors. Incorrect income and allowance amounts were by far the most significant sources of error in determining rents. Less than 1 percent of households with rent errors did not have an income or expense component error. Earned income (25 percent), pension income (30 percent), and medical allowances (19 percent) continued to have the greatest percentage of households in error. The following exhibit shows the frequency of the most serious component errors and the average dollar amount for each type. The percentage of households represents the households with any rent component error where the specified rent component was responsible for the largest error. The Average Dollar Amount represents the average dollar amount for the specified rent component for households where the specified component was responsible for the largest error. For comparison purposes, findings from FY 2008 are provided in parentheses. Note that while the percentage of households with component errors has generally stayed the same, the average dollar amount of component error has increased for some components such as other income and asset income and decreased for others such as pensions and child care allowance.

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

Rent Component	Percentage of Households	Average Dollar Amount
Earned Income	25% (23%)	$3,108 ($3,047)
Pensions	30% (21%)	$2,058 ($2,598)
Other Income	12% (14%)	$2,930 ($2,260)
Public Assistance	5% (6%)	$2,283 ($1,986)
Asset Income	2% (3%)	$1,160 ($678)
Medical Allowance	19% (21%)	$1,028 ($1,202)
Child Care Allowance	2% (4%)	$1,399 ($2,442)
Dependent Allowance	3% (5%)	$571 ($715)
Elderly Allowance	2% (2%)	$400 ($400)
No Rent Component Error	<1% (1%)	$0
Total	**100%**	**$2,142 ($2,091)***

* The sum of the dollars associated with the largest component in error divided by the number of households with error.
Note: FY 2008 findings are provided in parentheses. The elderly/disabled allowance cell size is too small to generate a reliable estimate.

D. Additional Findings

Eligibility of Newly Certified Households. A separate analysis of newly certified households (13 percent) was conducted to determine if these households were eligible for HUD housing assistance. Eighty-seven percent of these households met all the eligibility criteria compared with 90 percent in FY 2008). There was only one newly certified household in the sample who was not income-eligible on the basis of the QC income determination.

Two percent of the newly certified households failed to document *Social Security numbers* (or certify non-assignment of a number) for one or more family members (at least six years of age), and 9 percent lacked the signed *consent forms* needed to authorize verification of income and assets (for each member of the household at least 18 years of age). Four percent lacked the signed declaration forms or evidence accepted as proof of citizenship (a decrease of 2 percent

from FY 2008). These findings respond to study Objective 9 (estimate the percentage of newly certified tenants who were incorrectly determined eligible for program admission.

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

Rent Reasonableness. Study Objective 10 asks for the extent to which Section 8 Voucher rent comparability (reasonableness) determinations are found in the tenant file, and the method used to support the determinations. Eighty-eight percent of new admission files contained rent reasonableness documents, as did 77 percent of the files for households for which data were collected for an annual recertification. However, the absence of documentation does not necessarily indicate a determination was not completed; only that it was not properly documented. Information was also collected at the PHA level to understand the method used to determine rent reasonableness. About 96 percent of the PHAs in the study used unit-to-unit rent comparison, unit-to-market rent comparison, or a point system when determining if the rent was reasonable. For the remaining 4 percent there was either no information available, the PHA used some other method of determining rent reasonableness, or the units were subject to rent control.

Utility Allowances. For PHA-administered Section 8 Voucher households, the utility allowances found on the 50058 Forms were compared to the utility allowance worksheets found in the tenant file, and to the utility allowance values calculated using the utility allowance schedules provided by the PHAs. For the first comparison, 87 percent of the utility allowance values matched. For the second comparison, 90 percent of the values matched. However, the fact that the values did not match does not necessarily mean the utility allowance found on the 50058 Form was incorrect.

Payment Standards. A special analysis was conducted to determine if the correct payment standards were used for Section 8 Voucher households. The payment standard found on the 50058 Form was compared to the payment standard schedules provided by the PHA, and to the Fair Market Rent (FMR) for the appropriate geographical area. For the first comparison, 90 percent of the payment standards matched. For the second comparison, 96 percent of the payment standards found on the 50058 Form fell within the 90 to 110 percent FMR band. As with the utility allowance analysis, the information needed to conduct the analysis was not always available. Therefore, the fact that the payment standards did not match does not necessarily mean the incorrect payment standard was used when calculating the amount of the tenant rent.

50058/50059 Form Rent Calculation Error. The tenant rent was calculated using only data on the 50058/50059 Forms to determine the relationship between errors detected using the 50058/50059 Forms and total rent errors found in the study (in response to study Objective 4). When using only the 50058/50059 Form data to calculate rent, errors were found in 6 percent of the households. This is clearly different then the QC error calculation where errors were found in 37 percent of the households. In addition, error was found in both the 50058/50059 Form and QC calculation in only 2 percent of the households.

PIC/TRACS Comparison. The 2404 households in the study were matched to the PIC/TRACS databases to respond to study Objective 14. Ninety-seven percent of the owner-administered households were found in TRACS and 100 percent of households were found in PIC. The average net and gross dollars in error was higher for households where TRACS data were absent.

Automated Rent Calculation Systems. Study Objective 12 asks whether error rates in projects that use an automated rent calculation system differ from errors in those that do not. We did not find a difference between PHA/projects that use automated rent calculation systems and those that do not. This is not surprising because nearly all PHA/projects use an automated rent calculation system.

Tenant Characteristics, and Project Characteristics and Practices. In response to study Objective 8 (provide information on the extent to which errors are concentrated in projects and programs), data were collected from PHA/project staff via a structured mail survey. Multivariate analyses were conducted to explore whether project characteristics or practices contributed to administrative or rent errors. The multivariate analysis did not reveal any particular relationship between rent errors and program type or specific projects.

In response to study Objective 13 (determine whether other tenant or project characteristics on which data are available are correlated with high or low error rates), additional multivariate analyses were conducted. A number of project practices were found as significantly related to rent errors, including: overdue recertifications, transcription errors in processing household supporting documents, and the lack of verification from a third party. Consistent with findings from prior years, the analysis also identified a number of tenant characteristics that were predictive of rent error, namely: those with four or more sources of income and expenses, those with earned income, and those with other income sources.

E. HUD Initiatives: 2000–2009

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

- A Rental Housing Integrity Improvement Program (RHIIP) committee headed by the Office of the Chief Financial Officer with representatives from the other affected Offices was formed to coordinate and monitor corrective actions. The committee meets to review progress, and identify and resolve impediments to progress in reducing errors.
- The Offices of Housing and Public and Indian Housing developed and issued new handbooks and instructional material that detailed all current HUD program requirements and standardized them to the extent possible without regulatory or statutory change. These handbooks cover nearly all aspects of occupancy policy, from the point of tenant application for admission and rent calculations through ongoing occupancy to lease termination. For Public Housing, the issuance of a Public Housing Occupancy Guidebook represented the first such effort in more than 20 years, and provided a defined methodology for calculating a number of complex requirements (e.g., the Earned Income Disallowance).

- The Offices of Housing and Public and Indian Housing substantially increased training efforts, and have held a number of national and regional training sessions. This contrasts with a less activist role in the 1980's and 1990's.
- The Offices of Housing and Public and Indian Housing initiated comprehensive, large-scale, and onsite occupancy and management reviews, which also represented a major procedural change from the previous two decades for most HUD offices—
  - The Office of Housing primarily used new agreements with Contract Administrators, which are usually State agencies, to perform this function. Contract Administrators provide technical support in adhering to HUD program requirements and routinely perform detailed monitoring on agency compliance.
  - The Office of Public and Indian Housing initiated a system of Rental Integrity Monitoring (RIM) reviews to detect and reduce errors in income and rent calculations at targeted PHAs, reduce rent under- and/or overpayments by residents, and ensure that HUD's limited housing resources were being used to serve eligible families in a fair and equitable manner as intended by Congress.
- HUD initiated a legislative change that gives it access to the Department of Health and Human Service's New Hires income and wage database for income matching purposes. It will use these data to compare tenant-reported income with state wage data to better ensure that the right subsidy payments are made to the right households in accordance with program statutory and regulatory requirements. This legislation was passed in late 2003 and required implementation of agreements and data systems. HUD also negotiated agreements with some states to obtain access to the same information. Some local agencies have already initiated income-matching systems, and it seems that this has made some contribution to error reductions.

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 2009 shows that HUD exceeded this goal. It should be noted, however, that the reduction of errors and improper payments is unlikely to have an equivalent effect on budget outlays. HUD's experience indicates that its program integrity improvement efforts are likely to result in some higher income tenants leaving assisted housing and being replaced with lower income tenants requiring increased outlays. Nevertheless, HUD's goal remains to ensure that the right benefits go to the right people.

F. Recommendations

The progress when comparing the 2000 findings to the FY 2009 results is impressive. However, the percent of errors has remained stable since the FY 2004 study and the average dollars in error and the gross dollar error rate have only decreased slightly. On the basis of the current study's results, the following approaches to further reduce program administrator income and rent determination error rates are recommended:

- HUD should continue its plans to use the Department of Health and Human Service's New Hires income matching database. However, access to the New Hires income matching database by itself will not result in a reduction in error. PHA/project staff must

use this information to assist them in resolving discrepancies between the database and the tenant's declaration.

- HUD should continue to provide PHAs and owners with the forms, training, and other tools required to determine rent correctly and to assist them in resolving discrepancies. Changes in policy should be reported to PHAs and owners in a timely fashion with the guidance, and local training wherever possible, needed to implement those changes in an accurate manner.
- HUD should continue to implement and expand the scope and depth of its onsite monitoring program by utilizing only experienced, knowledgeable HUD staff, or competent contract staff. And PHAs and owners should be held accountable for implementing HUD regulations and calculating rent accurately.
- Federal laws, regulations, and HUD requirements should be simplified to the extent possible.
- HUD should consider implementing policy that allows reexaminations, for selected populations, to be completed less often than annually.

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

- Collect more information regarding PHA/project policies and practices. Each PHA establishes its own policies, procedures, and forms for collecting the information that is ultimately used to calculate tenant rent. The differentiation in these practices may have some (possibly major) impact on the rent error, yet the analysis of the project practices and characteristics collected in the Project Staff Questionnaire designed for this study do not demonstrate the expected impact. Focus groups and cognitive interviewing could be used to identify additional PHA/project level factors that may impact error. This additional information could be used to revise the Project Staff Questionnaire to include questions focused on the specific practices expected to influence errors.
- Gather information to document the outcome of the HUD quality control studies. Overall, the HUDQC studies indicate that both the percent of errors and dollars associated with those errors have decreased in the last eight years. However, there is no information on changes in tenant behavior related to the identification and reduction of error. To really understand the overall impact of the quality control studies on subsidy funding, additional information is needed regarding both the tenants receiving the subsidies and the PHA/projects administering the housing benefits.
- Expand contractor access to verification obtained through Social Security Administration and National Directory of New Hires data. Despite increasing rates of third-party verification, a large proportion of tenant income and expenses are not being verified. This is especially important given the study results indicate a significant relationship between third-party verification of certain types of income and rent errors. Expanded access to Federal databases would allow the contractor to investigate discrepancies in the information obtained from multiple sources.

- Continue to investigate PIC/TRACS data for sampling and other purposes. Ideally PIC/TRACS data would be used to select the quality control sample, and provide the actual data used by the PHA/project staff when calculating rent (in place of abstracting 50058/50059 Form data from the tenant file). However, to do this the data must be available for the specific period of time covered by the study.
- Continue to expand existing computer systems and processes that further automate data collection, processing, and reporting functions. Expanding and investing in better automated systems will yield large dividends in terms of costs, time required to collect and process data, as well as the breadth, depth, and quality of data.
- Continue the HUD quality control studies as a regular, ongoing effort to monitor and manage HUD rent determination processes. Ongoing evaluation of the subsidy programs administered by HUD is essential to the management of those programs. Although the primary goal of these studies is to measure rent errors, the studies also give HUD the opportunity to learn more about alternatives to reducing rent errors, and better management of current and changing conditions at PHAs/projects.

I. Introduction

A. Purpose of the Quality Control for Rental Assistance Subsidy Determinations Study for FY 2009

The purpose of this study is to provide national estimates of rent subsidy errors for the U.S. Department of Housing and Urban Development's (HUD's) Public and Indian Housing (PIH)-administered Public Housing (Public Housing), PIH-administered Section 8 Housing Choice Voucher and Moderate Rehabilitation programs (PHA-administered Section 8); and Housing-administered Section 8, Section 202 PRAC, Section 811 PRAC, and Section 202/162 PAC programs (owner-administered). Rent subsidy errors occur during the tenant certification and annual recertification processes, and this study examines the extent, costs, and sources of these subsidy errors.[3] For the purpose of this study, "error" is defined as any rent calculation or eligibility determination that differs from what would have occurred if the PHA/owner had followed all of HUD's income certification and rent calculation requirements. This study focuses on (re)certifications conducted during Federal FY 2009. HUD identified 17 study objectives related to types of errors and cost issues; this report addresses each of these objectives. The analysis also identifies errors in assigning appropriate size units to households and certain procedural errors in the eligibility and rent determination process. In addition, some special analyses were conducted as part of this work. One analysis was of Utility Allowances, Payment Standards and Rent Reasonableness practices used by the PHAs administering the Section 8 voucher program. Another analysis provides estimates of error for the 20 largest PHAs included in the quality control study.

B. Background of the Study

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

- The final report for the first study, conducted by Macro International Inc. (Macro), and KRA Corporation (KRA) was published in April 1996 (data were collected in 1992).
- The final report for the second study, conducted by Macro,[4] was published in June 2001 (data were collected in 2000).
- The final report for the third study, also conducted by Macro and which covered the first half of FY 2003, was published in April 2004. Following the collection of data for the second half of FY 2003 a follow-up report was written and published in August 2004.

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

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

- The final report for the fourth study, conducted by Macro was published in July 2005 (data were collected in 2004).
- The final report for the fifth study, conducted by Macro was published in October 2006 (data were collected in 2006).
- The final report of the sixth study, conducted by Macro was published in October 2007 (data were collected in 2007).
- The final report of the seventh study, conducted by Macro was published in October 2008 (data were collected in 2008).
- The final report of the eighth study, conducted by Macro, was published in October 2009 (data were collected in 2009).

Work on the current project began in October 2009. Tasks completed before data collection included designing the research and survey methodology, compiling HUD's regulations for the programs included in the study (Public Housing, PHA-administered Section 8, and owner-administered), and automating the data collection process. Data were collected from a nationally representative sample of HUD-assisted housing projects and project residents whose (re)certifications were conducted from November 2008 through October 2009.

C. Organization of This Report

This report is organized as follows:

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

D. Definitions of Key Terms

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

- **Actual Rent—**the tenant rent from the 50058 or 50059 Form.
- **Administration Type—**PHA or owner.

- **Abstract Month—**the month in which the data collection process for any given household was initiated.
- **Calculation Errors—**arithmetic errors within subsections of the 50058 or 50059 Form.
- **Case Type—**certification, recertification, and overdue recertification.
- **Component Errors—**the income and expense components used to calculate rent that are responsible for an error in the rent calculation. 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.
- **Consistency Errors—**errors in logical conformity between elements within the 50058 or 50059 Form.
- **Dollar Rent Error—**is calculated at the household level by subtracting the household's QC Rent from the Actual Rent.
- **Error Rate—**the sum of the dollar amount of Rent Error divided by the sum of the dollar amount of the QC Rent.
- **Gross Rent Error—**the sum of the absolute values of under- and overpayments.
- **Largest Component Dollar Error—**the annual dollar amount of error in the component with the largest error.
- **Net Rent Error—**the arithmetic sum of over- and underpayments.
- **(Rent) Overpayment—**results when the household paid more than it should have paid; HUD's contribution was less than it should have been.
- **Payment Type—**underpayment, proper payment, and overpayment.
- **Program Type—**Public Housing, Section 8 Housing Choice Voucher, Section 8 Moderate Rehabilitation, Section 8 project-based, Section 202 PRAC, Section 811 PRAC, and Section 202/162 PAC.
- **Quality Control Month—**the month in which the PHA/owner completed the rent calculation.
- **Quality Control (QC) Rent—**calculated by ICF Macro using the tenant file, household interview and verification data.
- **Rent Component—**the five sources of income (earned, pensions, public assistance, other income, and assets) and the five types of deductions (medical, child care, and disability assistance expenses, dependent allowance, and elderly/disabled allowance).
- **Rent Error—**the difference between the monthly Actual Rent and the monthly QC Rent.
- **Total Component Dollars in Error—**the absolute sum (i.e., the sum of the positive and negative amounts, ignoring the plus or minus signs) of all individual income and expense component errors. These errors are combined to provide an overall Total Dollars in Error and are presented as an annual amount.

- **Transcription Errors—**errors in transferring information from documentation in the tenant file to the 50058 or 50059 Form.
- **(Rent) Underpayment—**results when the household paid less than it should have paid; HUD's contribution was higher than it should have been.

II. Methodology

A. HUD Requirements and Study Standards

Using the *Code of Federal Regulations* and official HUD handbooks and notices, all HUD rules relevant to the determination of rent were consolidated into a set of HUD requirements. These requirements were used to create a uniform set of rules that could identify errors in eligibility determination, rent calculation, and unit assignment for the housing programs in the study. In general this uniform set of rules, known as the standards, follows the official HUD requirements. However, for some complex requirements, standardized procedures had to be developed so the data could be collected in a uniform manner. A complete list of standards used in this study can be found in the *Data Collection Standards for the FY 2009 HUDQC Study, Quality Control for Rental Assistance Subsidy Determinations.*[5]

B. The Sample

The initial sampling design called for a nationally representative sample of 600 projects with four households randomly selected from each project, or 2,400 households. Projects were selected with probabilities proportional to size (PPS), but projects whose size exceeded the sampling interval were selected for 8, 12, or more households in the project, and were counted as more than one project for purposes of determining the sample size. The sampling design required approximately equal allocations for the three assisted program types: Public Housing, PHA-administered Section 8 (Vouchers and Moderate Rehabilitation), and owner-administered (Section 8, Section 202 PRAC, Section 202/162 PAC, and Section 811 PRAC). PHAs that participated in the Move to Work block grant demonstration program through Public Housing or Section 8 Vouchers were removed from the project-level sample. Because some large projects were selected multiple times, the study sample included 540 distinct projects in 56 geographic areas across the United States and Puerto Rico. We sampled 200 projects from each major program type. In addition, data were collected for four households in one additional Public Housing project. This additional project was added to the sample to ensure, that given any unexpected circumstances, the sample would included a minimum of 2,400 households. The final data set includes responses from 2,404 households in the 540 projects.

The tenant sample was selected from all households that were receiving assistance in Federal FY 2009. A random sample of four households was selected from most projects. An equal number of potential "replacement" households were identified as potential substitutes when selected households did not meet the study requirements or were unavailable to be interviewed. However, as noted above, some large projects had additional households. For example, 16 Housing Authorities' Section 8 Voucher programs had household sample sizes of 12 or greater, including those of New York City and Los Angeles. For additional information on the sampling procedures, see the *Sampling Plan for the FY 2009 HUDQC Study, Quality Control for Rental Assistance Subsidy Determinations.*[6]

[5] ICF Macro unpublished report to HUD dated November 30, 2009.
[6] ICF Macro unpublished report to HUD dated October 19, 2009.

C. Data Collection

This study used a multi-stage data collection process to obtain all required information. Mail surveys provided project-level information from PHA/project staff. Tenant-level information was obtained by field interviewers who abstracted data from the household file, interviewed the tenant, and requested verification for income, expense, and household composition items from third parties.[7] Tenant income, expense, allowance, and third-party verification information were collected using HUD-sanctioned data collection procedures. ICF Macro field interviewers strictly adhered to these procedures to avoid misclassifying errors caused by PHAs/projects that did not follow HUD requirements.

The initial collection of project level data began in November 2009. Field data collection began in February 2010 and ended in June 2010. Because PHA/projects have varying practices, data collection forms and guidelines for data collection were designed to be flexible enough to obtain data from circumstances as found in the PHA/project. The major tasks accomplished during data collection and the forms used to accomplish them are discussed below.

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

Automating the Data Collection Process. This study used an enhanced version of the data collection system used in previous studies. While project-level data were collected on paper and the data entered upon receipt at ICF Macro, data from tenant files were entered directly into laptop computers, and a computer-assisted personal interviewing (CAPI) system was used to interview tenants. This system, referred to as the HUDQC Data Collection Software (HDCS) system, was developed by a special team of ICF Macro survey specialists and computer systems experts.[8] As sections of the instruments were collected by field interviewers, the HDCS system compared the data with a range of acceptable responses and data previously entered, allowing data entry errors to be corrected in the field. The system required that the data be collected in the correct order, and that all the appropriate skip patterns be followed.

The automated system also alerted the field interviewer if key pieces of information used to calculate rent were missing and needed to be located and documented. This structured,

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

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

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

Contacting the PHA/Project. PHA/project contact names were obtained from HUD headquarters staff. Letters were sent to PHA/project staff advising them of the study and requesting their participation. Prior to field interviewer training and data collection, each project in the study was sent a form requesting background information essential to the data collection process and specific data used in the calculation of QC rent. The rent calculation information requested varied by program but included such items as passbook rate, utility allowance schedules, payment standards, minimum rent and flat rent. PHA/project staff verified the project type and size, and the location of project offices and files. Projects were also requested to indicate if the selected project had been designated a "special demonstration project" by HUD. If a project answered in the affirmative to this question, the status was confirmed and the project was replaced in the study. Public Housing projects were also requested to identify any income exclusions that had been adopted in addition to those specified by HUD. The data requested from the PHA/project were essential in preparation for interviewers to begin the process of collecting data and for the calculation of the QC rent. For these reasons, a 100 percent response rate to our request for information was necessary. Rigorous strategies were employed to ensure compliance and completeness of requested information prior to field data collection.

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

Hiring and Training Field Interviewers. Sixty-one field interviewers were hired to complete the field data collection. Each field interviewer was assigned a group of projects. Field interviewers typically lived in the same general area as the projects selected for the study. Ten-day training sessions were held for 28 field interviewers who had not worked on the FY 2008 study, and a three-day training was conducted for 29 interviewers who had completed the FY 2008 study. In addition, a five-day training was offered to field interviewers who had worked on a HUDQC study prior to FY 2008. The 10-day training covered:

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

The three- and five-day training sessions covered a review of the project background and data collection procedures and focused particularly on changes implemented for the FY 2009 study.

Abstracting from Tenant Files. At certification and recertification, PHAs/projects must complete a HUD Form 50058 for each household in Public Housing and PHA-administered Section 8 programs. A HUD Form 50059 is required for all other programs in the study. Data from the HUD Forms 50058/50059 (50058/50059 Form) were entered directly into the HUD Data Collection Software (HDCS) on each field interviewer's laptop computer. As the data were entered, the system identified potential data entry errors, such as incorrect codes or numbers, on the basis of internal calculations and consistency checks. If key data used in the rent calculation formula were missing from the 50058/50059 Form, the system alerted the interviewer and the interviewer obtained the information from another document in the tenant file or project office. These electronic checking procedures enabled field interviewers to make immediate corrections and updates.

HDCS was designed to collect data in the same formats as the official 50058 and 50059 Forms published by HUD. New York City Public Housing Authority uses a format for the 50058 Form that differs from this standard format. However, due to the large number of NYC Public Housing and Section 8 Voucher cases in the study, copies of the corresponding PIC 50058 Forms for these cases were requested and used for data collection when available.[9] In previous study years we encountered projects where the 50058 Forms differed from the official HUD format. In those cases paper crosswalks were developed by ICF Macro by examining the data elements on the atypical form and developing a plan that illustrated which fields corresponded to the standard 50058 Form. In the FY 2009 study no crosswalks were needed.

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

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

[9] This was the first study where copies of the standard 50058 form for NYC Section 8 Voucher cases were obtained universally. Copies of the standard 50058 form were obtained for NYC Public Housing cases in the previous study. This improvement to the study process enhanced the ability to collect accurate information in a timely manner.

Interviewing Tenants. An adult household member (preferably the head of the household) was interviewed in person using CAPI for this study. Interview questions focused on family composition, sources and amounts of income, assets, and applicable expenses. Data were collected for the same point in time as when the recertification was conducted. HDCS compared data from the 50058/50059 Form with that entered during the interview to alert the interviewer to possible errors.

Requesting Verification from Third-Party Sources. When there was no evidence in the tenant file that the PHA/owner verified the information used for calculating rent, or the existing verification information did not meet requirements agreed to for this study,[10] ICF Macro requested verification from the appropriate third-party sources. Verification was also requested from third parties when household interviews resulted in the identification of sources of income that were not shown in the tenant files. Tenants signed release forms during the household interview so that third-party verification of income and expenses could be obtained. In addition, release form cover letters were also signed by all adult members of the household to ensure that the third parties would be satisfied with the validity of the requests for verification. Third parties completed the forms and returned them to ICF Macro.

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

D. Field Data Collection Time Periods

Data were collected in the field between February 2010 and June 2010 for the certification or annual recertification that occurred during FY 2009 (October 2008 through September 2009).[11] Field interviewers collected data related to actions that may have occurred up to 20 months prior to the file abstraction and household interview. One of the challenges of collecting data to document actions taken in the past is developing methodologies to ensure data are collected for the situation that existed at the selected point in time. For the respondent in the household interview, recalling details of life situations at a past point in time presents difficulties. This may be complicated by the fact that some respondents in this population may have unstable situations resulting from inconsistent income or changing numbers of household members. In light of this, strategies were developed to ensure consistent and accurate collection of data across program types, projects, and households in the study. Two of the strategies developed that were of primary importance to the data collection are described in this section.

Quality Control Month. The month for which data were collected is referred to as the Quality Control Month (QCM). This month represents the date the rent calculation for the certification or annual recertification (conducted in FY 2008) was completed. For most households in the owner-administered programs, the QCM is the month in which the project manager (or other

[10] For purposes of this study, verification was acceptable if it was in writing, received from the third party, and dated 60 days before or 30 days after the recertification was completed.

[11] To account for delays between the time the work is completed by the PHA/project staff and the effective date of the recertification, actions effective in October 2009 were included in the FY 2009 study.

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

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

Note: If the recertification was overdue by more than 12 months, the QCM was moved forward in 12-month intervals to a point in time within FY 2009. In this situation, during the household interview, the respondent was questioned about circumstances for the month in which the recertification would have been completed had the housing project staff completed it on time. In rare situations, when the rent was calculated after the effective date of the action (because of retroactive adjustments) the QCM is the earlier of the two dates—the rent calculation or the effective date of the action.

Third-Party Verification Rules. Occasionally the verifications found in the file for household composition, income, asset, and expense items were different than those required by HUD. In addition, files were likely to contain verification documents other than those intended to support the recertification corresponding to the QCM. To ensure that the data from the right documents (those that had been gathered to verify the information on the 50058/50059 Form being reviewed) were entered into HDCS, and to apply rules fairly and consistently across all households in the study, a set of rules defining acceptable verification were developed. For purposes of this study, verification was considered acceptable if it was *in writing, was received from a third party, and was dated 60 days before or 30 days after the date the recertification was completed.* Field interviewers were given detailed instructions on the various types of documents they were likely to find in the file and how to classify them. The date and type of verification for each household, income, and expense item was entered into HDCS during file abstraction. The HDCS system informed the interviewer if any items did not meet the verification requirements of the study. For the items that did not meet the requirements, the field interviewer requested written verification from the appropriate third party.

E. Constructing the Analysis Files

The initial database consisted of five separate files that included abstracted 50058 and 50059 Forms, tenant file information from the Documentation Form module, information from the household interview, and the third-party release forms. Data fields were at both the member and household levels, with income and expense items in hourly, weekly, monthly, or annual amounts. ICF Macro 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 the 50058/50059 Form and other file documentation with information obtained in the household interview and received from third-party verification.

This variable specifically identified the income/asset/expense and household member to which it belonged.

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

F. Rent Formulae

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

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

The formula for determining the TTP for the Sections 202 PRAC, 811 PRAC, and 202/162 PAC programs includes Steps 1–3 above, but there is no minimum rent requirement for these programs.

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

- Public Housing
- Section 8 Project-Based (including Moderate Rehabilitation), Sections 202 PRAC, 811 PRAC, and Section 202/162 PAC
- Section 8 Vouchers
- Section 8 Enhanced Vouchers (there were 21 Enhanced Voucher households in the study)
- Manufactured Home Space Rental for Section 8 Vouchers (there were no households in the study sample that met this criterion).

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

If the Flat Rent was not available, the *Ceiling Rent* was used to cap the rent. The rent is not capped for the Section 202 PRAC or Section 811 PRAC programs.

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

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

G. Calculation of Rent Error

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

- **Actual Rent—**The monthly rent indicated on the 50058/50059 Form. If this item was missing on the 50058/50059 Form, the Actual Rent was taken from another official document in the file.[12]
- **Quality Control Rent—**The monthly rent calculated by ICF Macro using all of the verified household information.[13]

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

H. Quality Control Rent

ICF Macro 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 Macro first used available verification from the project files. If acceptable verification was not available from the tenant file, verification was requested from an appropriate third party (see Section II-D for a discussion of acceptable verification). If the verification was not returned by the third party and the tenant file did not include verification, information obtained during the household interview was used. 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.

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

[13] Attempts were made to verify items that were not verified by PHA/owner staff; however, verification was not always obtained. If verification was not available, other information from the tenant file or information obtained during the household interview was used to calculate the QC rent. When calculating QC rents, codes were assigned to indicate which rents were based on verified information and those for which the income/expense information was only partially or not verified.

- Income that ended after the QCM was counted for the full year unless it was clear that the PHA/owner knew that this income was going to end.
- Earned income bonuses were not counted unless it was clear that the bonus was paid on a regular basis.
- Temporary Assistance to Needy Families (TANF) and Other Welfare income were treated as the same source of income so that income listed as TANF on one form (e.g., the household questionnaire), and Other Welfare on another form (e.g., the Documentation Forms) would not be counted twice.
- Welfare (TANF and Other Welfare) income, Child Support income, and Child Care expenses were treated at the household level instead of the member level so that the same source of income associated with one member (e.g., the head of household) on one form, and another member (e.g., a child) on another form would not be counted twice.
- Disability status was assigned to a household member if two items were evident on the EIV printout: (1) receipt of Social Security or Supplemental Security Income (SSI) benefits and (2) a disability status of "yes."
- Passbook rates (for determining the imputed income from assets) for PHA-administered programs were taken from the project-level information provided by PHA/owner staff. The passbook rate for owner-administered programs is 2 percent.
- For new certifications, the low and very low income limits were obtained from HUD's website.
- When determining the prorated rent for Public Housing households with ineligible noncitizens, if the Maximum Rent was not present on the 50058 Form, the Fair Market Rent (FMR) was used instead of the 95th percentile of Gross Rent because the 95th percentile of Gross Rent was not available.
- The values from the 50058 Form were used for minimum rent, gross rent, payment standard, and flat rent unless the value was missing, in which case the missing value was taken from the PHA/project-level information provided by PHA staff.
- The values from the 50059 Form were used for gross rent and contract rent unless the value was missing, in which case the missing value was taken from the project-level information provided by owner staff.
- Welfare rent for the State of New York was taken from the project-level information provided by PHA staff.
- A separate verification code was used to identify verification obtained from the Enterprise Income Verification (EIV) system. When Social Security, SSI, or Black Lung benefits were verified with EIV, the verification was considered third-party in writing. If EIV information was in the file for earned income or unemployment benefits, the dates associated with the form were examined to determine if the PHA/project staff had access to the EIV information at the time of the recertification. Copies of EIV (as well as other types of verification of earned income found in the tenant file) were sent to ICF Macro headquarters and reviewed by data quality specialists to prevent mistakes in calculating the QC earned income value.

- When working with Social Security and Supplemental Security Income (SSI) benefit information obtained through the Social Security Administration data match, sometimes discrepancies were found between that data and EIV printouts found in the tenant file. If the two sources of information were contradictory, the information found on the EIV printout (from the tenant file) was used in the QC calculation.

I. HUD Requirements Complicating the Analysis

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

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

Third-Party Verification. HUD regulations require that the information supplied by residents at recertification be verified by third parties (e.g., employers, the Social Security Administration, banks, medical personnel). Field interviewers obtained release forms from the households when evidence of verification was not present in the tenant's file and they then requested verification from the appropriate third parties. However, some third parties did not respond, others returned information for incorrect time periods, others required payment for the information requested, and other problems were encountered in obtaining the correct verification. Follow-up requests for missing verification were not made in all cases due to time constraints.

ICF Macro and HUD established a set of verification rules to determine whether an item was verified. Section II-D shows the rules used to determine if verification was acceptable and for each matched item used in the rent calculation. Verification rates for different rent components are in Tables 1a–1f (in Appendix C) and Exhibit IV-1 in Section IV-B.

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

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

For these household members, we examined the tenant file information on the 50058 Form and the Documentation Forms. We compared the QC calculated earned income exclusion (using the household questionnaire information) with the earned income used by the PHA when calculating the total annual income. When determining whether a household member was entitled to an earned income disregard because of unemployment, we reviewed income match data available from the National Directory of New Hires.

In 27 (of the 42) cases, neither the PHA nor the QC calculation gave an earned income disregard. In 10 cases the PHA and the QC calculation gave an earned income disregard. In four cases the PHA gave an earned income disregard but QC did not. In one case the QC process discovered that a 50 percent earned income disregard should be applied based on documentation found in the tenant file.

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

To identify households eligible for the training program exclusions, the field interviewers documented training program information found in the tenant file and provided during the tenant interview. Based on documentation in the tenant file and information from the household interview, 13 household members had indications of involvement in training programs. Six of these 13 were found to be eligible for the training program income exclusion. For all six cases both the PHA and QC calculation applied the training program exclusion.

Permissible Deductions. Public Housing programs may adopt deductions from annual income in addition to HUD's required deductions. To make sure that the appropriate additional permissible deductions were taken into consideration when determining the adjusted annual income, we looked at two sources. First, we looked at items 8b through 8e on the 50058 Form where the type and amount of permissible deductions were recorded. Second, we asked a question in the Project Specific Information request to identify additional exclusions adopted by the Public Housing PHAs. We found that many PHAs use the Permissible Deduction section (items 8b through 8e) of the 50058 Form to record all kinds of information that have nothing to do with permissible deductions. Therefore, we had to rely on the Project Specific Information request to determine whether the items listed on the 50058 Form were in fact additional permissible deductions. On the basis of the information obtained through the Project Specific Information requests and the 50058 Forms, 17 households representing six PHAs were entitled to permissible deductions. In seven cases 11.45 percent of earned income was deducted from the gross earned income. In five cases employee withholding was deducted and in four cases a set percentage was deducted from the gross earned income. Finally, there was one case where $500 was deducted from the gross earned income.

Flat Rent. Households that elected to pay a flat rent rather than an income-based rent were included in the study. For these households there is no rent error. The QC rent is the same as the Flat Rent used by the PHA. There are 61 flat rent cases in the study sample. It should be noted that determining if a household is paying the flat rent is not always easy because of contradicting data within the 50058 Form. For most cases, items 2a-Flat Rent Annual Update, and 10u-Type of Rent Selected could be used to identify whether the household is paying the flat rent instead of

income-based rent. However, if these two items contradicted one another, notations from other documents in the file were taken into consideration.

Ineligible Noncitizens. HUD regulations require that rent be prorated for households with ineligible noncitizens unless the household meets certain criteria that allow continuation of full assistance. ICF Macro reviewed all households with ineligible noncitizens to ensure that the rent was calculated correctly. No households with ineligible noncitizens were entitled to continuation of full assistance. Twenty-nine households (less than 1 percent of the households in the study) included an ineligible noncitizen.

Reduced or Terminated TANF Benefits. The regulations governing Public Housing and PHA-administered Section 8 programs included in the study require using the amount of the TANF benefit before reduction or termination, resulting 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 during the household interview.

If the TANF benefits were reduced or terminated due to fraud or failure to comply with the welfare family self-sufficiency requirements, the value of the TANF benefit before the reduction or termination was used in the QC Rent calculation.[14] The TANF benefits in 40 households were reviewed and in only one case the PHA/project counted imputed TANF benefits.

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

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

III. Study Objectives and Analytic Methods

This section presents the 17 study objectives and a brief description of the methodology used to meet them.[15] At the end of this section, Exhibit III-2 presents a chart summarizing the objectives and providing information on where each objective is addressed within the report.

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

The types of errors and error rates in the 2000 through FY 2008 studies are replicated in the FY 2009 analyses. These errors include percent of households paying correct and incorrect rent, dollar error amounts, and dollar error rates. Variance estimates (standard errors) are provided for selected error rates. Errors are determined by recalculating the tenant rent on the basis of verified QC information and subtracting this amount from the tenant rent indicated on the 50058/50059 Form (Actual Rent). The following three types of dollar rent error estimates were calculated:

- **Dollar Rent Error—**The difference between the monthly Actual Rent and the monthly QC Rent (i.e., Actual Rent minus QC Rent). A household rent is found to be in error if the difference between the Actual Rent and QC Rent is greater than $5, while "proper" rent payments reflect differences of $5 or less. Rates of exactly matching Actual and QC rents (within $1) are also presented. Simple percentages of the number of households paying the proper and exact rents are reported, as well as the percentage of households in error per program, the average gross dollars in error, and the percentage of rent dollars in error. For households who were ineligible when initially certified, the QC Rent is the flat rent for Public Housing households, or the Housing Assistance Payment (HAP) for Section 8 programs. The dollar error is this amount minus the Actual Rent.
- **Total Component Dollars in Error—**The absolute sum (i.e., the sum of the positive and negative amounts, ignoring the plus or minus signs) of all individual income and expense component errors. These errors are combined to provide an overall Total Dollars in Error and are presented as annual amounts.[16] A dollar amount of rent overpayment and underpayment was calculated for each component with identified error; however, some of these errors were overlapping or offsetting. For example, earned income may have been underreported while—perhaps because of a calculation error—Supplemental Security Income may have been overstated. The net difference could be zero, or a positive or negative amount.
- **Largest Component Dollar Error—**The annual dollar amount of error for the income or expense components with the largest error. Income and expense components include the five sources of income (earned, pension, public assistance, other income, and assets) and the five types of deductions (medical, childcare, and disability assistance expenses, dependent allowance, and elderly/disabled allowance). If the component with the largest

[15] See *Analysis Plan for the FY 2009 HUDQC Study, Quality Control for Rental Assistance Subsidy Determinations,* an unpublished ICF Macro report to HUD, dated October 23, 2009 for a more detailed description of the methodology.

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

error is earned income, the largest dollar error would reflect the difference between the earned income used by the PHA/project, and the earned income used in the QC rent calculation.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

This analysis presents differences in error rates by program type. Data are provided for three program groups: Public Housing, PHA-administered Section 8 (Section 8 Vouchers and Moderate Rehabilitation programs), and owner-administered (Section 8, Section 202 PRAC, Section 811 PRAC, and Section 202/162 PAC). The gross and net error rates are provided for each of these program types. The gross error rate is the sum dollar amount of gross error divided by the sum dollar amount of QC Rent, and the net error rate is the sum dollar amount of net error divided again by the sum dollar amount of QC Rent.

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 was done in the previous studies, we provide descriptive information on the sources of discrepancies between housing file information and verified information, and describe the incidence of administrative errors and their impacts. We also examine whether failure to verify sources of income and expenses contributes to QC error. Multivariate analyses using administrative errors and income components as independent variables are performed to identify how these errors affect the QC Dollar Rent Error.

