# Housing Choice Voucher Program Administrative Fee Study

Draft Final Report

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*Submitted by*
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RSG
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# Acknowledgements


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- Ocala Housing Authority (Florida)
- Orange County Housing Authority (California)
- Pinellas County Housing Authority (Florida)
- Portsmouth Metropolitan Housing Authority (Ohio)
- Richland County Housing Authority (North Dakota)
- Sanford Housing Authority (North Carolina)
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# 1. Introduction

The Housing Choice Voucher (HCV) program is the federal government's largest low-income housing assistance program, serving approximately 2.1 million households nationwide. The HCV program is administered federally by the U.S. Department of Housing and Urban Development (HUD) and locally by approximately 2,300 local, regional, and state agencies, referred to collectively as public housing agencies (PHAs). Funding for the HCV program is provided by the federal government. The funding that PHAs receive for running the HCV program includes the housing subsidy itself, plus administrative fees to cover the costs of running the program.

The main purpose of the HCV Administrative Fee Study is to measure the costs of operating a high-performing and efficient HCV program and to develop a new administrative fee formula based on those costs. The study seeks to answer five primary research questions:

- How much does it cost to run a high-performing and efficient HCV program?
- What accounts for variation in HCV administrative costs?
- What would be an appropriate formula for allocating administrative fees to PHAs operating HCV programs on an ongoing basis?
- Is there a minimum size below which an HCV program cannot successfully operate on administrative fees alone?
- How much does it cost to administer the HCV Family Self-Sufficiency (FSS) program?

This draft report addresses each of the research questions and presents the findings of the study's intensive time measurement and cost data collection effort, which took place between 2012 and 2014 at 60 PHAs across the country. The remainder of the introduction discusses the study background, provides an overview of the study, and previews the structure of this report.

## 1.1 Study Background

### 1.1.1 History of the Administrative Fee Formula

For much of the voucher program's history—starting with the Section 8 Rental Certificate Program in the 1970s—program administrative fees were calculated based on the number of vouchers under lease and a percentage of the local Fair Market Rent (FMR). The original administrative fee reimbursement consisted of a $275 "preliminary" reimbursement for new units and an ongoing administrative fee equal to 8.5 percent of the local two-bedroom FMR. HUD made several changes during the 1980s to the fee calculation, but these were largely in response to Congressional budgetary mandates rather than based on analysis of program costs.

In 1989, HUD funded a study of administrative costs in the Housing Voucher and Section 8 Certificate programs (Leger and Kennedy 1988). It was the first study of administrative costs to be based on direct measurement of staff time spent on the program. The study focused on large urban PHAs and found that for the agencies operating the housing voucher program, ongoing administrative costs were substantially lower than the ongoing administrative fees the agencies were receiving, while agencies' lease-up costs were substantially higher than the preliminary administrative fees the

agencies were receiving. The overall takeaway from the study was that large urban PHAs received more in administrative fees than they spent administering the program.

In 1994, HUD undertook an analysis of operating statement data from the 1980s and early 1990s to examine costs and fees for PHAs of all sizes and market locations (HUD 1994). The study found that PHAs on average earned more in fees than they spent in costs, but that small PHAs and PHAs operating in non-metropolitan and rural areas fared worse than larger urban PHAs. The findings of this study informed some changes to the fee formula, including establishing a maximum and minimum fee base (related to the FMR) on which each PHA's administrative fees would be calculated and creating different fee rates for the first 7,200 voucher unit months (600 vouchers under lease) and for all other units.

The fee formula continued to evolve in the 1990s and 2000s, including a period between 2004 and 2007 when PHAs received a flat fee—not tied to the number of vouchers under lease—based on the amount each PHA was eligible to receive in 2003, minus 6.2 percent. Additional fees provided for homeownership programs, hard-to-house families, and activities related to lead paint mitigation.

In 2008, the fee formula returned to being based on the number of units under lease. The formula has not changed substantially since then, although the total funding available for HCV administrative fees has decreased (as discussed below).

### 1.1.2 Current Administrative Fee Formula

Under the current (CY 2014) administrative fee formula, HUD calculates a Column A and Column B fee rate for each PHA. Fees are only earned on vouchers under lease. The Column A fee rate applies to the first 7,200 unit months under lease, and the Column B fee rate applies to all other units under lease. The Column A fee rate is equivalent to 7.5 percent of the higher of the FY 1993 or FY 1994 FMR for a two-bedroom unit in the PHA's market area, multiplied by an inflation factor (defined below). The Column B fee rate is equivalent to 7 percent of the higher of the FY 1993 or FY 1994 FMR for a two-bedroom unit in the PHA's market area, limited by floor and ceiling amounts, multiplied by the inflation factor (HUD 2012).

The inflation factor is calculated using the Bureau of Labor Statistics Quarterly Census for Employment and Wages (QCEW) and is the percentage change in local government wages since 1993. For PHAs in metropolitan areas, the inflation factor is the average change in local government wages for metropolitan areas in the state in which the PHA is located. For PHAs in non-metropolitan areas, the inflation factor is the average change in local government wages for non-metropolitan areas in the state in which the PHA is located.

If the Column A and Column B fee rates calculated following this procedure result in lower rates than the PHA's fee rates for the previous year, the fee rate is kept the same as the previous year. In recent years, due to reductions in appropriations for the HCV program, PHAs have received a prorated fee that is lower than what the fee formula would allocate to them. Administrative fee proration is discussed in the next section.

The fee for a portable voucher administered by one PHA on behalf of another is 80 percent of the prorated Column B rate. The receiving PHA bills the sending agency for 80 percent of the sending PHA's administrative fee. The sending agency retains 20 percent of the prorated fee.

PHAs can request certain modifications to their fee rates. First, if the PHA serves participants in more than one fee area, the PHA can request a blended fee rate. Second, PHAs that operate over a large geographic area, defined as multiple counties, may request higher administrative fees (HUD 2014).

### 1.1.3 Funding for HCV Administrative Fees

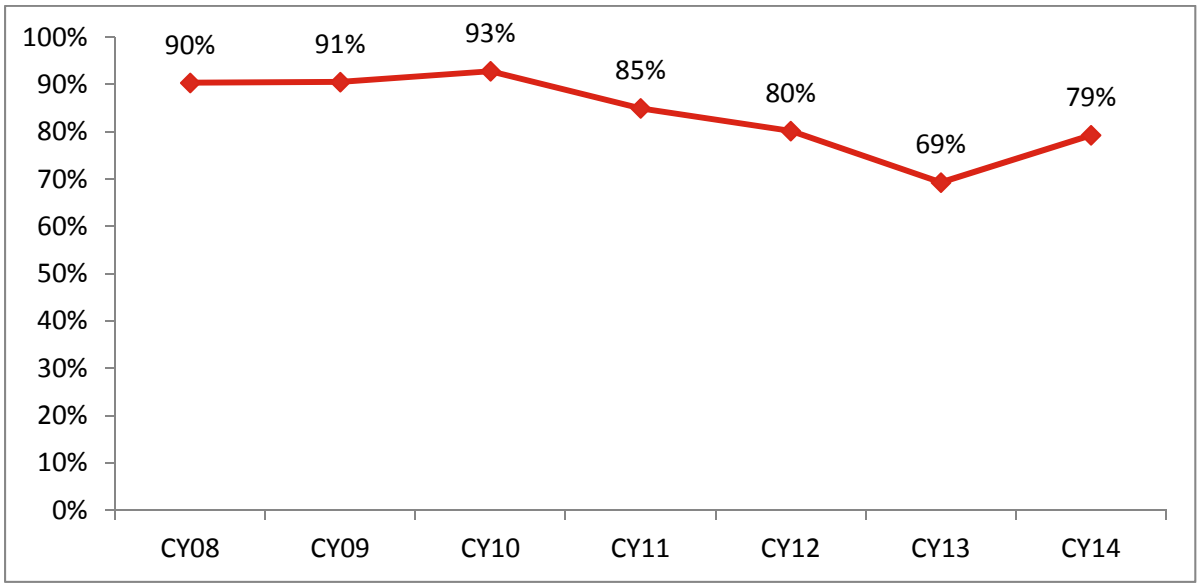
Before 2003, PHAs generally received Housing Assistance Payment (HAP) funding for all the units under their authority and the full amount of administrative fees authorized by the fee formula in place for all leased units. After 2003, administrative fees began to be reduced in different ways. In 2003, PHAs still received fees based on the number of units leased. However, the fees received were reduced by the amount of the PHA's administrative fees reserves in excess of 105 percent of their CY 2002 fees. Fees for CY 2004 through CY 2007 were not based on the number of units leased but rather on the previous year's fee eligibility, adjusted for any new units allocated after 2003. Thus, in these years fees were essentially frozen at the CY 2003 level with the only increase to the fee base coming from new units. In addition, starting with fees funded under the federal fiscal year 2004 Appropriations Act, PHAs were restricted from using their administrative fee reserves for housing purposes other than HCV administrative expenses.[1]

Beginning in CY 2008, administrative fees were once again earned on the basis of vouchers leased in accordance with Section 8(q) of the United States Housing Act of 1937, as described in Section 1.1.2. During this time, administrative fees were prorated in order to stay within the amounts appropriated under HUD's Appropriations Acts. For CY 2008 through CY 2010, the administrative fee proration was 90 percent or higher, meaning that PHAs received 90 percent (or more) of the administrative fees they would have received if full funding were available (Exhibit 1-1). Since 2011, however, the annual proration to the administrative fee has deepened, reaching a nadir in 2013 of 69 percent as a result of federal budget sequestration but rising slightly to an expected 79 percent in 2014.