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

This objective addresses whether households reside in units with the correct number of bedrooms. Generally acceptable HUD guidelines specifying the appropriate size unit for assisted households are shown in Exhibit III-1.[17]

For most programs, the rules are not based solely on household size and allow discretion on the part of the project staff. All programs allow exceptions to these rules. This study replicates the analyses in the previous studies that identified bedroom size and program, and the proportion of

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

households in compliance with and in violation of occupancy standards according to the guidelines in the 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	4	8
5	5	10

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

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

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

Incorrect initial eligibility determinations create long-term problems for assisted-housing programs. Newly certified households are reviewed to determine whether they met the eligibility requirements for assisted housing.

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

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

To comply with the rent reasonableness requirement, housing authorities must determine that Section 8 voucher rents are reasonable in comparison with rents for similar housing in the private, unassisted market. Using information collected from tenant files, we estimated the proportion of Section 8 voucher recipients with comparable documentation. For those with documentation, we classified the type of evidence cited in the tenant file documentation (e.g., no evidence, cited market estimates for comparable units, or the rents of one or more units considered to be comparable). We present weighted proportions of voucher recipients with rent comparability data.

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

Objective 11: Estimate the total positive and negative errors in terms of HUD subsidies.

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

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 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 use multivariate analysis to conduct more detailed analyses of differences among PHA/projects and provide HUD with more information for identifying projects and tenants likely to exhibit high error rates.

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

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

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

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

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

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

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

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

Exhibit III-2
Summary of Study Objectives

#	Objective	Where Objective is Addressed	
		Executive Summary	Section IV
1	Identify the various types of rent errors, rent error rates, and calculate their variance estimates: • Dollar Rent Error • Total Component Dollars in Error • Largest Component Dollar Error.	p. iv–viii Exhibits 2 & 5	p. 4–7; Exhibits 3–5 p. 12–15; Exhibits 13–14
2	Identify the dollar costs of the various types of errors: • Calculation errors • Consistency errors • Transcription errors • Incorrect determination of allowances and income sources • Overdue recertifications.	p. vi–viii	p. 20–22; Exhibits 22–23 p. 12–13; Exhibits 12–13 p. 10; Exhibit 9
3	Estimate the national-level costs for total error and major error types.	p. v; Exhibit 3	p. 4–7; Exhibits 3–6
4	Determine the relationship between errors detectable using the HUD 50058 and HUD 50059 Forms and total errors found in the study.	p. ix	p. 17; Exhibit 18
5	Determine whether error rates and error costs have statistically significant differences from program to program.	p. v	p. 7; Exhibit 5

#	Objective	Where Objective is Addressed	
		Executive Summary	Section IV
6	Determine the apparent cause of significant rent errors, either on a sample or a comprehensive basis, to provide HUD with information on whether the error was caused primarily by the tenant or by program sponsor staff.	p. vi–viii	p. 12–22; Exhibits 12–23
7	Determine the extent to which households are over-housed relative to HUD's occupancy standards.	p. ix	p. 22–23; Exhibits 24
8	Provide information on the extent to which errors are concentrated in projects and programs.	p. v	p. 4–7; Exhibits 3–6
9	Identify the percentage of newly certified tenants who were incorrectly determined eligible for program admission.	p. viii	p. 9–10; Exhibit 8
10	For Section 8 Voucher households, determine: • The extent to which rent comparability determinations are found in the tenant file, and indicate the method used to support the determination • Whether payment standards are within 90-110 percent of fair market rents • Whether the correct utility allowances are being used.	p. ix	p. 24–34; Exhibits 25–34
11	Estimate the total positive and negative errors in terms of HUD subsidies.	p. v; Exhibit 3	p. 10–12; Exhibits 10–11
12	Determine the extent to which error rates in projects that use an automated rent calculation system differ from errors in those that do not.	p. x	p. 41
13	Determine whether other tenant or project characteristics on which data are available are correlated with higher or lower error rates.	p. x	p. 41
14	Determine whether cases for which 50058/50059 Form data had been submitted to HUD were more or less likely to have errors than those for which data had not been submitted.	p. x	p. 35–37; Exhibits 35–38
15	Determine the extent of errors that were due to unreporting of income by tenants.	These findings were published in a separate Draft Income Match Report dated October 20, 2010.	
16	Determine the extent of program administrator rent and income determination errors.	p. iii–viii; Exhibits 1–3, 5	p. 4–7; Exhibits 3–6 p. 10; Exhibit 9 p. 12–14; Exhibits 12–14 p. 20–22; Exhibits 22–23
17	Determine the extent of errors due to Multifamily Housing Program administrators billing for subsidy that did not correspond to the subsidy reported on the HUD-50019/HUD-50059A for a tenant household.	These findings were published in a separate Billing Study Report dated October 13, 2010.	

IV. Findings

A. Overview

Analyses were conducted using weighted sample data for 2,404 households.[18] Data are presented by the three program types that were the basis for the sampling design—Public and Indian Housing (PIH)-administered Public Housing, PIH-administered Section 8 Housing Choice Voucher, and Moderate Rehabilitation programs (PHA-administered Section 8); and Housing-administered Section 8, Section 202 PRAC, Section 811 PRAC, and Section 202/162 PAC programs (owner-administered). Each of the major study findings, the reasons for the errors, and other background information concerning these errors are discussed below. In many of the exhibits throughout the report, the data collected during the current study (referred to as the FY 2009 data) are compared with the data collected in a previous study (referred to as the FY 2008 data). The data were collected and the analysis was completed for the FY 2008 study in calendar year 2009.

This discussion is divided into 10 parts: the errors in the rent amount based on the QC data (rent error), the errors in sources of income and expenses (component errors), the errors found using only project file data (administrative error), occupancy standards, findings related to rent reasonableness determinations, utility allowance analysis, payment standard analysis, comparisons with PIC/TRACS data, analysis of the responses received from PHA/project staff regarding PHA/project practices (based on the Project Staff Questionnaire), multivariate analysis and errors for the 20 Largest PHAs. The first three parts present different types of error.

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

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

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

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

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

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

B. Rent Error

Overview. Rent errors were identified by subtracting the QC Rent from the Actual Rent.[19] The QC Rent was calculated using third-party verification whenever possible. If third-party verification was not available, information from the Documentation Forms or Household Questionnaire was used. The Actual Rent is the Tenant Rent from the 50058/50059 Form. As noted above, a household was considered to be correct (proper payment) if the QC Rent and the Actual Rent matched within $5. All exhibits included in this report (except IV-2) and all tables in Appendix C define households whose Actual and QC Rents matched within $5 as proper payments, except for the supplemental tables (designated by the letter "S"), which are based on exact matches between these two rents.

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

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

Financial Impact of Identifying Rent Error. Reduction in the rent error associated with the programs included in this study does not mean there will be an overall savings in the costs associated with administering these programs. Given there are large numbers of eligible households on waiting lists, if a household leaves the program because it is no longer eligible for

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

a subsidy, another household will take its place. The replacement household may be entitled to a smaller or a larger subsidy than the household that left the program. Therefore, the most direct benefit of identifying households with rent error is making sure those households who are eligible for the program are receiving the correct subsidy, rather than reducing the amount of funds needed to administer the programs. The most appropriate use of this study is as a tool for strengthening HUD's procedures for ensuring administrative compliance with regulations. The recommendations presented in this report may require greater rather than fewer resources to provide HUD, PHAs, and owners with the written policy guidelines and training, standardized forms, and on-going monitoring needed to assure the programs are administered correctly.

Verification Used in Determining the QC Rent. As indicated above, a set of rules was established for third-party verification (see Section II-D). If an income or expense component was used for a rent calculation and was not verified by the PHA/owner, ICF Macro staff sought third-party verification. However, ICF Macro verification could not be obtained for all PHA/owner unverified items despite considerable effort and expense.[20]

Exhibit IV-1 shows the percentage of each rent component that was verified by either the PHA/owner or ICF Macro.

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

Rent Component	Third-Party Verbal or In-Writing, Documentation, or EIV		Third-Party In-writing	
	2008	2009	2008	2009
Earned Income	91%	91%	74%	75%
Pensions	98%	99%	87%	84%
Public Assistance	92%	91%	71%	64%
Other Income	86%	87%	65%	63%
Asset Income	87%	87%	69%	63%
Child Care Expense	83%	76%	76%	64%
Medical Expense	83%	79%	57%	53%

Source: Tables 1a and 1b, Appendix C

The first two columns present the percentage of rent components that were verified with third-party in-writing, third-party verbal, documentation[21] or Enterprise Income Verification (EIV). The remaining two columns present the percentage of rent components that were verified with the more stringent verification requirements for this study (i.e., third-party in-writing). As the exhibit indicates, there were multiple rent components where the rate of third-party verification declined, with the highest amount of decline for child care expenses and pubic assistance. It

[20] 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, information collected during the household interview was used to calculate the QC rent.

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

should be noted that since the sample size for disability expenses is so small, the findings are not reliable national estimates and not included in Exhibit IV-1.

Tables C-1c, C-1d, and C-1e in Appendix C provide additional verification information by rent component. They present the number of households for which the income or expense component was not verified (i.e., no component items verified), partially verified (i.e., some component items verified), or fully verified (i.e., all component items verified). Table C-1c includes items by a third-party or EIV. Table C-1d provides data for items verified by verbal third-party information, and Table C-1e provides data for items verified via tenant file documentation.

Proper Payments. Exhibit IV-2 shows the percentage of households with proper payments by program, for households where the Actual and QC Rents matched within $5 and where the Actual and QC Rents matched exactly. At recertification, the rent was calculated correctly (within $5) in 63 percent of the households, which is the same percentage as in FY 2008. There was an exact match of rent payment in 51 percent of households in FY 2009, compared with 50 percent in FY 2008.

Exhibit IV-2
Percent of Households with Proper Payments

Administration Type	Percent of Households Within $5			Standard Error	Percent of Households Matched Exactly			Standard Error
	2007	2008	2009	2009	2007	2008	2009	2009
Public Housing	69%	66%	72%	1.9%	57%	53%	59%	1.9%
PHA-Administered Section 8	62%	61%	57%	2.3%	50%	47%	47%	2.3%
Total PHA-Administered	64%	63%	62%	2.1%	53%	49%	51%	1.8%
Owner-Administered	64%	64%	64%	1.7%	48%	52%	53%	1.8%
Total	**64%**	**63%**	**63%**	**1.6%**	**51%**	**50%**	**51%**	**1.5%**

Source: Table 2 and 2S, Appendix C

Households with QC Rent Error. Exhibit IV-3 shows the percentage of households in error, the average dollar amount in error, and error rate by program. Thirty-seven percent of the households have a rent error greater than $5, a percentage unchanged from FY 2008. The average gross dollars in error, calculated by dividing the sum of the dollar amount of gross error (i.e., the sum of the absolute values of under- and overpayments) by the total number of households is $16 in FY 2009, the same average gross dollar error as in FY 2008. The total gross dollar error rate, calculated by dividing the sum of the dollar amount of Gross Rent Error by the sum of the dollar amount of the QC Rent, was 8 percent in FY 2009 compared with 7 percent in FY 2008.

Exhibit IV-3
Percent of Households with Error, Average Dollars in Error, and Dollar Error Rate for All Households with Error

Administration Type	Percent of Households with Error		Average Gross Dollars in Error		Gross Dollar Error Rate	
	2008	2009	2008	2009	2008	2009
Public Housing	34%	28%	$16	$11	7%	5%
PHA-Administered Section 8	39%	43%	$18	$20	9%	10%
Total PHA-Administered	37%	38%	$17	$17	8%	8%
Owner-Administered	36%	36%	$12	$13	5%	7%
Total	**37%**	**37%**	**$16**	**$16**	**7%**	**8%**

Source: Table 4 and 5, Appendix C

Underpayment and Overpayment Households. Exhibits IV-4a and IV-4b show the percentage of households and average dollar amount of error for all households when errors of $5 or less are excluded from calculations. Exhibit IV-4a and IV-4b present the error for underpayment and overpayment households, respectively. Eighteen percent of all households paid in excess of $5 less than they should have in FY 2009. The error remained the same as in FY 2008. For the FY 2009 households, the average monthly payment error was $54, significantly higher than the mean of $49 in FY 2008 and slightly lower than the mean of $57 in FY 2007.

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

Administration Type	Percent of Households in Error			Average Dollar Amount of Error					
				For Underpayment Households (with errors > $5)			For All Households		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Public Housing	16%	16%	14%	$57	$49	$52	$9	$8	$7
PHA-Administered Section 8	19%	19%	21%	$67	$52	$56	$13	$10	$12
Total PHA-Administered	18%	18%	19%	$64	$51	$55	$12	$9	$10
Owner-Administered	19%	17%	16%	$44	$43	$49	$8	$7	$8
Total	**18%**	**18%**	**18%**	**$57**	**$49**	**$54**	**$11**	**$9**	**$10**

Source: Table 2 and 4, Appendix C

As shown in Exhibit IV-4b, 19 percent of all households paid in excess of $5 more than they should have in FY 2009 which is the same as in FY 2008. In FY 2007 it was 18 percent. The average monthly overpayment for households with overpayment error was $32 in FY 2009, down from $37 in FY 2008 and slightly higher than $30 in FY 2007.

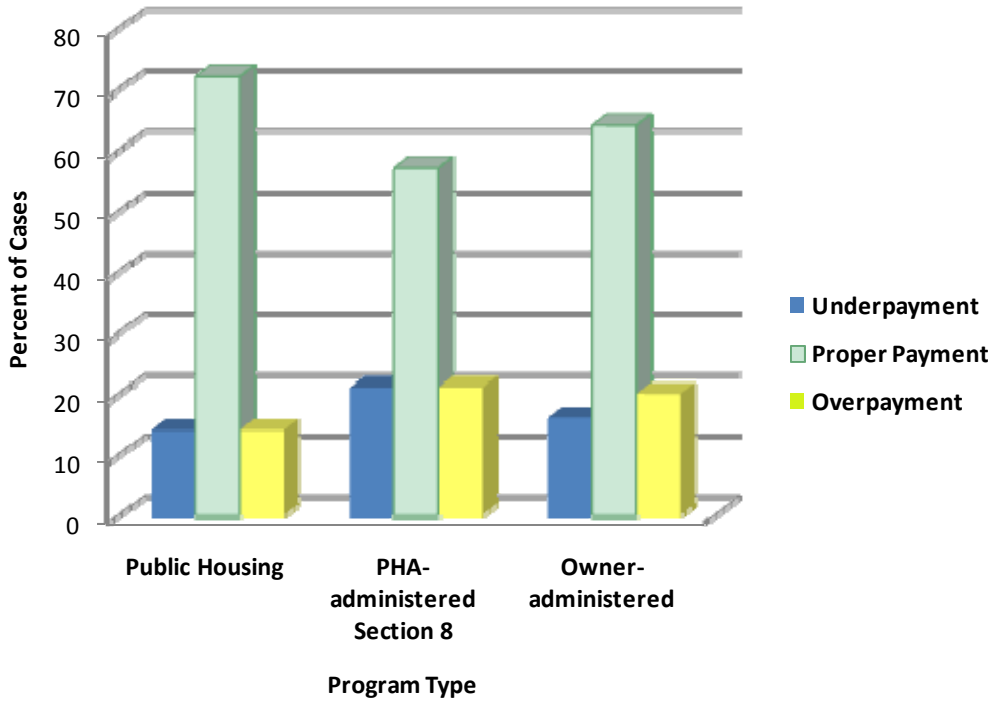
Exhibit IV-4b
Overpayment Households
Percent of Households and Average Monthly Dollar Amount of Error

Administration Type	Percent of Households in Error			Average Dollar Amount of Error					
				For Overpayment Households (with errors > $5)			For All Households		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Public Housing	14%	18%	14%	$26	$45	$28	$4	$8	$4
PHA-Administered Section 8	20%	19%	21%	$35	$41	$36	$7	$8	$8
Total PHA-Administered	18%	19%	19%	$32	$42	$34	$6	$8	$6
Owner-Administered	17%	19%	20%	$24	$25	$27	$4	$5	$5
Total	**18%**	**19%**	**19%**	**$30**	**$37**	**$32**	**$5**	**$7**	**$6**

Source: Table 3 and 4. Appendix C

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

Figure IV-1: Payment by Program Type



Gross and Net Dollars in Error. Exhibit IV-5 presents the gross and net average dollars in error and their associated standard error. To obtain the Gross and Net Rent Error, the dollar amount of overpayments is added to the dollar amount of underpayments, first using the absolute values for

gross error, and then the arithmetic values for the net error. The net error measures the dollar cost of the errors and is -$3 (indicating a tenant underpayment) for FY 2009; the average gross dollar error is $16 for FY 2009 and represents the dollars associated with the errors (the magnitude of the errors).

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

Administration Type	Gross Rent Error				Net Rent Error			
	Average Dollars in Error		Standard Error		Average Dollars in Error		Standard Error	
	2008	2009	2008	2009	2008	2009	2008	2009
Public Housing	$16	$11	$2.43	$1.22	<$1	-$3	$2.12	$1.29
PHA-Administered Section 8	$18	$20	$2.42	$1.78	-$2	-$4	$1.47	$2.18
Total PHA-Administered	$17	$17	$1,91	$1.38	-$1	-$4	$1.26	$1.40
Owner-Administered	$12	$13	$1.15	$1.77	-$3	-$2	$1.04	$1.76
Total	**$16**	**$16**	**$1.48**	**$1.04**	**-$2**	**-$3**	**$1.89**	**$0.98**

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

Error Rates by Program. Differences in error rates by program type were investigated and the results are summarized in Exhibit IV-6. Differences include Gross Error Rate, which is the sum dollar amount of gross error divided by the sum dollar amount of QC Rent, and the Net Error Rate, which is the sum dollar amount of net error divided again by the sum dollar amount of QC Rent. The Gross Error Rate is significantly higher for PHA-administered Section 8 programs than for either Public Housing or owner-administered programs. While the Gross Error Rates for FY 2009 are only slightly different from FY 2008, the Net Error Rates for all PHA-administered programs were significantly lower in FY 2008 than in FY 2009.

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

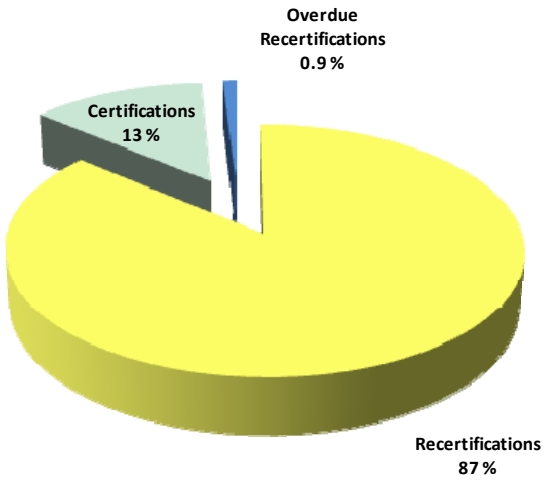
Administration Type	Error Rates			
	Gross Error Rate		Net Error Rate	
	2008	2009	2008	2009
Public Housing	6.6%	5.0%	.1%	-1.5%
PHA-Administered Section 8	8.8%	9.9%	-1.1%	-2.2%
Total PHA-Administered	7.9%	8.1%	-.7%	-1.9%
Owner-Administered	5.4%	6.8%	-1.2%	-1.2%
Total	**7.1%**	**7.7%**	**-.8%**	**-1.7%**

Source: Table 5, Appendix C

Certifications/Recertifications. The sample households included both certifications (i.e., newly admitted households) and recertifications. Certifications were analyzed to determine if these

households were eligible for HUD housing assistance and recertifications were analyzed to determine if they were overdue. Figure IV-2 presents the breakdown of cases by case type—certifications, recertifications, and overdue recertifications.

Figure IV-2: Case Type



Source: Table 6, Appendix C

Exhibit IV-7 shows the breakdown of the percentage of certifications, recertifications not overdue, and recertifications overdue, by program type. The exhibit indicates that in FY 2009 87 percent of the households were timely recertifications, and less than 1 percent of the households were overdue recertifications, compared with 2 percent in FY 2008. The findings indicate that there was a slight decrease in the total percentage of certifications from 15 percent in FY 2008 to 13 percent in FY 2009.

Exhibit IV-7
Certifications and Recertifications by Administration Type

Administration Type	Certifications		Timely Recertifications		Overdue Recertifications		Row Total By Year*
	2008	2009	2008	2009	2008	2009	
Public Housing	14%	12%	83%	87%	3%	<1%	100%
PHA-Administered Section 8	15%	10%	83%	89%	1%	2%	100%
Total PHA-Administered	14%	11%	83%	88%	2%	1%	100%
Owner-Administered	16%	17%	83%	83%	-	-	100%
Total	**15%**	**13%**	**83%**	**87%**	**2%**	**<1%**	**100%**

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

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

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

A household met the citizenship or Social Security number criteria if there was evidence in the tenant file that the citizenship or Social Security number was verified. The data indicate that a citizenship code (indicating whether each household member was a citizen, eligible noncitizen, or ineligible noncitizen) and a Social Security number was available (from either the tenant file or the household interview) for each household member. According to the citizenship codes, in FY 2009, 4 percent of the households had at least one household member for whom there was no verification of citizenship. In FY 2008, 6 percent of households failed to have citizenship verification for a household member. To meet the citizenship verification requirement, the file must have contained (for each household member) a signed declaration of U.S. citizenship or eligible immigration status; proof of age documentation; an INS card; or INS system verification of citizenship status, or documentation that the member was in process for verification or an INS hearing.

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

In 91 percent of the households, there was a signed consent form, dated within 15 months of the QCM (the date for which data were collected), for all members age 18 or over. Note that not meeting the Social Security number, citizenship, and consent form criteria may not mean the household was not eligible for assistance; rather, the project did not follow the HUD requirements in documenting the information.

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

Certification Criteria	Met Criterion	
	2008	2009
Citizenship	94%	96%
Social Security Number	98%	98%
Consent Form	95%	91%
Low and Very Low Income	100%	100%
Meets All Eligibility Criteria	90%	87%

Source: Table 7, Appendix C

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

Certification Criteria	Percent of Households Meeting the Criteria		
	Public Housing	PHA-Administered Section 8	Owner-Administered
Citizenship	96%	97%	96%
Social Security Number	96%	98%	98%
Consent Form	90%	86%	95%
Low and Very Low Income	99%	100%	100%
Meets All Eligibility Criteria	85%	84%	90%

Source: Table 7b, Appendix C

Underpayments and Overpayments for Certifications, Recertifications, and Overdue Recertifications. Exhibit IV-9 presents a summary of the households with overpayments and underpayments by the type of case—certification, timely recertification, and overdue recertification. The Average Dollar Amounts are based on the sum of the dollar amounts for payment errors (either underpayment or overpayment) for the type of household (certification, overdue recertification, or timely recertification) divided by the number of households with that payment type (for whom a QC Rent could be calculated). For example, the sum of the dollar amounts for new certifications with monthly underpayments ($3.9 million) was divided by the total number of certifications for whom QC Rent could be calculated (.63 million). The result is an underpayment average dollar amount of $7.

The data indicate that the amount of underpayment and overpayment dollar error in new certifications and timely recertifications in FY 2009 range from five to nine dollars each month. As might be expected, there is a very large difference in the underpayment error for overdue recertifications ($51) as well as the overpayment dollar error for overdue recertifications ($55). These estimates are substantially different than in FY 2008 probably because this estimate (for both years) is based on a very small number of cases.

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

Household Type	Underpayment Average Dollar Amount		Overpayment Average Dollar Amount	
	2008	2009	2008	2009
Certifications	$10	$7	$8	$9
Timely Recertifications	$8	$9	$7	$5
Overdue Recertifications	$32	$51	$14	$55
Total	**$9**	**$10**	**$7**	**$6**

Source: Table 8, Appendix C

Subsidies. The actual cost of errors to HUD is expressed in terms of subsidy payments. For purposes of this study, HUD subsidies for the Section 8 Voucher program equal the lower of the Gross Rent or the applicable payment standard minus the Tenant Share. For Public Housing, the subsidy is the applicable payment standard minus the TTP, and for Housing programs, the

subsidy is the Gross Rent minus the TTP. The subsidy is correct if the Actual Rent equals the QC Rent (within $5). A negative subsidy error occurs when the tenant pays too much rent (QC Rent < Actual Rent). A positive subsidy error occurs when the tenant pays too little rent (QC Rent > Actual Rent). These subsidy errors by program type are summarized in Exhibit IV-10a and 10b. The subsidy errors by certification status are summarized in Exhibit IV-11.

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

Administration Type	Percent of Households in Error		Average Dollar Amount of Error			
			For Negative Subsidy Households (with errors > $5)		For All Households	
	2008	2009	2008	2009	2008	2009
Public Housing	18%	14%	$45	$28	$8	$4
PHA-Administered Section 8	19%	21%	$41	$36	$8	$8
Total PHA-Administered	19%	19%	$42	$34	$8	$6
Owner-Administered	19%	20%	$25	$27	$5	$5
Total	**20%**	**19%**	**$37**	**$32**	**$7**	**$6**

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

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

Administration Type	Percent of Households in Error		Average Dollar Amount of Error			
			For Positive Subsidy Households (with errors > $5)		For All Households	
	2008	2009	2008	2009	2008	2009
Public Housing	16%	14%	$49	$52	$8	$7
PHA-Administered Section 8	19%	21%	$52	$56	$10	$12
Total PHA-Administered	18%	19%	$51	$55	$9	$10
Owner-Administered	17%	16%	$43	$49	$7	$8
Total	**18%**	**18%**	**$49**	**$54**	**$9**	**$10**

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

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

Household Type	Negative Subsidy Average Dollar Amount of Error		Positive Subsidy Average Dollar Amount of Error	
	2008	2009	2008	2009
Certifications	$10	$7	$8	$9
Timely Recertifications	$8	$9	$7	$5
Overdue Recertifications	$32	$51	$14	$55
Total	**$9**	**$10**	**$7**	**$6**

Source: Table 8, Appendix C
Note: Table results replicate Exhibit IV-9 for the convenience of the reader.

C. Sources of Error

Additional analyses examined which income and expense components contributed the most to rent error. It should be noted that the component dollar amounts are annual income and expense dollars, rather than the monthly figures used to present rent error data, and that rents are generally computed at 30 percent of adjusted income. Therefore, every $100 of income or expense error generally translates into $2.50 of rent error. In addition, the sum of the component errors is greater than net rent errors because of off-setting errors. For example, the household presented in the chart below has earned income and child care costs with errors in both components. The total component error is $1000 ($800 + $200); however, the adjusted net income error (the amount used to determine the household's rent) is only $600.

Example of the Impact of Component Errors

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

Exhibit IV-12 presents each income and expense component included in the rent calculation and the percent of the households in error[22] where this 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 $3,108, for 25 percent of households in error where earned income is the largest component error. Other income was the next largest component with an average dollar error of $2,930. Medical expense was a component of error 19 percent of the time, with an average associated dollar error of $1,028. Public assistance had the third largest average dollar error of $2,283 for households in error where public assistance is the largest component error.

Between FY 2008 and FY 2009, average dollar error amounts increased for the three components with the highest error (i.e., earned income, other income, and public assistance). This is in contrast to pensions and child care allowances which saw an appreciable decrease.

[22] The denominator in the percentage is the number of households with any component error, which was 37 percent of total households in FY 2009.

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

Rent Component	Percent of Households in Error		Average Dollar Amount	
	2008	2009	2008	2009
Earned Income	23%	25%	$3,047	$3,108
Other Income	14%	12%	$2,260	$2,930
Public Assistance	6%	5%	$1,986	$2,283
Pensions	21%	30%	$2,598	$2,058
Child Care Allowance	4%	2%	$2,442	$1,399
Asset Income	3%	2%	$678	$1,160
Medical Allowance	21%	19%	$1,202	$1,028
Dependent Allowance	5%	3%	$715	$571
Elderly Allowance	2%	2%	$400	$400
No Rent Component Error	1%	<1%	$0	$0
Total	**100%***	**100%***	**$2,091**	**$2,142**

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

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

Total and Largest Component Dollar Error by Program Type. Exhibit IV-13 shows the dollar amounts associated with the total dollars in error (the sum of the absolute value of errors in all rent components) and the largest dollars in error (the largest error attributable to a specific source for each household), by program type. There were increases in Average Total Dollars in Error for owner-administered and Section 8 Voucher households, from FY 2008 to FY 2009, with Section 8 Vouchers showing the largest increase of $265. There were also modest increases in the Average Largest Dollars in Error for owner-administered and Section 8 Voucher households in FY 2009.

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

Administration Type	Average Total Dollars in Error		Average Largest Dollars in Error	
	2008	2009	2008	2009
Public Housing	$2,814	$2,420	$2,263	$2,027
PHA-Administered Section 8	$2,749	$3,014	$2,237	$2,316
Total PHA-Administered	$2,769	$2,864	$2,245	$2,243
Owner-Administered	$2,215	$2,367	$1,751	$1,915
Total	**$2,597**	**$2,710**	**$2,091**	**$2,142**

Source: Table 10, Appendix C

QC Rent Components by Payment Type and Administration Type. Exhibit IV-14 shows the percentage of the total number of households with (and without) component error by component

type and payment type. For example, 7 percent of all households with underpayment rent error had errors in earned income, 5 percent of households with proper payment had errors in earned income and 5 percent of households with overpayment rent had errors in earned income. It also shows this information for PHA- and owner-administered households.

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

	Underpayment			Proper Payment			Overpayment		
Rent Component	PHA	Owner	Total	PHA	Owner	Total	PHA	Owner	Total
Earned Income	8%	3%	7%	6%	3%	5%	6%	3%	5%
Pensions	8%	9%	8%	8%	12%	9%	7%	10%	8%
Public Assistance	3%	<1%	2%	2%	1%	2%	1%	<1%	<1%
Other Income	4%	3%	4%	4%	4%	4%	3%	2%	3%
Asset Income	2%	3%	2%	5%	5%	5%	2%	4%	3%
Dependent Allowance	1%	<1%	<1%	1%	<1%	<1%	2%	<1%	1%
Elderly/Disabled Allowance	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Child Care Allowance	2%	<1%	1%	<1%	<1%	<1%	1%	1%	1%
Disability Allowance	-	-	-	-	-	-	<1%	-	<1%
Medical Allowance	3%	8%	5%	7%	10%	8%	5%	11%	7%
No Rent Component Error	-	<1%	<1%	40%	38%	39%	-	-	-

Source: Table 11, Appendix C

Exhibit IV-16 reflects component errors in proper payment households when the component dollar error results in a tenant payment error of $5 or less. The exhibit indicates that pension income is the rent component that has the highest percentage of error (16 percent = 8 percent underpayment + 8 percent overpayment), followed by earned income (12 percent) and medical expense (12 percent). The components with the highest error remain the same.

Allowances. Elderly/disabled and dependent allowances were examined to determine whether these allowances were being applied correctly.[23] The findings are summarized in Exhibit IV-15. The exhibit shows the percentage of elderly/disabled and nonelderly/disabled households for which allowances were correctly or incorrectly applied. Elderly/disabled allowances were incorrectly used in 2 percent of all households in FY 2009. Three percent of the elderly/disabled households received an incorrect allowance, while less than 1 percent of non-elderly/disabled households received an allowance.

The exhibit also shows the percentage of households with and without dependents for which a dependent allowance was correctly or incorrectly applied. The dependent allowances were incorrect in 3 percent of all households. In less than 1 percent of the households, a dependent allowance was given to a household that did not have dependents. For the remainder of the households with dependents in error (6 percent), either a dependent allowance was not given

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

when it should have been or the wrong allowance amount was given. In total, 5 percent of all households had an incorrect allowance in FY 2009.

Exhibit IV-15
Elderly/Disabled Allowances and Dependent Allowances

Allowance	Elderly Allowance			Dependent Allowance		
	Non-Elderly/ Disabled Households	Elderly/ Disabled Households	All Households	Households Without Dependents	Households With Dependents	All Households
No Allowance	100%	-	44%	100%	-	56%
Incorrect Allowance	<1%	3%	2%	<1%	6%	3%
Correct Allowance	-	97%	54%	-	94%	42%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Tables 12a and 12b, Appendix C

D. Errors Detected Using Information Obtained From Project Files

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

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

The findings from this analysis were compared with the quality control findings where tenant rent was calculated based on *all* the information collected during the study (including household interview data, and verification obtained by ICF Macro through third-party sources). Exhibit IV-16 shows the percent of households in error and the average dollar error with and without income and expense items identified during the household interview and verified by ICF Macro through third-party sources.

The data indicate that the income and expense items documented in the tenant file identify about half of the cases with tenant underpayments (subsidy overpayments) and over 70 percent of subsidy underpayments (tenant overpayments). The data regarding average dollar error indicate that using the tenant file information alone does not identify all the error in the rent calculation.

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

Error Source	Percent of Households in Error		Average Dollar Error	
	Subsidy Overpayment	Subsidy Underpayment	Subsidy Overpayment	Subsidy Underpayment
Error Based on *All* Income and Expense Items Identified during the Study	18%	19%	$54	$32
Error *Without* Income and Expense Items Identified during the Household Interview	10%	14%	$71	$70

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

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

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

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

Exhibit IV-17 shows the percentage of households with calculation and consistency errors by 50058/50059 Form subsections. It is important to emphasize that the 50058 Form is formatted differently and has more line items of information than the 50059 Form. Consequently, the number and types of calculation and consistency errors on the forms differ, and *findings from the two forms are not directly comparable.* In addition, the Office of Housing implemented a new version of the 50059 Form in FY 2006 and again in FY 2009. The large number of calculation errors (particularly on the 50058 Forms) may be a contributing factor to QC errors, though a calculation or consistency error does not necessarily lead to a rent error. The PHA/owner may make an error when completing one section of the form, and still calculate the rent correctly.

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

50058/50059 Form Item	Percentage of Households					
	Calculation Errors			Consistency Errors		
	50058 Form	50059 Form	Total	50058 Form	50059 Form	Total
General Information	n/a	n/a	n/a	3%	5%	4%
Household Composition	6%	4%	5%	4%	7%	5%
Net Family Assets and Income	6%	4%	6%	3%	-	2%
Allowances and Adjusted Income	43%	4%	31%	10%	1%	7%
Family Rent and Subsidy Information	8%	2%	6%	3%	<1%	2%

Source: Tables 13 and 14, Appendix C

Comparison of 50058/50059 Form Errors to QC Error. A comparison was made between the rent calculation errors on the 50058/50059 Form and errors identified through the QC Rent calculation process. The purpose of this comparison was to determine if errors identified using only the 50058/50059 Form data could predict the rent errors found in a QC review. When using only the 50058/50059 Form data to calculate the Actual Rent, errors were found in 5 percent of the households in FY 2009, a small decrease from the FY 2008 figure of 6 percent. The QC error calculation found errors in 37 percent of the households in FY 2009, an unchanged percentage from FY 2008. The results are quite different from the individual and joint comparison methods. Error was found in both the 50058/50059 Form calculation and QC rent calculation in only 2 percent of the households. In 42 percent of the households, rent calculation error was found in either the 50058/50059 Form or the QC rent calculation, but not in both. This emphasizes that data from the 50058/50059 Form alone cannot accurately identify rent error. Exhibit IV-18 summarizes these results for FY 2008 and FY 2009.

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

Rent Calculation	Percentage of Households Correct		Percentage of Households Incorrect	
	2008	2009	2008	2009
Using Information on the 50058/50059 Form	94%	95%	6%	5%
According to the QC Rent Calculation	63%	63%	37%	37%
Both 50058/50059 Form Calculation and QC Rent Calculation	60%	60%	3%	2%

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

The table series C-15a through C-15l in Appendix C shows the number of households with and without verification by type of verification (i.e., third-party in writing, third-party in verbal, EIV,

and documentation). These tables provide this information for each of the rent components and also by program type.

Exhibit IV-19 summarizes the findings in Table C-15a. In FY 2009, the number of households where verification was not obtained by the PHA/owner remained unchanged or relatively the same in all rent components. Public assistance showed the largest increase in lack of verification (15 percent in FY 2008 compared with 26 percent in FY 2009).

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

Rent Component	No Project Verification		Item Verified by Project		Verification Matched 50058/50059 Form Within $100	
	2008	2009	2008	2009	2008	2009
Earned Income	12%	14%	88%	86%	62%	58%
Pensions	5%	5%	95%	95%	83%	84%
Public Assistance	15%	26%	85%	74%	67%	60%
Other Income	24%	22%	76%	78%	63%	65%
Asset Income	7%	11%	93%	89%	85%	81%
Child Care Expense	11%	8%	89%	92%	77%	77%
Medical Expense	7%	8%	93%	92%	76%	76%

Source: Table 15a, Appendix C

Exhibit IV-20 shows verification results by program type, again showing the verification rate for each rent component and the proportion that matched within $100 of the 50058/50059 Form amounts. When comparing the FY 2009 results to the FY 2008 findings, the following changes are of note:

- In the *Public Housing* program, there were decreases in the verification rate for two out of the seven rent components in FY 2009 when compared with FY 2008 with the largest loss occurring in public assistance verification (87 percent in FY 2008 compared with 72 percent in FY 2008). A verification rate decrease was also seen in asset income (from 89 percent in FY 2008 to 83 percent in FY 2009. There was an increase in the percentage of verification rates in earned income, pension income, other income and child care expenses with the largest increase occurring in child care expense verification (from 71 percent in FY 2008 to 85 percent in FY 2009). The degree to which the verifications matched the 50058 Form within $100 (indicating correct usage of verification data) increased substantially for child care expense and other income from FY 2008 to FY 2009.
- In the *PHA-administered Section 8* programs, there was a general trend to verify information less from FY 2008 to FY 2009. Particularly large decreases were seen for asset income (from 96 percent in FY 2008 to 84 percent in FY 2009) and for public assistance (from 85 percent in FY 2008 to 74 percent in FY 2009). The degree to which the verifications matched the 50058 Form within $100 (indicating correct usage of verification data) decreased substantially for asset income and medical expenses from

FY 2008 to FY 2009, while the other rent components were relatively stable from year to year.

- In the *owner-administered* programs, the greatest decrease in verification rate occurred for public assistance (86 percent in FY 2008 compared with 78 percent in FY 2009). The degree to which the verification matched the 50058 Form within $100 (indicating correct usage of verification data) increased for most components, except public assistance (minus 8 percent) and earned income (minus 4 percent), with the greatest increase in verification use occurring for medical expense from 76 percent verification matching the 50059 Form data in FY 2008 to 81 percent matching in FY 2009.

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

Rent Component	Public Housing		PHA-Administered Section 8		Owner-Administered	
	Verified	Matched**	Verified	Matched**	Verified	Matched**
Earned Income	90% (86%)	54% (54%)	91% (88%)	57% (60%)	92% (91%)	73% (77%)
Pensions	96% (92%)	80% (76%)	94% (96%)	83% (85%)	96% (96%)	87% (85%)
Public Assistance	72% (87%)	60% (66%)	74% (85%)	56% (60%)	78% (86%)	72% (80%)
Other Income	75% (66%)	61% (51%)	80% (80%)	65% (66%)	76% (77%)	67% (66%)
Asset Income	83% (89%)	77% (79%)	84% (96%)	75% (91%)	95% (92%)	86% (84%)
Child Care Expense	85% (71%)	63% (46%)	91% (89%)	76% (78%)	100% (100%)	95% (92%)
Medical Expense	93% (93%)	72% (68%)	92% (93%)	68% (80%)	91% (94%)	81% (76%)

Source: Table 15g, Appendix C
* Findings from FY 2008 are in parentheses.
** Matched within $100

Comparing across program types in FY 2009, pension income, medical expense and asset income are the most frequently verified rent components. The least verified rent components are public assistance and other income.