HAP funding also decreased substantially in 2013, with a 94 percent proration of the funds made available to cover subsidies for households (Exhibit 1-2).

[1] Before 2004, a PHA did not need to use its administrative fee reserves to cover its HCV administrative expenses, the funds could be used for other housing purposes permitted by state and local law.

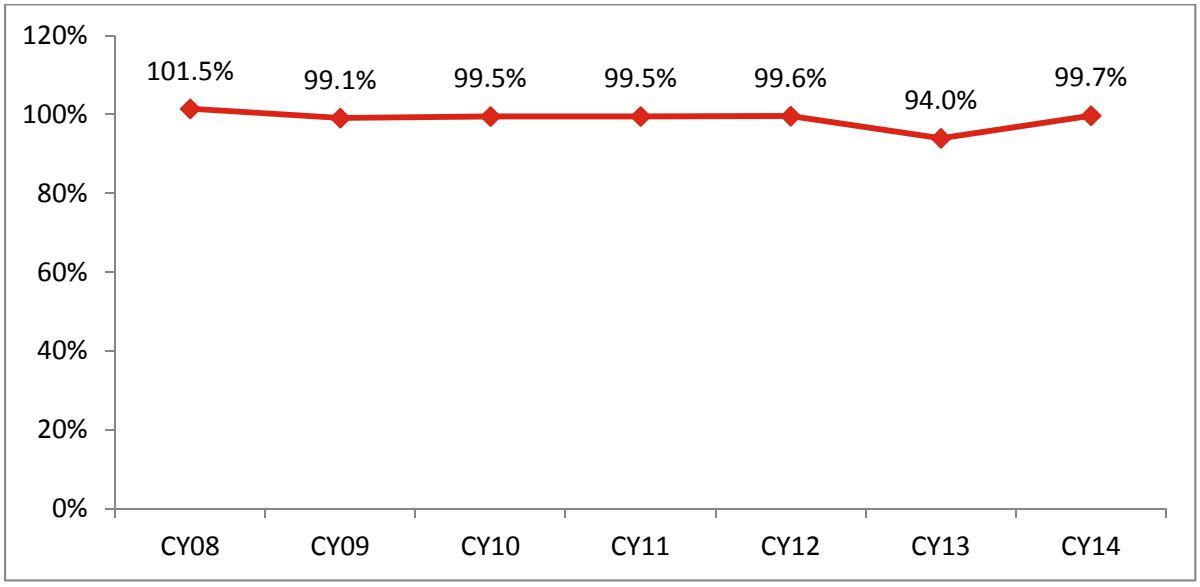
**Exhibit 1-1. HCV Administrative Fee Proration, 2008–2014**




Source: Data provided by HUD for the HCV Administrative Fee Study.

Note: CY14 data is preliminary, not yet reconciled for the year. In CY13 there were separate prorations for HUD-Veterans Affairs Supportive Housing (HUD-VASH) vouchers and all other vouchers. This chart shows the proration for all other vouchers. The HUD-VASH administrative fee proration in CY13 was 73 percent.

**Exhibit 1-2. HCV HAP Proration, 2008–2014**



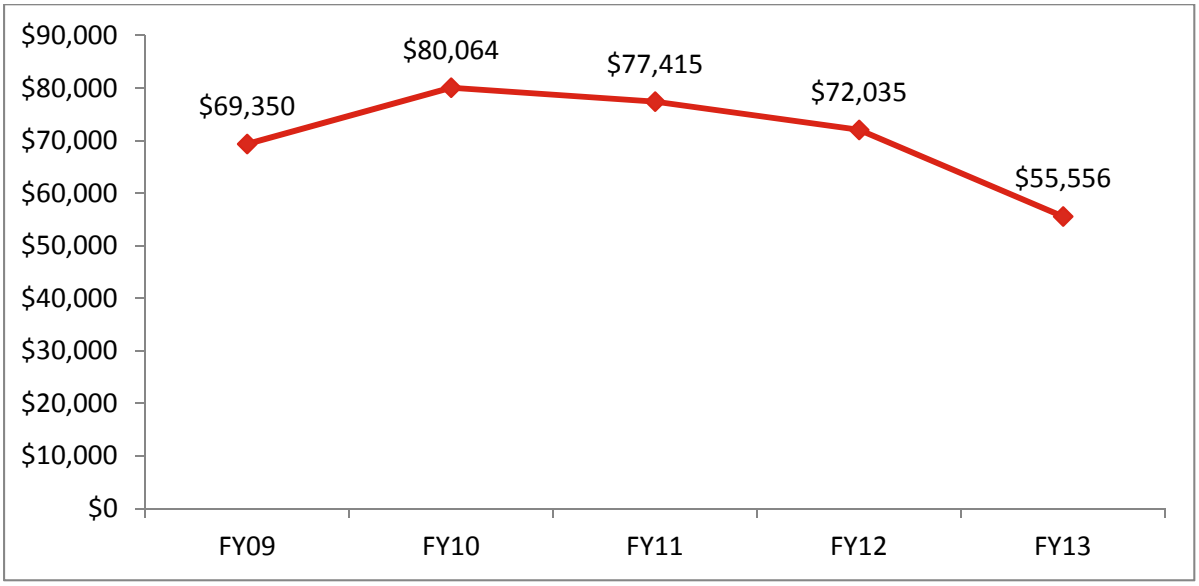

Source: Data provided by HUD for the HCV Administrative Fee Study.

Note: In CY13 there were separate prorations for HUD-VASH vouchers and all other vouchers. This chart shows the proration for all other vouchers. The HUD-VASH HAP proration in CY13 was 99 percent.

The reductions in administrative fee funding and HAP funding have put substantial financial pressure on PHAs as they try to maintain leasing levels and cover administrative costs. Administrative fees are affected in two ways: through the direct proration of administrative fees and through the reduction in prorated fees earned if leasing drops relative to national leasing as a result of reduced HAP funding. Thus, PHAs with reduced leasing face additional constraints on administrative spending.

Analysis of HUD administrative data suggests that the period of administrative fee proration between 2009 and 2013 corresponds to a period of increasing financial hardship for the average PHA. Exhibit 1-3 shows how PHAs' administrative fee reserves (also known as unrestricted net assets or UNA) have changed over the past five years. Administrative fee reserves are the administrative fee funding that a PHA receives for a year that exceeds the PHA's actual costs for that year; the PHA holds these funds in reserve to manage unpredictable changes in administrative costs or shortfalls in the administrative budget in future years. Between 2009 and 2013, the median administrative fee reserve across all PHAs decreased from $69,350 to $55,556, a 20 percent decline.

**Exhibit 1-3. Median Administrative Fee Reserves, 2009–2013**



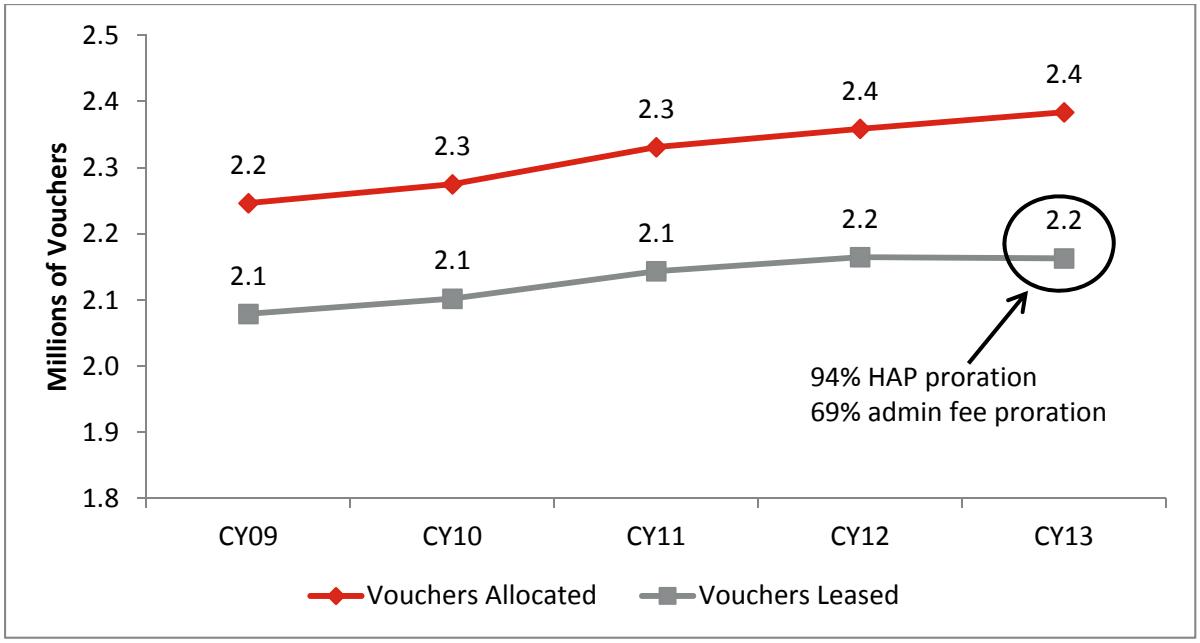

Source: Data compiled from HUD Financial Data Systems. Administrative fee reserves calculated as follows: FDS line 11170 (administrative equity) *minus* FDS line 508.1 (invested in capital assets, net of related debt) *minus* FDS line 508.4 (net investment in capital assets—only relevant for PHAs with FYE 12/31/13).
N=2,008 PHAs (excludes Moving to Work PHAs and any PHAs with incomplete data 2009-2013)

The increased pressure on HAP funding has not resulted in across-the-board leasing reductions for all PHAs. Analysis of HUD administrative data suggests that the total number of vouchers under lease has grown in the past five years, in spite of the budget pressures. Several factors have led to increased leasing, including optimization efforts to improve leasing at agencies with HAP reserves. However, the growth in vouchers leased has been modest overall, about 4 percent, and is concentrated among larger PHAs.

Furthermore, the number of vouchers under lease has also grown more slowly than the number of vouchers allocated (see Exhibit 1-4). Between 2009 and 2013, the number of vouchers allocated grew

by about 137,000, while the number of vouchers under lease grew by about 84,000, suggesting that vouchers were lost during this period.

**Exhibit 1-4. Vouchers Allocated and Leased, All PHAs, 2009–2013**




Source: Analysis of data from HUD's Voucher Management System (VMS) for the months January 2009 through December 2013. Includes all voucher types.

Exhibit 1-5 shows the growth in vouchers leased by HCV program size. The table shows that all size categories experienced net growth in the number of vouchers leased but that growth was concentrated among larger PHAs. The share of PHAs experiencing growth ranged from 84 to 85 percent of the PHAs with more than 2,500 vouchers to 28 percent of the PHAs with 100 vouchers or fewer.

The conclusion from this analysis is that, although the program as a whole has grown somewhat in the past five years, PHAs have less funding for the administration of the program, and many PHAs have reduced their leasing. Indeed, because of funding challenges, some PHAs have opted to give up their HCV programs—requesting HUD to transfer them to other entities. Since 2010, according to HUD data on transfer requests, approximately 120 PHAs have transferred their HCV programs to other entities. As discussed further in Chapter 2, an important consideration in the design and implementation of the study has been the budgetary constraints under which PHAs are operating, particularly the reductions in administrative fee funding since 2010.

**Exhibit 1-5. Change in Vouchers Leased, CY 2009–CY 2013, by HCV Program Size**

| Vouchers Leased in CY09) | Number of PHAs in CY09 | Vouchers Leased in CY09 | Number of PHAs in CY13 | Vouchers Leased in CY13 | Percent Difference, CY09-CY13 | Share of PHAs Experiencing Growth in Leasing |
|---|---|---|---|---|---|---|
| More than 5,000 | 71 | 849,827 | 77 | 935,387 | 10.1% | 84.2% |
| 2,501 to 5,000 | 93 | 314,062 | 96 | 330,385 | 5.2% | 85.4% |
| 1,001 to 2,500 | 262 | 398,414 | 256 | 393,155 | -1.3% | 69.1% |
| 501 to 1,000 | 335 | 234,283 | 326 | 233,130 | -0.5% | 53.7% |
| 251 to 500 | 421 | 151,357 | 401 | 145,826 | -3.7% | 40.1% |
| 101 to 250 | 580 | 96,078 | 554 | 92,665 | -3.6% | 36.6% |
| 1 to 100 | 641 | 35,069 | 595 | 32,335 | -7.8% | 28.0% |
| 0 | 6 | 0 | 104 | 0 | n/a | n/a |
| **Total** | **2,403** | **2,079,090** | **2,305** | **2,162,883** | **4.0%** | **44.7%** |

Source: Analysis of data from HUD's Voucher Management System for the months January 2009 through December 2013. Includes all voucher types.

## 1.2 Study Overview

The primary objective of the HCV Administrative Fee Study is to ascertain how much it costs a PHA to run a high-performing and efficient HCV program, in order to develop a formula for allocating administrative fees. In an era of reduced funding for social programs, it is critically important for HUD to have accurate, reliable information on how much it costs to administer a well-run HCV program. Although there have been several studies of administrative costs since the voucher program's inception,[2] the most recent study (HUD 1994) was conducted two decades ago and was based on administrative data rather than actual levels of effort by PHA staff. Further, the existing formula has been in place for many years and is very closely tied to the local FMR. One of the goals of this study is to improve the formula by revising the amount of funding allocated to each PHA and building in factors shown to be directly related to program administrative costs.

The HCV Administrative Fee Study has several important features designed to ensure that its findings are accurate, credible, and appropriate for developing a fee formula:

- **The study uses a time measurement approach**, directly measuring the time that PHA staff spent on core HCV program activities and using that time to build up an estimate of program costs. The study measured time use over an eight-week period at 60 PHAs across the country. For 56 of the 60 PHAs, time measurement was conducted on a rolling basis in cohorts of six to eight PHAs, starting in January 2013 and ending in April 2014. Four of the 60 PHAs served as pretest sites and were measured in 2012.

[2] In addition to Leger and Kennedy (1988) and HUD (1994), other studies of voucher and certificate program costs are Westat (1977); Maloy, Madden, Budding, and Hamilton (1977); and Westat and Coopers & Lybrand (1981).

- **A Random Moment Sampling (RMS)** approach was used to collect detailed and accurate information on how much time PHA staff spent on the activities required for HCV administration. At each of the 60 PHAs, over the eight-week period, HCV staff reported on what they were working on at 12-15 random points during the day using a specially programmed device, similar to a smartphone. The study collected 581,000 responses from more than 900 PHA staff across the 60 PHAs. These responses were used to create estimates of the staff time spent on different activities within HCV program administration with high levels of accuracy, based on the frequency of the activity and the number of staff at a given PHA.
- **The study is designed to capture all costs incurred by the HCV program**, including costs for items that may be provided to the HCV program free of charge by another entity (such as local government), funded through the PHA's HCV administrative reserves, or funded through another program or line of business operated by the PHA. In some cases, the costs incurred by the HCV program, as measured through the study, include costs that were eliminated or reduced in response to reduced administrative fee funding between 2011 and 2013 but that are necessary to a high-performing program.[3]
- **All the PHAs in the study are high performing and efficient.** The sampling universe for the time measurement study was PHAs that administered at least 101 vouchers, were not participating in the Moving to Work (MTW) demonstration, and that scored as high performers on SEMAP in the previous three years or in at least two of the previous four years for those PHAs not rated each year. PHAs that did not meet the SEMAP high performance score criteria but that were determined to be high-performing HCV programs by HUD headquarters and field staff and recommended for inclusion in the study were also included in the sampling frame. Each of the 60 PHAs in the time measurement study met supplemental performance and efficiency criteria, confirmed through a site visit conducted by the study team.
- **The study is based on a diverse sample of PHAs**, including PHAs with HCV programs ranging in size from 100 to more than 45,000 vouchers, PHAs operating in all regions of the country and in urban, suburban, and rural settings, PHAs with different organizational structures (including two nonprofits), and PHAs that differ from one another in terms of the demographic characteristics of their HCV program participants. The study applies sampling weights to the raw data from the sample of 60 so that the study findings can be interpreted as representing the sampling universe of HCV programs with more than 100 vouchers and at least two years of high performer ratings on SEMAP. The study findings are not weighted to be representative of the HCV program as a whole. Instead, the study weights ensure that the weighted sample accurately represents the universe of high-performing HCV programs along

[3] Since the administrative fee is the main way that PHAs fund their HCV administrative costs, a PHA's administrative costs are largely constrained by the administrative fee the PHA receives. By focusing on measuring all costs incurred, regardless of funding source, and adding back costs that were eliminated as a result of fee reductions, our approach allows for some leakage of costs into and out of the system and reduces the circular relationship between administrative costs and fee funding. It is impossible, however, to eliminate the relationship between PHAs' past funding and their current costs.

key dimensions including program size, program type (HCV only versus combined), and participant characteristics.