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

In general between FY 2008 and FY 2009, data from both the PHA and owner-administered programs show there were both increases and decreases in households where error was related to missing verification. Child care expense, disability expense, and public assistance rent components had the biggest changes from FY 2008 to FY 2009 for PHA-administered cases. For owner-administered cases the earned income and child care expense rent components changed the most from FY 2008 to FY 2009.

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

Rent Component	50058 Form				50059 Form			
	Households with QC Error		Households with QC Errors and Missing Verification		Households with QC Error		Households with QC Errors and Missing Verification	
	2008	2009	2008	2009	2008	2009	2008	2009
Earned Income	14%	15%	68%	63%	6%	7%	78%	67%
Pensions	12%	14%	82%	81%	17%	19%	80%	82%
Public Assistance	4%	4%	56%	72%	1%	1%	90%	91%
Other Income	9%	7%	75%	72%	6%	5%	89%	83%
Asset Income	5%	4%	78%	88%	10%	7%	81%	71%
Child Care Expense	3%	3%	90%	80%	1%	1%	70%	86%
Disability Expense	<1%	<1%	76%	100%	1%	<1%	100%	100%
Medical Expense	10%	11%	87%	87%	22%	18%	91%	91%
No Component Error	65%	64%	-	-	66%	65%	-	-

Source: Tables 16a and 16b, Appendix C

Summary of 50058/50059 Form Errors. Exhibit IV-22 provides a summary of the errors identified from the 50058/50059 Form. These include consistency errors, calculation errors, and overdue recertifications. The exhibit shows the percentage of households in error, the average dollar error, and the standard errors for both households with recalculated 50058/50059 Form error (error determined using only the 50058/50059 Form), and households with QC Rent error. This information is provided for households with error for each error type. Beginning with the FY 2005 study, transcription error for any household was added to this exhibit and the data that was described as an unduplicated count of 50058/50059 Form error has been revised to an unduplicated count of any type of administrative error. The exhibit shows that most individual types of 50058/50059 Form errors are not closely associated with QC rent error. However, 50058/50059 Forms with transcription error are associated with QC rent error in 70 percent of households and any type of administrative error (transcription, consistency, calculation, or overdue recertifications) are associated with QC Rent Error in 75 percent of the households.

When the findings in this exhibit are compared with the FY 2008 findings, there is an increase in the percentage of households with QC rent for households with transcription error (66 percent in FY 2008 compared with 70 percent in FY 2009) and no change for consistency error (20 percent in FY 2008 compared with 20 percent in FY 2009). There were also modest increases in the households for recalculated 50058/50059 Form error, households with other calculation error (8 percent in FY 2008 compared with 10 percent in FY 2009), and households with income calculation error (2 percent in FY 2008 compared with 3 percent in FY 2009).

In addition, the average dollar error for households with recalculated 50058/50059 Form error is $120. In contrast the average dollar error for households with QC Rent error is $42. The values support the assertion that an administrative error on a 50058 or a 50059 Form is not necessarily associated with a QC Rent error.

To understand the reason for the change in the average dollar error for households with recalculated 50058/50059 Form error, it is important to review how this number is calculated. It is the average dollar rent error for all cases (based on recalculated 50058/50059 Form rent error—not QC rent error) that have error in the category identified in the row header. So, for example, although the average rent error dollars for households with allowance calculation errors is $76, 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 (10 percent of households in error), the average dollar error is large.

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

Error Type Based on 50058/50059 Form Recalculation	Households with Recalculated 50058/9 Form Error				Households with QC Rent Error			
	Percent of Households in Error	Standard Error of Percent	Average Dollar Error	Standard Error of Mean	Percent of Households in Error	Standard Error of Percent	Average Dollar Error	Standard Error of Mean
Households with Transcription Error	73%	5.3%	$23	$13.23	70%	2.3%	$46	$2.94
Households with Consistency Error	29%	6.3%	$50	$19.16	20%	2.4%	$45	$7.01
Households with Allowance Calculation Error	10%	3.6%	$76	$34.91	4%	0.6%	$39	$10.04
Households with Income Calculation Error	3%	1.7%	$57	$67.36	4%	0.8%	$63	$38.50
Households with Other Calculation Error	10%	3.8%	$120	$59.58	6%	0.9%	$57	$14.65
Overdue Recertifications	2%	1.4%	$1	$0	2%	0.6%	$137	$67.09
Unduplicated Count, Any Type of Administrative Error	78%	5.6%	$24	$11.61	75%	2.1%	$45	$2.60
Total Households	**100%**		**$20**	**$8.20**	**100%**		**$42**	**$2.07**

Source: Table 17, Appendix C

Summary of Administrative Errors. As outlined in the study objectives, calculation errors, consistency errors, transcription errors, failure to recertify on time, and failure to apply allowances appropriately produce administrative errors. Exhibit IV-23 shows the Gross and Net Rent Errors for households with each type of administrative error. Starting in FY 2005, two major changes were made to this exhibit. First, the category of consistency errors was added to illustrate inconsistencies found within the 50058/50059 Form. Second, the findings are based on QC error rather than recalculated 50058/50059 Form error. Percent of households in error were generally comparable to FY 2008 for all error types, as were the average gross and net dollars in error.

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

Error Type	Percent of Households in Error	Gross Rent Error		Net Rent Error	
		Average Dollars in Error	Standard Error of Mean	Average Dollars in Error	Standard Error of Mean
Transcription Errors	51%	$23	$2.17	-$5	$1.80
Consistency Errors	17%	$19	$3.06	-$1	$3.44
Calculation Errors—Allowances	3%	$20	$5.73	-$7	$3.86
Calculation Errors—Income	2%	$34	$20.74	$22	$19.14
Calculation Errors—Other	5%	$24	$6.68	-$15	$5.02
Overdue Recertifications	<1%	$106	$52.84	$4	$62.42
Any Administrative Errors	58%	$22	$2.51	-$5	$2.84
Total	**100%**	**$16**	**$1.04**	**-$3**	**$1.00**

Source: Table 18, Appendix C

E. Occupancy Standards

Exhibit IV-24 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 Section 8 Voucher program sometimes allows households to rent units with fewer or more bedrooms than specified by the guidelines.

Fourteen percent of all households occupied a unit with too many or too few bedrooms in FY 2009, according to the guidelines used for this study. This number is down slightly from FY 2008, where 13 percent of all households occupied a unit with an incorrect number of bedrooms. Fifteen percent of Public Housing households, 6 percent of owner-administered households, and 19 percent of Housing Choice Voucher program households were over- or under-housed in FY 2009.

Exhibit IV-24
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		HCVP					
	2008	2009	2008	2009	2008	2009	2008	2009
0	96%	98%	100%	100%	98%	96%	98%	98%
1	100%	99%	98%	100%	99%	100%	99%	100%
2	77%	73%	73%	74%	79%	84%	75%	76%
3	75%	80%	86%	80%	77%	85%	83%	81%
4	64%	70%	68%	51%	21%	48%	63%	55%
5+	48%	34%	74%	54%	-	-	66%	42%
All Units	85%	85%	84%	81%	92%	94%	87%	86%

Source: Table 19, Appendix C

Exhibits IV-24a and IV-24b show the percentage of households that met these guidelines for each bedroom size for FY 2008 and FY 2009, respectively. The shaded cells indicate the percentage of households that fall within study guidelines.

Exhibit IV-24a
Percentage of All Households in FY 2008 by Number of Bedrooms and Number of Household Members

Number of Bedrooms	FY 2008 Number of Household Members							
	1	2	3	4	5	6	7	8+
0	98%	2%	-	-	-	-	-	-
1	90%	9%	1%	-	<1%	-	-	-
2	23%	42%	27%	7%	2%	<1%	-	-
3	6%	10%	35%	30%	15%	3%	1%	1%
4	1%	3%	12%	20%	31%	15%	5%	3%
5				5%	30%		27%	39%

Source: Table 19a, Appendix C

Exhibit IV-24b
Percentage of All Households in FY 2009 by Number of Bedrooms and Number of Household Members

Number of Bedrooms	FY 2009 Number of Household Members							
	1	2	3	4	5	6	7	8+
0	98%	1%	<1%	-	-	-	-	-
1	91%	8%	<1%	<1%	-	-	-	-
2	23%	52%	18%	6%	<1%	<1%	-	-
3	5%	12%	34%	30%	13%	4%	2%	<1%
4	1%	4%	14%	24%	23%	21%	10%	3%
5		20%	9%		17%		21%	33%

Source: Table 19a, Appendix C

F. Rent Reasonableness

The Housing Choice Voucher Program (HCVP) assists low-income families in obtaining housing in the private market. Public housing authorities are responsible for administering the program and ensuring that the rents paid for dwellings leased by participants in the HCVP are reasonable in comparison with rental units in the private, unassisted local market. High rents can waste government funds and inadvertently raise private market rents. 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. This analysis examines whether PHAs fulfilled the requirement for documenting rent reasonableness determinations, but does not investigate whether rents were in fact reasonable.

Methodology. Each of the 139 PHAs, administering the Section 8 Voucher program for households participating in the study, were asked to describe their standard rent reasonableness processes and provide copies of the forms used when determining rent reasonableness. This information was used to classify the methods used by PHAs to determine rent reasonableness.

In addition, field interviewers were instructed to search the tenant files for each of the 788 Voucher households in the tenant sample to locate the documents supporting the rent reasonableness certification. For the 87 new certifications[24] field interviewers searched the file for the initial rent reasonableness certification and recorded its date. For the 701 annual recertifications, field interviewers examined case files for evidence of when the current rent to owner became effective. and were asked to find supporting rent reasonableness documentation. If none was found relative to date the rent to owner became effective, field interviewers were asked to search for any rent reasonableness certification in the file and enter the date of certification. The owner's rent certification on the Request for Tenancy Approval (RFTA) form was considered a rent reasonableness certificate.

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

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

Exhibit IV-25
PHAs by Predominant Rent Reasonableness Method

Method	2008 Number	2008 Percent	2009 Number	2009 Percent
Unit-to-Unit Comparison	88	62%	88	63%
Unit-to-Market Comparison	14	10%	25	17%
Point System	22	15%	23	16%
Other or Rent Control	6	4%	2	4%
No Single Predominant Method	13	9%	1	1%
No information	0	0%	0	0%
Total	**143**	**100%**	**139**	**100%**

Data in this exhibit are not weighted
Percentages may not add to 100 due to rounding.

The unit-to-market comparison approach estimates the average and/or range of "market" rents for units with similar characteristics in the private, unassisted market. Valuation adjustments are based on typical units in the private market. Seventeen percent of housing authorities reported using this method primarily Sixteen 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.

In FY 2009, the rent reasonableness methodology question was changed. Staff were asked to identify only the primary method used to determine whether rents to owners were comparable to the private market, rather than enter a percentage use of various methods. Results remain consistent with FY 2008 as evidenced in Exhibit 25a. When asked to identify a single predominant method, most PHA's selected only one resulting in a significant decrease of "no single method predominates", from nine percent in FY 2008 to one percent in FY 2009. PHA's were also asked whether they used a software program and/or an outside contractor to determine whether the rent to owner was reasonable. Seventy-eight of the 139 projects use rent reasonableness software. *Go Section 8* was the most commonly used software vendor, cited by 12 projects, followed by *HAPPY* in 9 projects. Additionally, 12 PHAs reported using in-house developed software.

Findings Pertaining To Rent Reasonableness Documentation Found in Tenant Files for New Admissions. In FY 2009, 88 percent of new admission files contained rent reasonableness documents, the same percentage as in FY 2008 and higher than the 71 percent in FY 2007 (see Exhibit IV-26a).

Exhibit IV-26a
Rent Reasonableness Documentation for New Admissions

Status	2007	2008	2009
Determination Documented	71%	88%	88%
No Determination Documented	29%	12%	12%
Total	**100%**	**100%**	**100%**

The absence of documentation does not necessarily indicate a determination was not completed; only that it was not properly documented. Of those files that had documentation, 63 percent contained a statement signed by the PHA staff certifying that the rent is reasonable (see Exhibit IV-26b).

Exhibit IV-26b
Type of Rent Reasonableness Documentation for New Admissions

Type	2007	2008	2009
A signed statement certifying that the rent is reasonable	61%	61%	63%
Comparable units documented by the property owner in section 12a of HUD 52517	11%	16%	9%
Comparable units documented on other documents	24%	16%	20%
Any other reference to rent reasonableness	4%	8%	8%
Total	**100%**	**100%**	**100%**

HUD requires that rent reasonableness determinations be conducted before signing the contract and lease. The timeliness of the rent reasonableness determination was evaluated by comparing the lease date with the rent reasonable certification date in the case file. Exhibit IV-27 provides a summary of how the date of the rent reasonableness determination relates to the initial lease date for those households where reference to the rent reasonableness determination was found in the file.

Exhibit IV-27
Timing of Most Recent Rent Reasonableness Determination—New Admissions

Determination-Certification Chronology	2007	2008	2009
More than 4 months before lease date	5%	<1%	3%
Up to 4 months before lease date	77%	90%	91%
After lease date—up to 2 months	10%	5%	3%
After lease date—greater than 2 months	5%	<1%	2%
Date missing	3%	5%	1%
Total	**100%**	**100%**	**100%**

If the lease effective date occurred before the determination, the rent reasonableness determination had no impact on the rent charged. The percent of rent reasonable determinations made after the rent had been established as part of the initial lease agreement decreased slightly from six percent in FY 2008 to five percent in FY 2009.

Findings Pertaining To Rent Reasonableness Documentation Found in Tenant Files for Annual Recertifications. Annual recertifications require rent reasonableness documents only when owners increase rental rates. We examined case files to determine when the current rent to owner first became effective. The case file was searched for the rent reasonableness determination specific to that determination and if none was found, the file was searched for any rent reasonableness documentation. In FY 2009, 77 percent of these case files had certified rent reasonableness documents compared to 78 percent in FY 2008 (see Exhibit IV-28a).

Exhibit IV-28a
Rent Reasonableness Documentation for Annual Recertifications

Status	2007	2008	2009
Determination Documented	65%	78%	77%
No Determination Documented	35%	22%	23%
Total	**100%**	**100%**	**100%**

Type of reference to rent reasonableness documentation was recorded for households where documentation of the rent reasonableness determination was found. Of the files that had documentation, 67 percent contained a statement signed by the PHA staff certifying that the rent is reasonable (see Exhibit IV-28b).

Exhibit IV-28b
Type of Rent Reasonableness Documentation for Annual Recertifications
Where Documentation of the Rent Reasonableness Determination Was Found

Type	2007	2008	2009
A signed statement certifying that the rent is reasonable	63%	55%	67%
Comparable units documented by the property owner in section 12a of HUD 52517	10%	10%	5%
Comparable units documented on other documents	22%	26%	19%
Any other reference to rent reasonableness	5%	9%	9%
Total	**100%**	**100%**	**100%**

The current rent to owner in the lease agreements were compared with the dates of the rent reasonable documents. If the lease effective date occurred before the determination, the rent reasonableness determination had no impact on the rent charged. In FY 2009, 12 percent of the rent reasonable determinations were made after rents had been established, compared with 13 percent in FY 2008 (see Exhibit IV-29).

Exhibit IV-29
Timing of Most Recent Rent Reasonableness Determination—Annual Recertifications

Determination-Certification Chronology	2007	2008	2009
More than 4 months before lease date	20%	9%	9%
Up to 4 months before lease date	62%	76%	78%
After lease date—up to 2 months	3%	6%	7%
After lease date—greater than 2 months	10%	7%	5%
Date missing	5%	2%	2%
Total	**100%**	**100%**	**100%**

Conclusion. PHAs are not fully documenting rent reasonableness determinations as required by HUD regulations, and a large percentage of existing rent determinations have been made on the basis of less formal means of evaluating rents. While timely reviews have increased in FY 2009, the proportion of cases lacking rent reasonableness documentation is still high (12 percent of new admissions and 23 percent of annual recertifications). These findings may be partially attributable to the PIH notice issued May 16, 2003 (notice PIH 2003-12) that supports a more

streamlined rent reasonable process. For example, a PHA need not consider all nine criteria cited in 24 CFR 982.507(b) to fully comply with the regulation. PIH 2003-12 also asserts that "each PHA should use appropriate and practical procedures for determining rental values in the local market." This statement may also be intended to justify less formal methods of rent determination.

G. Utility Allowance Analysis

As part of the FY 2009 HUDQC study, two separate analyses were conducted of the utility allowances provided to households assisted through the PHA-administered Section 8 Voucher program. The first analysis focused on whether there was documentation in the tenant file indicating how the utility allowance amount used in rent determination was calculated, and whether those documents were used correctly in calculating the utility allowance amounts. The second analysis focused on identifying discrepancies between the utility allowance on the 50058 Form, and the utility allowance determined by using the appropriate utility allowance schedule provided by the PHA staff. These schedules often varied by unit type, effective date of recertification and location within a county.

Documentation of Utilities and Utility Allowance Values. To support these analyses, PHAs were asked to provide information about the forms used to document and calculate the utility allowance, and to provide the utility allowance schedules used for actions effective in Federal FY 2009. In addition, field interviewers were asked to copy documents showing calculation of utility allowances found in tenant files at the PHA office.

One-hundred and thirty-nine (139) PHA-administered Section 8 Housing Choice Voucher "projects,"[25] administered by 119 housing authorities (several of which administered the voucher program in multiple counties) participated in the FY 2009 HUDQC study. According to information provided at the PHA level, more than half (60 percent) of the projects used HUD Form 52517 (Request for Tenancy Approval) as the official source for identifying the utilities for which the households were responsible. This is up from the FY 2008 HUDQC study when slightly less than half (48 percent) of the projects used the HUD Form 52517. Also more projects (68 percent) in FY 2009 and (57 percent) in FY 2008 used HUD Form 52667 (Schedule of Allowances for Tenant Furnished Utilities) to calculate the value of the utilities paid by the tenants. Exhibit IV-30a provides the information on the type of documents used as the official source for identifying utilities for which the households were responsible, as well as the type of documents used to calculate the value of the utilities paid by the tenants.

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

Exhibit IV-30a
Types of Documents Used by PHAs to Identify Utilities and Calculate the Utility Allowance Value

Type of Document Used for:	Identifying Utilities				Calculating the Utility Allowance Value			
	FY 2009		FY 2008		FY 2009		FY 2008	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
HUD Form 52517 (Tenancy Approval)	84	60%	69	48%	9	7%	6	4%
HUD Form 52641 (HAP Contract)	18	13%	8	6%	5	4%	1	1%
HUD Form 52667 (Allowance Schedule)	15	11%	9	6%	94	68%	81	57%
Other (Lease, Reports, Comparisons, etc.)	14	10%	7	5%	27	19%	30	21%
Various combinations of above	8	6%	45	35%	4	3%	25	18%
Total	**139**	**100%**	**143**	**100%**	**139**	**100%**	**143**	**101%**

Data in this exhibit are not weighted
* 101% is due to rounding.

Seven hundred and eighty-eight (788) households, assisted through the PHA-administered Section 8 Housing Choice Voucher Program, participated in this study. Field interviewers were able to locate worksheets or other documents indicating how the utility allowance was calculated for 696 households (88 percent). Of the 92 households for whom no utility allowance documents were found in the household file, 24 of them were for households receiving assistance through the New York City Housing Authority (where the utility allowance is calculated electronically and no paper document is kept in the paper file).

Comparison of 50058 Form Utility Allowance Values to Worksheets Found in the Household File. For each household for whom utility allowance documentation was available, the utility allowance amount from the 50058 Form was matched with the amount on the utility allowance worksheet obtained from the tenant files. For 87 percent of the households (608 units), the 50058 Form utility allowance amount matched the worksheet amount. This included 32 households that did not have any utility expenses because either they were included in the rent or the owner paid all utilities. For 8 percent of the households, the worksheet provided was for the incorrect period of time or was missing critical information. Hence, we could not determine whether the utility allowance amount used in the rent calculation was correct. In the remaining 5 percent of the households there were discrepancies between the amount on the worksheet and the 50058 Form amount. Exhibit IV-30b provides a summary of the findings from the comparison between the utility allowance listed on the 50058 Form and the amount on the worksheets found in tenant files.

Exhibit IV-30b
Comparison of Utility Allowance on the 50058 Form to the Utility Allowance Worksheet

Outcome	Number	Percent
50058 Form (AC) amount matched with Worksheet (WS) amount	608	87%
Worksheet in file for incorrect period of time or is missing critical information	53	8%
Discrepancy due to math error or other clerical errors	5	1%
Discrepancy—Unable to determine reasons	30	4%
Total	**696**	**100%**

Data in this exhibit are not weighted.

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

The utility allowance amount on the 50058 Form was matched with the QC utility allowance amount. We were unable to calculate the QC utility allowance in 12 percent (97 households) of the cases because their worksheet was not available and consequently the specific utilities the household paid for could not be identified. Furthermore, we were unable to calculate the QC utility allowance in 7 percent of the cases because the worksheets in the files did not include specific utilities or other critical information needed for QC allowance calculation; and in another 6 percent because the appropriate utility allowance schedule was not available. Exhibit IV-30c differentiates between the cases whose QC allowance amount was able to be calculated and lists the reasons and number of cases whose QC utility allowance amount was not able to be calculated.

Exhibit IV-30c
Availability of all Information to Enable QC Utility Allowance Calculation

Outcome	QC UA amount calculated	Number	Percent
Appropriate worksheet and schedule available	Yes	596	76%
UA worksheet or other comparable document not available	No	97	12%
Appropriate UA schedule not available	No	44	6%
Worksheet was missing critical information	No	51	6%
Total		**788**	**100%**

Data in this exhibit are not weighted.

For the 587 cases whose QC utility allowance amounts were calculated, the QC utility allowance was compared to the 50058 Form utility allowance amounts. In 90 percent of those households, the 50058 Form and QC utility allowance values matched. The remaining (discrepant) 10 percent were categorized into two broad categories. One of these categories fell under administrative

errors, whereas for the remaining cases, we were unable to determine the reason for the discrepancy. Exhibit IV-30d presents the findings from this analysis.

Exhibit IV-30d
QC Utility Allowance Compared to 50058 Form Utility Allowance

Outcome	Number	Percent
QC UA matched amount on 50058 Form	531	90%
Discrepancy due to math error/transfer error	9	2%
Discrepancy—unable to determine reasons	47	8%
Total	**587**	**100%**

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

H. Payment Standard Analysis

As part of the FY 2009 HUDQC study, a special analysis was conducted to determine if PHAs are using the correct Payment Standards. This special analysis was conducted independently of the rent calculation error findings presented elsewhere in this chapter, and the Payment Standard Analysis did not affect the rent calculation determinations. This analysis consisted of two parts. First, the Payment Standard on the 50058 Form was compared to the Payment Standard schedules provided by the PHA. Second, the Payment Standard on the 50058 Form was compared to the Fair Market Rent for the appropriate geographical area. The findings from these two comparisons are presented below.

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

There are a variety of ways PHAs may apply Payment Standards incorrectly resulting in errors in tenant rents. A PHA may have several Payment Standards for different geographic areas with complex borders sometimes making it difficult to select the correct Payment Standard for any given address within the jurisdiction. PHAs may also err by applying the family-size Payment Standard (the size authorized for the family as shown on the voucher) in lieu of the Payment Standard for the unit size (number of bedrooms in the unit) when the family-size is greater than the payment standard for the unit size. Other potential areas for error include whether a PHA has been authorized to use FMRs based on the 50th percentile of the rents in the area; whether the PHA has been authorized to use Success Rate Payment Standards based on the 50th percentile of rents; and whether the PHA continues to be eligible for these higher subsidy standards. Another complication allows PHAs to change the Payment Standard only at the time of the annual recertification or before moving to a new address. Thus, even if a change in the family composition requires an interim recertification with several family members moving in or out, the Payment Standard used in determining the rent should not be changed at the interim recertification. The complexity of the Payment Standard guidelines increases errors, but most of the errors found were not due to these complex guidelines.

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

- The lower of either the number of bedrooms in the unit, or the number of authorized bedrooms for the household on the voucher,
- The Effective Date of Action, and
- The determination and application of any exception listed on information provided by the PHA staff.

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

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

There were 788 Housing Choice Voucher households in the study. However, for seven of these cases, the Payment Standard did not apply. For the majority (90 percent) of the households, the AC Payment Standard matched the QC Payment Standard. There were 84 households (11 percent) with discrepant Payment Standards. Forty-four (52 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. Discrepancies were attributable to one of seven common reasons, as listed in Exhibit IV-31. The most typical reason for a discrepancy between the AC and QC Payment Standard was that the project staff used the incorrect Payment Standard. Also, the use of either the incorrect number of bedrooms or household members accounted for a cumulative 8 percent of the discrepancies found. Exhibit IV-31 summarizes the number and percent of households where the QC and AC Payment Standard did not match by reason.

Exhibit IV-31
Number and Percent of Households with Payment Standard Discrepancies

Reason	Number of Households (Elderly/Disabled)	Number of Households (Non-Elderly/Disabled)	Percent of Households with Discrepancies
Incorrect Number of Bedrooms/Household Member was Used	2	5	8%
Incorrect Payment Standard Schedule was Used	29	28	69%
Fair Market Rent was Used Instead of the Payment Standard	4	2	7%
Gross Rent was Used Instead of the Payment Standard	5	2	8%
Project Staff Used Enhanced Rate for Disabled/Elderly Tenant	2	0	2%
Project Staff Made a Typo	1	0	1%
Other Reasons—Overdue Recertification, 105% of FMR Used, Software Limitations, Original Payment Standard Over 110%.	1	3	5%
Total	**44**	**40**	**100%**

Data provided in this exhibit are not weighted.

Comparison of the Payment Standard on the 50058 Form to the Fair Market Rent for the Appropriate Geographic Area. The second analysis consisted of comparing the Payment Standard on the 50058 Form (AC) to the Fair Market Rents (FMR) for the appropriate geographic area. The Payment Standard for 753 of the households (96 percent) fell within the 90 to 110 percent FMR band; 17 of the households (two percent) that fell outside of the 90 to 110 percent band used an amount that exceed 110 percent of the FMR, and 11 of the households (one percent) used an amount that was less than 90 percent of the FMR. Exhibit IV-32 summarizes the number and percent of households by the relationship of the Payment Standard to the acceptable FMR.

Exhibit IV-32
Number of Households Meeting Payment Standard Requirements

Characteristic	Fair Market Rent			Percent of Cases Outside the 90–110% Band
	Under 90%	90–110%	Over 110%	
Non-Elderly or Disabled	7	410	9	2%
Elderly or Disabled	4	343	8	2%
Payment Standard Compared with Fair Market Rent	**11**	**753**	**17**	**4%**

Data provided in this exhibit are not weighted.

The analysis of the households that fell outside the 90 to 110 percent FMR band indicated that four percent of households fell outside of the 90 to 100 percent band of the FMR for four general reasons; project staff calculated Payment Standards that fell outside the accepted FMR limit, the incorrect Payment Standard was used, other reasons such as overdue recertification, enhanced rate for Disabled/Elderly and HA software limitations. Exhibit IV-33 summarizes the number and percent of households that fall outside the 90 to 110 percent FMR band by category.

Exhibit IV-33
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%	
Project Staff Calculated Payment Standards that Fell Outside the Accepted FMR Limit	1	0	1%
Incorrect Payment Standard was Used	7	9	19%
Other Reasons—Overdue Recertification, Enhanced Rate for Disabled/Elderly	3	3	7%
HA Software Limitations,	0	5	6%
Total	**11**	**17**	**33%**

Data provided in this exhibit are not weighted.

Comparison of the FY 2008 to the FY 2009 Payment Standard Analysis Results. The same Payment Standard Analysis was conducted for the FY 2008 study. Of the 792 Housing Choice Voucher households in the FY 2008 study, the AC and the QC Payment Standard matched for 670 (85 percent) of the households. Additionally, 64 (eight percent) of the households had Payment Standards that did not fall within the 90 to 110 percent FMR band. Of those 64 households, no cases were granted any exemptions. Therefore, a total of eight percent of the Housing Choice Voucher households included in the FY 2008 did not meet HUD's Payment Standard requirements.

Of the 781 Housing Choice Voucher households in the FY 2009 study, the AC and the QC Payment Standard matched for 697 (90 percent) households. Additionally, 28 (four percent) households had Payment Standards that did not fall within the 90 to 110 percent FMR band. Of those 24 households, no cases were granted exemptions. Therefore, a total of four percent of the Housing Choice Voucher households included in the FY 2009 did not meet HUD's Payment Standard requirements. Exhibit IV-34 summarizes the results from the FY 2008 and FY 2009 Payment Standard Analysis.

Exhibit IV-34
Comparison of the FY 2008 to FY 2009 Payment Standard Analysis

Characteristic	FY 2008		FY 2009	
	Number	Percent	Number	Percent
Housing Choice Voucher Sample	792		788	
Households where the AC and QC Payment Standard Did Not Match	122	15%	84	11%
Households where the AC Payment Standard Did Not Meet the 90 to 110 Percent of FMR Threshold	64	8%	28	4%
Households that Were Not Exempt from the 90 to 110 Percent of FMR Threshold and Did Not Meet HUD's Payment Standard Requirements	64	8%	28	4%

Data provided in this exhibit are not weighted.

I. PIC/TRACS Analysis

The households included in this study were matched against the PIC/TRACS data files using identifying information (a combination of the Social Security Number, name, and date of birth) for the head of each household. Because this study covers FY 2009, an attempt was made to use historical PIC/TRACS files to identify the 50058/50059 Form data for the specific effective date and type of action for which study data were collected.

PIC/TRACS data were received for any household (in the study sample) that were in the historical databases used by HUD analysts even if the specific study effective date and type of action did not match. When matching on the specific study effective date and type of action, only 1,932 of the 2,404 households in the study were represented. Therefore, most of the PIC/TRACS analysis for this report was based on the broader match (PIC/TRACS data received for any household in the study sample). Using these criteria, PIC records were found for 100 percent of the households in PHA-administered projects; TRACS records were found for 97 percent of the households in owner-administered projects. Of the 2,404 households sampled, 2,379 households (or 99 percent) successfully matched with PIC/TRACS.

Analysis was conducted to compare the average dollars in gross rent error for households that matched PIC/TRACS with those that did not. Exhibit IV-35a provides the percentage of households in each of the three program types by presence or absence in PIC/TRACS, and the average dollars in error based on all households in the study. Exhibit IV-35b provides the same information, but uses only households with rent error as its base. These exhibits demonstrate that proportionally an equal number of households in error matched against PIC/TRACS data.

Exhibit IV-35a
PIC/TRACS Data by Program Type and Average Gross Dollars in Error for all Households

Administration Type	PIC/TRACS PRESENT		PIC/TRACS ABSENT	
	Percent of Households	Average Dollars in Error	Percent of Households	Average Dollars in Error
Public Housing	100%	$11	0%	n/a
PHA-Administered Section 8	100%	$20	0%	n/a
Total PHA-Administered	100%	$17	0%	n/a
Total Owner-Administered	97%	$13	3%	$26
Total	**99%**	**$16**	**1%**	**$26**

Source: Table 20a

As presented in Exhibit IV-35b, the average dollars in error for owner-administered households in error, is substantially higher for households when PIC/TRACS data is absent ($77) than when PIC/TRACS data is present ($36). This year, the percentage of PHA-Administered projects with PIC/TRACS present increased from 97 percent in FY 2008 to 100 percent in FY 2009. Owner-Administered projects remained steady at 97 percent.

Exhibit IV-35b
PIC/TRACS Data by Program Type and Average Gross Dollars in Error for Households in Error

Administration Type	PIC/TRACS PRESENT		PIC/TRACS ABSENT	
	Percent of Households	Average Dollars in Error	Percent of Households	Average Dollars in Error
Public Housing	100%	$41	0%	n/a
PHA-Administered Section 8	100%	$46	0%	n/a
Total PHA-Administered	100%	$45	0%	n/a
Total Owner-Administered	98%	$36	3%	$77
Total	**99%**	**$42**	**1%**	**$74**

Source: Table 20c
Note: Percent of households may not add up due to rounding.

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

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

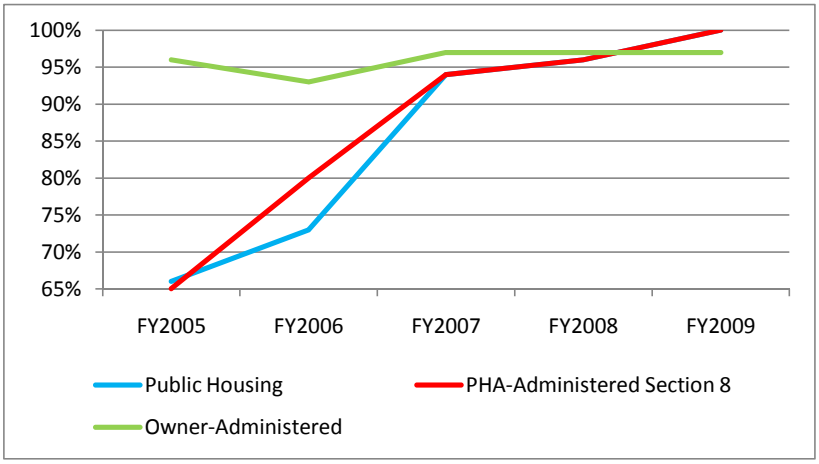


Exhibit IV-36 presents the percentage of households and average dollars in error for households matched/not-matched with PIC/TRACS by payment type. Although the percentage of underpayment, overpayment and proper payment are similar for both groups, note the large difference in underpayment amounts ($53 compared to $124).

Exhibit IV-36
Average Gross Dollars in Error by Payment Type and PIC/TRACS Data

Payment Type	PIC/TRACS PRESENT		PIC/TRACS ABSENT	
	Percent of Households	Average Dollars in Error[1]	Percent of Households	Average Dollars in Error[1]
Underpayment	18%	$53	16%	$124
Overpayment	20%	$32	19%	$32
Proper Payment	63%	n/a	66%	n/a
Total	**100%**	**$16**	**100%**	**$26**

Source: Table 21a
[1] Average dollar error per under- and overpayment subgroups.

Exhibit IV-37 examines net and gross errors by program type and matched PIC/TRACS data. This exhibit illustrates that it is important to review net error and gross error separately as their average dollar errors are substantially different.

Exhibit IV-37
Average Net and Gross Dollars in Error by Administration Type and PIC/TRACS Data for all Households

Administration Type	Average Net Rent Error		Average Gross Rent Error	
	PIC/TRACS Present	PIC/TRACS Absent	PIC/TRACS Present	PIC/TRACS Absent
Public Housing	-$4	n/a	$11	n/a
PHA-Administered Section 8	-$4	n/a	$20	n/a
Total PHA-Administered	-$4	n/a	$17	n/a
Total Owner-Administered	-$2	-$16	$13	$26
Total	**-$3**	**-$14**	**$16**	**$26**

For households where PIC/TRACS data matched on specific study effective date and type of action, further analysis was conducted to determine if certain key variables matched. The key variables included gross income, net income, total tenant payment, and tenant rent. Exhibit IV-38 provides the percentage of households where the data gathered through the QC process matched that in PIC/TRACS.

Exhibit IV-38
Percentage of Matched and Non-Matched Dollar Amounts for Key Variables Matching Variables from the 50058/50059 Form and PIC/TRACS

Match Status	Gross Income		Net Income		Total Tenant Payment		Tenant Rent	
	PIC	TRACS	PIC	TRACS	PIC	TRACS	PIC	TRACS
No Match	2.5%	2.7%	3.0%	3.5%	2.7%	9.4%	55.1%	31.0%
Match	97.5%	97.3%	97.0%	96.5%	97.3%	90.6%	44.9%	69.0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Table 22c

J. Project Staff Questionnaire Analysis

The purpose of the Project Staff Questionnaire (PSQ) is to obtain information on project and PHA practices and procedures, to better understand how work is carried out in projects and PHAs, and to identify difficulties and potential areas for improvement. The executive directors or managers of the PHA/projects in the FY 2009 study were surveyed, using a self-administered, paper questionnaire that examined in detail such topics as the number and type of PHA/project staff, training received by staff on how to conduct (re)certifications, communicating information about changes in HUD policies to the staff, quality control monitoring of work done by (re)certification staff, methods of obtaining household information, automation use when processing (re)certifications, various verification procedures employed in the process of (re)certifications, and difficulties in verifying tenants' information. The results were analyzed separately for three major program types: Public Housing, PHA-administered Section 8, and owner-administered.

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

- Number and Type of Staff. Overall, PHA/projects indicated an average of 44 units per project staff member, and 149 units per full-time (re)certification staff. However, there was a wide diversity of responses with respect to the ratio of staff per unit within, as well as between, different types of PHA/projects. PHA-administered Section 8 reported the highest number of units per project staff (92 units per staff member, on average) and highest number of units per full-time (re)certification staff (205 on average). Owner-administered projects had the lowest number of units per project staff (17) and units per full-time (re)certification staff (82). Overall, 87 percent of PHA/projects (re)certification staff had over one year of experience, compared to 72 percent who had over 5 years of experience. PHA/projects typically required at least a high school diploma/GED for new employees, with only 5 percent stating that no minimum education was required. Owner-administered projects were most likely not to require any particular level of education (11 percent).

- New (Re)Certification Staff. About 34 percent of PHA/projects had new staff assigned to conduct (re)certifications in the past 12 months. These PHA/projects reported two new staff members being assigned to conduct (re)certifications in the past 12 months, on average. More PHA-administered Section 8 projects assigned new staff to (re)certifications compared to Public Housing and owner-administered projects (51% versus 30% and 27%, respectively). PHA-administered Section 8 projects also assigned the most new staff to conduct (re)certifications (four new staff, on average). Both Public Housing and owner-administered projects assigned only one new staff member to conduct (re)certifications, on average.

- New (Re)Certification Staff Training. PHA/projects provided on average 98 training hours to all new (re)certification staff in the past 12 months. Three methods of training new staff were most prevalent—working one-on-one with experienced staff; attending training sessions conducted by the supervisor; and reading manuals, watching videos, or asking questions. PHA-administered Section 8 projects provided the most hours of

training (132 hours, on average). This year, Public Housing projects provided the fewest hours of training (86 hours, on average).

- Training of Experienced (Re)Certification Staff. About 82 percent of PHA/projects trained experienced staff in the past 12 months. This year, PHA-administered Section 8 projects provided more training to experienced staff, compared to projects in the other two programs. Among all projects, an average of five experienced staff members received an average of 36 training hours. PHA/projects had experienced staff who usually or always read HUD manuals, watched videos, or asked questions, held training sessions conducted by the supervisor, and worked one-on-one with other experienced staff.

- Communicating Information about Changes in HUD Policies. PHA/projects used a variety of methods to communicate with staff about changes in HUD PHA/owner policies affecting eligibility or rent calculations. One-on-one discussions between the managers and the staff was used most frequently, followed by distributing copies of HUD announcements to staff, staff meetings, formal training sessions, and distributing a memo that described the changes and provided instructions for implementation. PHA/projects found answers to staff questions by referring to HUD PHA/owner memos or manuals, figuring out the answer for themselves, using Internet/web-based information and training, and asking the HUD field office or other HUD staff.