- **The study has a large and active Expert and Industry Technical Review Group (EITRG)** consisting of representatives from the major affordable housing industry groups, Executive Directors and HCV Program Directors from high-performing PHAs, affordable housing industry technical assistance providers, housing researchers, and industrial engineers. This group of 20+ individuals met five times since the study's inception, reviewing the study design at different stages and reviewing preliminary findings at the end of the data collection period. EITRG feedback has played an important role in strengthening the study's approach and presentation of findings.

The study has four main data sources:

- Time measurement from 60 PHAs
- Cost data collection from 60 PHAs
- Transaction count data collection from 60 PHAs
- Interviews with staff from 130 PHAs with small HCV programs

In addition to these four original data sources, the study also makes extensive use of administrative data in HUD's Financial Assessment Subsystem of Public Housing (FASS-PH), Voucher Management System (VMS), and PIH Information System (PIC).

The time measurement, cost, and transaction count data, collected from the study's time measurement sample of 60 PHAs, are used to answer the study's research questions about what it costs to operate a high-performing and efficient HCV program, what an appropriate funding formula would be for the HCV program, and what fees are appropriate fees for the FSS program. The interviews with small program PHA staff are used to answer the question on minimum program size. HUD administrative data are used to support all analyses.

## 1.3 Organization of Report

This report is organized into nine chapters. The first four chapters provide important descriptive information about the study approach and the time data that underlies the study's findings on costs:

- Chapter 2 describes the approach to selecting the sample for the time and cost data collection (60 PHAs) and the small program interviews (130 PHAs).
- Chapter 3 describes the approach to the study's main data collection activities: time measurement, cost data collection, transaction counts, and small program interviews.
- Chapter 4 presents descriptive findings on the proportion and amount of PHA staff time spend on core activities and tasks required to operate the HCV program.

The next five chapters directly address the study's five research questions:

- Chapter 5 answers the question of how much it costs to run a high-performing and efficient HCV program.
- Chapter 6 analyzes the factors that account for variation in program administrative costs.

- Chapter 7 answers the question of what an appropriate formula would be for allocating HCV administrative fees.
- Chapter 8 answers the question of whether there is a minimum program size for feasibly operating the HCV program on administrative fees alone.
- Chapter 9 answers the question of how much it costs to administer the HCV Family Self-Sufficiency (FSS) program.

# 2. Sampling

Two groups of PHAs participated in the HCV Administrative Fee Study. To answer the study's research questions about HCV costs and funding, 60 high-performing and efficient PHAs across the country were recruited to participate in intensive time measurement and cost and transaction count data collection. To answer the study's research question about effective program size, 130 small PHAs were recruited for staff telephone interviews. This chapter describes the approach to selecting each sample and to inviting PHAs to participate in the study.

**Exhibit 2-1. PHA Samples for HCV Administrative Fee Study**

| Sample Type | Research Questions | Data Collection |
|---|---|---|
| **60 HCV programs:**<br>☑ Nationwide<br>☑ 101–10,000+ vouchers<br>☑ SEMAP high performers<br>☑ Vetted by site visit | 1. How much does it cost to run a high-performing and efficient HCV program?<br>2. What accounts for variation in HCV administrative costs?<br>3. What would be an appropriate formula for allocating administrative fees to PHAs operating HCV programs on an ongoing basis?<br>4. How much does it cost to administer the HCV Family Self-Sufficiency (FSS) program? | Intensive time measurement, cost data, and transaction counts |
| **130 HCV programs:**<br>☑ Nationwide<br>☑ < 250 vouchers<br>☑ SEMAP high performers | 5. Is there a minimum size below which an HCV program cannot successfully operate on administrative fees alone? | Telephone interviews and document review |

## 2.1 Sample for Time, Cost, and Transaction Count Data Collection

The study conducted time measurement and collected cost and transaction count data at 60 PHAs across the country in order to answer the study's research questions on the cost of the HCV program, the formula for funding the HCV program, and the cost of the FSS program.

In selecting the 60 PHAs, the goal was to create a study sample that was limited to PHAs with high-performing and efficient programs and that also reflected the diversity found in the approximately 2,300 HCV programs nationwide. The sample was limited to high-performing and efficient HCV programs so that the cost estimates produced by the study would represent the costs of operating a well-run program that includes all of the required program activities.

The sampling approach was designed to ensure that the study included HCV programs of different sizes, located in different parts of the country and in a variety of housing and labor market types, with different mixes of participant characteristics, and including PHAs with different organizational structures. However, the sample was not intended to be statistically representative of all HCV programs on all dimensions. Several criteria guided the sampling approach:

- The sample would be limited to PHAs with high-performing and efficient HCV programs.
- The sample would be limited to PHAs with at least 100 vouchers in order to be able to collect accurate measurements of time spent on all core HCV activities.[4]
- HCV program size was hypothesized to be a key cost driver and therefore needed to be part of the sampling process.
- The overall sample size was constrained by the availability of resources for the study.

Following these guidelines, selecting the sample was a multi-step process, outlined in Exhibit 2-2. The main steps in the process were: sample selection, HUD review, initial PHA recruitment, screening for high performance and efficiency, and final recruitment. Each step is described briefly.

### 2.1.1 Sample Selection

The first stage was to select a random sample of PHAs, stratified by HCV program size, from the following sampling universe:

- PHAs that administered at least 101 vouchers, that were not participating in the Moving to Work (MTW) demonstration, and that scored as high performers on SEMAP in the previous three years or in at least two of the previous four years for those PHAs not rated each year (PHAs that received a rating of "troubled" in the two most recent SEMAP years were excluded.)
- PHAs that did not meet the SEMAP high-performance criteria (defined above) but were determined to be high-performing HCV programs by HUD headquarters and field staff and were recommended for inclusion in the study

MTW PHAs were not included in the sampling frame because of their programmatic and funding flexibility. PHAs with fewer than 101 vouchers were not included because the random moment sampling time measurement methodology would not work as well with PHAs with fewer than two staff members. (See Section 3.1 for detail on RMS.)

In selecting the initial sample, we stratified by HCV program size in order to ensure adequate representation in each size category. Exhibit 2-3 shows the desired distribution used to select the sample.[5]

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[4] Costs for programs with 100 vouchers or fewer are analyzed through the small program interview data collection.

[5] In the first round of sample selection, we used a broader category (1,250–9,999) than the distribution presented in Exhibit 2-3. Based on feedback from the EITRG in October 2011, we broke this into two size categories (1,250–5,249 and 5,250–9,999) for subsequent sampling rounds.

**Exhibit 2-2. Key Steps in the Sample Selection Process**

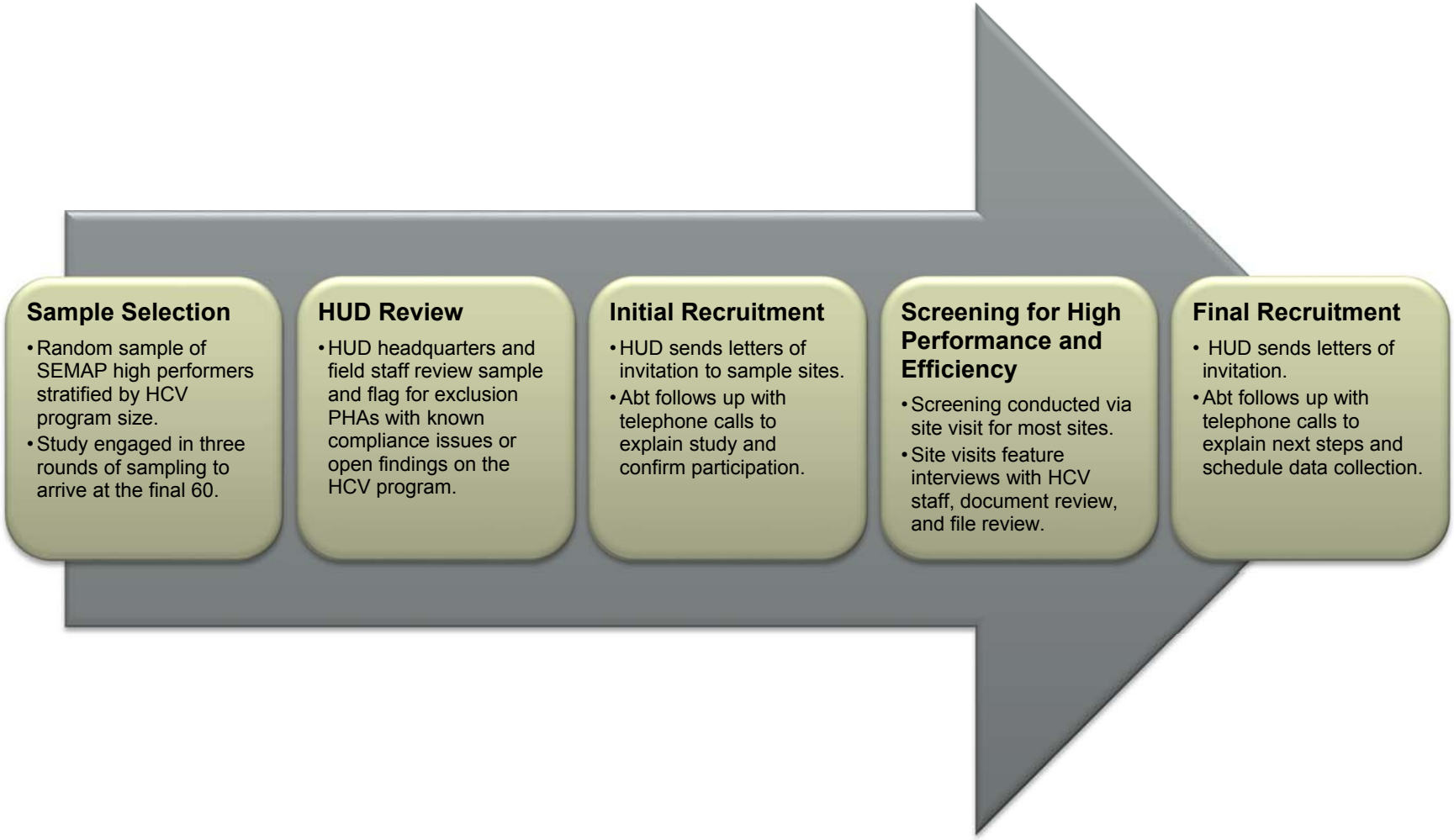

**Exhibit 2-3. Desired Distribution of Final Time Measurement Sample by Program Size**

| Number of Vouchers Allocated | Number | Percent |
|---|---|---|
| 10,000+ | 4 | 7% |
| 5,250–9,999 | 7 | 12% |
| 1,250–5,249 | 10 | 17% |
| 500–1,249 | 16 | 27% |
| 250–499 | 18 | 30% |
| 101–249 | 5 | 8% |
| 1–100 | 0 | 0% |
| **Total** | **60** | **100%** |

The study team selected the sample in three rounds, in March 2011 (Round 1), May 2012 (Round 2), and August 2012 (Round 3). The main reason for the three different rounds was that the sample size for the overall study increased once the study was underway based on feedback from the EITRG that a sample larger than the 30 to 40 sites originally proposed was needed and on the availability of additional resources for the study. The first round of site visits also yielded fewer PHAs than expected meeting the study's high performance and efficiency criteria.

In each sampling round, a set of primary picks was selected by sampling strata based on the size of the voucher program. We also selected backups for each primary pick as replacements if a primary pick either refused to participate in the study or was dropped from the sample because it did not pass the initial HUD review (see Section 2.1.2 below). Backups were designed to match the size, state, and program type of the primary picks.[6] Across the three sampling rounds, a total of 346 PHAs were sampled as primary picks or backups.

### 2.1.2 HUD Review

HUD determined that a PHA with major unresolved Independent Public Accountant (IPA) audit findings or with fair housing findings from Fair Housing and Equal Opportunity (FHEO) reviews in the prior three years related to its HCV program should be excluded from the sample. There was no automated way to identify these PHAs. Therefore, in each sampling round, once we selected the initial sample (primary picks plus backups), we forwarded the list to the HUD field office and headquarters staff and instructed them to flag any PHAs with known compliance issues or open findings with respect to the HCV program that would disqualify them from being considered a high performer.

[6] If no backups were available by PHA size, state, and program type, then we matched on size and state. If still no match was found, then the next backup was selected based on PHA size, census division, and program type. Again, if no backups were found, then a match was attempted on just PHA size and census division. Census division was replaced with census region in the final two attempts. Where there was no replacement within the same size category, the next closest size category was chosen, and the replacement methodology was attempted again.

Across all three sampling rounds, field office and headquarters staff identified 49 PHAs with major unresolved audit or Fair Housing findings or with other disqualifying issues. This represents 14 percent of the 346 PHAs initially sampled.

### 2.1.3 Initial Recruitment

After the HUD review was complete, HUD sent letters to the PHAs remaining in the sample inviting them to participate in the study, starting with the primary picks and moving on to backup picks as needed. The letters were followed up by phone calls from the study team to explain the purpose of the study and what participation entailed. The team explained to the PHAs that they would not be compensated for the first phase of the study but would be compensated for participating in the time measurement study should they meet the study's high performance and efficiency criteria.

Overall, the recruitment process was challenging and became more so over time as proration to administrative fee funding deepened in 2012 and sequestration began in 2013. Exhibit 2-4 summarizes the number of PHAs contacted in each round and the number that initially agreed to participate in the study. As discussed below, 5 PHAs initially agreed to participate in the study but dropped out before completing the time measurement data collection.

**Exhibit 2-4. Response to Initial PHA Recruitment by Sampling Round**

| Sampling Round | Number of PHAs Contacted | Number of PHAs that Agreed to Participate | Percent of PHAs that Agreed to Participate |
|---|---|---|---|
| Round 1 (March 2011) | 91 | 59 | 65% |
| Round 2 (May 2012) | 49 | 29 | 59% |
| Round 3 (August 2013) | 46 | 11 | 24% |
| **Overall** | **186** | **99** | **53%** |

### 2.1.4 Screening for High Performance and Efficiency

Once a PHA agreed to participate in the study, the next step was a site visit to assess whether the PHA's HCV program met the study's eligibility criteria of high performance and efficiency. The visits were conducted by one- to three-person teams of senior staff with expertise in the HCV program from Quadel Consulting Corporation, Abt Associates, and Phineas Consulting. Between April 2011 and December 2013, the study team conducted site visits to 95 PHAs.[7]

#### Data Collection Activities

Before the site visit, PHAs provided information on their HCV programs to expedite the on-site data collection. This information included the HCV Administrative Plan and other documents related to

[7] Four of the 99 PHAs initially agreed to participate but before the site visit indicated that they did not have an updated HCV Administrative Plan (or updated program policies) for the team to review on site. Without an Administrative Plan, it would have been very difficult for the PHA to meet the study criteria. In order to conserve resources and be respectful of the PHA effort required to participate in the site visit, the team (in consultation with HUD) decided not to visit these PHAs.

program procedures, voucher counts, information on Housing Quality Standards (HQS) pass rates and rates of reinspection, and voucher utilization and success rates.

The study team spent two to four days on site, depending on the size of the HCV program. At least one day was spent interviewing the Executive Director, HCV Director, and frontline HCV staff on program operations. The purpose of the interviews was to obtain detailed information on the following:

- The PHA's approach to program functions necessary to operate a high-performing program
- Circumstances that affect voucher program operations and efficiency at the PHA
- Aspects of HCV program administration that staff perceive to be particularly efficient or inefficient
- Program staffing

Following the interviews, the study team spent one to two days reviewing client files. The file review was used to determine whether the program does the following:

- Maintains all the required documents in the file.
- Is up-to-date and compliant with Enterprise Income Verification (EIV) requirements.
- Correctly documents and determines income, deductions, and expenses.
- Correctly determines other core inputs to HAP.
- Complies with other core requirements.

At each PHA, we reviewed approximately 25 client files. Approximately 10 of the 25 files reviewed were selected from the group of clients most recently issued a voucher—a mix of clients who were issued a voucher and leased up and clients who were issued a voucher and did not lease-up. The remaining files reviewed were for clients already under lease at the time of the site visit and who had had a recertification in the past year.

The file samples were intended to provide a general impression of program performance in the areas specified above and to flag for site visitors any issues that might need to be explored further through interviews with program staff. The samples were not intended to be statistically representative of the broader universe of clients served by the PHA's HCV program or to replicate the file samples required by SEMAP.

To select the sample of 15 files from households under contract, we asked the PHA to provide the list of client IDs from the current HAP register. We then selected every "nth" client from the list to arrive at a sample of 15 clients randomly distributed. We provided the list of client IDs to the PHA as soon as we arrived on site so that the files were available on the second or third day of the visit. For the sample of intake clients, we reviewed the files from the program's 10 most recent voucher issuances at the time of the site visit.