- Quality Control via Work Monitoring. Most PHA/projects conduct quality control monitoring of (re)certification work. PHA/projects typically have the supervisor conduct work monitoring, although an increasing number are turning to outside auditors to monitor their work. PHA/projects most frequently randomly spot checked a percent of all cases, but other methods were also used, such as reviewing cases of new staff and checking cases on certain dates or times of the year. During the review process PHA/projects usually or always (80 percent) found mistakes in calculating rent, missing or incomplete verifications of income (68 percent), and missing or incomplete verifications of expenses (61 percent). The most commonly stated reason for errors was tenants providing inaccurate or incomplete information (91 percent).

- Issues in Conducting Tenant Interviews. The average duration of the typical initial certification interview was 35 minutes, while the average duration of a typical recertification interview was 26 minutes. PHA-administered Section 8 and owner-administered projects reported slightly longer initial and recertification interviews, while Public Housing projects reported the shortest. PHA/projects overall were most likely to start the annual recertification process four months or less before the effective date (94 percent). Fifty percent of PHA/projects overall were likely to have 20 or less percent of their tenants primary language be something other than English. PHA-administered Section 8 projects were most likely to have tenants speak a primary language other than English at 56 percent, compared to Public Housing and owner-administered projects.

- Using Computers and Software Programs. Almost all PHA/projects are using computers to support processing (re)certifications, as well as a wide variety of purposes. The number of PHA/projects using computers and software has been increasing in the past few years. The most frequently reported uses for the computers were to calculate rent, maintain demographic information about the residents, print 50058/50059 Forms, print

letters to the tenants, and input verified information. Interestingly, one of the least frequently reported use of computers was to interview tenants and record answers.

- Use of Electronic Systems. Ninety-seven percent of PHA/projects transmit 50058/50059 Form data electronically, and about 85 percent of all 50058/50059 Form data were transmitted to HUD via PIC/TRACS. Owner-administered projects transmitted only about a half of their 50058/50059 Form data to HUD directly and slightly less than a half through another agency or using other methods.

- Verification Procedures. PHA/projects reported that they verified the income, asset, and expense components of tenant rent at least 92 percent of the time for both the initial and annual (re)certification. When it came to household information such as age, Social Security Numbers, and citizenship, they were more likely to verify the information only during the initial certification. Of all the program types, owner-administered projects were most likely to verify information only during the initial certification. Most PHA/projects keep track of outstanding verification in the tenant file. PHA/projects reported that it caused some or much difficulty to verify sporadic, infrequent, or seasonal employment; sources of income other than employment; and income from employment. Most PHA/projects use various procedures to get verification information, including calling the third-party, calling the tenants, sending letters to the third-party, and using electronic verification or data matching such as EIV. When none of these procedures produced the verification information, most PHA/projects resorted to accepting other, less preferred verification information. When asked to name the causes of problems that emerged when obtaining complete verifications, the two major causes reported by PHA/projects were employers and other institutions not responding to requests in a timely manner. TASS and EIV were most frequently used to verify Social Security/SSI benefits, employment income, and disability status and dual entitlement benefits. Most PHA/projects also used other methods such as pay stubs, third-party verification, and employer information to supplement EIV information. The two most cited reasons for using alternate sources of information were outdated or discrepant information in EIV and to verify EIV information.

K. Multivariate Analysis

The multivariate analysis of the HUDQC FY 2009 data provided information for assessing the project and household variables that account for rent errors. This approach, going beyond the bivariate tabulations presented in earlier sections, estimated the net effects of relevant project and household variables in relation to rent error. This analysis can be used to address the question, "How do specific project and household variables predict rent error, given that other project and household conditions are equal?

The results of the multivariate modeling results were largely consistent with those from the FY 2008 analysis. We came to the following suggestions for projects staff to reduce rent errors.

- Eliminate overdue (re)certifications by starting the recertification process with enough time to conclude all the needed tasks

- Reduce transcription error by implementing specific quality control procedures for the interpretation and transfer of information from household supporting documents to the 50058 or 50059 Forms.
- Dedicate additional resources to the often difficult task of obtaining third-party verification for income, asset and expense sources.
- Select cases with specific characteristics for more intensified quality control review. Such cases should include those with four or more sources of income and expenses, those with earned income, and those with other income sources. Such targeted review would help reduce errors that occur in the process of rent determination.

Drawing on the statistical information from the multivariate analysis, we attempted to address five study objectives specified in the analysis plan, as summarized below.

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

Other things being equal, Public Housing households' average gross rent error, underpayment, and overpayment were the lowest, followed by owner-administered projects and PHA-administered Section 8. The estimated net differences by program type confirmed the results from the bivariate cross-tabulations presented in the main text of this report (see Exhibits ES-1, IV-3 through IV-4b).

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 household or by the program sponsor staff.

Higher rent errors were related to the following project-caused errors: overdue (re)certifications, transcription errors, and failure to verify income, asset and expense sources with third-party verification. Household variables indicative of the complexity of financial conditions and income, including the number of income sources (earned, other and pension); and number of allowances, strongly predicted higher gross error.

Project-caused errors and household characteristics respectively accounted for approximately 20 percent and 7 percent of the gross rent error variance.

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

PHA-administered projects had relatively high gross error, underpayment, and overpayment (see also Objective 5), net of other effects in the models. Otherwise, the multivariate analysis did not find evidence that errors were concentrated in particular projects or programs.

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 did not find strong evidence that the use of an automated rent calculation system made a difference in rent error. Of many indicators of automated system use, only one (use computer to

track verification) was found statistically significantly related to rent error, predicting moderately higher gross rent error and overpayment. Given this single effect estimated at a fairly low significance level with a small effect size, we advise caution in reaching any conclusion regarding the impact of automated system application on rent error.

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

Project characteristics as defined and measured by this analysis were not predictive of rent error. This was evidenced in both the bivariate and multivariate analyses. The analysis did identify, consistently with prior years' analyses, a number of household characteristics that were predictive of rent error, namely: number of income sources (earned, other and pension) and number of allowances (see also Objective 6).

L. The Twenty Largest PHAs Study

The 20 Largest PHAs Study includes the 17 largest PHAs and the three largest state PHAs in the project level sample selected for the Quality Control for Rental Assistance Subsidy Determinations Study. There are 32 households in most PHAs and 180 households in NY005, for a total of 804 households. Each PHA represents both Public Housing and Voucher households. Weights for the 20 Largest PHAs Study were not calculated and all the exhibits in this section are not weighted.

Administrative Error. Exhibit IV-39 provides the percent of households with overdue recertification and transcription errors; and the percent of income and expense items that were verified by PHA staff both with written third-party verification only, and verbal or written third-party verification, or documentation. These types of administrative errors were examined because they are typically associated with overall gross and net rent error. Overdue recertification errors in general were relatively scarce. Most of the PHAs had little or no error, and a little over half of the 20 largest PHAs had no overdue recertification errors. However, 13 percent of NY110 cases were overdue. For transcription error, most of the 20 largest PHAs had percentages that were around the QC study mean. However, NY904 had the highest percentage with 97 percent and OH003 had the lowest with 22 percent. Compared to all the main QC study PHAs, the 20 largest PHAs had somewhat higher overdue recertification error (1 percent and 4 percent, respectively) and transcription error (51 percent and 58 percent, respectively). Regarding the percentages of verified items, the 20 largest PHAs did somewhat better than all the QC study PHAs. For example the third-party in-writing verification rate was 43 percent for the 20 largest PHAs and 39 percent for all the PHAs in the QC study.

Exhibit IV-39
Administrative Errors in the 20 Largest PHAs

PHA	Number of Cases	Overdue Recertification Error	Transcription Error	Percent of Verified Items	
				Third-Party Verbal or In-Writing, or Documentation	Third-Party In-Writing
AL002	32	-	47%	94%	91%
AZ004	32	3%	59%	791%	33%
CA002	32	-	56%	90%	329%
CA004	32	-	56%	93%	54%
CA007	32	-	66%	100%	31%
CA024	32	-	47%	100%	43%
CA027	32	3%	75%	83%	37%
CA068	32	-	44%	96%	68%
MA002	32	3%	59%	91%	25%
MD033	32	6%	59%	98%	73%
MI901	32	3%	28%	93%	63%
NJ912	32	-	69%	91%	53%
NY005	180	1%	72%	86%	23%
NY041	32	-	75%	91%	7%
NY110	32	13%	72%	83%	30%
NY904	32	3%	97%	90%	30%
OH003	32	3%	22%	93%	33%
OH004	32	-	53%	95%	65%
RQ005	48	-	44%	71%	24%
TN005	32	-	56%	100%	56%
Total	**804**	**4%**	**58%**	**92%**	**43%**
QC Study Total	**2,404**	**1%**	**51%**	**90%**	**39%**

Data in this exhibit are not weighted.

Payment Error. Exhibit IV-40 provides payment error information. It includes proper payments, under- and overpayments of tenant rents, and the mean gross rent errors by PHA. A large proportion of proper payments typically lead to small gross rent errors for most PHAs. The PHA with the highest percentage of proper payments was OH004 at 97 percent. The PHA with the lowest percentage of proper payments was CA004 at 50 percent. CA007, however, did not have the highest gross rent error. CA027 had the highest ($82.81) and CA007 the second highest at $31.44). Compared to the QC study PHAs as a whole, the 20 largest PHAs had a higher percentage of proper payments (64.3 percent and 70.1 percent, respectively). However, the gross rent error was slightly higher for the 20 largest PHAs. Policies that increase proper payment rates may have little effect on decreasing rent errors (and vice versa). These seemingly related problems may sometimes require different approaches targeted to specific PHAs.

Exhibit IV-40
Dollar Rent Errors in the 20 Largest PHAs

PHA	Underpayment	Proper Payment	Overpayment	Average Gross Dollar Error
AL002	18.8%	78.1%	1.1%	$7.50
AZ004	28.1%	65.6%	6.3%	$8.09
CA002	21.9%	68.8%	9.4%	$7.91
CA004	34.4%	50.0%	15.6%	$31.44
CA007	15.6%	75.0%	9.4%	$17.03
CA024	15.6%	68.8%	15.6%	$9.91
CA027	21.9%	56.3%	21.9%	$82.81
CA068	28.1%	65.6%	6.3%	$11.97
MA002	21.9%	71.9%	6.3%	$14.50
MD033	21.9%	68.8%	9.4%	$18.09
MI901	9.4%	84.4%	6.3%	$9.50
NJ912	21.9%	65.6%	12.5%	$5.87
NY005	11.1%	70.0%	18.9%	$16.73
NY041	18.8%	56.3%	25.0%	$11.38
NY110	21.9%	65.6%	12.5%	$10.53
NY904	12.5%	62.5%	25.0%	$11.41
OH003	9.4%	75.0%	15.6%	$9.22
OH004	3.1%	96.9%	.0%	$.41
RQ005	14.6%	81.3%	4.2%	$10.38
TN005	15.6%	71.9%	12.5%	$9.06
Total	**16.9%**	**70.1%**	**12.9%**	**$15.38**
QC Study Total	**17.2%**	**64.3%**	**18.5%**	**$14.90**

Data in this exhibit are not weighted.

V. Recommendations

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

A. Modifying the Quality Control Process

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

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

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

6. **Gather information to document the outcome of the HUD quality control studies.** Overall, the HUDQC studies indicate that both the percent of errors and dollars associated with those errors have decreased in the last seven years. However, there is no information on changes in tenant behavior related to the identification and reduction of error. One might want to assume that reducing error should save HUD money. However, because the housing programs managed by HUD are not entitlement programs (meaning not everyone who is eligible for the program is entitled to benefits), as soon as an ineligible household is removed from the roles, another household takes that household's place.

   The subsidy for the replacement household could be even higher than the subsidy for the previously subsidized household. The existing quality control studies identify the dollars associated with error, but do not identify an overall reduction in subsidy dollars. To really understand the overall impact of the quality control studies on subsidy funding, additional

information is needed regarding both the tenants receiving the subsidies and the PHA/projects administering the housing benefits.

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

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

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

9. **Continue to investigate PIC/TRACS data for sampling and other purposes.** Ideally PIC/TRACS data would be used to select the quality control sample, and provide the actual data used by the PHA/project staff when calculating rent (in place of abstracting 50058/50059 Form data from the tenant file). The most recent match of the study sample households with PIC/TRACS data indicated that 99 percent of the sample households are included in the PIC/TRACS databases. This continues to be an improvement over the findings from matches in previous studies—the FY 2008 study indicated 97 percent of the sample households were included in the PIC/TRACS database, while the FY 2007 study indicated that 95 percent of the sample households were included in the PIC/TRACS databases. We are at the point now where consideration should be given to using these data for selecting the household sample. However, using the PIC/TRACS data for selecting the household sample may not be appropriate unless it is clear that data are available for the specific period of time covered by the study.

10. **Continue to expand existing computer systems and processes that further automate data collection, processing, and reporting functions.** Most of the data for the current study were collected using an automated data collection system. This system continues to be enhanced for each study so it now, not only simplifies the data collection process and

reduces the number of data collection errors, but also allows for review of the data at ICF Macro headquarters as the data are being collected. While the existing systems work well, there are additional improvements that can be made to the data collection software, the field monitoring software, and the processing and tracking of third-party verifications. The next series of improvements should be aimed at increasing the amount of third-party verification obtained by the contractor. Expanding and investing in better automated systems will yield large dividends in terms of costs, time required to collect and process data, as well as the breadth, depth, and quality of data.

B. Policy Actions

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

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

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

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

3. **HUD should provide the PHA/owners with the forms, training, and other tools needed to determine rent correctly.** Rent calculation error could be reduced if HUD would provide structured forms for interviewing tenants, obtaining verifications, and calculating rent. Ideally, these tools would be provided in the form of computer-assisted

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

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

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

   Monitoring can be conducted at a variety of different levels. We recommend that HUD require PHA/owners to perform their own quality control reviews on a percentage of income determinations and rent calculations. Agencies that have aggressively sought to improve performance of their programs have had some significant successes, and one of the most frequently used error reduction strategies includes the establishment of internal quality control review procedures.

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

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

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

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

Appendix A—Rent Calculations

Appendix A—Rent Calculations

1. **Public Housing**
   a. Obtain the Total Tenant Payment (TTP).
   b. Determine if the family includes any ineligible noncitizens. IF YES, **continue.** If NO, **go to d.**
   c. Determine if the family includes any citizens or eligible noncitizens. IF YES, **go to #3 (continuation).** IF NO, **go to #4 (temporary deferral).**

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

   d. Obtain the Utility Allowance.
   e. Determine if the tenant selected the Flat Rent. IF NO, **go to f.** IF YES, the QC RENT equals the Flat Rent. **Go to g.**
   f. The amount of the tenant's rent (QC RENT) is the lower of: a. (TTP), minus d. (Utility Allowance), or the Flat Rent.[1]
   g. Determine if the QC RENT equals the ACTUAL RENT. IF YES, **no error.** IF NO, **dollar error.**

2. **Section 8 Vouchers**
   a. Obtain TTP.
   b. Obtain the Gross Rent.
   c. Obtain Utility Allowance.
   d. If TTP is greater than Gross Rent, then set TTP to Gross Rent.
   e. Obtain Payment Standard[2] (the Payment Standard is based on the lower of the Unit (actual) Bedroom Size, and Family (eligible) Bedroom Size).
   f. Obtain the household's Adjusted Monthly Income.
   g. Subtract e. (Payment Standard) from b. (Gross Rent). If the Payment Standard is higher than the Gross Rent, use 0.
   h. Add a. (TTP) to g. (Gross Rent minus Payment Standard).
   i. Determine if this is the initial occupancy for this dwelling unit. (Item 12b on the 50058 is yes). IF YES, **continue.** IF NO, **the Family Share = h. Go to l.**
   j. Calculate 40 percent of the household's Adjusted Monthly Income (f.).
   k. Determine if j. (40 percent of Adjusted Monthly Income) is equal to or greater than h. (TTP plus Gross Rent minus Payment Standard). IF YES, **the Family Share = h. Go to l.** IF NO, **procedural error. Family Share = h. Go to l.**

[1] If there is no Flat Rent, the QC rent will be the lower of the Ceiling Rent and the a. (TTP), minus d. (Utility Allowance) to determine the dollar amount of error.
[2] For Project Based Vouchers, the Payment Standard equals the Gross Rent.

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

m. Determine if the family includes any citizens or eligible noncitizens. IF YES, **go to #3 (continuation).** IF NO, **go to #4 (temporary deferral).**

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

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

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

3. Section 8 Enhanced Voucher

a. Determine if household is receiving an Enhanced Voucher. If YES, **continue.** If NO, **use regular Voucher formula.**

b. Obtain the Total Tenant Payment.

c. Obtain the Gross Rent.

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

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

f. Determine if the family includes any citizens or eligible noncitizens. IF YES, **go to #3 (continuation).** IF NO, **go to #4 (temporary deferral).**

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

g. Obtain the Utility Allowance.

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

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

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

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

b. Obtain the TTP.

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

d. Determine if the family includes any citizens or eligible noncitizens. IF YES, **go to #3 (continuation).** IF NO, **go to #4 (temporary deferral).**

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

e. Obtain the Utility Allowance.

f. If Subsidy Type on 50059 = 7 or 8 (PRAC), **go to h.**

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

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

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

5. Manufactured Home Space Rental for Section 8 Vouchers

a. Obtain the Rent to Owner.

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

c. Obtain the Utility Allowance

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

e. Obtain the TTP.

f. Obtain the Payment Standard.

g. Subtract f. (Payment Standard) from d. (Space Rent).

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

i. Determine if this is the initial occupancy for this dwelling unit. (Item 12b on the 50058 is yes). IF YES, **continue.** IF NO, **the Family Share = h. Go to m.**

j. Obtain the household's Adjusted Monthly Income.

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

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

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

n. Determine if the family includes any citizens or eligible noncitizens. IF YES, **go to #3 (continuation).** IF NO, **go to #4 (temporary deferral).**

MARKER

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

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

Special Calculations for Household with Ineligible Noncitizens

1. **Continuation of Assistance**

   a. Determine if the family was receiving assistance on June 19, 1995. IF YES, **continue.** IF NO, the FAMILY is eligible for prorated assistance; **go to #5 (proration formula).**

   b. Determine if the FAMILY head or spouse is a citizen or eligible noncitizen. IF YES, **continue.** IF NO, the FAMILY is eligible for prorated assistance; **go to #5 (proration formula).**

   c. Determine if the FAMILY includes any ineligible members other than the head, spouse, and child or parent of the head or spouse. IF NO, **continue.** IF YES, the FAMILY is eligible for prorated assistance; **go to #5 (proration formula).**

   d. Determine if the FAMILY was granted continuation of assistance before November 29, 1996. IF YES, the FAMILY is eligible for full continuation of assistance. **Return to MARKER.** IF NO, the FAMILY is eligible for prorated assistance; **go to #5 (proration formula)**

2. **Temporary Deferral of Termination of Assistance**

   a. Determine if Temporary Deferral of Termination of Assistance has been granted. If YES, **continue.** If NO, **go to d.**

   b. Determine the date Temporary Deferral of Assistance was granted.

   c. Determine if more than 18 months have passed since Temporary Deferral of Termination of Assistance was granted. IF YES, **go to d.** IF No, the FAMILY is entitled to Temporary Deferral of Termination of Assistance; **go to MARKER.**

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

   e. Determine if the FAMILY was receiving assistance on June 19, 1995. If YES, **the Family is eligible for Temporary Deferral of Termination of Assistance; go to MARKER.**

   f. Determine if the FAMILY is exercising its hearing rights (waiting for a decision from an INS or PHA/owner appeal). If YES, **go to MARKER.** IF NO, **continue.**

   g. Determine if the PHA is making reasonable efforts to evict. IF YES, **go to MARKER.** IF NO, **Procedural Error,** HOUSEHOLD IS INELIGIBLE.

3. Proration Formula for Public Housing

a. Determine if this is a Public Housing case? IF YES, **continue.** IF NO, **go to #4.**

b. Determine the number of FAMILY members.

c. Determine the number of eligible FAMILY members.

d. Obtain the TTP.

e. Obtain the 95th percentile of Gross Rents for similarly sized public housing units in order to determine the public housing maximum rent.

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

g. Obtain the Flat Rent.

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

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

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

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

l. Obtain the Utility Allowance.

m. The amount of the tenant's rent (QC RENT) is k. (prorated TTP) minus l. (Utility Allowance). Did the Family accept the prorated rent? Y/N. IF NO, **go to #4.**

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

4. Proration Formula for All Section 8 Programs

a. Obtain the Rent to Owner (voucher).

b. Obtain the Utility Allowance

c. Obtain the Gross Rent.
Voucher Gross Rent = Rent to Owner plus the Utility Allowance.

d. Obtain the TTP.

e. Obtain the Payment Standard (Voucher).

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

g. Record the number of FAMILY members.

h. Record the number of eligible FAMILY members.

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

j. If Manufactured Home Space Rental, return to MARKER.

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

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

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

Appendix B—Weighting Procedure

Appendix B—Weighting Procedure

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

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

The following programs are included in the sample:

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

The frames used to draw the sample include many out-of-scope projects such as projects in the Move-to-Work program and projects that have been demolished or that are no longer assisted housing. Many of these projects were identified before the sample was drawn, but others were not and had to be replaced. In addition, at times projects resulting from a merger of two or more projects or that were split into two or more were identified, resulting in difficult sampling decisions.

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

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

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

The four probabilities were multiplied together and formed the preliminary weights. The weights were then adjusted to be added to estimates of the national total of tenants in each program. The weights summed to 1,320,000 for the owner-administered programs, 955,000 for Public Housing, and 1,858,000 for the PHA-administered Section 8 programs.

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

Project Probabilities. This was defined as the minimum of kt/T and one, where k is the number of projects in the program selected from the PSU, t is the number of tenants in the project and T is the number of tenants in the program that are in the PSU. The PHA-administered Section 8 projects could have a probability greater than one for sampling purposes (meaning they could be sampled more than once) but for the other two major program types, if the calculated probability exceeded one, it was set to one and all the other probabilities were readjusted so they added to the allocation for the program in the PSU. For weighting purposes probabilities greater than one among PHA-administered Section 8 projects were set to one.

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

One exception to this occurred for flat rent cases in Public Housing Projects. A flat rent case could not be a refusal, since no interview was necessary for such cases. However, it could replace a refusal. As a result, the probability of selection for flat rent cases was different than for non-flat-rent cases. In order to take this into account an additional category (beyond non-flat rent completes, out-of-scope and completes) was created for flat-rent cases. The estimates would be created by first estimating the number of non-flat rent cases and letting the weight be the estimated total divided by the number sampled. Then the weights for the non-flat-rent cases would be calculated as before. For example, suppose in the situation mentioned above one of the completes had been a flat rent case. Then we would estimate that 1/6 of the 120 tenants, or 20 tenants, were flat rent. Of the remaining 100, 4/5 would be estimated to be in scope, or 80, and 3 would be in the sample. So the tenant weight for the flat-rent case would be 20 and the tenant weight for the non-flat-rent case would be 80/3 or 26 2/3.

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

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

HUD provided approximate totals for each of the three categories. The sampling frame totals did not correspond exactly to these numbers and required extensive adjustments. This was in part because the numbers were approximations; but also in part because the geographic areas affected by the 2005 hurricanes were excluded from the frame, but included during the weighting process. To recapitulate, the weights were adjusted so that they add up to the totals provided by the external source, so the sum of the weights would have been the same had a different sample been selected.

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

Effective Sample Size Due to Weighting. The weights led to an effective sample size (because of the weighting) of 777 (down from an actual size of 800) for the Office of Housing-administered projects, 780 for the Public Housing projects (down from 804), and 767 for the PHA-administered Section 8 projects (down from 800). The effective sample size is the size of a random sample which would yield confidence intervals of the same size as the current sample. The effective sample size will often be smaller than the actual sample, partly because of clustering and partly because of weighting.

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

Reference

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

Appendix C: Source Tables

Source Tables Based on Quality Control Data

HUD QC FY 2009
Table 1A. Verification of QC Rent Components
Third Party Verbal or in Writing, or Documentation, or EIV

	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	79	(6.3%)	30	(2.4%)	1,154	(91.4%)
Pension, Etc.	8	(.3%)	18	(.7%)	2,433	(99.0%)
Public Assistance	37	(8.8%)	3	(.7%)	383	(90.6%)
Other Income	89	(10.1%)	27	(3.1%)	761	(86.8%)
Asset Income	18	(2.6%)	73	(10.8%)	586	(86.5%)
Child Care Expense	35	(16.9%)	16	(7.6%)	158	(75.5%)
Disability Expense	5	(34.0%)			10	(66.0%)
Medical Expense	78	(5.5%)	215	(15.1%)	1,128	(79.4%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 1b. Verification of QC Rent Components
Third Party in Writing

	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	271	(20.7%)	51	(3.9%)	984	(75.3%)
Pension, Etc.	218	(8.8%)	172	(7.0%)	2,079	(84.2%)
Public Assistance	167	(35.3%)	5	(1.1%)	300	(63.5%)
Other Income	314	(33.3%)	40	(4.3%)	589	(62.5%)
Asset Income	93	(13.7%)	162	(23.8%)	425	(62.5%)
Child Care Expense	60	(28.6%)	15	(7.0%)	135	(64.4%)
Disability Expense	8	(51.3%)			8	(48.7%)
Medical Expense	194	(13.6%)	472	(33.2%)	755	(53.1%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 1c. Verification of QC Rent Components
Third Party in Writing or EIV

	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	231	(17.7%)	42	(3.2%)	1,032	(79.1%)
Pension, Etc.	116	(4.7%)	107	(4.3%)	2,245	(91.0%)
Public Assistance	167	(35.3%)	5	(1.1%)	300	(63.5%)
Other Income	311	(33.0%)	40	(4.3%)	592	(62.8%)
Asset Income	93	(13.7%)	162	(23.8%)	425	(62.5%)
Child Care Expense	60	(28.6%)	15	(7.0%)	135	(64.4%)
Disability Expense	8	(51.3%)			8	(48.7%)
Medical Expense	174	(12.2%)	447	(31.4%)	801	(56.3%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 1d. Verification of QC Rent Components
Third Party—Verbal

	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	1,295	(99.1%)	3	(.3%)	8	(.6%)
Pension, Etc.	2,466	(99.9%)	1	(.0%)	1	(.0%)
Public Assistance	468	(99.1%)			4	(.9%)
Other Income	939	(99.6%)			4	(.4%)
Asset Income	672	(98.8%)	8	(1.2%)		
Child Care Expense	204	(97.7%)	2	(.8%)	3	(1.5%)
Disability Expense	15	(100.0%)				
Medical Expense	1,413	(99.4%)	8	(.6%)		

2010.10.12 [Weighted]

HUD QC FY 2009
Table 1e. Verification of QC Rent Components Documentation

	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	1,187	(90.9%)	22	(1.7%)	97	(7.4%)
Pension, Etc.	2,283	(92.5%)	88	(3.6%)	98	(4.0%)
Public Assistance	394	(83.4%)	2	(.5%)	76	(16.1%)
Other Income	770	(81.6%)	25	(2.6%)	148	(15.7%)
Asset Income	502	(73.8%)	115	(16.9%)	63	(9.3%)
Child Care Expense	188	(89.8%)	3	(1.4%)	18	(8.8%)
Disability Expense	13	(82.7%)			3	(17.3%)
Medical Expense	1,019	(71.7%)	324	(22.8%)	78	(5.5%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 1f. Verification of QC Rent Components EIV (Enterprise Income Verification

	Not Verified		Partially Verified		Fully Verified	
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	1,248	(95.6%)	20	(1.5%)	37	(2.9%)
Pension, Etc.	2,293	(92.9%)	82	(3.3%)	93	(3.8%)
Public Assistance	472	(100.0%)				
Other Income	941	(99.7%)			3	(.3%)
Asset Income	680	(100.0%)				
Child Care Expense	209	(100.0%)				
Disability Expense	15	(100.0%)				
Medical Expense	1,364	(96.0%)	38	(2.7%)	19	(1.3%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 2. Percent of Households by Payment Type and 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	136	(14.2%)	(18.3%)	686	(71.9%)	(26.4%)	133	(13.9%)	(16.8%)	955	(100.0%)	(23.1%)
	Section 8	398	(21.4%)	(53.7%)	1,067	(57.4%)	(41.0%)	393	(21.1%)	(49.6%)	1,858	(100.0%)	(45.0%)
	Total	534	(19.0%)	(72.1%)	1,753	(62.3%)	(67.4%)	526	(18.7%)	(66.4%)	2,813	(100.0%)	(68.1%)
Owner-Administered	Owner-Administered	207	(15.7%)	(27.9%)	847	(64.1%)	(32.6%)	266	(20.2%)	(33.6%)	1,320	(100.0%)	(31.9%)
	Total	207	(15.7%)	(27.9%)	847	(64.1%)	(32.6%)	266	(20.2%)	(33.6%)	1,320	(100.0%)	(31.9%)
Total		**742**	**(17.9%)**	**(100.0%)**	**2,600**	**(62.9%)**	**(100.0%)**	**792**	**(19.2%)**	**(100.0%)**	**4,133**	**(100.0%)**	**(100.0%)**

2010.10.12 [Weighted]

HUD QC FY 2009
Table 2(S). Percent of Households by Payment Type and Program Type
(Proper Payment based on exact match of Actual and QC Rent)

		Payment Type									Total		
		Underpayment			Proper Payment			Overpayment			10.00	11.00	12.00
		# 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	176	(18.4%)	(18.6%)	561	(58.7%)	(26.4%)	219	(22.9%)	(20.5%)	955	(100.0%)	(23.1%)
	Section 8	487	(26.2%)	(51.5%)	867	(46.7%)	(40.9%)	504	(27.1%)	(47.2%)	1,858	(100.0%)	(45.0%)
	Total	663	(23.6%)	(70.2%)	1,428	(50.8%)	(67.3%)	723	(25.7%)	(67.7%)	2,813	(100.0%)	(68.1%)
Owner-Administered	Owner-Administered	282	(21.3%)	(29.8%)	693	(52.5%)	(32.7%)	346	(26.2%)	(32.3%)	1,320	(100.0%)	(31.9%)
	Total	282	(21.3%)	(29.8%)	693	(52.5%)	(32.7%)	346	(26.2%)	(32.3%)	1,320	(100.0%)	(31.9%)
Total		**944**	**(22.8%)**	**(100.0%)**	**2,120**	**(51.3%)**	**(100.0%)**	**1,069**	**(25.9%)**	**(100.0%)**	**4,133**	**(100.0%)**	**(100.0%)**

2010.10.12 [Weighted]

HUD QC FY 2009
Table 3. Dollar Rent Error by 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)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
PHA-Administered	Public Housing	955	(23.1%)	214,214	224.22	955	(23.1%)	217,431	227.59	955	(23.1%)	10,856	11.36
	Section 8	1,858	(45.0%)	364,208	196.02	1,858	(45.0%)	372,303	200.38	1,858	(45.0%)	36,691	19.75
	Total	2,813	(68.1%)	578,422	205.60	2,813	(68.1%)	589,735	209.62	2,813	(68.1%)	47,546	16.90
Owner-Administered	Owner-Administered	1,320	(31.9%)	253,742	192.23	1,320	(31.9%)	256,712	194.48	1,320	(31.9%)	17,455	13.22
	Total	1,320	(31.9%)	253,742	192.23	1,320	(31.9%)	256,712	194.48	1,320	(31.9%)	17,455	13.22
Total		**4,133**	**(100.0%)**	**832,164**	**201.33**	**4,133**	**(100.0%)**	**846,447**	**204.78**	**4,133**	**(100.0%)**	**65,001**	**15.73**

2010.10.12 [Weighted]

HUD QC FY 2009
Table 4. Dollar Error Amount by Payment Type and Program Type

		Underpayment (Monthly)				Overpayment (Monthly)				QC Rent (Monthly)			
		# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
PHA-Administered	Public Housing	136	(18.3%)	7,087	52.11	133	(16.8%)	3,769	28.36	955	(23.1%)	217,431	227.59
	Section 8	398	(53.7%)	22,399	56.21	393	(49.6%)	14,291	36.38	1,858	(45.0%)	372,303	200.38
	Total	534	(72.1%)	29,486	55.17	526	(66.4%)	18,060	34.35	2,813	(68.1%)	589,735	209.62
Owner-Administered	Owner-Administered	207	(27.9%)	10,222	49.38	266	(33.6%)	7,232	27.14	1,320	(31.9%)	256,712	194.48
	Total	207	(27.9%)	10,222	49.38	266	(33.6%)	7,232	27.14	1,320	(31.9%)	256,712	194.48
Total		**742**	**(100.0%)**	**39,708**	**53.55**	**792**	**(100.0%)**	**25,293**	**31.92**	**4,133**	**(100.0%)**	**846,447**	**204.78**

2010.10.12 [Weighted]

HUD QC FY 2009
Table 4(S). Dollar Error Amount by Payment Type and Program Type
(Proper Payment based on exact match of Actual and QC Rent)

		Underpayment (Monthly)				Overpayment (Monthly)				QC Rent (Monthly)			
		# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
PHA-Administered	Public Housing	176	(18.6%)	7,180	40.82	219	(20.5%)	3,963	18.12	955	(23.1%)	217,431	227.59
	Section 8	487	(51.5%)	22,607	46.45	504	(47.2%)	14,512	28.77	1,858	(45.0%)	372,303	200.38
	Total	663	(70.2%)	29,787	44.96	723	(67.7%)	18,475	25.55	2,813	(68.1%)	589,735	209.62
Owner-Administered	Owner-Administered	282	(29.8%)	10,408	36.94	346	(32.3%)	7,437	21.52	1,320	(31.9%)	256,712	194.48
	Total	282	(29.8%)	10,408	36.94	346	(32.3%)	7,437	21.52	1,320	(31.9%)	256,712	194.48
Total		**944**	**(100.0%)**	**40,194**	**42.57**	**1,069**	**(100.0%)**	**25,912**	**24.25**	**4,133**	**(100.0%)**	**846,447**	**204.78**

2010.10.12 [Weighted]

HUD QC FY 2009
Table 5. Gross and Net Rent Error by 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)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
PHA-Administered	Public Housing	955	(23.1%)	10,856	11.36	955	(23.1%)	-3,318	-3.47	955	(23.1%)	217,431	227.59
	Section 8	1,858	(45.0%)	36,691	19.75	1,858	(45.0%)	-8,108	-4.36	1,858	(45.0%)	372,303	200.38
	Total	2,813	(68.1%)	47,546	16.90	2,813	(68.1%)	-11,426	-4.06	2,813	(68.1%)	589,735	209.62
Owner-Administered	Owner-Administered	1,320	(31.9%)	17,455	13.22	1,320	(31.9%)	-2,990	-2.27	1,320	(31.9%)	256,712	194.48
	Total	1,320	(31.9%)	17,455	13.22	1,320	(31.9%)	-2,990	-2.27	1,320	(31.9%)	256,712	194.48
Total		**4,133**	**(100.0%)**	**65,001**	**15.73**	**4,133**	**(100.0%)**	**-14,416**	**-3.49**	**4,133**	**(100.0%)**	**846,447**	**204.78**

2010.10.12 [Weighted]

HUD QC FY 2009
Table 5(S). Gross and Net Rent Error by Program Type
(Proper Payment based on exact match of Actual and QC Rent)

		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)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
PHA-Administered	Public Housing	955	(23.1%)	11,143	11.66	955	(23.1%)	-3,217	-3.37	955	(23.1%)	217,431	227.59
	Section 8	1,858	(45.0%)	37,119	19.98	1,858	(45.0%)	-8,095	-4.36	1,858	(45.0%)	372,303	200.38
	Total	2,813	(68.1%)	48,261	17.15	2,813	(68.1%)	-11,312	-4.02	2,813	(68.1%)	589,735	209.62
Owner-Administered	Owner-Administered	1,320	(31.9%)	17,845	13.52	1,320	(31.9%)	-2,970	-2.25	1,320	(31.9%)	256,712	194.48
	Total	1,320	(31.9%)	17,845	13.52	1,320	(31.9%)	-2,970	-2.25	1,320	(31.9%)	256,712	194.48
Total		**4,133**	**(100.0%)**	**66,106**	**15.99**	**4,133**	**(100.0%)**	**-14,283**	**-3.46**	**4,133**	**(100.0%)**	**846,447**	**204.78**

2010.10.12 [Weighted]

HUD QC FY 2009
Table 6. Case Type by 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	118	(12.3%)	(22.8%)	829	(86.8%)	(23.2%)	8	(.9%)	(21.1%)	955	(100.0%)	(23.1%)
	Section 8	178	(9.6%)	(34.6%)	1,649	(88.7%)	(46.1%)	31	(1.7%)	(78.9%)	1,858	(100.0%)	(45.0%)
	Total	296	(10.5%)	(57.4%)	2,478	(88.1%)	(69.2%)	39	(1.4%)	(100.0%)	2,813	(100.0%)	(68.1%)
Owner-Administered	Owner-Administered	219	(16.6%)	(42.6%)	1,101	(83.4%)	(30.8%)				1,320	(100.0%)	(31.9%)
	Total	219	(16.6%)	(42.6%)	1,101	(83.4%)	(30.8%)				1,320	(100.0%)	(31.9%)
Total		**516**	**(12.5%)**	**(100.0%)**	**3,578**	**(86.6%)**	**(100.0%)**	**39**	**(.9%)**	**(100.0%)**	**4,133**	**(100.0%)**	**(100.0%)**

2010.10.12 [Weighted]

HUD QC FY 2009
Table 7. Percent of Newly Certified Households Meeting Certification Criteria

	Met Criterion		Did Not Meet Criterion	
	# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases
Citizenship	496	(96.1%)	20	(3.9%)
Social Security Number	504	(97.7%)	12	(2.3%)
Consent Form	469	(91.0%)	46	(9.0%)
Low and Very Low Income	515	(99.8%)	1	(.2%)
Meets All Eligibility Criteria	447	(86.7%)	69	(13.3%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 7b. Percent of Newly Certified Households Meeting Certification Criteria by Program Type

		Met Criterion		Did Not Meet Criterion	
		# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases
Public Housing	Citizenship	113	(96.3%)	4	(3.7%)
	Social Security Number	114	(96.4%)	4	(3.6%)
	Consent Form	106	(89.9%)	12	(10.1%)
	Low and Very Low Income	117	(99.0%)	1	(1.0%)
	Meets All Eligibility Criteria	100	(85.2%)	17	(14.8%)
PHA-Administered Section 8	Citizenship	172	(96.5%)	6	(3.5%)
	Social Security Number	174	(97.7%)	4	(2.3%)
	Consent Form	154	(86.3%)	24	(13.7%)
	Low and Very Low Income	178	(100.0%)		
	Meets All Eligibility Criteria	150	(84.1%)	28	(15.9%)
Owner-Administered	Citizenship	210	(95.7%)	9	(4.3%)
	Social Security Number	216	(98.4%)	3	(1.6%)
	Consent Form	209	(95.4%)	10	(4.6%)
	Low and Very Low Income	219	(100.0%)		
	Meets All Eligibility Criteria	197	(89.6%)	23	(10.4%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 8. Dollar Error Amount by Payment Type and Case Type