### Criteria for High Performance

The site visitors used the information collected through the document review, interviews, and file review to rate each PHA's HCV program according to 14 performance indicators. The EITRG

provided extensive input on the performance indicators, in many cases suggesting that the criteria be modified to allow PHAs to receive partial credit on indicators and to explain why some performance aspects may have been out of their control.[8] The 14 indicators used to rate each PHA's program are listed below:

1. The PHA maintains an accurate, complete, and up-to-date waiting list.
2. The PHA has effective processes for managing portability.
3. The PHA conducts HQS inspections in a timely manner, provides adequate notification to owners, and takes appropriate action for failed or late inspections.
4. The PHA processes Requests for Tenancy Approval (RFTAs) within reasonable timeframes.
5. The PHA makes efforts to expand housing opportunities for HCV tenants (for HCV programs in metropolitan areas).
6. The PHA follows a strong rent reasonableness policy.
7. The PHA calculates total tenant payment, family share, and HAP correctly.
8. The PHA monitors utilization and success rates.
9. The PHA demonstrates sound financial management practices.
10. The PHA has effective communication with tenants and landlords.
11. The PHA provides training for staff and management.
12. Tenant files are well organized and contain adequate documentation, whether paper or electronic.
13. The PHA has an informed HCV program director.
14. The PHA has rigorous program monitoring, reporting, and QC protocols.

The 14 indicators were designed to ensure consistency in the ratings of HCV program performance across the PHAs and across the senior research staff leading the visits. The measures sought to build upon the SEMAP performance indicators but not to replicate those measures captured in SEMAP through administrative data.

Each of the 14 indicators was composed of several performance criteria. Appendix A presents the complete list of indicators and criteria. Based on the document review, staff interviews, and file review, the site visitors scored each program against each of the criteria and also assigned an overall performance rating for each indicator and to the PHA overall. Based on their ratings and overall impressions following the site visit, the site visitor also provided a recommendation on whether the PHA should be included in the study or not.

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[8] After several rounds of discussion, the EITRG did not reach consensus on the high-performance criteria. Some EITRG members suggested that the criteria imposed too high a standard, while others said it was appropriate to focus on high-performing agencies to ensure that the work needed for high performance would be measured.

As the site visits were completed, the study team aggregated the performance criteria for each of the 14 indicators and compared the PHA scores to the site visitor rating and recommendation to arrive at an overall assessment. Only one of the 60 programs in the study received a perfect score on all measures, but none received less than 70 percent of the available points. The average score was 83 percent of the available points. In addition to receiving at least 70 percent of the available points, all of the PHAs included in the study were recommended for inclusion by the site visitor.[9] By contrast, those PHAs not included in the study generally received less than 70 percent of the available points and were not recommended for inclusion by the site visitor.

### Assessing HCV Program Efficiency

In developing the design for the study, the study team explored different ways to define what constitutes an efficient HCV program and had extensive discussions with HUD and the EITRG about how to define an efficient program. Site visitors were able to identify areas of efficiency and inefficiency, but based on those observations, it was difficult to rate a program overall as efficient or inefficient. Not only can individual programs be efficient in some areas and not in others, but a practice that is efficient for one program may not be efficient for another program because of other aspects of the program's administration. That made it challenging to identify objective criteria that could be used across programs to determine whether a program was efficient.

The study chose to identify efficient programs based on caseloads—that is, using total number of vouchers per full-time equivalent (FTE) staff who work on the voucher program. Vouchers per FTE are a reasonable proxy for efficiency, because labor is the most costly component of administering the program.

To implement this measure, we asked PHA staff to estimate the frontline staff time spent on the HCV program and used those estimates to calculate a total number of FTEs. The estimates excluded the FSS coordinator's time, since not all PHAs in the study operate FSS programs. After completing the first 59 site visits, we analyzed the distribution of vouchers per FTE and found that caseloads averaged about 130 vouchers per FTE and ranged from 25 to 300 vouchers per FTE. In consultation with HUD and the EITRG, we proposed that an appropriate cutoff for efficiency for the full study would be 50 vouchers per FTE. Across the 59 programs in the Round 1 reconnaissance, 2 programs had fewer than 50 vouchers per FTE—one program with 22.5 vouchers per FTE and one program with 43.6 vouchers per FTE. Both of the programs with fewer than 50 vouchers per FTE met the study's criteria for high performance, but both were very small agencies (fewer than 50 vouchers) and for that reason would not have been included in the time measurement study in any case.

To test the efficiency threshold further, we collected FTE information from the 130 PHAs that participated in the small program interviews. Across these PHAs, all of which have fewer than 250 vouchers, the average number of vouchers per FTE was 116. Five of the 130 PHAs had fewer than 50 vouchers per FTE. Four of these five programs had 50 vouchers or fewer, and one had 90 vouchers.

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[9] In two cases, the site visitors initially did not recommend the PHA for inclusion but revised their initial recommendations after reviewing the points score and discussing the PHA with the study team. The study team reviewed all site visitor recommendations alongside the PHA's point score and held multiple discussions with the site visit team to ensure inter-rater reliability.

### Results of High-Performance and Efficiency Screening

Of the 99 HCV programs that initially agreed to participate in the study, 76 met the study criteria for high performance (77 percent). Two of the 76 PHAs that met the criteria for high performance had fewer than 50 vouchers per FTE and did not meet the study criteria for efficiency. Furthermore, of the 74 programs that met the criteria for high performance and efficiency, 7 had fewer than 101 vouchers. Programs with fewer than 101 vouchers were part of the Round 1 sampling, but during the development of the research design for the time measurement study (which took place after site visits were underway), we determined that RMS data collection would not be feasible for HCV programs with fewer than 101 vouchers.[10] As a result, programs with fewer than 101 vouchers were not included in the Round 2 and Round 3 sampling, and the seven PHAs that met the high-performance and efficiency criteria from the first round were excluded from time measurement data collection.

Of the remaining 67 programs, 2 were excluded from the study sample by HUD in early 2012 based on performance issues that came to light after the site visits were completed.[11] Thus, a total of 65 programs passed the site visit screen and were determined to be eligible for the time measurement study.

## 2.1.5 Final Recruitment

At the time of initial recruitment, the PHAs that agreed to be in the study understood that they were agreeing both to the site visit to assess eligibility for the study and to the time measurement data collection should they meet the eligibility criteria. Nevertheless, 5 of the 65 PHAs eligible for the time measurement data collection declined to participate before the start of time measurement.

In total, the study team contacted 186 PHAs, conducted site visits to 99 PHAs, and completed time measurement with 60 PHAs. Exhibit 2-5 shows the final response rates for the sample, and Exhibit 2-6 shows the distribution of the final study sample by vouchers under lease, following the study's methodology for calculating vouchers under lease.[12] The final distribution of study sites is close to the distribution (based on allocated vouchers) used for the initial sampling but reflects some changes in PHA's voucher counts from the time of sampling. In one case, a PHA ended up in a different size

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[10] The study team sought to establish a data collection approach that would provide a high degree of PHA-level precision for small agencies while minimizing staff burden. To balance these goals while also limiting the window for time measurement to eight weeks, we determined that a PHA with fewer than three staff would likely fail to provide sufficient precision to detect activity-level differences in the use of staff time. We used a cutoff of 100 vouchers to try to ensure that most PHAs in the study had at least three staff participating in RMS. We determined the level of precision that could be achieved for different numbers of staff participating in the time measurement based on an Arcsine transformation statistical power analysis for independent proportions, targeting 90 percent power and an acceptable type I error of 5 percent.

[11] In both cases, the agencies experienced turnover in their executive leadership amidst charges of financial mismanagement and were under investigation by HUD.

[12] As discussed in Section 3.2.4 below, the counts of vouchers under lease used to develop per-unit time and cost estimates in this report are vouchers under lease during the fiscal year in which the RMS data were collected, including port-in vouchers and excluding port-out vouchers.

category based on information learned during reconnaissance about how its HCV program is administered.[13]

**Exhibit 2-5. Final Disposition of the Time Measurement Sample**

| | Number of PHAs | Percent of PHAs |
|---|---|---|
| Declined to participate before site visit | 87 | 47% |
| Agreed to participate but not eligible | 34 | 18% |
| Eligible but declined to participate | 5 | 3% |
| Eligible and participated | 60 | 32% |
| **Total contacted for study participation** | **186** | **100%** |

**Exhibit 2-6. Final Distribution of Time Measurement Study PHAs by Vouchers Under Lease**

| Vouchers under Lease[a] | Number of PHAs | Percent of PHAs |
|---|---|---|
| 10,000+ | 5 | 8% |
| 5,250–9,999 | 5 | 8% |
| 1,250–5,249 | 12 | 20% |
| 500–1,249 | 12 | 20% |
| 250–499 | 19 | 32% |
| 101–249 | 7 | 12% |
| **Total** | **60** | **100%** |

[a] This is the number of vouchers under lease (plus port-ins and minus port-outs) at the time of data collection.

### 2.1.6 Sampling Weights

Once the final 60 time measurement sites were confirmed, the study team developed sampling weights to apply to the time and cost estimates produced by the study. Sampling weights are necessary because the sample was not a simple random sample. For example, given the higher probability of selecting very large PHAs than the probability of selecting medium-sized PHAs, it was necessary to use sampling weights to allow the practices at medium-sized PHAs to have their proper influence on statistics such as average cost per voucher. Weights also incorporate adjustments for non-response where substitution was not possible.