		Underpayment (Monthly)				Overpayment (Monthly)				QC Rent (Monthly)			
		# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
Certification		80	(10.8%)	3,852	48.11	118	(14.8%)	4,413	37.52	516	(12.5%)	90,582	175.63
	Total	80	(10.8%)	3,852	48.11	118	(14.8%)	4,413	37.52	516	(12.5%)	90,582	175.63
Recertification	Non-Overdue	639	(86.2%)	33,859	52.95	667	(84.1%)	18,727	28.10	3,578	(86.6%)	746,608	208.64
	Overdue	22	(3.0%)	1,997	90.59	8	(1.0%)	2,153	264.20	39	(.9%)	9,257	236.66
	Total	661	(89.2%)	35,856	54.21	675	(85.2%)	20,880	30.95	3,618	(87.5%)	755,865	208.94
Total		**742**	**(100.0%)**	**39,708**	**53.55**	**792**	**(100.0%)**	**25,293**	**31.92**	**4,133**	**(100.0%)**	**846,447**	**204.78**

2010.10.12 [Weighted]

HUD QC FY 2009
Table 8(S). Dollar Error Amount by Payment Type and Case Type
(Proper Payment based on exact match of Actual and QC Rent)

		Underpayment (Monthly)				Overpayment (Monthly)				QC Rent (Monthly)			
		# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
Certification		96	(10.2%)	3,886	40.38	149	(13.9%)	4,473	30.05	516	(12.5%)	90,582	175.63
	Total	96	(10.2%)	3,886	40.38	149	(13.9%)	4,473	30.05	516	(12.5%)	90,582	175.63
Recertification	Non-Overdue	824	(87.3%)	34,305	41.61	912	(85.3%)	19,287	21.16	3,578	(86.6%)	746,608	208.64
	Overdue	24	(2.5%)	2,003	84.95	8	(.8%)	2,153	264.20	39	(.9%)	9,257	236.66
	Total	848	(89.8%)	36,308	42.81	920	(86.1%)	21,439	23.31	3,618	(87.5%)	755,865	208.94
Total		**944**	**(100.0%)**	**40,194**	**42.57**	**1,069**	**(100.0%)**	**25,912**	**24.25**	**4,133**	**(100.0%)**	**846,447**	**204.78**

2010.10.12 [Weighted]

HUD QC FY 2009
Table 9. Largest Component Error for Households with Rent Error (Annual Dollars)

	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
Earned Income	384	(25.0%)	1,192,104	3,108
Pension, Etc.	452	(29.5%)	930,571	2,058
Public Assistance	80	(5.2%)	182,317	2,283
Other Income	189	(12.3%)	554,021	2,930
Asset Income	28	(1.9%)	32,953	1,160
Dependent Allowance	44	(2.9%)	25,394	571
Elderly HH Allowance	28	(1.8%)	11,089	400
Child Care Allowance	37	(2.4%)	52,403	1,399
Disability Allowance	1	(.1%)	10,196	7,608
Medical Allowance	286	(18.6%)	293,750	1,028
No Error	4	(.3%)	0	0
Total	**1,534**	**(100.0%)**	**3,284,797**	**2,142**

2010.10.12 [Weighted]

HUD QC FY 2009
Table 10. Total and Largest Dollar Error by Program Type for Households with Rent Errors

		Total Dollar in Error				Largest Dollar Error			
		# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
PHA-Administered	Public Housing	269	(17.5%)	650,844	2,420.40	269	(17.5%)	545,041	2,026.93
	Section 8	791	(51.6%)	2,385,508	3,014.33	791	(51.6%)	1,832,877	2,316.03
	Total	1,060	(69.1%)	3,036,352	2,863.71	1,060	(69.1%)	2,377,918	2,242.71
Owner Administered	Owner-Administered	473	(30.9%)	1,120,921	2,367.32	473	(30.9%)	906,879	1,915.28
	Total	473	(30.9%)	1,120,921	2,367.32	473	(30.9%)	906,879	1,915.28
Total		**1,534**	**(100.0%)**	**4,157,273**	**2,710.47**	**1,534**	**(100.0%)**	**3,284,797**	**2,141.63**

2010.10.12 [Weighted]

HUD QC FY 2009

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

		PHA Administered			Owner-Administered			Total		
		# of Cases (in 1,000)	Col % of Cases	Row % of Cases	# of Cases (in 1,000)	Col % of Cases	Row % of Cases	# of Cases (in 1,000)	Col % of Cases	Row % of Cases
Underpayment	Earned Income	233	(8.3%)	(84.4%)	43	(3.3%)	(15.6%)	276	(6.7%)	(100.0%)
	Pension, Etc.	214	(7.6%)	(65.3%)	113	(8.6%)	(34.7%)	327	(7.9%)	(100.0%)
	Public Assistance	81	(2.9%)	(89.5%)	9	(.7%)	(10.5%)	90	(2.2%)	(100.0%)
	Other Income	112	(4.0%)	(74.8%)	38	(2.9%)	(25.2%)	150	(3.6%)	(100.0%)
	Asset Income	55	(1.9%)	(58.6%)	39	(2.9%)	(41.4%)	93	(2.3%)	(100.0%)
	Dependent Allowance	32	(1.1%)	(90.5%)	3	(.3%)	(9.5%)	35	(.9%)	(100.0%)
	Elderly HH Allowance	9	(.3%)	(65.2%)	5	(.4%)	(34.8%)	14	(.3%)	(100.0%)
	Child Care Allowance	43	(1.5%)	(96.7%)	1	(.1%)	(3.3%)	44	(1.1%)	(100.0%)
	Disability Allowance	1	(.0%)	(100.0%)				1	(.0%)	(100.0%)
	Medical Allowance	95	(3.4%)	(48.2%)	102	(7.7%)	(51.8%)	197	(4.8%)	(100.0%)
	No Error	1	(.0%)	(38.5%)	2	(.1%)	(61.5%)	3	(.1%)	(100.0%)
Proper Payment	Earned Income	158	(5.6%)	(82.9%)	33	(2.5%)	(17.1%)	191	(4.6%)	(100.0%)
	Pension, Etc.	224	(7.9%)	(57.8%)	163	(12.4%)	(42.2%)	387	(9.4%)	(100.0%)
	Public Assistance	59	(2.1%)	(76.6%)	18	(1.4%)	(23.4%)	77	(1.9%)	(100.0%)
	Other Income	113	(4.0%)	(71.1%)	46	(3.5%)	(28.9%)	160	(3.9%)	(100.0%)
	Asset Income	126	(4.5%)	(65.5%)	66	(5.0%)	(34.5%)	192	(4.7%)	(100.0%)
	Dependent Allowance	32	(1.1%)	(96.7%)	1	(.1%)	(3.3%)	33	(.8%)	(100.0%)
	Elderly HH Allowance	26	(.9%)	(88.8%)	3	(.2%)	(11.2%)	29	(.7%)	(100.0%)
	Child Care Allowance	11	(.4%)	(62.6%)	6	(.5%)	(37.4%)	17	(.4%)	(100.0%)
	Disability Allowance	1	(.0%)	(100.0%)				1	(.0%)	(100.0%)
	Medical Allowance	185	(6.6%)	(58.9%)	129	(9.8%)	(41.1%)	314	(7.6%)	(100.0%)
	No Error	1,115	(39.6%)	(68.8%)	505	(38.3%)	(31.2%)	1,621	(39.2%)	(100.0%)

		PHA Administered			Owner-Administered			Total		
		# of Cases (in 1,000)	Col % of Cases	Row % of Cases	# of Cases (in 1,000)	Col % of Cases	Row % of Cases	# of Cases (in 1,000)	Col % of Cases	Row % of Cases
Overpayment	Earned Income	178	(6.3%)	(80.3%)	44	(3.3%)	(19.7%)	222	(5.4%)	(100.0%)
	Pension, Etc.	187	(6.6%)	(57.9%)	136	(10.3%)	(42.1%)	323	(7.8%)	(100.0%)
	Public Assistance	33	(1.2%)	(84.5%)	6	(.5%)	(15.5%)	39	(.9%)	(100.0%)
	Other Income	90	(3.2%)	(80.2%)	22	(1.7%)	(19.8%)	112	(2.7%)	(100.0%)
	Asset Income	65	(2.3%)	(56.3%)	50	(3.8%)	(43.7%)	115	(2.8%)	(100.0%)
	Dependent Allowance	52	(1.8%)	(91.3%)	5	(.4%)	(8.7%)	57	(1.4%)	(100.0%)
	Elderly HH Allowance	21	(.8%)	(63.7%)	12	(.9%)	(36.3%)	33	(.8%)	(100.0%)
	Child Care Allowance	31	(1.1%)	(70.2%)	13	(1.0%)	(29.8%)	44	(1.1%)	(100.0%)
	Disability Allowance	3	(.1%)	(100.0%)				3	(.1%)	(100.0%)
	Medical Allowance	151	(5.4%)	(51.2%)	144	(10.9%)	(48.8%)	295	(7.1%)	(100.0%)
	No Error	1	(.0%)	(100.0%)				1	(.0%)	(100.0%)
Total w/Rent Error Calc		**2,813**	**(100.0%)**	**(68.1%)**	**1,320**	**(100.0%)**	**(31.9%)**	**4,133**	**(100.0%)**	**(100.0%)**

2010.10.12 [Weighted]

HUD QC FY 2009
Table 12a. Elderly/Disabled Allowances

	Non-Elderly/Disabled HH			Elderly/Disabled HH			Total		
	# of Cases (in 1,000)	Col % of Cases	Row % of Cases	# of Cases (in 1,000)	Col % of Cases	Row % of Cases	# of Cases (in 1,000)	Col % of Cases	Row % of Cases
No Allowance	1,815	(99.7%)	(100.0%)				1,815	(43.9%)	(100.0%)
Incorrect Allowance	6	(.3%)	(7.6%)	70	(3.0%)	(92.4%)	76	(1.8%)	(100.0%)
Correct Allowance				2,243	(97.0%)	(100.0%)	2,243	(54.3%)	(100.0%)
Total	**1,820**	**(100.0%)**	**(44.0%)**	**2,313**	**(100.0%)**	**(56.0%)**	**4,133**	**(100.0%)**	**(100.0%)**

2010.10.12 [Weighted]

HUD QC FY 2009
Table 12b. Dependent Allowances

	HH W/Out Dependent			HH W/Dependent			Total		
	# of Cases (in 1,000)	Col % of Cases	Row % of Cases	# of Cases (in 1,000)	Col % of Cases	Row % of Cases	# of Cases (in 1,000)	Col % of Cases	Row % of Cases
No Allowance	2,292	(99.5%)	(100.0%)				2,292	(55.5%)	(100.0%)
Incorrect Allowance	12	(.5%)	(9.5%)	113	(6.2%)	(90.5%)	125	(3.0%)	(100.0%)
Correct Allowance				1,716	(93.8%)	(100.0%)	1,716	(41.5%)	(100.0%)
Total	**2,304**	**(100.0%)**	**(55.7%)**	**1,829**	**(100.0%)**	**(44.3%)**	**4,133**	**(100.0%)**	**(100.0%)**

2010.10.12 [Weighted]

HUD QC FY 2009
Table 13. Calculation Errors on Form 50058/59

	58		59		Total	
	# of Errors	# of Cases (in 1,000)	# of Errors	# of Cases (in 1,000)	# of Errors	# of Cases (in 1,000)
Household Composition	165	162	49	49	213	211
Net Family Assets And Income	343	170	104	59	446	228
Allowances And Adjusted Income	1,489	1,214	110	47	1,599	1,262
Family Rent And Subsidy Information	411	233	26	23	437	256

2010.10.12 [Weighted]

HUD QC FY 2009
Table 14. Consistency Errors on Form 50058/59

	58		59		Total	
	# of Errors	# of Cases (in 1,000)	# of Errors	# of Cases (in 1,000)	# of Errors	# of Cases (in 1,000)
General Information	82	82	89	67	171	149
Household Composition	261	108	93	86	354	194
Net Family Assets and Income	82	82	.	0	82	82
Allowances and Adjusted Income	279	275	21	16	299	291
Family Rent and Subsidy Information	90	90	3	3	93	93

2010.10.12 [Weighted]

HUD QC FY 2009
Table 15a. Verification of Form 50058/59 Rent Components
Third Party Verbal or in Writing, Documentation, or EIV

	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	174	(13.5%)	362	(28.2%)	747	(58.2%)	1,283	(100.0%)
Pension, Etc.	116	(4.7%)	279	(11.4%)	2,062	(83.9%)	2,457	(100.0%)
Public Assistance	115	(25.8%)	62	(13.9%)	268	(60.3%)	444	(100.0%)
Other Income	199	(22.2%)	118	(13.2%)	580	(64.6%)	897	(100.0%)
Asset Income	64	(10.7%)	50	(8.5%)	480	(80.8%)	594	(100.0%)
Child Care Expense	14	(8.4%)	24	(14.4%)	129	(77.2%)	167	(100.0%)
Medical Expense	88	(8.4%)	168	(16.0%)	791	(75.6%)	1,047	(100.0%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 15b. Verification of Form 50058/59 Rent Components
Third Party in Writing

	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	519	(40.4%)	199	(15.5%)	565	(44.0%)	1,283	(100.0%)
Pension, Etc.	1,929	(78.5%)	51	(2.1%)	477	(19.4%)	2,457	(100.0%)
Public Assistance	225	(50.6%)	31	(6.9%)	189	(42.5%)	444	(100.0%)
Other Income	443	(49.4%)	62	(6.9%)	392	(43.7%)	897	(100.0%)
Asset Income	278	(46.8%)	11	(1.8%)	305	(51.4%)	594	(100.0%)
Child Care Expense	60	(35.9%)	12	(7.2%)	95	(56.8%)	167	(100.0%)
Medical Expense	716	(68.4%)	32	(3.0%)	299	(28.6%)	1,047	(100.0%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 15c. Verification of Form 50058/59 Rent Components
Third Party in Writing or EIV

	NO VERIFICATION		VERIFICATION				TOTAL	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	425	(33.1%)	278	(21.7%)	580	(45.2%)	1,283	(100.0%)
Pension, Etc.	1,003	(40.8%)	171	(7.0%)	1,283	(52.2%)	2,457	(100.0%)
Public Assistance	225	(50.6%)	31	(6.9%)	189	(42.5%)	444	(100.0%)
Other Income	436	(48.6%)	67	(7.5%)	394	(43.9%)	897	(100.0%)
Asset Income	278	(46.8%)	11	(1.8%)	305	(51.4%)	594	(100.0%)
Child Care Expense	60	(35.9%)	12	(7.2%)	95	(56.8%)	167	(100.0%)
Medical Expense	597	(57.0%)	57	(5.4%)	393	(37.6%)	1,047	(100.0%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 15d. Verification of Form 50058/59 Rent Components
Third Party—Verbal

	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	1,260	(98.2%)	8	(0.6%)	16	(1.2%)	1,283	(100.0%)
Pension, Etc.	2,455	(100.0%)			1	(.0%)	2,457	(100.0%)
Public Assistance	440	(99.1%)	2	(.4%)	2	(.5%)	444	(100.0%)
Other Income	889	(99.1%)			8	(.9%)	897	(100.0%)
Asset Income	594	(100.0%)					594	(100.0%)
Child Care Expense	159	(95.5%)			8	(4.5%)	167	(100.0%)
Medical Expense	1,045	(99.8%)			2	(.2%)	1,047	(100.0%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 15e. Verification of Form 50058/59 Rent Components
Documentation

	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	1,073	(83.6%)	65	(5.0%)	146	(11.4%)	1,283	(100.0%)
Pension, Etc.	1,707	(69.5%)	85	(3.5%)	664	(27.0%)	2,457	(100.0%)
Public Assistance	340	(76.5%)	28	(6.2%)	77	(17.3%)	444	(100.0%)
Other Income	685	(76.3%)	44	(4.9%)	168	(18.7%)	897	(100.0%)
Asset Income	461	(77.6%)	18	(3.0%)	115	(19.4%)	594	(100.0%)
Child Care Expense	132	(79.3%)	12	(7.2%)	22	(13.5%)	167	(100.0%)
Medical Expense	800	(76.4%)	46	(4.4%)	201	(19.2%)	1,047	(100.0%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 15f. Verification of Form 50058/59 Rent Components
EIV (Enterprise Income Verification)

	No Verification		Verification				Total	
			Dollar Amount Not Matched		Dollar Amount Matched			
	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Earned Income	1,202	(93.7%)	68	(5.3%)	13	(1.0%)	1,283	(100.0%)
Pension, Etc.	1,673	(68.1%)	92	(3.7%)	692	(28.2%)	2,457	(100.0%)
Public Assistance	444	(100.0%)					444	(100.0%)
Other Income	890	(99.2%)	5	(.6%)	2	(.2%)	897	(100.0%)
Asset Income	594	(100.0%)					594	(100.0%)
Child Care Expense	167	(100.0%)					167	(100.0%)
Medical Expense	990	(94.5%)	15	(1.4%)	43	(4.1%)	1,047	(100.0%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 15g. Verification of Form 50058/59 Rent Components
Third Party Verbal or in Writing, Documentation, or EIV

		No Verification		Verification				Total	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Public Housing	Earned Income	38	(11.7%)	114	(34.8%)	175	(53.5%)	326	(100.0%)
	Pension, Etc.	23	(4.4%)	81	(15.3%)	424	(80.3%)	528	(100.0%)
	Public Assistance	30	(28.4%)	13	(12.1%)	64	(59.6%)	107	(100.0%)
	Other Income	47	(24.8%)	26	(13.7%)	116	(61.4%)	188	(100.0%)
	Asset Income	16	(17.4%)	5	(5.4%)	73	(77.2%)	94	(100.0%)
	Child Care Expense	5	(14.6%)	8	(22.5%)	22	(62.8%)	34	(100.0%)
	Medical Expense	16	(7.5%)	43	(20.1%)	153	(72.4%)	212	(100.0%)
PHA-Administered Section 8	Earned Income	105	(14.4%)	210	(28.8%)	414	(56.8%)	729	(100.0%)
	Pension, Etc.	57	(5.7%)	115	(11.4%)	835	(82.9%)	1,007	(100.0%)
	Public Assistance	63	(26.2%)	43	(17.7%)	135	(56.1%)	241	(100.0%)
	Other Income	95	(20.3%)	72	(15.3%)	302	(64.5%)	469	(100.0%)
	Asset Income	31	(15.8%)	18	(9.2%)	146	(75.0%)	195	(100.0%)
	Child Care Expense	9	(9.5%)	14	(15.0%)	72	(75.5%)	95	(100.0%)
	Medical Expense	24	(8.3%)	67	(23.3%)	196	(68.4%)	286	(100.0%)
Owner-Administered	Earned Income	30	(13.3%)	39	(17.2%)	159	(69.5%)	228	(100.0%)
	Pension, Etc.	36	(3.9%)	83	(9.0%)	803	(87.1%)	922	(100.0%)
	Public Assistance	21	(21.9%)	6	(6.5%)	69	(71.6%)	97	(100.0%)
	Other Income	58	(24.1%)	21	(8.6%)	162	(67.3%)	240	(100.0%)
	Asset Income	16	(5.4%)	27	(9.0%)	262	(85.7%)	305	(100.0%)
	Child Care Expense			2	(5.4%)	35	(94.6%)	37	(100.0%)
	Medical Expense	48	(8.8%)	59	(10.7%)	442	(80.5%)	549	(100.0%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 15h. Verification of Form 50058/59 Rent Components
Third Party in Writing

		No Verification		Verification				Total	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Public Housing	Earned Income	135	(41.2%)	59	(18.0%)	133	(40.7%)	326	(100.0%)
	Pension, Etc.	443	(84.0%)	10	(2.0%)	74	(14.0%)	528	(100.0%)
	Public Assistance	55	(51.7%)	7	(6.6%)	45	(41.7%)	107	(100.0%)
	Other Income	105	(55.8%)	12	(6.1%)	72	(38.1%)	188	(100.0%)
	Asset Income	44	(46.4%)			51	(53.6%)	94	(100.0%)
	Child Care Expense	10	(30.3%)	4	(10.9%)	20	(58.8%)	34	(100.0%)
	Medical Expense	151	(71.3%)	12	(5.5%)	49	(23.2%)	212	(100.0%)
PHA-Administered Section 8	Earned Income	307	(42.1%)	109	(15.0%)	312	(42.9%)	729	(100.0%)
	Pension, Etc.	802	(79.6%)	22	(2.2%)	183	(18.2%)	1,007	(100.0%)
	Public Assistance	131	(54.4%)	19	(7.9%)	91	(37.7%)	241	(100.0%)
	Other Income	227	(48.5%)	38	(8.2%)	203	(43.4%)	469	(100.0%)
	Asset Income	110	(56.7%)	2	(1.1%)	82	(42.3%)	195	(100.0%)
	Child Care Expense	36	(38.0%)	6	(6.6%)	53	(55.4%)	95	(100.0%)
	Medical Expense	193	(67.4%)	9	(3.2%)	84	(29.4%)	286	(100.0%)
Owner-Administered	Earned Income	78	(34.0%)	31	(13.5%)	120	(52.5%)	228	(100.0%)
	Pension, Etc.	683	(74.1%)	18	(2.0%)	220	(23.9%)	922	(100.0%)
	Public Assistance	38	(39.7%)	5	(4.8%)	54	(55.5%)	97	(100.0%)
	Other Income	111	(46.2%)	12	(5.1%)	117	(48.7%)	240	(100.0%)
	Asset Income	124	(40.6%)	9	(2.9%)	172	(56.5%)	305	(100.0%)
	Child Care Expense	13	(36.0%)	2	(5.4%)	22	(58.6%)	37	(100.0%)
	Medical Expense	372	(67.8%)	11	(2.0%)	166	(30.2%)	549	(100.0%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 15i. Verification of Form 50058/59 Rent Components
Third Party in Writing

		No Verification		Verification				Total	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Public Housing	Earned Income	94	(28.9%)	95	(29.2%)	137	(41.9%)	326	(100.0%)
	Pension, Etc.	213	(40.3%)	53	(10.0%)	263	(49.8%)	528	(100.0%)
	Public Assistance	55	(51.7%)	7	(6.6%)	45	(41.7%)	107	(100.0%)
	Other Income	104	(55.3%)	13	(6.7%)	72	(38.1%)	188	(100.0%)
	Asset Income	44	(46.4%)			51	(53.6%)	94	(100.0%)
	Child Care Expense	10	(30.3%)	4	(10.9%)	20	(58.8%)	34	(100.0%)
	Medical Expense	113	(53.3%)	20	(9.6%)	79	(37.1%)	212	(100.0%)
PHA-Administered Section 8	Earned Income	255	(35.0%)	151	(20.7%)	323	(44.4%)	729	(100.0%)
	Pension, Etc.	362	(35.9%)	81	(8.1%)	564	(56.0%)	1,007	(100.0%)
	Public Assistance	131	(54.4%)	19	(7.9%)	91	(37.7%)	241	(100.0%)
	Other Income	221	(47.2%)	42	(9.0%)	205	(43.8%)	469	(100.0%)
	Asset Income	110	(56.7%)	2	(1.1%)	82	(42.3%)	195	(100.0%)
	Child Care Expense	36	(38.0%)	6	(6.6%)	53	(55.4%)	95	(100.0%)
	Medical Expense	169	(59.1%)	16	(5.6%)	101	(35.3%)	286	(100.0%)
Owner-Administered	Earned Income	76	(33.4%)	32	(14.1%)	120	(52.5%)	228	(100.0%)
	Pension, Etc.	429	(46.5%)	37	(4.0%)	456	(49.5%)	922	(100.0%)
	Public Assistance	38	(39.7%)	5	(4.8%)	54	(55.5%)	97	(100.0%)
	Other Income	111	(46.2%)	12	(5.1%)	117	(48.7%)	240	(100.0%)
	Asset Income	124	(40.6%)	9	(2.9%)	172	(56.5%)	305	(100.0%)
	Child Care Expense	13	(36.0%)	2	(5.4%)	22	(58.6%)	37	(100.0%)
	Medical Expense	315	(57.3%)	20	(3.7%)	214	(38.9%)	549	(100.0%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 15j. Verification of Form 50058/59 Rent Components
Third Party—Verbal

		No Verification		Verification				Total	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Public Housing	Earned Income	318	(97.6%)	3	(.8%)	5	(1.6%)	326	(100.0%)
	Pension, Etc.	528	(100.0%)					528	(100.0%)
	Public Assistance	107	(100.0%)					107	(100.0%)
	Other Income	188	(100.0%)					188	(100.0%)
	Asset Income	94	(100.0%)					94	(100.0%)
	Child Care Expense	34	(100.0%)					34	(100.0%)
	Medical Expense	212	(100.0%)					212	(100.0%)
PHA-Administered Section 8	Earned Income	713	(97.8%)	5	(.7%)	11	(1.4%)	729	(100.0%)
	Pension, Etc.	1,007	(100.0%)					1,007	(100.0%)
	Public Assistance	237	(98.3%)	2	(.8%)	2	(.9%)	241	(100.0%)
	Other Income	462	(98.6%)			7	(1.4%)	469	(100.0%)
	Asset Income	195	(100.0%)					195	(100.0%)
	Child Care Expense	87	(92.0%)			8	(8.0%)	95	(100.0%)
	Medical Expense	284	(99.2%)			2	(.8%)	286	(100.0%)
Owner-Administered	Earned Income	228	(100.0%)					228	(100.0%)
	Pension, Etc.	921	(99.9%)			1	(.1%)	922	(100.0%)
	Public Assistance	97	(100.0%)					97	(100.0%)
	Other Income	238	(99.3%)			2	(.7%)	240	(100.0%)
	Asset Income	305	(100.0%)					305	(100.0%)
	Child Care Expense	37	(100.0%)					37	(100.0%)
	Medical Expense	549	(100.0%)					549	(100.0%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 15k. Verification of Form 50058/59 Rent Components Documentation

		No Verification		Verification				Total	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Public Housing	Earned Income	282	(86.3%)	12	(3.7%)	33	(10.0%)	326	(100.0%)
	Pension, Etc.	375	(71.0%)	20	(3.8%)	133	(25.2%)	528	(100.0%)
	Public Assistance	83	(78.0%)	4	(4.1%)	19	(17.9%)	107	(100.0%)
	Other Income	133	(70.8%)	11	(5.8%)	44	(23.4%)	188	(100.0%)
	Asset Income	74	(78.5%)	4	(4.1%)	16	(17.4%)	94	(100.0%)
	Child Care Expense	29	(84.4%)	4	(11.6%)	1	(4.0%)	34	(100.0%)
	Medical Expense	157	(73.9%)	12	(5.8%)	43	(20.3%)	212	(100.0%)
PHA-Administered Section 8	Earned Income	606	(83.1%)	47	(6.5%)	76	(10.4%)	729	(100.0%)
	Pension, Etc.	743	(73.8%)	24	(2.4%)	240	(23.9%)	1,007	(100.0%)
	Public Assistance	177	(73.5%)	22	(9.0%)	42	(17.5%)	241	(100.0%)
	Other Income	362	(77.1%)	25	(5.3%)	83	(17.6%)	469	(100.0%)
	Asset Income	134	(68.7%)	9	(4.5%)	52	(26.8%)	195	(100.0%)
	Child Care Expense	78	(81.8%)	8	(8.4%)	9	(9.8%)	95	(100.0%)
	Medical Expense	198	(69.4%)	21	(7.3%)	67	(23.3%)	286	(100.0%)
Owner-Administered	Earned Income	186	(81.2%)	6	(2.4%)	37	(16.4%)	228	(100.0%)
	Pension, Etc.	589	(63.9%)	42	(4.5%)	291	(31.5%)	922	(100.0%)
	Public Assistance	79	(82.1%)	2	(1.7%)	16	(16.1%)	97	(100.0%)
	Other Income	190	(79.2%)	8	(3.5%)	42	(17.3%)	240	(100.0%)
	Asset Income	253	(83.0%)	5	(1.7%)	47	(15.3%)	305	(100.0%)
	Child Care Expense	25	(68.4%)			12	(31.6%)	37	(100.0%)
	Medical Expense	445	(81.0%)	13	(2.3%)	92	(16.7%)	549	(100.0%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 15l. Verification of Form 50058/59 Rent Components
EIV (Enterprise Income Verification)

		No Verification		Verification				Total	
				Dollar Amount Not Matched		Dollar Amount Matched			
		# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases	# of Cases (in 1,000)	Row % of Cases
Public Housing	Earned Income	294	(90.1%)	28	(8.7%)	4	(1.2%)	326	(100.0%)
	Pension, Etc.	326	(61.9%)	36	(6.9%)	165	(31.3%)	528	(100.0%)
	Public Assistance	107	(100.0%)					107	(100.0%)
	Other Income	187	(99.5%)	1	(.5%)			188	(100.0%)
	Asset Income	94	(100.0%)					94	(100.0%)
	Child Care Expense	34	(100.0%)					34	(100.0%)
	Medical Expense	182	(86.0%)	9	(4.1%)	21	(9.9%)	212	(100.0%)
PHA-Administered Section 8	Earned Income	681	(93.5%)	39	(5.3%)	9	(1.2%)	729	(100.0%)
	Pension, Etc.	622	(61.7%)	42	(4.1%)	344	(34.1%)	1,007	(100.0%)
	Public Assistance	241	(100.0%)					241	(100.0%)
	Other Income	463	(98.7%)	4	(.9%)	2	(.4%)	469	(100.0%)
	Asset Income	195	(100.0%)					195	(100.0%)
	Child Care Expense	95	(100.0%)					95	(100.0%)
	Medical Expense	267	(93.3%)	4	(1.6%)	15	(5.1%)	286	(100.0%)
Owner-Administered	Earned Income	227	(99.4%)	1	(.6%)			228	(100.0%)
	Pension, Etc.	725	(78.6%)	14	(1.5%)	183	(19.9%)	922	(100.0%)
	Public Assistance	97	(100.0%)					97	(100.0%)
	Other Income	240	(100.0%)					240	(100.0%)
	Asset Income	305	(100.0%)					305	(100.0%)
	Child Care Expense	37	(100.0%)					37	(100.0%)
	Medical Expense	541	(98.4%)	1	(.3%)	7	(1.3%)	549	(100.0%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 16a. QC Rent Component for Household with QC Rent Error (>$5)

		50058		50059		Total	
		# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases
Earned Income	No Error	2,403	(85.4%)	1,233	(93.4%)	3,636	(88.0%)
	w/Error	411	(14.6%)	87	(6.6%)	497	(12.0%)
Pensions, Etc.	No Error	2,413	(85.8%)	1,071	(81.1%)	3,484	(84.3%)
	w/Error	400	(14.2%)	249	(18.9%)	650	(15.7%)
Public Assistance	No Error	2,700	(96.0%)	1,304	(98.8%)	4,004	(96.9%)
	w/Error	114	(4.0%)	16	(1.2%)	129	(3.1%)
Other Income	No Error	2,611	(92.8%)	1,260	(95.5%)	3,871	(93.7%)
	w/Error	202	(7.2%)	60	(4.5%)	262	(6.3%)
Asset Income	No Error	2,694	(95.8%)	1,231	(93.3%)	3,925	(95.0%)
	w/Error	119	(4.2%)	89	(6.7%)	208	(5.0%)
Child Care Expense	No Error	2,740	(97.4%)	1,305	(98.9%)	4,045	(97.9%)
	w/Error	74	(2.6%)	15	(1.1%)	88	(2.1%)
Disability Expense	No Error	2,805	(99.7%)	1,316	(99.7%)	4,121	(99.7%)
	w/Error	8	(.3%)	4	(.3%)	12	(.3%)
Medical Expense	No Error	2,502	(88.9%)	1,084	(82.1%)	3,586	(86.8%)
	w/Error	311	(11.1%)	236	(17.9%)	547	(13.2%)
All Components	No Error	1,788	(63.5%)	860	(65.2%)	2,648	(64.1%)
	w/Error	1,026	(36.5%)	460	(34.8%)	1,485	(35.9%)
Total		**2,813**	**(100.0%)**	**1,320**	**(100.0%)**	**4,133**	**(100.0%)**

2010.10.12 [Weighted]

HUD QC FY 2009
Table 16b. QC Error Cases with Missing Verification in Tenant File

		Form 50058		Form 50059		Total	
		# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases
Earned Income	Verified	151	(36.7%)	29	(33.3%)	180	(35.9%)
	Not Verified	260	(63.3%)	58	(66.7%)	318	(64.1%)
Pension, Etc.	Verified	78	(19.4%)	44	(17.8%)	122	(18.8%)
	Not Verified	323	(80.6%)	205	(82.2%)	527	(81.2%)
Public Assistance	Verified	32	(27.9%)	1	(8.9%)	33	(25.6%)
	Not Verified	82	(72.1%)	14	(91.1%)	96	(74.4%)
Other Income	Verified	57	(28.4%)	10	(16.7%)	67	(25.7%)
	Not Verified	145	(71.6%)	50	(83.3%)	195	(74.3%)
Asset Income	Verified	15	(12.5%)	26	(29.1%)	41	(19.6%)
	Not Verified	104	(87.5%)	63	(70.9%)	167	(80.4%)
Child Care Expense	Verified	15	(20.4%)	2	(13.7%)	17	(19.3%)
	Not Verified	59	(79.6%)	13	(86.3%)	71	(80.7%)
Disability Expense	Not Verified	8	(100.0%)	4	(100.0%)	12	(100.0%)
Medical Expense	Verified	40	(13.0%)	22	(9.5%)	63	(11.5%)
	Not Verified	271	(87.0%)	214	(90.5%)	484	(88.5%)

2010.10.12 [Weighted]

HUD QC FY 2009

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

	Households with Recalculated 50058/59 Rent Error			Households with QC Rent Error		
	# of Households in Error	% of Households in Error	Average Gross Dollar Error	# of Households in Error	% of Households in Error	Average Gross Dollar Error
Transcription Error	113	(53.2%)	31.53	990	(64.6%)	46.22
No Transcription Error	99	(46.8%)	7.63	543	(35.4%)	35.37
Consistency Error	62	(29.3%)	50.12	301	(19.6%)	44.80
No Consistency Error	149	(70.7%)	7.99	1,233	(80.4%)	41.79
Allowances Calculation Error	20	(9.6%)	75.86	57	(3.7%)	38.79
No Allowances Calculation Error	191	(90.4%)	14.42	1,477	(96.3%)	42.52
Income Calculation Error	6	(2.9%)	57.43	54	(3.5%)	63.25
No Income Calculation Error	205	(97.1%)	19.23	1,479	(96.5%)	41.61
Other Calculation Error	20	(9.5%)	120.17	89	(5.8%)	56.84
No Other Calculation Error	191	(90.5%)	9.84	1,445	(94.2%)	41.49
Overdue Recertification	4	(2.0%)	1.00	30	(2.0%)	137.43
On-time Recertification	178	(84.1%)	20.70	1,306	(85.1%)	40.27
Certification	29	(13.9%)	20.97	198	(12.9%)	41.81
Any Admin/proc Error	129	(60.8%)	29.79	1,078	(70.3%)	45.57
No Admin/proc Error	83	(39.2%)	5.69	456	(29.7%)	34.84
Total Households	**211**	**(100.0%)**	**20.35**	**1,534**	**(100.0%)**	**42.38**

2010.10.12 [Weighted]

HUD QC FY 2009

Table 18. Administrative Error: Number & Percent of Households, Average Dollars in Error for All Households by Administrative 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	1,646	(39.8%)	28.18	1,646	(39.8%)	-5.80
No Transcription Error	2,487	(60.2%)	7.93	2,487	(60.2%)	-1.90
Consistency Error	708	(17.1%)	19.42	708	(17.1%)	-.57
No Consistency Error	3,425	(82.9%)	15.28	3,425	(82.9%)	-4.05
Allowances Calculation Error	110	(2.7%)	20.37	110	(2.7%)	-7.03
No Allowances Calculation Error	4,023	(97.3%)	15.87	4,023	(97.3%)	-3.36
Income Calculation Error	101	(2.5%)	34.14	101	(2.5%)	21.69
No Income Calculation Error	4,032	(97.5%)	15.54	4,032	(97.5%)	-4.09
Other Calculation Error	211	(5.1%)	24.15	211	(5.1%)	-14.81
No Other Calculation Error	3,922	(94.9%)	15.55	3,922	(94.9%)	-2.84
Overdue Recertification	39	(.9%)	106.24	39	(.9%)	3.82
On-time Recertification	3,578	(86.6%)	14.98	3,578	(86.6%)	-4.20
Certification	516	(12.5%)	16.21	516	(12.5%)	1.14
Any Admin/proc Error	2,024	(49.0%)	24.63	2,024	(49.0%)	-5.23
No Admin/proc Error	2,109	(51.6%)	7.70	2,109	(51.0%)	-1.7
Total	**4,133**	**(100.0%)**	**15.99**	**4,133**	**(100.0%)**	**-3.46**

2010.10.12 [Weighted]

HUD QC FY 2009
Table 19. Occupancy Standards on Form 50058/59

		Public Housing		PHA-Administered Section 8		Owner-Administered		Total	
		# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases	# of Cases (in 1,000)	% of Cases
Under-Housed	0	1	(2.0%)			2	(4.0%)	3	(2.3%)
	1	2	(.7%)			2	(.2%)	4	(.3%)
	2	12	(4.0%)			2	(.6%)	13	(1.1%)
	3	4	(1.9%)	12	(2.0%)	2	(1.6%)	18	(1.9%)
	4			2	(1.4%)			2	(1.0%)
	5+	4	(28.3%)					4	(12.6%)
	All Units	23	(2.4%)	13	(.7%)	8	(.6%)	44	(1.1%)
Correct	0	61	(98.0%)	31	(100.0%)	50	(96.0%)	142	(97.7%)
	1	328	(99.3%)	452	(100.0%)	808	(99.8%)	1,588	(99.7%)
	2	216	(73.3%)	490	(73.6%)	250	(83.7%)	956	(75.9%)
	3	165	(80.2%)	455	(79.9%)	120	(85.2%)	741	(80.8%)
	4	32	(70.1%)	63	(50.8%)	8	(47.6%)	103	(55.3%)
	5+	4	(34.1%)	8	(54.0%)			12	(42.0%)
	All Units	807	(84.7%)	1,498	(80.7%)	1,236	(93.7%)	3,542	(85.8%)
Over-Housed	2	67	(22.8%)	176	(26.4%)	47	(15.7%)	290	(23.0%)
	3	37	(17.9%)	103	(18.0%)	19	(13.2%)	158	(17.2%)
	4	14	(29.9%)	59	(47.7%)	8	(52.4%)	81	(43.7%)
	5+	5	(37.6%)	7	(46.0%)	2	(100.0%)	13	(45.5%)
	All Units	122	(12.9%)	344	(18.5%)	76	(5.7%)	542	(13.1%)

2010.10.12 [Weighted]

HUD QC FY 2009
Table 19a. Frequency & Percent of All Households by Number of Bedrooms and Number of Household Members

	Number of Household Members																							
	1		2		3		4		5		6		7		8		9		10		11		12	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
0	142	97.7%	2	1.4%	1	.9%																		
1	1455	91.4%	133	8.3%	3	.2%	1	.1%																
2	290	23.0%	654	52.0%	223	17.7%	78	6.2%	9	.7%	5	.4%												
3	48	5.2%	110	12.0%	313	34.1%	271	29.6%	122	13.3%	35	3.8%	16	1.7%					2	.3%				
4	2	1.2%	8	4.3%	26	14.1%	45	24.1%	43	23.0%	38	20.5%	18	9.8%	4	2.1%			2	1.0%				
5+			6	20.1%	3	8.8%			5	16.6%			6	21.4%	3	10.3%	3	10.4%			3	8.8%	1	3.7%

2010.10.12 [Weighted]