For this study, the target population of interest is the universe of high-performing HCV programs with more than 100 vouchers. Even though the new fee formula will apply to HCV programs of all sizes, the sample for the time measurement study was restricted to SEMAP high performers and programs with over 100 vouchers.

We developed the sampling weights for the study in a three-step process:

[13] In two cases, the PHA manages another PHA's HCV program without distinguishing between the two programs in its day to day operations. Adding the vouchers from the other program places one of these two PHAs in a higher size category than it would be just based on its individual allocations.

- Step 1: **Develop base weights** that reflect differential probabilities of selection.
- Step 2: **Adjust for non-response** using information on the current administrative fee rate of responding and non-responding PHAs.
- Step 3: **Develop raked weights** that build on the non-response adjusted weights and further adjust for potential non-response bias on dimensions other than administrative fee rate.

Appendix B describes in detail each step in the weighting process. Appendix B also includes tables that show the characteristics of the final study sample at the time of sampling compared to the sampling universe of SEMAP high performers and compared to all HCV programs.

There are a few dimensions on which the weighted study sample of 60 PHAs is statistically significantly different from the sampling universe of SEMAP high performers or from all HCV programs. These differences are shown in Exhibit 2-7. Potential effects on the study are discussed after the exhibit.

**Exhibit 2-7. Summary of Dimensions for Which Study Sample Significantly Differs From Sampling Universe or From All HCV Programs**

| | Recruited Programs (Weighted) (N=60) | All High Performing Programs with >100 Vouchers (N=1,258) | All HCV Programs with >100 Vouchers (N=1,782)[1] |
|---|---|---|---|
| **HCV Program Size** | | | |
| 101–249 vouchers | 12.0% | 26.0% | 30.8% |
| 250–499 vouchers | 33.3% | 24.8% | 24.6% |
| 500–1,249 vouchers | 30.6% | 28.8% | 24.7% |
| 1,250–5,249 vouchers | 18.2% | 17.6% | 16.6% |
| 5,250–9,999 vouchers | 4.1% | 2.0% | 2.0% |
| 10,000 or more vouchers | 1.8% | 0.8% | 1.2% |
| **State Has Laws Barring Source of Income Discrimination that Protect Section 8 Tenants** | | | |
| Yes | 5.8% | 14.4% | 14.5% |
| No | 94.2% | 85.6% | 85.5% |
| **Average House Price** | | | |
| $150,000 or less | 37.4% | 49.8% | 51.4% |
| $150,001 or more | 62.6% | 50.2% | 48.6% |
| **Rental Vacancy Rate** | | | |
| 10% or less | 76.6% | 63.2% | 61.1% |
| More than 10% | 23.4% | 36.8% | 38.9% |
| **Limited English Proficiency Residents as Percent of Total Area Population** | | | |
| 10% or less | 82.7% | 74.4% | 72.9% |
| More than 10% | 17.3% | 25.6% | 27.1% |

Note: For notes and sources accompanying these data, see Exhibits B-6 and B-7 in Appendix B.

### Program Size

The programs in the study sample are more likely than HCV programs overall to be in the larger size categories (more than 249 vouchers allocated). However, the size distribution of the study sample is not statistically significantly different from that of the high-performer universe. The effect of program size on HCV was tested extensively in the cost driver analysis and formula development (see Chapters 6 and 7), and we found that PHAs with smaller programs (those with 500 vouchers or fewer) had higher costs. This finding is reflected in the proposed formula.

### State Has Laws Barring Source of Income Discrimination That Protect Section 8 Tenants

The programs in the study sample are significantly less likely to be in states with laws barring source of income discrimination than either the high-performer universe or all HCV programs. This could have the effect of making the study programs more expensive than other programs, since voucher households would presumably have more difficulty leasing up in states that do not have laws barring source of income discrimination. We tested the presence of source of discrimination laws as a cost driver and found that it was not significant. However, only a small number of study PHAs were located in states with these laws. With a larger share of study PHAs in states with laws barring source of income discrimination, we might have found a significant association between source of income discrimination laws and program costs.

### Average House Price and Rental Vacancy Rate

The programs in the study sample are significantly more likely than HCV programs overall to be in markets where the average house price is over $150,000. The programs in the study sample are also significantly more likely to be in markets with rental vacancy rates at or below 10 percent than either the high-performer universe or all HCV programs. This could have the effect of making the study programs more expensive than other programs, leading to a higher average cost per voucher being estimated by the study. However, we tested the effect of average house prices and rental vacancy rates on program costs within our sample and did not find them to be significant cost drivers.

### Limited English Proficiency (LEP)

The programs in the study sample are significantly more likely than HCV programs overall to be in markets with low rates of LEP. This could have the effect of making the study programs less expensive than other programs, leading to a lower average cost per voucher being estimated by the study. However, we tested the effect of the local LEP rate on program costs within our sample and did not find it to be a significant cost driver.

## 2.2 Sample for Small Program Interviews

In order to address the study's research question of whether there is a minimum number of vouchers below which a PHA cannot operate the HCV program on administrative fees alone, we conducted telephone interviews with staff at 130 PHAs operating HCV programs with fewer than 250 vouchers.

As with the time measurement study, the telephone interviews with small programs were limited to PHAs with high-performing HCV programs. The sampling universe for the small program interviews was PHAs with fewer than 250 vouchers that received a "high performer" rating on SEMAP between fiscal year 2009 and calendar year 2012 (the most recent SEMAP data available at the time of sampling). We selected from among those PHAs with a high performer rating in three out of four years or, if data were not available for four years, those with a high performer rating for at least two

out of the four years. PHAs that received a rating of "Troubled" in 2011 or 2012 were not included in the sampling frame.

A total of 508 PHAs met these criteria. We then excluded from the sampling frame MTW PHAs, PHAs that had been excluded for consideration from the time measurement study based on HUD review, and PHAs that participated or refused to participate in the time measurement study, bringing the number of small PHAs in the sampling frame to 477.

From this sampling frame of 477 PHAs, we selected a random sample of PHAs in two size categories: 1 to 99 vouchers and 100 to 249 vouchers. We selected roughly the same number of PHAs in each size category, even though the less than 100 voucher size group is a much smaller share of PHAs with small HCV programs than the 100–249 voucher group. The oversampling of the smaller PHAs was done because we anticipated a lower response rate among the smallest PHAs and wanted to ensure that PHAs with fewer than 100 vouchers were adequately represented in the sample of completed interviews. The sample of PHAs was then reviewed by HUD field office and headquarters staff, and PHAs with known compliance issues or open findings with respect to the HCV program were excluded.

We invited 211 PHAs to participate in the study and completed interviews with 130, for an overall response rate of 62 percent. As expected, the response rate was somewhat lower among PHAs with fewer than 100 vouchers (51 percent). However, because of the oversampling, we interviewed similar shares of SEMAP high performers for each size category (see Exhibit 2-8).

We did not apply sampling weights to the interview data to make the interview sample represent the universe of high performers in terms of size or other characteristics. We did not need to do this because, unlike the time measurement and cost data collected from the 60 PHAs, the analysis of small program interview data would not be used to estimate overall costs for PHAs with fewer than 250 vouchers. Instead, the primary purpose is to compare differences in costs for PHAs of different program sizes. For that analysis, the distribution of completed interviews by program size need not mirror that of the universe of high-performing PHAs; we only need sufficient numbers of PHAs in each size category to be able to detect statistically significant differences in costs.

**Exhibit 2-8. Distribution of Small Program Interview Sample**

| Program Size (Vouchers Allocated) | Number of SEMAP High Performers | Number of PHAs Selected for Sample | Number of Completed Interviews | Interview Response Rate | Completed Interviews as Percent of Sampling Universe |
|---|---|---|---|---|---|
| 1–99 | 192 | 103 | 53 | 51% | 28% |
| 100–249 | 316 | 108 | 77 | 71% | 24% |
| **Total** | **508** | **211** | **130** | **62%** | **26%** |

# 3. Data Collection

The study conducted four types of original data collection:

- Time measurement from 60 PHAs
- Cost data collection from 60 PHAs
- Transaction counts from 60 PHAs
- Interviews with 130 PHAs with small HCV programs

In addition to these four original data sources, the study also made extensive use of administrative data in HUD's Financial Assessment Subsystem of Public Housing (FASS-PH), Voucher Management System (VMS), and PIH Information System (PIC).

As shown in Exhibit 3-1, the first three data sources, collected from the study's time measurement sample of 60 PHAs, are used to answer four of the study's five research questions. The small program interviews are used to answer the question on minimum program size. HUD administrative data are used to support all analyses.