Source Tables Based on Tenant File Data

HUD QC FY 2009 [Tenant File]
Table 2. Percent of Households by Payment Type and 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	87	(9.1%)	(22.9%)	779	(81.5%)	(24.0%)	90	(9.4%)	(17.5%)	955	(100.0%)	(23.1%)
	Section 8	202	(10.9%)	(53.4%)	1,362	(73.3%)	(42.0%)	294	(15.8%)	(57.5%)	1,858	(100.0%)	(45.0%)
	Total	289	(10.3%)	(76.3%)	2,141	(76.1%)	(66.0%)	384	(13.6%)	(75.0%)	2,813	(100.0%)	(68.1%)
Owner Administered	Owner-Administered	90	(6.8%)	(23.7%)	1,102	(83.5%)	(34.0%)	128	(9.7%)	(25.0%)	1,320	(100.0%)	(31.9%)
	Total	**90**	**(6.8%)**	**(23.7%)**	**1,102**	**(83.5%)**	**(34.0%)**	**128**	**(9.7%)**	**(25.0%)**	**1,320**	**(100.0%)**	**(31.9%)**
Total		**378**	**(9.2%)**	**(100.0%)**	**3,243**	**(78.5%)**	**(100.0%)**	**511**	**(12.4%)**	**(100.0%)**	**4,133**	**(100.0%)**	**(100.0%)**

2010.10.12 [Weighted]

HUD QC FY 2009 [Tenant File]
Table 2(S). Percent of Households by Payment Type and Program Type
(Proper Payment based on exact match of Actual and QC Rent)

		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	116	(12.1%)	(21.4%)	680	(71.1%)	(23.6%)	160	(16.7%)	(22.7%)	955	(100.0%)	(23.1%)
	Section 8	287	(15.4%)	(52.8%)	1,198	(64.5%)	(41.5%)	373	(20.1%)	(52.9%)	1,858	(100.0%)	(45.0%)
	Total	403	(14.3%)	(74.2%)	1,878	(66.7%)	(65.1%)	533	(18.9%)	(75.5%)	2,813	(100.0%)	(68.1%)
Owner-Administered	Owner-Administered	140	(10.6%)	(25.8%)	1,007	(76.3%)	(34.9%)	172	(13.1%)	(24.5%)	1,320	(100.0%)	(31.9%)
	Total	**140**	**(10.6%)**	**(25.8%)**	**1,007**	**(76.3%)**	**(34.9%)**	**172**	**(13.1%)**	**(24.5%)**	**1,320**	**(100.0%)**	**(31.9%)**
Total		**543**	**(13.1%)**	**(100.0%)**	**2,885**	**(69.8%)**	**(100.0%)**	**705**	**(17.1%)**	**(100.0%)**	**4,133**	**(100.0%)**	**(100.0%)**

2010.10.12 [Weighted]

HUD QC FY 2009 [Tenant File]
Table 3. Dollar Rent Error by Program Type

		Actual Rent (Monthly)				DC Rent (Monthly)				Gross Rent Error (Monthly)			
		# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
PHA-Administered	Public Housing	955	(23.1%)	214,214	224.22	955	(23.1%)	218,575	228.79	955	(23.1%)	16,293	17.05
	Section 8	1,858	(45.0%)	364,208	196.02	1,858	(45.0%)	356,045	191.63	1,858	(45.0%)	36,748	19.78
	Total	2,813	(68.1%)	578,422	205.60	2,813	(68.1%)	574,620	204.25	2,813	(68.1%)	53,041	18.85
Owner Administered	Owner-Administered	1,320	(31.9%)	253,742	192.23	1,320	(31.9%)	249,616	189.10	1,320	(31.9%)	10,605	8.03
	Total	**1,320**	**(31.9%)**	**253,742**	**192.23**	**1,320**	**(31.9%)**	**249,616**	**189.10**	**1,320**	**(31.9%)**	**10,605**	**8.03**
Total		**4,133**	**(100.0%)**	**832,164**	**201.33**	**4,133**	**(100.0%)**	**824,236**	**199.41**	**4,133**	**(100.0%)**	**63,646**	**15.40**

2010.10.12 [Weighted]

HUD QC FY 2009 [Tenant File]
Table 4. Dollar Error Amount by Payment Type and Program Type

		Underpayment (Monthly)				Overpayment (Monthly)				DC Rent (Monthly)			
		# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
PHA-Administered	Public Housing	87	(22.9%)	10,357	119.66	90	(17.5%)	5,937	66.14	955	(23.1%)	218,575	228.79
	Section 8	202	(53.4%)	14,258	70.53	294	(57.5%)	22,490	76.52	1,858	(45.0%)	356,045	191.63
	Total	289	(76.3%)	24,615	85.26	384	(75.0%)	28,427	74.09	2,813	(68.1%)	574,620	204.25
Owner-Administered	Owner-Administered	90	(23.7%)	3,233	36.03	128	(25.0%)	7,371	57.67	1,320	(31.9%)	249,616	189.10
	Total	**90**	**(23.7%)**	**3,233**	**36.03**	**128**	**(25.0%)**	**7,371**	**57.67**	**1,320**	**(31.9%)**	**249,616**	**189.10**
Total		**378**	**(100.0%)**	**27,848**	**73.58**	**511**	**(100.0%)**	**35,798**	**69.99**	**4,133**	**(100.0%)**	**824,236**	**199.41**

2010.10.12 [Weighted]

HUD QC FY 2009 [Tenant File]
Table 4(S). Dollar Error Amount by Payment Type and Program Type
(Proper Payment based on exact match of Actual and QC Rent)

		Underpayment (Monthly)				Overpayment (Monthly)				DC Rent (Monthly)			
		# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
PHA-Administered	Public Housing	116	(21.4%)	10,426	89.86	160	(22.7%)	6,066	37.95	955	(23.1%)	218,575	228.79
	Section 8	287	(52.8%)	14,473	50.44	373	(52.9%)	22,636	60.69	1,858	(45.0%)	356,045	191.63
	Total	403	(74.2%)	24,899	61.79	533	(75.5%)	28,702	53.87	2,813	(68.1%)	574,620	204.25
Owner Administered	Owner-Administered	140	(25.8%)	3,346	23.88	172	(24.5%)	7,471	43.32	1,320	(31.9%)	249,616	189.10
	Total	**140**	**(25.8%)**	**3,346**	**23.88**	**172**	**(24.5%)**	**7,471**	**43.32**	**1,320**	**(31.9%)**	**249,616**	**189.10**
Total		**543**	**(100.0%)**	**28,245**	**52.01**	**705**	**(100.0%)**	**36,173**	**51.29**	**4,133**	**(100.0%)**	**824,236**	**199.41**

2010.10.12 [Weighted]

HUD QC FY 2009 [Tenant File]
Table 5. Gross and Net Rent Error by Program Type

		Gross Rent Error (Monthly)				Net Rent Error (Monthly)				DC Rent (Monthly)			
		# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
PHA-Administered	Public Housing	955	(23.1%)	16,293	17.05	955	(23.1%)	-4,420	-4.63	955	(23.1%)	218,575	228.79
	Section 8	1,858	(45.0%)	36,748	19.78	1,858	(45.0%)	8,232	4.43	1,858	(45.0%)	356,045	191.63
	Total	2,813	(68.1%)	53,041	18.85	2,813	(68.1%)	3,812	1.35	2,813	(68.1%)	574,620	204.25
Owner-Administered	Owner-Administered	1,320	(31.9%)	10,605	8.03	1,320	(31.9%)	4,138	3.13	1,320	(31.9%)	249,616	189.10
	Total	**1,320**	**(31.9%)**	**10,605**	**8.03**	**1,320**	**(31.9%)**	**4,138**	**3.13**	**1,320**	**(31.9%)**	**249,616**	**189.10**
Total		**4,133**	**(100.0%)**	**63,646**	**15.40**	**4,133**	**(100.0%)**	**7,950**	**1.92**	**4,133**	**(100.0%)**	**824,236**	**199.41**

2010.10.12 [Weighted]

HUD QC FY 2009 [Tenant File]
Table 5(S). Gross and Net Rent Error by Program Type
(Proper Payment based on exact match of Actual and QC Rent)

		Gross Rent Error (Monthly)				Net Rent Error (Monthly)				DC Rent (Monthly)			
		# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount	# of Cases (in 1,000)	Col % of Cases	Sum Dollar Amount (in 1,000)	Ave. Dollar Amount
PHA-Administered	Public Housing	955	(23.1%)	16,492	17.26	955	(23.1%)	-4,360	-4.56	955	(23.1%)	218,575	228.79
	Section 8	1,858	(45.0%)	37,110	19.97	1,858	(45.0%)	8,163	4.39	1,858	(45.0%)	356,045	191.63
	Total	2,813	(68.1%)	53,601	19.05	2,813	(68.1%)	3,802	1.35	2,813	(68.1%)	574,620	204.25
Owner-Administered	Owner-Administered	1,320	(31.9%)	10,817	8.19	1,320	(31.9%)	4,125	3.13	1,320	(31.9%)	249,616	189.10
	Total	**1,320**	**(31.9%)**	**10,817**	**8.19**	**1,320**	**(31.9%)**	**4,125**	**3.13**	**1,320**	**(31.9%)**	**249,616**	**189.10**
Total		**4,133**	**(100.0%)**	**64,418**	**15.58**	**4,133**	**(100.0%)**	**7,928**	**1.92**	**4,133**	**(100.0%)**	**824,236**	**199.41**

2010.10.12 [Weighted]

Appendix D—Consistency and Calculation Errors

Appendix D—Consistency and Calculation Errors

50058—Consistency Errors

50058 Item	Error
General Information	
1c. Program	Must equal P, CE, VO, or MR
2a. Type of Action	Must equal 1 through 15
2b. Effective Date of Action	Cannot be earlier than Date of Admission to the Program (2h)
Household Composition	
3g. Sex	Must equal M or F
3h. Relationship	Must equal H, S, K, F, Y, E, L, or A
3i. Citizenship	Must equal EC, EN, IN, PV, or XX
3k. Race	Must equal 1 through 4
3m. Ethnicity	Must equal 1 or 2
3u. Family Subsidy Status	Must equal C, E, F, P, or blank
3v. Effective Date	Should not be blank if 3u equals C
Net Family Assets and Income	
6a. Family Member No.	Must equal a number used in Section 3. Household
7a. Family Member No.	Must equal a number used in Section 3. Household
7b. Income Code	Must equal B, F, HA, M, W, G, IW, T, P, S, SS, C, E, I, N, or U
8a. Total Annual Income	Must equal Total Annual Income recorded in 7i
8i. Earnings Made Possible by Disability Assistance Expense	Must be ≤ the sum of Dollars per Year (7d) for Income Codes (7b) HA, F, W, B, or M
Allowances and Adjusted Income	
8h. Maximum Disability Allowance	Should only be completed if any member is disabled
8j. Allowable Disability Assistance Expense	• Should be ≤ Maximum Disability Allowance (8h) • Should be 0 if Medical/Disability Threshold (8f) is > Maximum Disability Allowance (8h) • Should be 0 or blank if Maximum Disability Allowance (8h) is 0 or blank
8k. Total Medical Expenses	Should only be completed if the head, spouse, or co-head is 62 or over, or disabled; otherwise it should be blank
8n. Medical/Disability Assistance Allowance	• Should equal Total Annual Disability Assistance and Medical Expense (8m) minus Medical/disability Threshold (8f) if Allowable Disability Expense (8j) is blank or Total Annual Unreimbursed Disability Assistance Expense (8g) is less than Medical /disability Threshold (8f) • Should equal Total Annual Disability Assistance and Medical Expense (8m) if 8 Total Annual Unreimbursed Disability Assistance Expense (8g) and Allowable Disability Expense (8j) is >= Medical/disability Threshold (8f)
8p. Elderly/Disabled Allowance	Should be $400 if head, spouse or co-head is 62 or over, or disabled; otherwise it should be 0 or blank

50058 Item	Error
8s. Dependent Allowance	Must be completed if the household contains a member under age 18, disabled, or a full-time student (excluding the head, spouse, foster child or adult, or live-in attendant)
8t. Yearly Child Care Cost That Is Not Reimbursed (Child Care Allowance)	Should only be completed if any member is less than 13 years old
Family Rent and Subsidy Information	
10a. 11q, 12r, 13j, 14s TTP	Must equal TTP (9j) or blank
10a. through 14ag. Rent Calculations	• If Program (1c) = P: ▪ TTP (10a), must be completed ▪ Flat Rent (10b), or Tenant Rent (10f), or Mixed Family Tenant Rent (10s) must be completed ▪ Section 11 through 14 must be blank • If Program (1c) = VO or C: ▪ Section 11, or 12 must be completed ▪ Tenant Rent (11s or 12k), or Mixed Family Tenant Rent (11ak, or 12 ai) must be completed ▪ Section 10, 13, and 14 must be blank • If Program (1c) = MR: ▪ Contract Rent to Owner must be completed ▪ Tenant Rent (13k), or Mixed Family Tenant Rent (13x) must be completed ▪ Sections 10, 11, 12, and 14 must be blank

50059—Consistency Errors

50059 Item	Error
General Information	
2. Subsidy Type	Must equal 1 through 9
13. Effective Date	Cannot be earlier than Date Tenant Moved into Project (16)
18. Certification Type	Must equal 1 through 5
19. Action Processed	Must equal 1 through 4, or blank
44. Race of Head of Household	Must equal 1 through 4
45. Ethnicity of Head of Household	Must equal 1 or 2
Household Composition	
43. Sex	Must equal M or F
47. Special Status Code	Must equal E, S, H, F, I, J, or blank; should be E if Age > 61
49. Eligibility Code (Citizenship)	Must equal EC, EN, IC, IN, IP, PV, or XX
Net Family Assets and Income	
69. Member No.—Income Info 78. Member No.—Asset Info	Should not be greater than the total number of members listed in item 38 (Family Member Number)
Allowances and Adjusted Income	
100. Dependent Allowance	Must be completed if Number of Dependents (58) is greater than 0

50059 Item	Error
101. Child Care Expense (work) 102. Child Care Expense (school)	Should only be completed if any member is less than 13 years old
105. Disability Allowance	• Should be ≤ Disability Expenses (104) • Should be 0 if 3% of Annual Income (103) is > Total Disability Assistance Expenses (104) • Should be 0 or blank if Total Disability Assistance Expenses (104) is 0 or blank
106. Total Medical Expenses	Should only be completed if the Special Status Code (47) for the head or spouse or co-head = H or E, or if the head, spouse, or co-head is age 62 years old or older
108. Elderly Household Allowance	Should be $400 if the Special Status Code (47) for the head or spouse or co-head = H or E; otherwise it should be 0 or blank
Family Rent and Subsidy Information:	
112. Tenant Rent	Should equal the maximum of TTP (111) minus Utility Allowance (33) or 0; or be blank if Utility Reimbursement (113) is greater than 0
113. Utility Reimbursement	Should be blank if Item 33 < Item 111

50058—Calculation Errors

50058 Item	Error Calculation
Household Composition	
3f. Age	Must equal the age calculated based on Date of Birth (3e) and Effective Date of Action (2b)
8q. Number of Dependents	Must equal the number of household members under 18, with a disability, or a full-time student (other than head, spouse co-head, foster child/adult, or live-in aide)
Net Family Assets and Income	
6f. Total Asset Value	Must equal the sum of all values in Cash Value of Asset (6d)
6i. Imputed Asset Income	Must equal Total Cash Value of Asset (6f) * 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 if there is earned income greater than or equal to the disability expense

50058 Item	Error Calculation
8n. Medical Allowance	Must equal: Total Annual Disability Assistance and Medical Expense (8m) minus Medical/disability Threshold (8f) if Allowable Disability Assistance Expense (8j) is blank or Total Annual Unreimbursed Disability Assistance Expense (8g) is less than Medical/disability Threshold (8f); or equal Total Annual Disability Assistance and Medical Expense (8m) if Total Annual Unreimbursed Disability Assistance Expense (8g) and Allowable Disability Assistance Expense (8j) is >= Medical/Disability Threshold (8f); if the head, spouse, or co-head is elderly or disabled
8p. Elderly/Disabled	Must equal $400 if head, spouse, or co-head is elderly or disabled
8s. Dependent Allowance	Must equal Number of Dependents (8q) * $480
8t. Child Care Costs	Must be 0 or blank, if no household member under age 13
8x. Total Allowance	Must equal Total Permissible Deductions (8e) + Medical / Disability Assistance Allowance (8n) + Elderly / Disability Allowance (8p) + Dependent Allowance (8s) + Total Annual Unreimbursed Childcare Costs (8t) + Total Annual Travel Cost to Work/School (8u)
8y. Adjusted Annual Income	Must equal Total Annual Income (8a) minus Total Allowances (8x)
Family Rent and Subsidy Information	
9j. Total Tenant Payment	Must equal the highest of TTP if Based on Annual Income (9c), TTP if Based on Adjusted Annual Income (9f), Welfare Rent (9g), Minimum Rent (9h), or Enhanced Voucher Minimum Rent (9i)
12p. Gross Rent	Must equal Rent to Owner (12k) + Utility Allowance (12m)
Tenant Rent (item number varies by program)	Tenant Rent must equal the recalculated tenant rent based on the Rent Calculation rules provided in Appendix A

Note: With the exception of tenant rent, negative numbers are always converted to 0

50059—Calculation Errors

50059 Item	Error Calculation
Household Composition	
51. Age	Must equal age calculated based on Date of Birth (46) and Effective Date of Action (13)
56. Number of Family Members	Must equal the number of family members listed
57. Number of Non-family Members	Must equal the number of family members listed with a relationship code of “L” or “F”
58. Number of Dependents	Must equal the number of household members under 18, with a disability, or a full-time student (other than head, spouse co-head, foster child/adult, or live-in aide)
Net Family Assets and Income	
84. Total Asset Value	Must equal the sum of the asset values in Cash Value of Assets (81)
85. Actual Income From Asset	Must equal the sum of the income values in Actual Yearly Income From Assets (82)
87. Imputed Asset Income	Must equal Total Asset Value (84) * 2%, if Total Value of Assets is > $5,000

50059 Item	Error Calculation
73. Earned Income Sum	Must equal the sum of income values (in item 71) for items with codes B, F, M, or W in Income Type Code (70)
74. Pension Income Sum	Must equal the sum of the income values (in item 71) for items with codes PE, SI, or SS in Income Type Code (70)
75. Public Assistance Income Sum	Must equal the sum of the income values (in item 71) for items with codes TA or G in Income Type Code (70)
76. Other Income Sum	Must equal the sum of the income values (in item 71) for items with codes CS, I, N, or U in Income Type Code (70)
77. Total Non Asset Income	Must equal Earned Income Sum (73) + Pension Income Sum (74) + Public Assistance Income Sum (75) + Other Income Sum (76)
88. Asset Income	Must equal the greater of Imputed Asset Income (87) or Actual Income from Asset (85)
89. Total Annual Income	Must equal Total Non Asset Income (77) + Income from Asset (88)
Allowances and Adjusted Income	
100. Dependent Allowance	Must equal Number of Dependents (58) * $480
101. Child Care Expense (work) 102. Child Care Expense (school)	Must be 0 or blank, if no household member under age 13
103. 3% of Annual Income	Must equal Total Annual Income (89) * .03
105. Disability Allowance	Must equal Total Disability Expenses (104) minus 3% of Annual Income (103) if there is a disabled household member, and if there is earned income greater than or equal to the disability expense
107. Medical Allowance	Must equal Total Medical Expenses (106) minus 3% of Annual Income (103) if Total Handicapped Assistance Expense (107a) = 0; **or** if (Disability Allowance (105) = 0, then Medical Allowance (106) = Total Medical Expenses (106) + Total Handicapped Assistance Expenses (104) - 3% of Annual Income (89), if the head, spouse, or co-head is elderly or disabled
108. Elderly Household Allowance	Must equal $400 if head, spouse, or co-head is elderly or disabled
109. Total Allowance	Must equal Allowance for Dependents (100) + Child Care Allowance (101 + 102) + Allowance for Disability Expenses (105) + Allowance for Medical Expenses (107) + Elderly Household Allowance (108)
110. Adjusted Annual Income	Must equal Total Annual Income (89) minus Total Allowances (109)
Family Rent and Subsidy Information	
34. Gross Rent	Must equal Contract Rent (32) + Utility Allowance (33)
111. Total Tenant Payment	Must equal the higher of 30% of Adjusted Income (110), 10% of Total Annual Income (89), Welfare Rent (115), or $50 (Minimum Rent)
112. Tenant Rent	Tenant Rent must equal the recalculated tenant rent based on the Rent Calculation rules provided in Appendix A

Note: With the exception of tenant rent, negative numbers are always converted to 0.

Appendix E—Project Staff Questionnaire Descriptive Analysis

Appendix E—Project Staff Questionnaire Descriptive Analysis

The Project Staff Questionnaire (PSQ) was created to obtain project level information regarding project characteristics and practices that promote accurate (re)certifications, to identify difficulties experienced by PHAs/projects, and to identify areas of potential improvement. The PSQ is a self-administered questionnaire sent to project managers and executive directors of PHA/projects included in the FY 2009 study. Sections covered the number and type of staff in the project, staff training for both new and experienced staff, procedures for communicating policy change information from HUD, methods to ensure quality control, methods of household information extraction, and procedures and difficulties in verification of information.

A. Methodology

The PSQ was mailed in February 2009 to the executive director or manager of each PHA/project, and respondents mailed their completed questionnaires back to ICF Macro headquarters. For those PHA/projects who did not return the PSQ, ICF Macro staff followed up by making phone calls to request the hard copy document be returned by mail or by fax. In instances where these requests were not successful, during subsequent follow up contacts (both by phone and by email), ICF Macro staff offered to send electronic versions of the questionnaire to PHA/projects to facilitate a prompt response. Overall, ICF Macro's efforts led to a response rate of 99.8 percent, with only one project out of 552 PSQs that were originally mailed, non-responding. After PSQs were completed and returned to headquarters, ICF Macro staff developed and implemented editing instructions to verify and correct all items in the PSQ with respect to validity of responses and accuracy of the skip patterns. Data were entered into an electronic data base via an automated tool that programmed in skip patterns, missing items, and range of valid responses. PSQs with questionable responses or skip patterns were individually investigated and all of the data issues were resolved. After the data entry was complete, the responses were scrutinized further using SPSS 17 prior to analyzing the data.

B. Results

Number and Type of Staff. (Re)certification staff are those who interview the tenants, gather information from them, calculate rents, track verifications, and supervise other staff in performing move-in certifications and annual recertification's. In FY 2009, PHA/projects had on average 149 units per staff member responsible for certifying and recertifying households, decreasing from FY 2008 with 152 units per certification staff member, but up slightly from FY 2007 with 145 units per certification staff member. Owner-administered projects had the lowest unit to staff ratio (82 units per staff member), while PHA-administered Section 8 projects had the highest unit to staff ratio (205 units per staff member). Public Housing projects were in the middle with a ratio of 174 units per staff member. Exhibit E-1a shows the average and median number of units per type of staff member, by program type. Exhibit E-1a also shows the ratio of households to all staff members at the PHA/project (e.g., administrative staff, maintenance staff).

Exhibit E-1a
Number of Units per Staff Member, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Units per (Re)certification Staff				
Average Ratio	174.0	204.5	82.1	148.7
Median Ratio	120.7	185.7	65.0	102.0
Units per Project Staff Member				
Average Ratio	37.8	92.3	17.0	44.4
Median Ratio	23.9	58.3	12.5	19.3
Total Number of PHA/Projects	**209**	**143**	**199**	**551**

As of FY 2008, the study attempts to distinguish the number of staff that work on the specific project compared to the number of staff that the entire PHA/project employs. The Units per Staff Member refers to the number of staff that work on the specific project and, while similar to previous year ratios, should be compared with caution.

Of those staff members, a majority of them worked on a variety of tasks in addition to working on (re)certifications. As in previous years, PHA-administered Section 8 projects were most likely to have staff work primarily on (re)certifications, with 21 percent of staff working mostly on (re)certifications, and owner-administered projects were most likely to have their staff multitask on other responsibilities, with only 8 percent working mostly on (re)certifications. Overall, 12 percent of all projects had staff work mostly on (re)certifications, down from about 13 percent in FY 2007, but up from FY 2008 at 10 percent. Compared with FY 2008 at 78 percent, 73 percent of all projects had staff work on a variety of tasks. While this is down from FY 2008, it is up slightly from 71 percent in FY 2007.

Most PHA/projects had staff with more than one year of experience working with (re)certifications. All three program types had similar percentages of (re)certification staff with over one year of experience. However, when looking at the percentage of staff with over five years of experience, PHA-administered Section 8 projects drop down to 67 percent, while both Public Housing and owner-administered projects stay above 70 percent. Total rates of staff with one or five years of experience have changed little over the past few years. The number of (re)certification staff that had a caseload of specific tenants decreased in FY 2009 to 51 percent from 57 percent in FY 2008. This percentage is also slightly down from FY 2007 at 55 percent. Exhibit E-1b breaks down the percentages by program type.

Exhibit E-1b
Percentage of Staff Who Have Worked with (Re)certifications for Over 1 year and 5 years, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
(Re)certification staff with over 1 year experience	85.1%	88.0%	88.6%	87.1%
(Re)certification staff with over 5 years experience	72.6%	67.4%	76.1%	72.3%

The minimum education requirements also remained little changed from the previous year, with a majority of PHA/projects at 65 percent requiring a High School Diploma or equivalent when hiring new staff who will be working with (re)certifications. Overall, only about 5 percent of PHAs/projects did not require some education, down from 7 percent in FY 2008. This year, the percentage of PHA/projects requiring a four-year college degree or equivalent decreased back down to 13 percent, compared with 14 percent in FY 2008, and 12 percent in FY 2007. Owner-administered projects were most likely not to require any education at about 11 percent, while Public Housing and PHA-administered Section 8 projects were least likely at 2 percent and 1 percent, respectively.

In addition to minimum education requirements, PHAs/projects also in general had other minimum requirements when hiring new staff to work with (re)certifications. The percent of PHA/projects who required various skills, training, and certifications remained relatively the same compared to FY 2008 and FY 2007. Overall, 78 percent of PHA/projects required some computer skills, 75 percent required background checks, 68 percent required administrative or clerical experience, and 62 percent required math or logic skills. The requirements that were least important to PHA/projects were: special housing related training or certification (38 percent), and other housing related experience (51 percent). This shows an emphasis on general office skills and experience over more specific housing related experience. Despite being less likely to have minimum education requirements, owner-administered projects were significantly more likely to have other minimum requirements in most categories than their Public Housing and PHA-administered Section 8 counterparts. Exhibit E-1c and E-1d describe the minimum requirements reported by the PHA/projects for education and other requirements, by program type.

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

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
No Minimum Requirements	2.0%	1.4%	11.1%	5.0%
High School/GED	61.0%	62.9%	71.6%	65.2%
Associates/2 years college/some college	13.7%	11.2%	7.9%	11.0%
Bachelor's Degree	17.6%	14.7%	5.8%	12.6%

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

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Computer Skills	71.8%	76.9%	83.9%	77.5%
Background Checks	70.8%	63.6%	86.9%	74.8%
Administrative or Clerical Experience	65.1%	58.7%	77.9%	68.1%
Math or Logic Skills	60.8%	56.6%	67.8%	62.3%
Other Housing-Related Experience	45.0%	48.3%	42.2%	50.5%
Special Housing-Related Training or Certification	30.6%	37.8%	46.2%	38.1%

Training of New (Re)Certification Staff. The Project Staff Questionnaire collected information about the number of new staff assigned to conduct (re)certifications, as well as the number of hours of training received and the types of training activities used. New staff was defined as staff who were newly assigned to conduct (re)certifications in the past 12 months. While the percent of PHA/projects who assigned new staff dropped from 34 percent to 31 percent in FY 2009, the average number of new staff who were assigned to conduct (re)certifications overall has remained the same at about 2.2 staff per PHA/project over the past few years. The average number of hours of training received by each new (re)certification staff decreased from 109 hours on average to 98 hours on average. This is still higher than in FY 2008, where the average number of hours of training was 92 hours. PHA-administered Section 8 programs reported the largest proportion of new (re)certification staff members (34 percent), the highest number of new staff assigned to conduct (re)certifications (five staff, on average), and the highest training hours, on average, for new (re)certification staff (132 hours).

Exhibit 2a
New Recertification Staff Training, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Average number of new staff assigned to conduct (re)certifications	1.3	4.8	1.4	2.2
Average number of training hours received by each new (re)certification staff	86.5	132.2	85.9	98.3
Percent of PHA/projects with new (Re)Certification staff	31.9%	34.3%	28.3%	31.2%

Note: Averages were calculated for PHA/projects that assigned new staff to conduct (re)certifications in the past 12 months.

Of the various types of training used for new (re)certification staff, the three most frequently used were: working with experienced staff one-on-one while conducting (re)certifications (94 percent of PHA/projects), training sessions with the supervisor (86 percent of PHA/projects), and self training through manuals, videos, or informal questions (61 percent of PHA/projects). These top three have remained unchanged since FY 2007.

Exhibit E-2b
Three Most Frequently Used Training Types for New (Re)Certification Staff, by Program Type

Training Methods Usually or Always Used by PHA/Projects:	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
New staff worked one-on-one with experienced staff during the conduct of (re)certifications	89.4%	98.0%	96.4%	94.2%
Supervisor/senior staff held training sessions with new staff explaining procedures	80.3%	85.7%	92.9%	86.0%
Read HUD/PHA/owner manual, watched videos, or asked informal questions	62.1%	63.3%	58.9%	61.4%

Note: Percentages were calculated for PHA/projects that assigned new staff to conduct (re)certifications in the past 12 months.

Training for Experienced (Re)Certification Staff. Compared to new (re)certification staff, about 82 percent of PHA/projects provided training of some form for their experienced (re)certification staff in the past 12 months. On average, PHA/projects trained five experienced staff members for an average of 36 hours during the year, slightly more than in FY 2008. PHA-administered Section 8 projects trained the most number of experienced staff (11 on average), and provided the most hours of training (45.2 hours, on average). Owner-administrated projects trained the fewest number of experienced staff (two), and the least number of hours of training (31 hours, on average). Figures for average number of staff, average number of hours, and percentage of PHA/projects that trained (re)certification staff, by program type are shown in Exhibit E-3a.

Exhibit E-3a
Experienced Staff Training, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Average number of experienced staff receiving training	2.4	10.8	1.7	4.5
Average number of training hours received by each experienced (re)certification staff	33.9	45.2	30.8	36.0
Percent of PHA/projects that trained Experienced (Re)Certification STAFF	72.2%	88.8%	85.9%	81.5%

Note: Averages were calculated for PHA/projects that provided training to experienced staff.

As was the case in FY 2008, the same three methods that were most commonly used to train new (re)certification staff were also used most commonly to train experienced (re)certification staff, but in reverse order of importance. On average, 82 percent of PHA/projects used self-training through manuals, videos, and informal questions to train (re)certification staff, 71 percent used training sessions conducted by a supervisor/senior staff, and 56 percent used experienced staff to work one-on-one with other experienced staff. The use of self-training was more prevalent for training experienced staff than for new staff, and PHA/projects also were less likely to work one-on-one with experienced staff as well. The percent of PHA/projects who usually or always used tele-courses or Internet/web-based training has been steadily increasing over the years to 33 percent from 25 percent in FY 2008, 20 percent in FY 2007, and 15 percent in FY 2006. For more detailed figures by individual program type, please refer to Exhibit E-3b.

Exhibit E-3b
Methods for Training Experienced (Re)Certification Staff, by Program Type

PHA/Projects Usually or Always:	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Read HUD/PHA/owner manual, watched videos, or asked informal questions	65.5%	85.0%	84.8%	81.7%
Had supervisor/senior staff hold training sessions with new staff explaining procedures	68.2%	72.4%	71.3%	70.6%
Had experienced staff work one-on-one with other experienced staff to conduct (re)certifications	52.3%	50.4%	63.1%	55.9%

Note: Percentages were calculated for PHA/projects that provided training to experienced staff.

The top three topics most frequently covered in training for experienced staff were covered in training over 90 percent of the time, and have remained the same since FY 2006. This year showed a slightly higher focus on Tools available in the PHA/project than in previous years. Training related to general HUD policies and rules for conducting (re)certifications and tools available in the PHA/project were covered about 96 percent of the time, and training related to HUD or PHA/project changes in polices or procedures relating to (re)certifications were covered

about 96 percent of the time. Training topics did not differ consistently across PHA/projects in different programs, as shown in Exhibit E-3c.

Exhibit E-3c
Experienced Staff Training Topics in the Past 12 Months, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Tools available in the PHA/project (e.g., software, forms) to help in conducting (re)certifications	97.4%	96.9%	97.1%	97.1%
HUD policies and rules for conducting (re)certifications	96.2%	95.3%	96.5%	96.2%
Changes in HUD or PHA/project policies or procedures related to (re)certifications	96.7%	93.7%	97.1%	96.0%

Note: Percentages were calculated for PHA/projects that provided training to experienced staff.

Transfer of Information about Changes in HUD Policies. In FY 2009, the most utilized methods used to communicate information to Staff about Changes in HUD Policies were: one-on-one discussions between supervisors and staff (28 percent), distributing copies of HUD announcements to staff (27 percent), holding staff meetings (25 percent), and holding formal training sessions (23 percent). Formal training sessions became more utilized in FY 2009, and bumped out detailed staff memos, which was a top method in both FY 2007 and FY 2008. However, distribution of usage among methods is very close, so this change is not very significant. As in previous years, PHA Section 8 projects were most likely to respond that they had used any particular method, as shown in Exhibit E-4a.

Exhibit E-4a
Methods to Communicate Changes in HUD/PHA/Owner Policies to Staff in the Past 12 Months, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
One-on-one discussions between supervisors and staff	19.1%	44.1%	26.1%	28.1%
Copies of HUD announcement distributed to staff	18.7%	41.3%	24.6%	26.7%
Staff Meetings	15.3%	42.7%	21.6%	24.7%
Formal Training Session	13.9%	37.1%	21.6%	22.7%

PHA/projects implemented many changes in policy or procedures that affected household eligibility or rent calculations. The most commonly cited were the Tenant selection preferences, Income changes and limits, Social Security Number verification rules, Payment Standard changes, and Utility Allowance changes.

When PHA/projects had questions concerning HUD policies, they used a variety of methods to seek answers. The most used methods were the same as in FY 2008. Referring to the HUD/PHA/owner-administered manual remained the most used method for getting answers at 92 percent. The second most used method was figuring out the answer for themselves, which increased from 84 percent in FY 2008 to 87 percent, and use of Internet/web-based information/training increased to 81 percent from 74 percent in FY 2008, and 54 percent in FY 2007. More detailed numbers by program type are shown in Exhibit E-4b.

Exhibit E-4b
Methods for Getting Answers to Questions about HUD Policies in the Past 12 Months, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Referred to HUD/PHA/owner memo or manual	85.2%	97.2%	96.5%	92.4%
Figured the answer out for yourselves	82.3%	90.2%	88.4%	86.6%
Used Internet, web-based information, or training	75.6%	92.3%	77.4%	80.6%
Asked HUD field office or other HUD staff	56.9%	89.5%	75.4%	72.1%

Quality Control via Work Monitoring. When monitoring (re)certification work, a majority of PHA/projects usually or always have the team leader or supervisor perform the monitoring (75 percent). Of the remaining types of personnel, PHA/projects used staff auditors (38 percent), outside auditors (37 percent), and co-workers (33 percent) most frequently. Personnel who did monitor the quality of work performed by (re) certification staff, used various methods. The most used technique to monitor (re)certifications was reviewing files after completion in both FY 2007 and FY 2008. However, in FY 2009, the most used method was using a pre-designed form to check key steps at 77 percent. Reviewing files after completion was the second most used method at 76 percent. Using computer programs (74 percent) increased about 4 percent from FY 2008 and FY 2007 to become the third most used method. Other commonly used techniques were making individualized notes for each case reviewed (66 percent), and discussing the (re)certification with staff after completion (51 percent) as shown in Exhibit E-5a. The least used technique was sitting in on the interview with the client (16 percent), as was the case in FY 2008.

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

PHA/Projects Usually or Always	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Use pre-designed form to check key steps	68.9%	80.4%	81.9%	76.6%
Review files after completion	70.3%	76.3%	80.9%	75.7%
Use computer program	72.3%	65.0%	81.4%	73.6%

PHA/Projects Usually or Always	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Make individualized notes for each case reviewed	57.9%	67.9%	72.9%	65.8%
Discuss (re)certification with staff after completion	46.9%	43.4%	59.3%	50.5%
Sitting in on the interview with the client	20.1%	12.6%	14.5%	16.1%

In determining which cases to select for review, PHA/projects most frequently randomly spot checked a percentage of all cases (70 percent). Overall, 34 percent of PHA/projects reported reviewing all cases. Other methods commonly used to select cases for review were: checking (re)certifications conducted by new staff (43 percent) and checking certain cases completed within a given period (42 percent).

Upon reviewing (re)certifications through the various methods above, PHA/projects found the most errors in calculating rent, with 80 percent of PHA/projects reporting finding errors occasionally, usually, or always. Sixty-eight percent of PHA/projects occasionally, usually, or always found missing or incomplete verifications of income and 61 percent occasionally, usually, or always found missing or incomplete verifications of expenses. Overall, PHA/projects were least likely to find errors in determining applicant eligibility at 13 percent. Owner-administered projects in general were less likely to find errors than Public Housing projects and PHA-administered Section 8 projects.

Exhibit E-5b
Types of Errors Found in the Past 12 Months, by Program Type

Types of Errors Found Always, Usually, or Occasionally	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Mistakes in calculating rent	80.9%	86.7%	73.4%	79.7%
Missing or incomplete verifications of income	75.2%	73.4%	56.8%	68.1%
Missing or incomplete verification of expenses	64.4%	65.7%	54.8%	61.2%
Determination that applicants are eligible when not	19.2%	16.1%	5.0%	13.2%

In the past few years, the most commonly stated cause of errors was once again tenants providing inaccurate or incomplete information (91 percent). Other frequently cited reasons were: complex HUD regulations for rent calculations (48 percent), frequent changes in HUD regulations (39 percent), and not having enough staff to handle the workload (35 percent). PHA-administered Section 8 projects were most likely to cite tenants providing incomplete/inaccurate information as occasionally or often causing errors at 94 percent. Exhibit E-5c details the most frequently reported causes of some errors.

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

Issues Occasionally, Usually, or Always Causing Errors	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Tenants providing inaccurate/incomplete information	92.4%	94.4%	85.9%	90.6%
Complex HUD regulations for rent calculations	44.0%	63.7%	41.7%	48.3%
Frequent changes in HUD regulations	33.5%	41.3%	44.2%	39.4%
Not having enough staff to handle the workload	41.6%	49.0%	18.6%	35.2%

Overall, 72 percent of PHA/projects had HUD, field staff, or outside contractors review their files in the past two years. Of those PHA/projects who indicated that their files were reviewed, 25 percent overall of PHA/projects had their files reviewed by a HUD related group such as headquarters, field offices, and field staff. Similarly, PHA/projects had their files reviewed by outside auditors and contractors 44 percent of the time. Lastly, about 31 percent had their files audited by a state housing authority.

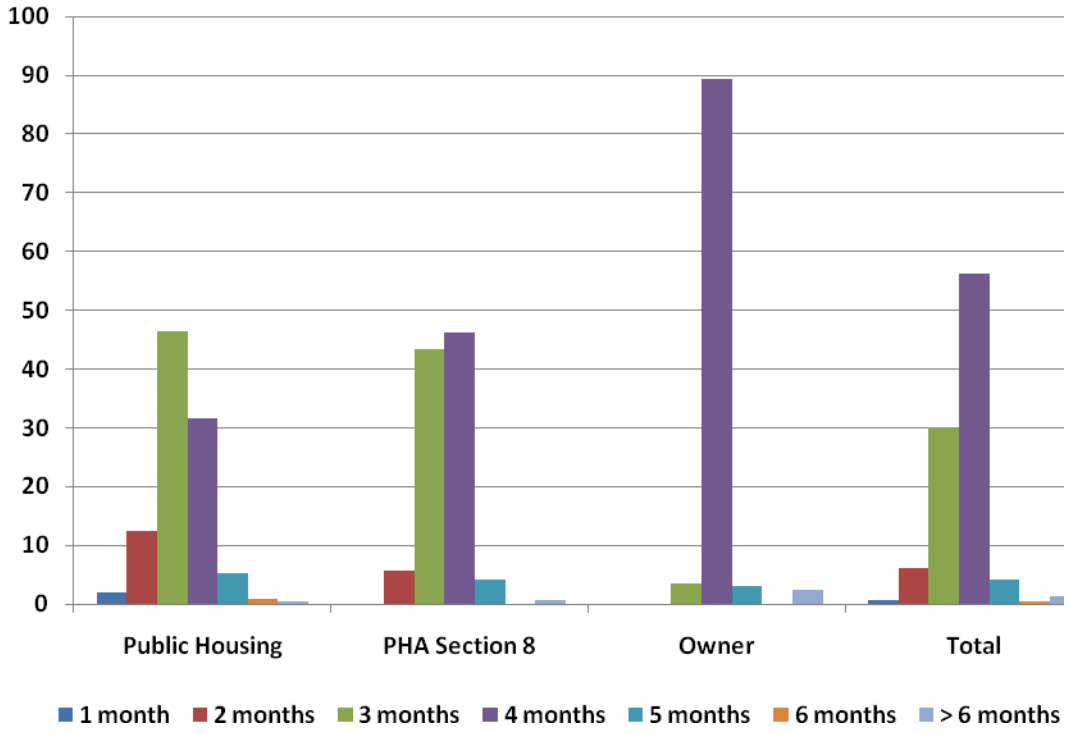
Conducting Tenant Interviews. When conducting both initial certifications and annual recertifications, the most common method of obtaining household information was by conducting an in-person interview (92 percent and 90 percent, respectively). When conducting annual recertifications, PHA/projects were more likely to use other methods compared to new certifications. The second most common method was having the tenant complete a form and return it via mail or in-person (6 percent and 69 percent, respectively). While 86 percent of PHA/projects required that all residents be interviewed for new certifications, only 74 percent required all residents be interviewed when conducting annual recertifications. PHA/projects were also less likely to use a formal guide or set of questions to conduct the recertification interviews at 73 percent compared to new certifications at 78 percent. A typical initial certification interview required about 35 minutes to complete, on average, while a typical recertification interview required only 26 minutes.

Exhibit E-6a
Amount of Time Spent on Initial and Annual (Re)Certification Interviews in the Past 12 Months, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Average number of minutes spent on a typical initial certification interview	31.2	33.0	40.2	34.9
Average number of minutes spent on a typical annual recertification interview	22.9	23.5	31.4	26.2

When PHA/projects were asked whether procedures were the same for houses with stable income compared to those with volatile income, overall 90 percent said they were the same, compared to 93 percent in FY 2008, and 97 percent in FY 2007. PHA/projects were also asked how many months prior to the effective date did they start the recertification process. Most PHA/projects started the process six months before or earlier. Very few PHA/projects started greater than 6 months prior, while almost all started the process up to four months prior. Owner-administered projects were almost twice as likely to start four months ahead of time as Public Housing and PHA-administered Section 8 projects. Results and distributions were similar when looking at the number of days prior to the effective date that various (re)certification tasks were performed. Overall, most PHA/projects started four months or less prior to the effective date. Exhibit E-6b shows the distribution of months by program type.

Exhibit E-6b
Number of Months Prior to Effective Date PHA/Projects Start the Annual Recertification Process, by Program Type



When it comes to languages other than English, over 50 percent of PHA/projects have a proportion of tenants where less than 20 percent speak a language other than English as their primary language. In these cases where a proportion of tenants did speak a language other than English, PHA/projects used a combination of methods to communicate with their tenants. On average, a majority of tenants brought their own translators, often a family member (70 percent). Also, 70 percent of PHA/projects had bilingual staff available, and 56 percent of PHA/projects brought in translators or used a language bank or third-party service to communicate with tenants. In addition, 51 percent of PHAs used forms in other languages to communicate with tenants.

Computers and Software Use. Computer software continues to play an increasingly integral part in PHA/projects daily tasks. In the past 12 months, almost all PHA/projects utilized computers and computer software when performing various (re)certification and other administrative tasks. Over 92 percent overall of PHA/projects use computer software to calculate rent, record tenant demographics, print the 50058/50059 Form, print letters to tenants, and input verified information. In addition, an increasing number of PHA/projects are using computer software to submit tenant information to HUD. As has been the case, using computer software to interview tenants and record answers was one of the least frequently reported uses. However, the number of Public Housing and Owner-administered projects who used it for that purpose increased in FY 2009. For a more detailed look of computer utilization by program type, refer to Exhibit E-7a.

Exhibit E-7a
Computer Software Uses in the Past 12 Months, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Calculate rent	98.1%	99.3%	97.0%	98.0%
Maintain demographic information about residents	98.6%	98.6%	95.5%	97.5%
Print the 50058/50059 Form	96.7%	97.9%	97.0%	97.1%
Print letters to the tenants	98.1%	96.5%	94.5%	96.4%
Input verified information	93.3%	93.7%	94.5%	93.8%
Submit tenant information to HUD	87.6%	98.6%	92.5%	92.2%
Interview tenants and record answers	36.8%	25.2%	36.7%	33.8%

In addition to asking about the different tasks performed by PHA/projects using computers and computer software, the Project Staff Questionnaire also asked what percent of a PHA/project's 50058/50059 Form data was transferred electronically to HUD, as opposed to specifying the PIC/TRACS system as in previous years. Most PHA/projects (97 percent, on average) reported doing so. The percentage of PHA/projects who reported transferring all their 50058/50059 Form data through this method increased two percent to 85 percent in FY 2009. Owner-administered projects were most likely to transmit through another agency as opposed to directly. This year, the number of projects who electronically submitted some or all of their 50058/50059 data increased to 99 percent, up from 97 percent in FY 2008. All Public Housing and PHA Section 8 projects submitted at least some data electronically, where as one percent of owner-administered projects did not. For detailed transmission rates by program type, see Exhibit E-7b.

Exhibit E-7b
Transmission of 50058/50059 Form Data to HUD Electronically in the Past 12 Months, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Transmitted directly	80.4%	93.7%	54.8%	74.6%
Transmitted through another agency	11.5%	6.3%	44.7%	22.1%
Transmitted by other methods	9.6%	2.8%	3.0%	5.4%
Average percentage of 50058/50059 Form data transmitted electronically per PHA/project	98.5%	96.0%	94.7%	96.5%
Percent of PHA/projects electronically submitting some or all 50058/50059 Form data	100%	100%	99.0%	99.6%

Verification Procedures. The most frequently reported methods of keeping track of when verification information was received were: keeping a record in the tenant file (75 percent, on average), marking information using a paper list or tickler file, and keeping files with outstanding verification in a separate location (both 72 percent, on average).

Exhibit E-8a
Methods for Keeping Track of Verification Information, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Kept record in tenant file	77.0%	83.9%	66.3%	75.0%
Marked on a paper list/tickler file (tracking sheet, monitoring form, checklist, or log)	70.8%	74.1%	71.9%	72.1%
Kept files with outstanding verification in separate location or folder	71.3%	76.2%	69.3%	71.9%

Primarily, as was the case in FY 2008, project (re)certification staff were the ones responsible for keeping track of verifications at 91 percent of PHA/projects overall. Within program types, owner-administered projects were least likely to have project (re)certification staff keep track of verifications at 89 percent and most likely to have a supervisor perform the task at 62 percent. They were also least likely to have Clerical staff keep track of the verifications at only 30 percent. However, this is most likely due to owner-administered projects' relatively small number of staff in comparison to the other program types. PHA-administered Section 8 projects were most likely to use project (re)certification staff and clerical staff to track verifications at 94 percent and 48 percent, respectively.

FY 2008 and FY 2009's questionnaire included a revised question regarding PHA/projects use of electronic systems to verify Social Security Benefits and Employment Income. Instead of asking whether they had used TASS or EIV in the past year, the questionnaire asked generally whether they had used electronic systems. Overall, 88 percent used an electronic system to verify Social

Security Benefits, and 90 percent used one to verify employment income, an increase of 9 percent from FY 2008. PHA-administered Section 8 projects were most likely to use electronic systems to verify both Social Security Benefits and Employment Income (95 percent, and 97 percent respectively), and owner-administered projects were least likely to use them to verify both Social Security Benefits and Employment Income (80 percent, for both).

Of the PHA/projects who have ever used TASS or EIV specifically, the most frequent uses were to verify: Social Security/SSI benefits (88 percent), employment income (81 percent), and dual entitlement benefits (75 percent). Owner-administered projects were much less likely to frequently use TASS or EIV to verify information. A breakdown of the frequency of use of TASS and EIV is broken down in Exhibit E-8b.

Exhibit E-8b
Frequency of Use: TASS, EIV to Verify Certain Factors, by Program Type

Use TASS or EIV Usually or Always to Verify	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Social Security Benefits	94.7%	99.3%	73.4%	88.2%
Employment Income	89.9%	92.3%	63.9%	81.2%
Dual Entitlement Benefits	85.2%	84.6%	57.8%	75.2%
Disability Status	76.1%	72.7%	52.7%	66.8%
Unemployment Benefits	82.8%	81.8%	55.7%	72.8%
Black Lung Benefits	52.1%	60.8%	29.1%	46.1%

Those PHA/projects who used automated systems did not solely rely on them for information. Overall, 80 percent of PHA/projects used other methods to supplement automated systems. Those that supplemented the data most often listed pay stubs, third-party verification, and employer information as other methods used to supplement. The most often cited reason for using other methods to supplement the automated systems was the outdated information in EIV. Other reasons included using other methods when there is a discrepancy, and doublechecking the data in the automated system.

The items most/least often verified in FY 2009 remained unchanged from FY 2008. The top four most verified items were verified in both the initial certification and annual certification over 97 percent of the time. These included: Social Security Benefits (99 percent), income from employment (98 percent), other sources of income (98 percent), and the value of assets (98 percent). Household characteristics, on the other hand, were least likely to be verified in both the initial certification and the annual (re)certification. For certain stagnant information such as age of household members, social security numbers, citizenship information, and disability status, PHA/projects were more likely to only verify information during the initial certification. Owner-administered projects were least likely to re-verify household information during both the initial and annual (re)certifications.

Exhibit E-8c
Items Most Likely to be Verified in Both Initial and Annual (Re)certifications, by Program Type

Targets of Verification Procedures Verified in Both Initial and Annual (Re)certification:	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Social Security Benefits	97.1%	100%	99.0%	98.5%
Income from Employment	97.1%	100%	98.5%	98.4%
Other Sources of Income	96.2%	100%	98.0%	97.8%
Value of Assets	94.7%	100%	98.5%	97.5%

Exhibit E-8d
Least likely to be Verified: Household Information, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Citizenship—Both	54.1%	39.2%	26.1%	40.1%
Citizenship—Initial	43.1%	60.8%	72.4%	58.3%
Citizenship—Recert	2.4%	0.0%	0.5%	1.1%
SSN—Both	64.6%	57.3%	40.2%	53.9%
SSNs—Initial	33.5%	42.7%	58.8%	45.0%
SSNs—Recert	1.9%	0.0%	0.0%	0.7%
Age—Both	68.9%	71.3%	42.2%	59.9%
Age—Initial	28.2%	28.7%	57.3%	38.8%
Age—Recert	2.9%	0.0%	0.0%	1.1%
Disability—Both	86.1%	87.4%	65.8%	79.1%
Disability—Initial	9.1%	11.2%	33.2%	18.3%
Disability—Recert	3.8%	0.7%	0.0%	1.8%
FT Student—Both	92.3%	95.8%	88.4%	91.8%
FT Student—Initial	1.0%	2.8%	7.5%	3.8%
FT Student—Recert	4.3%	0.7%	0.0%	1.8%

In addition to identifying how often PHA/projects verified household income, the Project Staff Questionnaire also asked PHA/projects to identify which types of household information were most difficult to verify. Sporadic Income was listed as causing the most difficult to verify (53 percent of PHA/projects), along with other sources of income (44 percent) and Income from Employment (38 percent). Items least likely to cause some or much difficulty to verify were items that were least likely to be verified in both the initial and annual (re)certifications, including: Age of household members (4 percent), Social Security benefits (5 percent), and Social Security numbers (9 percent). In general, owner-administered projects seemed to have the

least amount of difficulty among the program types, and PHA-administered Section 8 projects had the most difficulty.

Exhibit E-8e
Tenant Information Most Difficult to Verify in the Past 12 Months, by Program Type

Tenant Information Causing Some or Much Difficulty to Verify	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Sporadic, infrequent, or seasonal employment	51.1%	62.0%	40.8%	52.8%
Other sources of income	47.3%	54.9%	34.7%	44.4%
Income from employment	39.7%	41.3%	34.2%	38.1%

PHA/projects were also asked how often certain issues emerged when problems arose in obtaining complete verifications. The most likely issues to cause problems cited by PHA/projects were employers not responding to requests in a timely manner at 26 percent. Tenants providing incomplete/inaccurate information (24 percent) and Employers providing incomplete information and other institutions not responding in a timely manner (23 percent) were the other reasons most cited as causing problems. More detailed figures broken down by program type are shown in Exhibit E-8f.

Exhibit E-8f
Causes of Problems in Obtaining Complete Verifications, in the Past 12 Months, by Program Type

Issues Usually or Always Caused Problems	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Employers not responding to requests in timely manner	27.7%	24.5%	24.6%	25.8%
Other institutions not responding in a timely manner	21.0%	21.0%	25.1%	22.5%
Employers not providing all requested information	23.0%	25.2%	21.6%	23.0%

With respect to the level of cooperation of various individuals and institutions when verifying tenant information, the same institutions have been the least cooperative since FY 2007. Insurance companies were most likely to never or occasionally be cooperative (37 percent), and health care providers (32 percent) and financial institutions (31 percent) were also less likely to be cooperative.

Exhibit E-8g
Uncooperativeness of People in Obtaining Verification Information, in the Past 12 Months, by Program Type

Never or Occasionally Uncooperative:	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Insurance companies (e.g., health insurance)	32.1%	44.1%	36.2%	37.0%
Health care providers (e.g., doctors, pharmacies)	29.7%	42.0%	26.1%	31.6%
Financial institutions (e.g., banks, investment firms)	28.2%	32.2%	32.2%	30.7%

When problems and difficulties arose in verifying information, PHA/projects resolved these issues though a variety of methods. Most prevalently, PHA/projects called third-parties to obtain information (96 percent). PHA/projects also sent follow-up letters to third-parties (94 percent), called tenants (93 percent), sent follow-up letters to tenants (86 percent), and used electronic verification or data matching such as EIV (83 percent). On average, 75 percent of PHA/projects reported resorting to accepting other/less preferred verification, up slightly from 73 percent in FY 2008, and 69 percent in FY 2007. Owner-administered programs were significantly less likely to resort to accepting less preferred verification.

Exhibit E-8h
Procedures Used When Verification Was Not Provided As Requested in the Past 12 Months, by Program Type

Characteristic	Program Type			Total
	Public Housing	PHA-Administered Section 8	Owner-Administered	
Called third-party	94.7%	94.4%	98.0%	95.8%
Sent follow-up letter to third-party	92.3%	94.4%	94.0%	93.5%
Called tenant	95.2%	89.5%	92.0%	92.6%
Sent follow-up letter to tenant	91.9%	88.1%	79.4%	86.4%
Used electronic verification or data matching (e.g., EIV)	87.6%	91.6%	71.4%	82.8%
Accepted other/less preferred verification	68.9%	86.0%	72.4%	74.6%

C. Conclusion

Overall the PSQ analyses portrayed a complex and interesting picture of PHA/project practices and procedures. Most PHA/projects train (re)certification staff, transfer information about changes in HUD policies to their staff, monitor (re)certification work quality, use computer software for various purposes, and verify most (re)certification information. The FY 2009 remained the same in comparison with the FY 2008 questionnaire, and the results are comparable.

As was the case in FY 2008, some findings differed with respect to program type. Owner-administered projects were more likely to differ from the other two program types, perhaps due to their size. They had the fewest staff, fewest (re)certification staff, and fewest units supported by the (re)certification staff, on average. Owner-administered projects also trained the fewest staff for the fewest hours, and were the least likely to use TASS or EIV systems to verify information. They are also much more likely to start the annual recertification process three to six months before the effective date. Lastly, they seem to have fewer difficulties verifying tenant information, which would explain why they are also the least likely to resort to accepting less preferred verification information when difficulties arose in obtaining that information.

In general, questions related to computers and technology over time show that they are being increasingly used by PHA/projects for a variety of tasks, from calculating rent and collecting demographic information to submitting 50058/50059 Form data to HUD. For the future studies, it would be helpful to develop and validate additional items specifically targeting potential difficulties in conducting training, using computer software, and getting support from various sources in verifying tenants' information. Focus groups and cognitive interviewing might aid in revision of the PSQ items by focusing attention on the specific circumstances and issues faced by the PHA/projects. Having detailed indicators of the positive, as well as negative aspects of the (re)certification process, defined by the PHA/project staff, would provide a more complete picture of the issues faced by the PHA/project, as well as may provide a better link between PSQ information and the estimation of payment and income errors.

Appendix F—Multivariate Analysis

Appendix F—Multivariate Analysis

Objectives

We attempted in the FY 2009 HUDQC multivariate analyses to identify project and household factors that account for rent errors and errors in the certification/recertification process caused by project staff. Combining household and project survey data, multiple regression analysis allowed us to systematically assess a large number of project and household variables in term of *net effect on the rent error and project-caused errors.* To meet the specified study objectives we addressed two research questions:

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

Focusing on project factors and project-caused errors in connection to rent errors, we sought to generate actionable information for HUD's program improvement. Knowledge about project factors linking to rent errors should be highly useful for program improvement, yet not well developed in prior analyses. Our understanding of household characteristics relating to rent error, in contrast, was relatively clear but is of limited utility in program improvement. It may help alert the staff about potential risk cases in certification, but can hardly inform project about specific approaches to error reduction. In this analysis, we considered household variables largely as covariates for statistical control while concentrating on project operation variables in accounting for rent errors.

Rationale

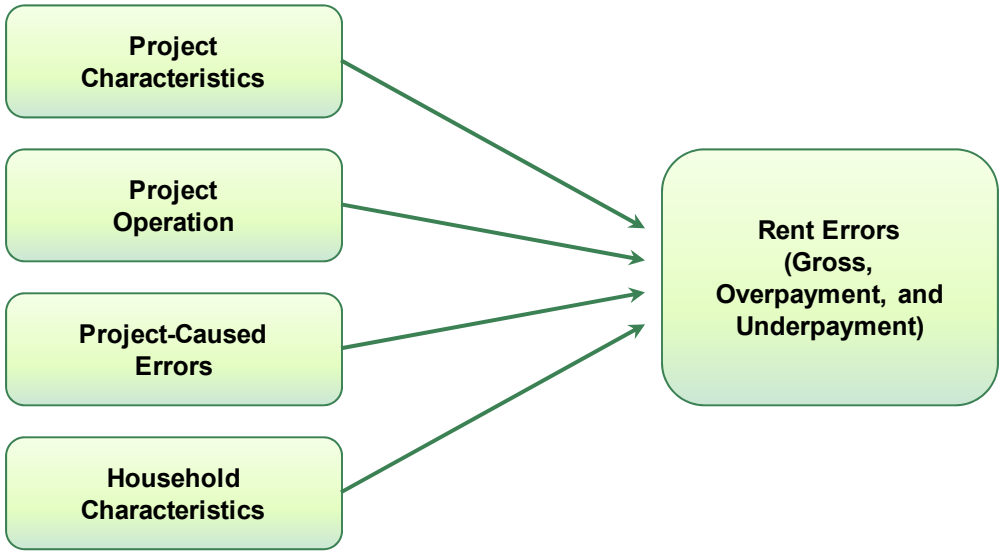
Building on previous studies, we re-conceptualized the multivariate models to make them more specific to the outcomes (rent errors vs. project-caused errors) and more logically straightforward. Two conceptual models were considered, respectively, for rent errors (gross, overpayment and underpayment) and project-caused errors.

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

[1] Estimation of the effect size for predictor variables requires valid measurement of each variable, sensible model specifications, and 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.

Hypothetically, dollar amounts of rent errors are affected by four sets of factors: project characteristics, project operation, project-caused errors, and household characteristics (see Figure F-1). Project characteristics refer to organizational and staffing features (e.g., program type, case load, requirement for hiring, and staff training). Project operation refers to (re)certification interview, monitoring, review, verification practices; computer application; and project personnel's perception of errors and the likely causes. Project-caused errors are defined as errors or problems that occur in the process of (re)certification and determining rent subsidy as revealed in the QC evaluation (see Methodology Section of the report and the Approach section in this Appendix for definitions of the error types).

Figure F-1
Conceptual Framework for Modeling Rent Errors



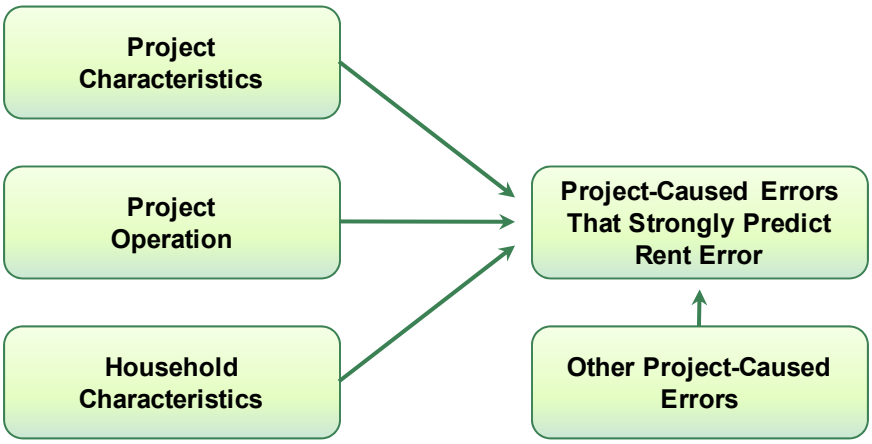
The available measures of project-caused errors may not be adequate to represent all potential errors. In our modeling, not all indicators of project-caused errors were found important in accounting for rent errors. Some project errors were unrelated or even reversely related to the dollar amount of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

Household characteristics refer to household financial conditions and demographics. The concept and related indicators of household characteristics have been well established in prior studies as important predictors of the rent errors. We considered household variables as exogenous in the model because they were not responsive to project management and operations.

We further examined project-caused errors as the consequence of project characteristics, project operation, and household characteristics (see Figure F-2). The rationale is straightforward: project-caused errors occur typically because of the limitations of organizational resource and staffing, lack of rigorous quality control procedures, and complicated household financial situations that project staff encounter in handling (re)certifications and determining payment.

Additionally, we sought to learn the interrelationships among project-caused errors. To do so, we modeled project-caused errors that had been found to be strong in predicting rent errors, with independent variables of other project errors, together with project characteristics, project operation, and household predictors.

Figure F-2
Conceptual Framework for Modeling Project-Caused Errors



Approach

We combined the household data with project data and performed data processing, editing, and analysis. The household records were matched with the affiliated projects by project identification code. The resulting dataset contains 2,397 household cases linked to 539 projects.[2] The activities of data editing, initial analysis, and final model specification and estimation were summarized below.

Data Processing and Editing

Project Data

The large number of project data items required extensive effort of editing and rescaling to build composite indicators of project characteristics and project operation. We created over 90 composite indicators or rescaled variables.

We selected project variables that are most relevant to rent errors. First, we made judgments based on descriptive statistics to exclude:

[2] One project did not respond to the survey and the affiliated four household records were excluded from the analysis. Comparing the rent errors between the full sample versus the sub-sample that excluded the four records (equivalent to 99.8% of the full sample size), there were no significant differences (see Attachment 1). We decided to use the subsample that excluded the four records without project response. Diagnostic analysis (see below) further excluded three outliers, i.e., households whose model predicted gross errors were different from the observed (actual) error to the extent that retaining them in the model would undermine the model fit.

- Variables that were applicable only to a subgroup of projects (e.g., non-English language-related variables were collected from less than half of the sampled projects; new certification staff training measures were available for projects that hired new staff and had them conduct certification); and
- Variables that lacked variation, for example, only eight out of 545 projects (1.5 percent) said to have used case notes for monitoring certification interview, the variable would have little use with such uniformed response.

We also took a data mining approach to identify important project variables for analysis. A series of regression models were specified, each with the gross rent error as the dependent variable and a different group of project variables as independent variables, including: project staffing, hiring practices, verification tracking methods, certification monitoring methods, certification review procedures/methods, staff perception of errors found in daily work and the causes, approaches to dealing with a language other than English, the use of computer software, policy change-related communication, and procedures of obtaining income information and interviewing households. The regression procedure used a stepwise technique and maximal R-square methods to identify a model that included two strongest predictors from each group.[3]

More than a dozen project variables from the above process required further consolidation. We ran regression modeling with AIC ranking techniques to further select project variables generated from the above stepwise procedures.[4] The procedure finally identified a small set of project variables that were relatively more predictive of gross rent error and were included in the equation, in addition to project characteristics. The definitions and measures of the project variables are listed below (Attachment 2 presents descriptive statistics for these variables):

Project characteristics (PC) indicators:

- **Section 8:** HUD PHA-administered Section 8 program, binary coded one for yes and zero for no.
- **Public Housing:** HUD Public Housing program, binary coded one for yes and zero for no.
- **Units per staff (in 100s):** the ratio of household units per staff, rescaled to 100 for presenting in three decimal points.
- **Percent of experienced staff** receiving training in the past 12 months.

[3] Stepwise regression is a technique in which independent variables in the model are repeatedly estimated based on the *F* statistic *p*-value below the specified α. This technique then removes any variable that has an insignificant *F* statistic *p*-value exceeding the specified α. The process continues until none of the variables excluded from the model has an *F* statistic significant at the specified α and every variable included in the model is significant at the specified α. Combined with the maximal R-square process, the models are compared in estimated R square and the model with the largest R square is selected.

[4] Akaike's Information Criteria (AIC) is a statistic to measure the difference between a given model and the "true" model. Using the covariance matrix and the number of parameters in the model, the AIC statistic summarizes the information represented by the model by balancing a trade-off between a lack of fit term and a penalty term associated with more independent variables, hence compensate the maximal R-square approach in identifying the most efficient model. The model with the smallest AIC among all competing models is deemed the best model (Beal, 2002).

- **Projects required a minimal education in hiring,** binary coded one for yes and zero for no.
- **Projects required administrative and clerical experience in hiring,** binary coded one for yes and zero for no.
- **Number of requirements for hiring,** counts of different credentials or qualification items required for hiring new staff.
- **Number of new staff** hired in the year.

Project operation (PO) indicators:

- **Verification—tracked by computer,** binary coded one for yes and zero for no.
- **Verification—# items always used EIV:** number of items that EIV was always used to verify.
- **Monitor—n of methods:** number of methods used to monitor the (re)certification.
- **Case Review—all cases:** All (re)certification cases are reviewed, binary coded one for yes and zero for no.
- **Case Review—other methods:** regularly used other methods[5] to select cases for review, binary coded one for yes and zero for no.

Project-caused error indicators:

As in the FY 2008 analysis, we examined six types of project-caused errors measured in dichotomous categories (with one for error and zero for error free), including: overdue recertification error, calculation error, consistency error, transcription error, administration error, procedure error (see *Introduction and Methodology* for definitions of error types). We also examined two error indicators measured with continuous scales, namely, the transcription error rate (the proportion of transcribed items containing transcription errors) and the verification error rate (the proportion of the verification-required items without third-party verification in writing).

Of these, we found four indicators that were statistically significantly related to gross rent error and with interpretable effects (see Exhibit F-1 for bivariate statistics and Exhibit F-2 for regression coefficient estimates). These were: overdue recertification error, transcription error, the transcription error rate, and the verification error rate. To understand how project characteristics, project operation, and household characteristics accounted for these important types of error, we further modeled the four measures of project error. For binary-coded overdue recertification error and transcription error, we used logistic regression. For the transcription error rate and the verification error rate we used linear regression techniques. In addition, we summed up all types of errors that occurred in each household case to create an indicator of overall extent of project error ('total N errors'). This indicator was also analyzed with linear regression analysis to learn it relationships with project and household background information.

[5] Methods other than specified, i.e., check cases randomly, on certain dates, cases completed within a period, conducted by new staff, with certain characteristics/anomalies, conducted staff with performance problems, and review all cases.

Household Data

Outcome measures of the analysis, dollar amount of rent errors and types of project-caused errors, and household financial conditions (e.g., income and expenses) were from household records. As common practice, for gross rent error, overpayment, and underpayment, we took the logarithm of each dollar value to tighten the variables' skewed distributions where very few cases had large dollar amount errors and many had zero error.

Following the strategies used in previous studies, we edited and rescaled household data to construct composite variables from the original data items and tested the variables' bivariate and multivariate relationships with gross rent error. We examined all the household variables that were known to be predictive of gross rent error via past HUDQC multivariate analyses (FY 2000-FY 2007).

Most household variables were interval measures in either dollar amount (e.g., total annual income) or item counts (e.g., number of bedrooms and earned incomes). The only binary-coded indicator was for households with elderly (age 62 or older) or disabled member(s), coded as zero for no and 1 for yes. Exhibit F-1 presents descriptive statistics of the household variables in the original scale, separately for households who had a gross rent error dollar amount $5 or more versus households who had no error or an error less than $5. Attachment 2 lists all the modeled variables with descriptive statistics. To make the statistic interpretation straightforward, we rescaled interval variables by subtracting the grant mean, a process known as centering.[6]

Regression Diagnosis Analysis

We conducted regression diagnostic analysis to ensure that collinearity among predictor variables were at acceptable levels and that residual distribution of the predicted gross rent error was not biased. When a predictor is a linear combination of other predictors in the model, the coefficient estimates tend to be unstable, with large standard errors, a problem known as collinearity or multicollinearity. The diagnostic results were largely consistent with prior years, except for two household variables, the number of dependents in the household and the number of medical expenses. They did not show exceedingly high collinearity with other variables and thus were included in the models.[7]

We improved residual analysis by the formal definition based on the studentized residual scores (see Attachment 3 for details). The analysis generated statistics and plot graphs that suggested the residual distribution was reasonably normal, with only three cases displaying large positive values of residual errors greater than 3.94. Removing these cases from the analysis would not threaten the sampling integrity; rather, it would improve the model fit and reliability of the estimates. The final sample contained 2,397 household records and 539 projects.

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

[7] We ran SAS PROC REG to generate collinearity diagnostic statistics (TOL, COLLIN, VIF) with the household variables as predictors and log gross error as dependent variable.

Unconditional Hierarchical Linear Modeling (HLM) generated the estimate of project-level variance in log gross error proportional to the total variance, which was 4.33 percent (see Attachment 4). This was quite comparable with previous years' estimates, for example, 5.60 percent in FY 2008. The small proportion of project-level variance made it not meaningful to use the HLM technique for this study (a rule of thumb is above eight percent, (Raudenbush and Bryk, 2002). We then proceeded to run ordinary least square regression modeling.

Model Specification and Estimation

We tested and estimated a number of multivariate models of rent error (gross rent error, overpayment, and underpayment) and project-caused errors. For models of rent errors, we specified a set of predictor variables measuring project characteristics, project operation, project-caused errors, and household characteristics. For models of project-caused errors, we included predictor variables representing project characteristics, project operation and household characteristics.

Unless otherwise noted, we conducted statistical analyses with SURVEY procedures of SAS 9.2, with a Jackknife replicate weights procedure to compensate for design effects (with exception of un-weighted statistics). SAS SURVEYREG was used for multiple regression modeling of gross rent error, overpayment, and underpayment, as well as the interval measures of project-caused errors. For modeling binary coded project-caused errors, we used the procedure of SURVEYLOGISTIC. For initial variance analysis we used PROC MIXED for estimating two level variance and SAS conventional procedures to examine raw data and residual scores of the predicted gross error.

Findings

The analysis generated regression coefficients and related significance test statistics to establish whether or not an effect exists beyond chance, i.e., statistically significant. We also present R-square estimates to show the model fit, or the extent to which the model accounted for the variance of the outcome variables. To assess relative effect size of predictors, we calculated the proportion of the total variance of gross error accounted for by each group of predictor variables. In addition, we provided the effect size measured with Cohen's f^2 for predictor groups, not individual predictor variables.[8]

Gross Rent Error

We separately tabulated statistics for two groups of households: those with gross rent error and those without. This offers a preliminary view of the predictor variables differentiated by gross rent error. Exhibit F-1 presents unweighted statistics of the predictor variables by the

[8] The effect size for multiple regression analysis may be assessed by comparing the change of the R^2. Given an R^2_A value resulting from an equation with a set of independent variables A, and an R^2_{AB} value generated from an equation with the A and another set of independent variables B, Cohen's f^2 is commonly used in the context of sequential (or nested) multiple regression analyses (Cohen, 1988). The f^2 effect size measure for multiple regression is defined as:

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

dichotomously-coded gross rent error (with or without error). For statistics of the predictor variables for the whole population, see Attachment 2. We used two-letter abbreviations to denote the four sets of predictors: PC for project characteristics, PO for project operations, PE for project-caused errors, and TC for household characteristics.

An overlap between the two household groups' estimated ranges of a given variable's mean at 95 percent confidence level suggests that the predictor was not significantly different by the gross error status. Identifying predictors that significantly differed by the rent error status is a way to describe the two household groups with regard to the likelihood of having gross error. We found that the group *without* gross error had the following characteristics (see rows denoted with * in the right column):

Households without gross rent error:

- Were less likely to be with Section 8 program and more likely with public housing program;
- Have projects that tended to verify fewer items "always using EIV";
- Tended to have lower project-caused errors including all but one type of error, calculation error, which did not show significant group differences;
- Had on average, lower total annual income and fewer counts of earned income, pension income, incomes and allowances, and medical expenses;
- Had household heads who were on average two years younger and were less likely to be disabled elderly.

Exhibit F-1
Unweighted Predictor Variables Used in Modeling: Households with and Without Gross Rent Error

Predictors	Without Gross Rent Error (n = 1260)				With Gross Rent Error (n = 1140)				
	Mean	Std error of mean	95% CL for mean		Mean	Std error of mean	95% CL for mean		
Project Characteristics									
Section 8	0.298	0.013	0.272	0.323	0.373	0.014	0.345	0.401	*
Public Housing	0.372	0.014	0.345	0.399	0.294	0.013	0.267	0.320	*
Units per staff (in 100)	20.087	2.177	15.817	24.357	18.628	1.435	15.812	21.444	
% exp. staff training	0.762	0.011	0.740	0.783	0.776	0.011	0.755	0.798	
Require a minimum education for hire	0.982	0.004	0.974	0.989	0.975	0.005	0.965	0.984	
Admin/clerical exp. required for hire	0.663	0.013	0.637	0.689	0.657	0.014	0.629	0.685	
# of requirements for hire	4.711	0.048	4.618	4.805	4.604	0.050	4.505	4.702	
# of new staff	1.316	0.127	1.068	1.564	1.514	0.150	1.220	1.809	

Predictors	Without Gross Rent Error (n = 1260)				With Gross Rent Error (n = 1140)				
	Mean	Std error of mean	95% CL for mean		Mean	Std error of mean	95% CL for mean		
Project Operations									
Verification: tracked by computer	0.464	0.014	0.437	0.492	0.494	0.015	0.465	0.523	
Verification: n items always used EIV	3.660	0.064	3.536	3.785	3.919	0.064	3.793	4.046	*
Monitor: n of method	17.237	0.192	16.860	17.613	17.068	0.197	16.681	17.455	
Case review: all cases	0.328	0.013	0.302	0.354	0.311	0.014	0.284	0.338	
Case review: other methods	0.050	0.006	0.038	0.062	0.057	0.007	0.044	0.070	
Project-Caused Errors									
% items with transcription error	0.122	0.007	0.108	0.136	0.332	0.009	0.314	0.349	*
% items without written third-party verification	0.053	0.006	0.041	0.064	0.097	0.008	0.082	0.112	*
Overdue recertification error	0.003	0.002	0.000	0.006	0.015	0.004	0.008	0.022	*
Any calculation error	0.820	0.011	0.799	0.841	0.806	0.012	0.783	0.829	
Consistency error	0.142	0.010	0.123	0.161	0.216	0.012	0.192	0.240	*
Transcription error	0.206	0.011	0.184	0.229	0.618	0.014	0.590	0.647	*
Administration error	0.245	0.012	0.221	0.269	0.639	0.014	0.611	0.667	*
Procedure error	0.187	0.011	0.166	0.209	0.272	0.013	0.246	0.298	*
Household Characteristics									
# of household members	2.104	0.040	2.025	2.183	2.114	0.044	2.028	2.200	
Total annual income (in $1000)	11.463	0.308	10.859	12.066	13.756	0.238	13.290	14.222	*
# of bedrooms	1.808	0.028	1.754	1.862	1.865	0.030	1.806	1.924	
Earned income	0.291	0.016	0.260	0.322	0.503	0.025	0.453	0.552	*
Other income	0.241	0.014	0.214	0.269	0.253	0.017	0.220	0.285	
Public assistance income	0.099	0.009	0.082	0.117	0.123	0.011	0.100	0.145	
Pension income	0.776	0.025	0.727	0.825	1.061	0.030	1.002	1.121	*
Household head age	50.056	0.558	48.961	51.150	52.578	0.577	51.446	53.710	*
# of income and expenses	2.237	0.061	2.117	2.358	4.075	0.103	3.873	4.278	*
# of allowances	1.118	0.016	1.087	1.150	1.460	0.020	1.420	1.499	*
Household w/ disabled elderly	0.518	0.014	0.491	0.546	0.618	0.014	0.589	0.646	*
# of dependents	0.901	0.037	0.829	0.973	0.886	0.040	0.808	0.964	
Medical expense	0.592	0.040	0.513	0.671	1.455	0.074	1.311	1.600	*

* The two groups differ significantly in the predictor variable at p <.05 level.
Source: HUDQC FY2009 Household-level data collection and Project Staff Questionnaire

We specified four multiple linear regression equations to estimate the effects of different sets of predictor variables in relation to gross rent error (see Exhibit F-2). Predictor variables representing explanatory concepts were added into the equation in a sequence (a procedure known as sequential modeling). The resulting statistics show the effect of predictors that were added into the equation, the changing effects of the previously entered predictors, and the model fit. The final model (model 4) included all four sets of variables representing the specified four constructs, namely, project characteristics, project operation, types of project-caused error, and household characteristics.

The estimated intercept presented a reference point for interpreting estimates of predictor effects on gross rent error from each model. For example, in model 3, the intercept estimated in log scale 1.260, equivalent to $3.53.[9] This was the expected average gross error of a "reference" group of households that had a zero value on each predictor variable in the model. For binary coded predictors, for example, Public Housing and PHA-administered Section 8, the zero value represented *owner administered program*; and for project-caused errors, the zero value indicated error free of a particular type. For household-level interval predictors that were rescaled by centering, the "reference" households were characterized by the mean value of a given predictor, e.g., for total annual income, the centered zero value was the average annual income of the sample.

A coefficient estimate for a predictor, if statistically significant, represented the difference from the "reference" value in gross rent error associated with this predictor. We focused on interpreting the regression coefficients that were statistically significant ($p < .05$ or smaller) as they represented effects that were unlikely to be observed due to chance. For predictors of key project factors, we may briefly discuss the findings even if the estimates were not significant.

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

Predictors	Model 1			Model 2			Model 3			Model 4		
	Coefficient		Dollar value	Coefficient		Dollar value	Coefficient		Dollar value	Coefficient		Dollar value
Intercept	1.707	***	$5.51	1.634	***	$5.12	1.260	**	$3.53	1.471	**	$4.35
Project Characteristics												
Section 8	0.237	*	$1.47	0.191			0.078			0.029		
Public Housing	-0.18	**	-$0.92	-0.22	*	-$0.99	-0.34	**	-$1.02	-0.31	**	-$1.17
Units per staff (in 100)	-0.010			-0			-0			-0		
% exp. staff training	0.062			0.041			0.068			0.077		

[9] Dollar amount of the intercept is e^{l}, where e is a constant approximately 2.718, l is the estimated regression intercept in log scale. To convert coefficients in log scale to dollar amount, we add the log-scale estimate of a given predictor to the intercept log vale and convert the sum of log-scale values into dollar amount. The difference between the resulting dollar amount and the intercept-equivalent dollar amount is the estimated predictor effect in dollar amount of gross rent error. For example, in Mode 3, the difference associated with predictor "PO: verify: tracked by computer," the log estimate is .129 ($p < .05$), other things being equal, this effect increased the gross error $.49 from the reference group's estimates ($e^{(1.105 + .129)} - e^{1.105} = 3.43 - 3.02 = .49$).

Predictors	Model 1			Model 2			Model 3			Model 4		
	Coefficient		Dollar value	Coefficient		Dollar value	Coefficient		Dollar value	Coefficient		Dollar value
Require a minimum education for hire	-0.37			-0.39			-0.410			-0.440		
Admin/clerical exp. required for ire	0.132			0.141			0.122			0.100		
# of requirements for hire	-0.050			-0.050			-0.020			-0.030		
# of new staff	0.008			0.007			0.002			0.006		
Project Operations												
Verification: tracked by computer				0.173	*	$0.97	0.129	*	$0.49	0.135	*	$0.63
Verification: # items always used EIV				0.031			0.040			0.033		
Monitor: # of methods				-0			-0.010	*	-$0.04	-0.01		
Case review: all cases				-0.02			-0.030			0.001		
Case review: other methods				-0.04			-0.060			-0.100		
Project-Caused Errors												
% items with transcription error							0.511	*	$2.35	0.746	***	$4.83
% items without written third-party verification							0.576	**	$2.75	0.445	*	$2.44
Overdue recertification error							1.587	**	$13.71	1.664	**	$18.64
Any calculation error							0.009			0.009		
Consistency error							0.257			0.284		
Transcription error							1.075	***	$6.80	0.618	**	$3.72
Administration error							0.101			0.157		
Procedure error							-0.310			-0.410	*	-$1.48

Predictors	Model 1			Model 2			Model 3			Model 4		
	Coefficient		Dollar value	Coefficient		Dollar value	Coefficient		Dollar value	Coefficient		Dollar value
Household Characteristics												
# of household members										0.043		
Total annual income (in $1000)										-0.010		
# of bedrooms										0.027		
Earned income										0.481	***	$2.69
Other income										0.228	**	$1.11
Public assistance income										0.200		
Pension income										0.162	*	$0.77
Household head age										-0		
# of income and expenses										0.039		
# of allowances										0.453	***	$2.49
Household w/ disabled elderly										-0.120		
# of dependents										-0.110		
Medical expense										-0		
R-square	**0.016**	***		**0.020**	***		**0.225**	***		**0.297**	***	
Adjusted R-square	**0.012**	***		**0.015**	***		**0.218**	***		**0.286**	***	
Cohen's f^2	**0.013**			**0.003**			**0.260**			**0.096**		
% variance accounted for	**0.012**			**0.003**			**0.203**			**0.068**		

*p < .05, **p < .01, ***p < .001 (test with the null hypothesis that a coefficient =0; a significant result indicates that the corresponding variable(s) is associated with the dependent variable).
Source: HUDQC FY2009 Household-level data collection and Project Staff Questionnaire

With Model 1, relative to the reference group and net of other factors, Public Housing households tended to have a lower gross rent error (log scale -.182, equivalent to a reduction of $.92); whereas PHA-administered Section 8 households tended to have a higher gross error (log scale .237 and $1.47). In the subsequent models with incrementally more predictors, the estimate for the Section 8 difference diminished to no significance but the Public Housing effect remained significant and substantial. Consistent with the FY 2008 finding, Model 4 revealed that, given other factors being equal, Public Housing households' gross rental error were $1.17 lower than the reference households.

Models 2, 3 and 4 estimated two indicators of project operation as significantly related to gross error, net of other effects. With model 4, "verification tracked by computer" was associated with higher gross error (log scale .135 or $.63)—an effect consistent with the FY 2008 estimate.

With Model 3, the "number of monitoring methods" had a net effect associated with lower gross error to a much lesser extent albeit statistically significant (log scale -.01 or minus $.04). Other project operation measures (number of methods used to monitor (re)certification, review all cases, and using other methods than specified in the questionnaire) were not found significantly predictive of the gross error.

Estimates from Models 3 and 4 for project-caused errors were most interesting. Percentage of items with transcription error, percentage of items without written third-party verification, overdue recertification error, and transcription error were found strongly, positively, and significantly related to gross rent error. In model 4, holding household factors and other project factors equal, the estimates imply:

- Percentage of items with transcription error predicted substantially higher gross error, with a log estimate .746 and equivalent $4.83 relative to the reference group;
- Percent of items without the third-party written verification was highly significant, with a log .445, equivalent to $2.44 increase of gross error relative to the reference group;
- Overdue recertification error had the largest net increasing effect on the gross error with a log 1.664 or $18.64;
- Transcription error had an effect of .618 in log scale or $3.72 increasing the gross error; and
- Procedure error predicted a moderately lower gross error with a log estimate -.410 equivalent to - $1.37, an effect likely due to complicated interaction between project-caused errors and requiring deeper analysis.

Note that these findings are largely consistent with those in earlier years. It was remarkable that this year's estimate of overdue recertification error (1.664 in log scale and $18.64) was much larger than the FY 2007 and FY 2008 estimates, which were respectively 1.000 in log or $7.00 and 1.214 in log or $7.76. The implication is that this type of error has remained as a major source of rent payment error. Consistent with prior years, the effects of other measures of project errors, i.e., calculation error and administration error were not found to be statistically significant and substantially large.

With Model 4, we estimated household characteristics relating to gross rent error. Net of other effects, households with complex financial conditions in terms of more sources of income (earned, pension, public assistance, and to a lesser extent total annual income) and more items of expenses and allowance were likely to have larger gross rent error. Household head age and number of bedrooms, however, were found to relate to lower gross error.

Compared with FY 2007 and FY 2008, the FY 2009 data revealed largely similar patterns in which gross error was related to project and household factors. The most substantiated findings were:

- Project-caused errors, particularly, overdue certification and transcription errors, contributed strongly to increased gross error.

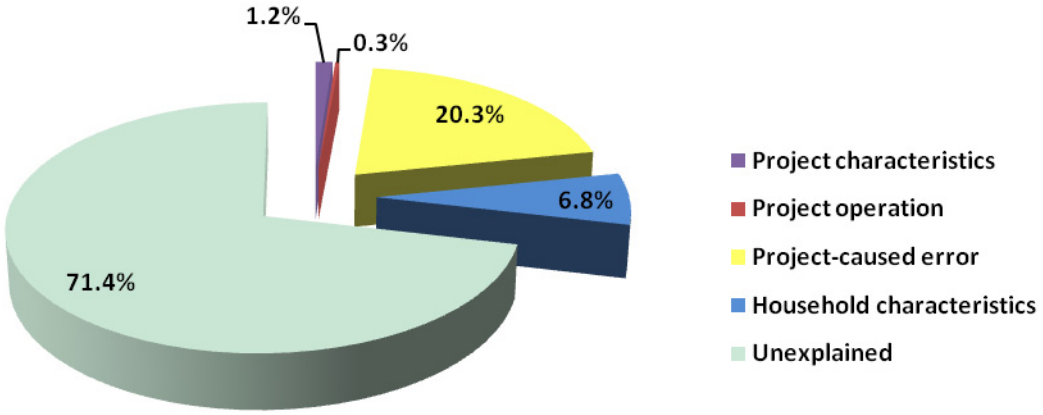
- Computer use and EIV applications in (re)certification verifications were not effective in reducing gross rent error.
- Some project-caused errors may need clear definitions and valid measurement to account for gross error. These were calculation error, administration error, and procedure error, as the estimates were consistently small in size and not statistically insignificant over the years.
- Households that were characterized with complex financial conditions had greater gross error with highly reliable estimates.

Relative Size of Effects by Variable Groups

With the predictor variables entered into the sequential models incrementally accounted for the variance of the gross rent error, with the largest share by indicators of the project-caused error (20.3 percent), followed by household characteristics and financial conditions (6.8 percent). The proportion of gross rent error variance explained by project characteristics and by project operation amounted respectively, only 1.2 percent and 0.3 percent (Figure F-3).

Corresponding to variance partitioning, the effect size estimates with Cohen's f^2 also showed that project-caused errors represented the bulk of the effects on rent error (.260); measures of household characteristics also had a sizable effect (.095); and project characteristics/operation effects were again found to be small (.016).

Figure F-3
Proportion of Variance of Gross Rent Error Accounted for by Project and Household Variables: Multiple Regression Analysis with Design Effect Adjusted



Source: HUDQC FY 2009 Household-level data collection and Project Staff Questionnaire

Overpayment and Underpayment

We analyzed overpayment and underpayment to offer additional information for program improvement to address the issues specific to these two forms of error. We specified two equations with the same predictors as in modeling gross error to explain, respectively, overpayment and underpayment in logarithm. Exhibit F-3 presents the estimates of regression coefficients.

The model fit was considerably poorer relative to that of the gross error models. Approximately 12 percent and 15 percent of the total variance, respectively, of underpayment and overpayment, were accounted for by the models. Project operation, project-caused errors, and household background measures were associated with overpayment in patterns similar to those with gross error. For example, tracking verification with computers was related to higher overpayment (log scale .118 or $.27), net of other factors. The number of methods used to monitor (re)certifications was very mildly related to lower overpayment with log estimate -.013 or a reduction of $.03, implying for every one more monitoring method used, an average $.03 reduction of overpayment was observed, all other things being equal.

Of the project-caused errors, transcription errors measures in the item error rate and was identified as related to higher overpayment (an increase of $1.14), net of other effects. Overdue recertification error was strongly predictive of higher overpayment, with a log estimate 1.489 equivalents to a $7.35 increase of the overpayment, by far the largest effect of all the modeled variables. Households with higher incomes including pension income, public assistance income, and other income tended to have higher overpayment, holding other factors constant.

In predicting underpayment, however, none of the project variables were statistically significant; only a number of household variables were found significant. The household size (number of household members) and the counts of allowances were moderately related to greater underpayment. In contrast, total annual income, public assistance income, household head age, and number of dependences were related to smaller underpayment with varying magnitudes, net of other factors.

The above findings suggest that project factors better accounted for overpayment than for underpayment, with overdue recertification error and transcription error being particularly strong. Household characteristics were related to overpayment in patterns very similar to that they related to gross error, i.e., the more sources of income the greater the overpayment, controlling for other factors. Household factors related to underpayment in more complicated ways than related to overpayment, with a number of significant demographic characteristics (household size and household head age) as well as financial conditions (total annual income).

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

Predictors	Underpayment			Overpayment		
	Coefficient b		Derived Dollar Value	Coefficient b		Derived Dollar Value
Intercept	0.587	*	$1.80	0.761	*	$2.14
Project Characteristics						
Section 8	0.016			-0.008		
Public Housing	-0.179			-0.149		
Units per staff (in 100)	0.000			-0.004		
% exp. staff training	0.059			0.027		

Predictors	Underpayment			Overpayment		
	Coefficient b		Derived Dollar Value	Coefficient b		Derived Dollar Value
Require a minimum education for hire	-0.141			-0.339		
Admin/clerical exp. required for hire	0.059			0.022		
# of requirements for hire	-0.024			0.009		
# of new staff	0.005			0.003		
Project Operations						
Verification: tracked by computer	0.014			0.118	*	$0.27
Verification: # of items always used EIV	0.022			0.012		
Monitor: # of methods	0.004			-0.013	**	-$0.03
Case review: all cases	0.082			-0.061		
Case review: other methods	0.182			-0.268		
Project-Caused Errors						
% items with transcription errors	0.311			0.428	*	$1.14
% of items without written third-party verification	0.098			0.324		
Overdue recertification error	0.231			1.489	*	$7.35
Errors found: calculation any freq	-0.060			0.110		
Consistency error	0.200			0.045		
Transcription error	0.118			0.456	**	$1.24
Administration error	0.301			-0.115		
Procedure error	-0.346			-0.085		
Household Characteristics						
# of household members	0.143	*	$0.28	-0.098		
Total annual income (in $1000)	-0.010	*	-$0.02	0.004		
# of bedrooms	-0.025			0.056		
Earned income	0.121			0.340	***	$0.87
Other income	-0.073			0.303	***	$0.76
Public assistance income	-0.246	*	-$0.39	0.462	***	$1.26
Pension income	-0.007			0.167	**	$0.39
Age of head of household	-0.006	**	-$0.01	0.001		
Total # of sources of income/expenses	0.029			0.001		

Predictors	Underpayment			Overpayment		
	Coefficient b		Derived Dollar Value	Coefficient b		Derived Dollar Value
Total # of allowances	0.385	***	$0.84	0.012		
Households w/ disabled elderly	-0.049			-0.067		
# of dependents	-0.164	**	-$0.27	0.056		
Medical expense	0.013			-0.003		
R-square	**0.124**	***		**0.148**	***	
Adjusted R-square	**0.111**	***		**0.136**	***	

*p < .05, **p < .01, ***p < .001 (test with the null hypothesis that a coefficient [or R^2]=0; a significant result indicates that the corresponding variable(s) is associated with the dependent variable).
Source: HUDQC FY2009 Household-level data collection and Project Staff Questionnaire

Project-Caused Errors

Of project-caused errors, our analysis showed that overdue recertification error, transcription error, and item verification error clearly contributed to higher gross rent error and overpayment. To explore the underlying factors leading to these project errors, we modeled the five measures of project-caused errors with predictors of project characteristics, project operation variables, and household characteristics.

Two measures, overdue recertification error and transcription error, were binary coded and analyzed using a multiple logistic regression technique. Three were interval indicators and analyzed with linear regression; these were percentage of items with transcription error, percentage of items with verification error, and the total counts of all project-caused errors. Exhibit F-4 presents the logit estimates (log odds) and Max-rescaled R^2 from the logistic models of the two errors in binary coding.[10] A logit indicates the extent to which a given predictor is associated with the likelihood of the given error.

The overdue recertification model fit better than the transcription error model, with adjusted R^2 (roughly interpreted as the proportion of variance accounted for by the model) respectively, .265 and .141. To identify salient factors contributing to the project-caused errors, we highlight predictor variables that were found to have a significant logit estimate (with $p < 0.05$). We observed the following predictors to be significantly related to the two types of error, under the condition of *all other modeled factors being equal.*

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

Overdue recertification error:

- Households managed by projects with more units per staff were modestly less likely to have overdue recertifications.
- Households served by projects that used certification review methods other than those specified in the questionnaire were less likely than other households to have overdue recertification error, with a logit estimate -17.517 with $p < .001$. Note that this estimate was in the opposite direction of the FY 2008 estimate (6.972, $p < .001$), also a large effect in the model. This inconsistent finding raises the question as to what *other methods* in the certification review were used by projects.
- The rate of items with transcription errors was moderately related to overdue recertification (2.635 at $p < .05$); meaning households with more items with transcription errors were more likely to have an overdue recertification.

Transcription error:

- Households in the Public Housing program were slightly more likely than those in the owner-administered program to have transcription errors (with logit .325, $p < .05$). This estimate was in the opposite direction from that of the FY 2008 estimate (-.342, $p <. 001$) indicating that this association is fluid.
- Households with consistency errors were more likely to have transcription errors than those without consistency errors (.863, $p < .001$).
- Households with more complicated financial conditions, specifically higher earned income, more sources of income and expenses, and more allowances, were more likely to have transcription errors (respectively .689, $p < .001$; .218, $p < .01$; and 272, $p < .05$).

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

Predictors	Overdue Recertification Error		Transcription Error	
Intercept	-2.677	***	-0.839	***
Project Characteristics				
Section 8	0.780		0.210	
Public Housing	0.860		0.325	*
Units per staff (in 100)	-0.603	*	-0.011	
% exp. staff training	-0.135		-0.129	
Admin/clerical exp. required for hire	0.071		-0.042	
# of requirements for hire	-0.344		-0.033	
# of new staff	0.018		0.014	

Predictors	Overdue Recertification Error		Transcription Error	
Project Operations				
Verification: tracked by computer	0.309		0.084	
Verification: # of items always used EIV	0.179		-0.043	
Monitor: # of methods	0.018		0.022	*
Case review: all cases	-0.447		0.090	
Case review: other methods	-17.517	***	-0.054	
Project-Caused Errors				
% of items with transcription error	2.635	*	N/A	N/A
% of items without written third-party verification	0.443		0.073	
Overdue recertification error	N/A	N/A	0.808	
Any calculation error	0.480		0.012	
Consistency error	-0.859		0.863	***
Transcription error	-0.388		N/A	N/A
Household Characteristics				
# of household members	-0.244		-0.081	
Total annual income (in $1000)	-0.068		0.008	
# of bedrooms	0.857		0.016	
Earned income	-0.163		0.689	***
Other income	-0.575		0.186	
Public assistance income	0.101		0.184	
Pension income	0.327		0.147	
Household head age	0.003		-0.002	
# of income and expenses	0.179		0.218	**
# of allowances	-0.481		0.272	*
Household w/ disabled elderly	0.007		0.056	
# of dependents	0.043		0.052	
Medical expense	-0.081		-0.109	
Pseudo R-square[#]	**0.256**	***	**0.130**	***
Max rescaled R-square	**0.265**	***	**0.141**	***

*p < .05, **p < .01, ***p < .001 (test with the null hypothesis that a coefficient [or R^2] = 0; a significant result indicates that the corresponding variable is associated with the dependent variable.

[#] .SAS PROC LOGISTIC with Jackknife replicate weights produced Max rescaled R-square 1.00 for both models, apparently due to some glitch. We manually calculated the McFadden's pseudo R-square, which is 1 minus the ratio of log likelihood of the model and log likelihood of the null model. Max rescaled R-square equals {1-exp[2(logL(M)-logL(0))/n])/{1-exp[2logL(0)/n]}, where logL(M) is log likelihood of the model and logL(0) is log likelihood of the null model.

N/A marks a predictor that was not included in the equation due to its conceptual redundancy and/or empirical excessive collinearity with the dependent variable.

Source: HUDQC FY2009 Household-level data collection and Project Staff Questionnaire

We specified three linear regression models of, respectively, percentage of item verification error, percentage of item transcription error, and the total counts of project-caused errors. The model fit statistics for the three models differed greatly, with the total counts of errors the highest at .975 because of the close correlations between the individual types of error and the total count of errors. We highlight the significant and substantively meaningful predictors of the three measures of project-caused error, with qualification that *all other factors are held constant in each model.*

Percentage of items with transcription error:

- Households in the Public Housing program had a higher rate of items with transcription error (5.9 percent, $p < .01$) relative to those in the owner-administered program.
- Households with project-caused consistency error had a higher rate of items with transcription errors (11 percent, $p < .001$) relative to households without consistency error.
- Households with earned income tended to have higher rate of items with transcription error (6.4 percent, $p < .01$) relative to those without earned income.
- Households with a larger number of income and expense items had a higher rate of transcription error (each increased income/expense was associated with 1.8 percent increase of items with transcription error).

Percentage of items with verification error:

- Households in the Public Housing program had a higher rate of items with verification error (3.4 percent, $p < .05$) relative to those in the owner-administered program.
- Households under projects that required hiring staff to have administrative and/or clerical experience had a higher rate of items with verification error (3.8 percent $p < .05$).
- Households with project-caused consistency error tended to have a higher rate of items with verification error (7.7 percent, $p < .05$).
- Household with procedure error tended to have a lower rate of items with verification error (minus 5.5 percent, $p < .05$).
- Households with other income, public assistance income, and medical expenses tended to have higher rates of items with verification error (respectively, 6.5 percent, $p < .01$; 5.6 percent, $p < .05$, and 1.2 percent, $p < .01$).

Total number of project-caused errors:

- Households under projects that required hiring staff to have administrative and/or clerical experience had a smaller number of errors (.031, $p < .05$).
- Different types of project-caused error contributed to the total number of error at varying degrees, ranging from no effect of percent of items without third-party verification to 1.849 ($p < .001$) of the procedure error. Such widely different effects were likely due to

the varying prevalence of the individual types of error, an issue that require more extensive analysis.

- Households with earned income, pension income, other income, and medical expense tended to have moderately fewer project-caused errors, respectively estimated as -.040 ($p < .01$), -.034 ($p < .01$), -.029 ($p < .05$), and -.030 ($p < .001$). These negative relationships imply that the complexities of household financial conditions did not accumulate large numbers of project errors. Rather, financial complexities seem to relate to the specific project errors that were important in further generating rent error, such as transcription error and overdue recertification error (see Exhibit F-4).
- An exception of this household effect was the number of income and expense items, which was related to a larger number of project errors, with an estimate of .030, $p < .001$.

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

Predictor	Percent Item Transcription Error		Percent Item Verification Error		Total N of Error	
Intercept	-0.032		-0.098	*	0.010	
Project Characteristics						
Section 8	0.024		0.028		-0.009	
Public Housing	0.059	**	0.034	*	0.038	
Units per staff (in 100)	0.000		0.000		0.002	
% of exp. staff training	0.000		0.029		-0.009	
Require a minimum education for hire	N/A	N/A	0.027		-0.002	
Admin/clerical exp. required for hire	0.004		0.038	*	-0.031	*
# of requirement for hire	-0.002		-0.007		0.001	
# of new staff	0.002		0.002		-0.002	
Project Operations						
Verification: tracked by computer	0.018		0.003		-0.011	
Verification: # of items always used EIV	-0.003		-0.003		-0.001	
Monitor: # of methods	0.002		0.002		0.000	
Case review: all cases	0.013		-0.016		-0.008	
Case review: other methods	-0.010		0.033		0.014	
Project-Caused Errors						
% of items with transcription error	N/A	N/A	-0.011		0.157	*
% of items without written third-party verification	0.001		N/A	N/A	0.018	
Overdue recertification error	0.174		0.071		1.248	***
Any calculation error	-0.003		-0.012		1.019	***
Consistency error	0.110	***	0.077	*	0.380	***
Transcription error	N/A	N/A	-0.021		0.610	***
Administration error	N/A	N/A	0.033		1.375	***
Procedure error	N/A	N/A	-0.055	*	1.849	***

Predictor	Percent Item Transcription Error		Percent Item Verification Error		Total N of Error	
Household Characteristics						
# of household members	0.001		0.004		0.019	
Total annual income (in $1000)	0.001		-0.002		0.001	
# of bedrooms	-0.008		0.013		0.007	
Earned income	0.064	**	0.027		-0.040	**
Other income	0.026		0.065	**	-0.034	**
Public assistance income	0.032		0.056	*	-0.007	
Pension income	0.017		-0.004		-0.029	*
Household head age	0.000		0.000		0.000	
# of income and expenses	0.018	*	0.004		0.030	***
# of allowances	-0.013		-0.020		-0.008	
Household w/ disabled elderly	-0.056		-0.007		0.005	
# of dependents	-0.018		-0.019		-0.021	
Medical expense	0.002		0.012	**	-0.030	***
R-square	**0.132**	***	**0.069**	***	**0.975**	***
Adjusted R-square	**0.121**	***	**0.056**	***	**0.975**	***

*p < .05, **p < .01, ***p < .001 (test with the null hypothesis that a coefficient [or R^2]=0; a significant result indicates that the corresponding variable is associated with the dependent variable).
N/A marks a predictor that was not included in the equation due to its conceptual redundancy and/or empirical excessive collinearity with the dependent variable.
Source: HUDQC FY2009 Household-level data collection and Project Staff Questionnaire

Summary

The multivariate analysis of the HUDQC FY 2009 data provided information for assessing the project and household variables that account for rent errors. This approach, going beyond the bivariate tabulations presented in earlier sections, estimated the *net effects* of relevant project and household variables in relation to rent error. This analysis can be used to address the question, "How do specific project and household variables predict rent error, given that other project and household conditions are equal?

The results of the multivariate modeling results were largely consistent with those from the FY 2008 analysis. We came to the following suggestions for projects staff to reduce rent errors.

- Eliminate overdue (re)certifications by starting the recertification process with enough time to conclude all the needed tasks
- Reduce transcription error by implementing specific quality control procedures for the interpretation and transfer of information from household supporting documents to the 50058 or 50059 Forms.
- Dedicate additional resources to the often difficult task of obtaining third-party verification for income, asset and expense sources.
- Select cases with specific characteristics for more intensified quality control review. Such cases should include those with four or more sources of income and expenses, those with

earned income, and those with other income sources. Such targeted review would help reduce errors that occur in the process of rent determination.

Drawing on the statistical information from the multivariate analysis, we attempted to address five study objectives specified in the analysis plan, as summarized below.

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

Other things being equal, Public Housing households' average gross rent error, underpayment, and overpayment were the lowest, followed by owner-administered projects and PHA-administered Section 8. The estimated net differences by program type confirmed the results from the bivariate cross-tabulations presented in the main text of this report (see Exhibits ES-1, IV-3 through IV-4b).

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 household or by the program sponsor staff.

Higher rent errors were related to the following project-caused errors: overdue (re)certifications, transcription errors, and failure to verify income, asset and expense sources with third-party verification. Household variables indicative of the complexity of financial conditions and income, including the number of income sources (earned, other and pension); and number of allowances, strongly predicted higher gross error.

Project-caused errors and household characteristics respectively accounted for approximately 20 percent and 7 percent of the gross rent error variance.

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

PHA-administered projects had relatively high gross error, underpayment, and overpayment (see also Objective 5), net of other effects in the models. Otherwise, the multivariate analysis did not find evidence that errors were concentrated in particular projects or programs.

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 did not find strong evidence that the use of an automated rent calculation system made a difference in rent error. Of many indicators of automated system use, only one (use computer to track verification) was found statistically significantly related to rent error, predicting moderately higher gross rent error and overpayment. Given this single effect estimated at a fairly low significance level with a small effect size, we advise caution in reaching any conclusion regarding the impact of automated system application on rent error.

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

Project characteristics as defined and measured by this analysis were not predictive of rent error. This was evidenced in both the bivariate and multivariate analyses. The analysis did identify, consistently with prior years' analyses, a number of household characteristics that were predictive of rent error, namely: number of income sources (earned, other and pension) and number of allowances (see also Objective 6).

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Attachment 1: Household Records Without Project Response (PSQ data)

One of the sampled projects in the FY 2009 HUDQC did not respond to the survey. The affiliated four household records did not have matched project information and thus were deleted from the multivariate analysis. These records were identified below. A comparison of the rent error measures before and after excluding these records is shown below.

Identification of Household and Projects Records Not Included in the Multivariate Analysis

MacroID	PSU	HHID
26030	26	2603001
26030	26	2603002
26030	26	2603003
26030	26	2603004

Comparison of Rent Error Measures: Including and Excluding Cases Without PSQ Data

Label	Excluding the Household Records Without Project Data (n=2400)				Including the Household Records Without Project Data (n=2404)			
	Mean	Std error of mean	95% CL for mean		Mean	Std error of mean	95% CL for mean	
Rent error	-3.166	0.965	-5.057	-1.274	-3.160	0.963	-5.048	-1.271
Gross error	15.193	0.916	13.398	16.989	15.169	0.914	13.376	16.962
Log gross error	1.295	0.033	1.231	1.359	1.293	0.033	1.229	1.357
Binary gross err $5 or more	0.358	0.010	0.339	0.377	0.357	0.010	0.338	0.376
Log overpay	0.598	0.028	0.544	0.652	0.597	0.028	0.543	0.651
Log underpay	0.590	0.026	0.540	0.641	0.589	0.026	0.539	0.639
HUD overpay binary	0.178	0.008	0.162	0.193	0.177	0.008	0.162	0.192
HUD underpay binary	0.193	0.008	0.178	0.209	0.193	0.008	0.177	0.209

Source: HUDQC FY2009 Household-level data collection and Project Staff Questionnaire

Attachment 2: Descriptive Statistics

Weighted Rescaled Variables Used In the Multivariate Analysis

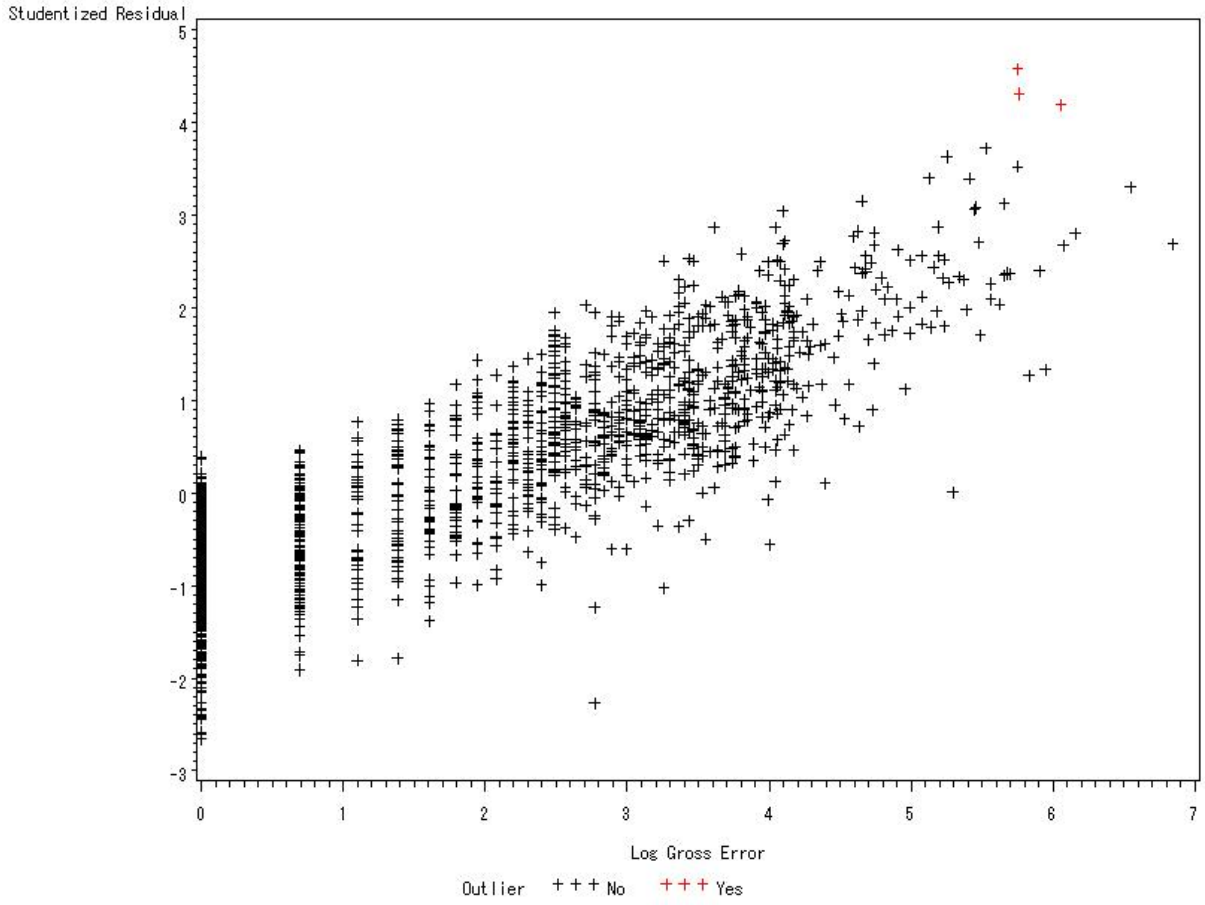
Variable Label	N	Mean	Std error of mean	95% CL for mean	
Log gross error	2397	1.289	0.033	1.225	1.353
Log overpay	2397	0.592	0.027	0.538	0.645
Log underpay	2397	0.591	0.026	0.541	0.641
Project Characteristics					
Section 8	2397	0.333	0.01	0.314	0.352
Public Housing	2397	0.335	0.01	0.317	0.354
Units per staff (in 100)	2397	19.382	1.332	16.770	21.994
% exp. staff training	2397	0.769	0.008	0.754	0.784
Require a minimum education for hire	2397	0.978	0.003	0.972	0.984
Admin/clerical exp. required for hire	2397	0.66	0.01	0.641	0.679
# of requirements for hire	2397	4.659	0.035	4.591	4.726
# of new staff	2397	1.387	0.095	1.201	1.574
Project Operations					
Verification: tracked by computer	2397	0.478	0.01	0.458	0.498
Verification: # items always used EIV	2397	3.782	0.045	3.693	3.871
Monitor: # of methods	2397	17.162	0.138	16.892	17.432
Case review: all cases	2397	0.32	0.01	0.301	0.339
Case review: other methods	2397	0.053	0.005	0.044	0.062
Project-Caused Errors					
% of items with transcription error	2397	0.222	0.006	0.21	0.234
% of items without written third-party verification	2397	0.074	0.005	0.065	0.083
Overdue recertification error	2397	0.009	0.002	0.005	0.012
Any calculation error	2397	0.814	0.008	0.798	0.829
Consistency error	2397	0.177	0.008	0.162	0.193
Transcription error	2397	0.403	0.01	0.383	0.422
Administrative error	2397	0.433	0.01	0.413	0.452
Procedure error	2397	0.228	0.009	0.211	0.245
Household Characteristics					
# of household members	2397	2.108	0.03	2.05	2.166
Total annual income (in $1000)	2397	12.543	0.199	12.154	12.932
# of bedrooms	2397	1.835	0.02	1.795	1.875
Earned income	2397	0.39	0.015	0.362	0.419
Other income	2397	0.247	0.011	0.226	0.268
Public assistance income	2397	0.111	0.007	0.097	0.125
Pension income	2397	0.912	0.02	0.874	0.951
Household head age	2397	51.272	0.402	50.483	52.06
# of income and expenses	2397	3.112	0.062	2.991	3.233
# of allowances	2397	1.281	0.013	1.255	1.307
Household w/ disabled elderly	2397	0.566	0.01	0.546	0.586
# of dependents	2397	0.893	0.027	0.84	0.946
Medical expense	2397	1.003	0.042	0.921	1.085

Source: HUDQC FY2009 Household-level data collection and Project Staff Questionnaire

Attachment 3: Residual Analysis and Outlier Identification

The household data on rent error, like most survey statistics, may contain extreme cases whose gross error values were appreciably different from the rest of the sample (see Figure below). In our study, the problem was more likely due to a different sampling distribution of these cases than measurement errors. Observable by large residuals, outliers often have dramatic effects on the fitted least squares regression function. It is therefore important to study the outlying cases carefully and decide whether to keep them in the models.

Residual Distributions of Log Gross Error:
Correlation of Studentized Residual Scores and Log Gross Error



Source: HUDQC FY2009 Household-level data collection and Project Staff Questionnaire

Relative to prior analyses, we used a more rigorous residuals analysis to detect outliers; i.e., Y observations whose residuals e_i have substantially different variances $\sigma^2\{e_i\}$. We examined the magnitude of each e_i relative to its estimated standard deviation, a ratio of e_i to $s\{e_i\}$, called the studentized residual, to assess differences in the sampling errors of the residuals.

We also made residual analysis more effective for detecting outlying Y observations by measuring the ith residual e_i with the fitted regression based on all of the cases except the ith one. The reason for excluding the ith case is that if Y_i is far outlying, the fitted least squares regression function based on all cases including the ith case may be influenced to come close to Y_i. In that

event, the residual e_i will be small and will not disclose that Y_i is outlying. Excluding the ith case before the regression function is fitted, the least squares fitted value would not be influenced by the outlying Y_i observation, and the residual for the ith case will then tend to be larger and therefore more likely to disclose the outlying Y observation.

Combining the above two refinements, we conducted diagnosis of outlying Y observations by deleting each case's residual and studentizing it. Each studentized deleted residual t_i was calculated from the residual e_i, the error sum of squares SSE, and the hat matrix values h_{ii}, all for the fitted regression based on the 2,396 cases in the dataset. Each studentized deleted residual t_i follows the t distribution with n-p-1 degrees of freedom.

For this study, we defined as outliers the household records with large absolute values of studentized deleted residuals via the Bonferroni test, based on Bonferroni critical value $t(1-\alpha/2n; n-p-1) = 4.0$. We present the rent error descriptive statistics for the three deleted cases below.

Cases with Large Studentized Residual Scores of Gross Rent Error: Regression Diagnosis Analysis

Residual subgroup	N obs	Label	Mean	Std dev	Minimum	Maximum
High positive studentized residual (deleted from analysis)	3	Log gross error	5.857	0.173	5.753	6.057
		Binary gross error $5 or more	1.000	0.000	1.000	1.000
		Log overpayment	5.857	0.173	5.753	6.057
		Log underpayment	0.000	0.000	0.000	0.000
		HUD overpayment binary	1.000	0.000	1.000	0.000
		HUD underpayment binary	0.000	0.000	0.000	0.000
Low studentized residual (cases used in the analysis)	2397	Log gross error	1.289	1.595	0.000	6.844
		Binary gross error $5 or more	0.357	0.479	0.000	1.000
		Log overpayment	0.592	1.344	0.000	6.548
		Log underpayment	0.591	1.256	0.000	6.844
		HUD overpayment binary	0.176	0.381	0.000	1.000
		HUD underpayment binary	0.194	0.395	0.000	1.000

Observed, Residual, Studentized Residual, and Predicted Log Gross Rent Error Scores for Large-Studentized-Residual Cases: Regression Diagnosis Analysis

HHID	PSU	Observed	Predicted	Residual	Studentized residual	Program type
0622025	06	5.753	0.829	4.924	4.574	2
1121002	11	5.762	1.821	3.941	4.308	2
4402004	44	6.057	0.720	5.337	4.186	3

Source: HUDQC FY2009 Household-level data collection and Project Staff Questionnaire

Attachment 4: Proportion of Gross Rent Error Variance Partitioned by Project and Household Level

Unconditional HLM Model Estimates

Random effects	Estimate	Standard error	Z value/ t value	Probability
Model effects				
Project-level variance	0.1802	0.04152	4.34	<.0001
Household-level variance	4.1680	0.1313	31.74	<.0001
Total variance	4.1680			
Project-level proportion	4.323%			
Fixed effects				
Mean log gross rental error	1.3013	0.03787	34.36	<.0001

Source: HUDQC FY2009 Household-level data collection and Project Staff Questionnaire