**Exhibit 3-1. Research Questions and Data Sources**

| Research Questions | Time Measurement | Cost | Transaction Count | Small Program Interviews | HUD Administrative Data |
|---|---|---|---|---|---|
| How much does it cost to run a high-performing and efficient HCV program? | ✓ | ✓ | ✓ | | ✓ |
| What accounts for variation in HCV administrative costs? | ✓ | ✓ | ✓ | | ✓ |
| What would be an appropriate formula for allocating administrative fees to PHAs operating HCV programs on an ongoing basis? | ✓ | ✓ | ✓ | | ✓ |
| What would appropriate fees/costs be for HCV Family Self-Sufficiency (FSS) coordinators? | ✓ | ✓ | ✓ | | ✓ |
| Is there a minimum size below which an HCV program cannot successfully operate on administrative fees alone? | | | | ✓ | ✓ |

## 3.1 Time Measurement

One of the main data collection activities for this study was measuring the time that PHA staff spent on core HCV functions using random moment sampling (RMS). This section describes the RMS methodology and data collection approach.

### 3.1.1 Introduction to Random Moment Sampling

Random moment sampling (RMS) is a method of estimating the time spent on program activities based on individual data points collected during the workday over a period of time. Staff who participated in RMS carried a smartphone (referred to as the RMS device) as they completed their work and responded to notifications at random moments throughout the day. When staff responded to a notification, they answered a series of questions about what they were working on at the time of the notification. Staff were notified 12 to 15 times a day (about 1.5 notifications per hour) over a two-month period (40 working days), creating a large number of data points for each PHA.

The RMS data points were used to estimate the portion of each staff's time, and the precise amount of time in hours or minutes, spent on different HCV program activities. We then used counts of the number of times the activity occurred during the two-month data collection period (see "transaction counts" below) to estimate the time per activity, per transaction, and per voucher. We used data collected on staff salaries and benefits, as well as each HCV program's non-labor costs, contract costs, and overhead costs, to estimate the total cost of the HCV program and the cost per activity per transaction.

The RMS approach developed from understanding each employee's work schedule, which was used to create a sample frame. The sample frame was the employee's day-to-day work schedule over the 40-working-day interval for data collection. RMS notifications were drawn randomly within 36 minute-blocks from this defined frame, resulting in more than 600 notifications for a typical full-time PHA worker over eight weeks. This systematic surveying of activities produced a count of notifications assigned to mutually exclusive functions and the total estimated time staff worked during regularly scheduled hours. The notifications were turned into total minutes of activity performed using time expansion with sampling weights. This approach is possible since the RMS notifications were drawn with known probability.

#### Rationale for Selecting RMS Over Other Time Measurement Methods

In developing the study design, we tested three methods of measuring HCV program staff time at four different PHAs. The goal was to identify the most cost-effective method of accurately measuring staff time for the study. The three methods tested were direct observation, in which work was observed directly by a human observer using a traditional time-and-motion methodology (stopwatch, clipboard, and data collection sheets); paper timesheets completed by PHA staff; and RMS.

The PHA staff participating in the test reported that direct observation and RMS were the least burdensome and that timesheets and RMS were the least intrusive. In addition to being intrusive, direct observation did not work well for HCV program activities that do not roll out in a linear fashion or that rely on computer and telephone work, so that the actual work being conducted could not be discerned simply by observing the worker. Direct observation was also by far the most expensive of the three methods. RMS provided the most accurate measurement of time at the task and subtask level. Most staff using the timesheets had difficulty in determining the correct category and

subcategory in which to record their time and in remembering the number of minutes spent on each HCV program activity.

Based on the results of the test of time measurement methods, we determined that RMS was the most cost-effective method for the study, given the need to measure time by specific HCV activities (and program and client types), as well as time spent on the program as a whole. Having selected RMS, the study team then further tested the methodology over a two-month period at four PHAs. Overall, we found that PHA staff encountered no major problems with using the RMS devices to report their time, and the technology allowed us to collect time estimates at a far greater level of detail than would have been possible with timesheets or direct observation. Given the success of the pretest, we were able to use the data from the four pretest sites for the full study (the four pretest sites are among the 60 study sites). Based on PHA staff feedback from the pretest, the study team made some minor changes to improve the categorization of activities on the RMS device, the device's functionality, and staff training on how to use the device.

### 3.1.2 Which Staff Participate

#### Frontline Versus Overhead Activities

The study used RMS to measure the time of staff who work on **frontline** HCV functions. Frontline functions are those related to the day-to-day operations of the HCV program. They include all the core program activities and are specific to the HCV program. Exhibit 3-2 summarizes the frontline activities measured through RMS, grouped into eight functional areas. An even more detailed table of frontline activities measured through RMS is provided in Appendix C.

In addition to costs associated with frontline activities, overhead costs also are associated with operating the HCV program. Overhead costs are costs that are generally not directly attributable to a program or project. They cover shared PHA functions such as PHA upper management, human resources, legal, finance, accounting and payroll, IT, risk management, procurement, and non-HCV specific quality control activities. In larger PHAs, frontline and overhead functions are typically performed by separate staff. In smaller PHAs, however, a staffer who primarily does overhead work may also do some frontline work. An example is an executive director, typically an overhead position, who also does direct staff supervision and HCV quality control work, which are frontline activities.

The study used RMS to capture time spent on frontline work and used a separate methodology (see Section 3.2.3) to capture costs associated with overhead work. This is because overhead work cannot, by definition, be identified with a particular program, so overhead staff would not be able to use the RMS device to indicate when they were doing work that supports the HCV program and when they were doing work that supports other programs. Since overhead staff generally are quite specialized in their work, all the study would be capturing by giving them an RMS device would be the portion of their time spent working. Since the study takes the total cost of each staff member and assumes that benefits cover time off (see discussion in Section 3.2.2), we would not have gained much from knowing how much time overhead staff take off. That would not have justified the burden and cost associated with having overhead staff participate in the RMS data collection.

**Exhibit 3-2. Frontline HCV and HCV FSS Functions Measured in RMS**

| | |
|---|---|
| **Intake and Eligibility**<br>• Applicant intake, including wait list management<br>• Process port-ins<br>• Eligibility determinations<br>• Informal reviews<br>• Denial of eligibility<br>• Reasonable accommodation<br>• Data entry, file management, and reports | **Lease Up**<br>• Briefings<br>• Voucher issuance<br>• Search assistance<br>• Extensions, expirations, and withdrawals<br>• RFTA processing<br>• Rent reasonableness<br>• HAP contracts<br>• Informal reviews<br>• Reasonable accommodation<br>• Data entry, file management, and reports |
| **Ongoing Occupancy**<br>• Annual and interim recertifications<br>• Moves<br>• Rent reasonableness<br>• Process port-outs<br>• End of participation<br>• Terminations (includes informal hearings)<br>• Other informal hearings<br>• Reasonable accommodation<br>• Data entry, file management, and reports | **Inspections**<br>• Scheduling and notifications<br>• Preparing for inspection<br>• Driving to and from inspection<br>• Conducting inspection<br>• Post-inspection paperwork<br>• HQS enforcement<br>• Reasonable accommodation |
| **HCV FSS**<br>• Working with partners<br>• Marketing, outreach, and enrollment<br>• Case management, services, and referrals<br>• Escrow monitoring or payouts<br>• Program exits and port-outs<br>• Reasonable accommodation<br>• Staff meetings or training<br>• Data entry, file management, and reports | **Supportive Services (non-FSS)**<br>• Working with partners<br>• Marketing, outreach, and enrollment<br>• Case management, services, and referrals<br>• Homeownership-related services and referrals<br>• Work related to expanding housing opportunities |
| **Monitoring and Supervisory**<br>• Plans/policies<br>• Preparing, approving, distributing HAP<br>• PIC and EIV<br>• SEMAP and file QC<br>• VMS reporting and corrections<br>• Other monitoring<br>• HCV staff supervision<br>• Board support<br>• Community relations<br>• Billing and budget support<br>• Audit support<br>• Research studies | **Supporting Activities**<br>• General customer service<br>• Community/owner relations<br>• Staff meetings<br>• General email, voicemail, or IT<br>• HCV-related training |

### Selection of Staff to Participate in RMS

In general, any PHA staff member who performed any of the frontline HCV functions shown in Exhibit 3-2 participated in RMS data collection. This includes staff who also work on other programs, such as public housing, as well as supervisors (including executive directors at smaller agencies) who may also work on overhead functions but spend at least part of their time on HCV frontline activities. The rule we employed is that all staff who spend at least 10 percent of their time on frontline HCV activities (as defined above) would participate in RMS data collection, regardless of how they spend the rest of their time.

There were some exceptions to frontline staff participation in RMS. We did not collect time estimates for staff who were out on leave for all or most of the two-month data collection period or who were not working for the PHA for all or most of the period (because they left or were newly hired). Also, if the PHA used outside contractors to perform HCV functions such as inspections, we collected the cost of those contracts through the cost data collection tool rather than asking individuals not directly employed by the PHA to participate in RMS.

Another exception was staff whose job was to work at the front desk or as receptionists and who did not work on any of the core HCV functions shown in Exhibit 3-2 except for general customer service. These staff fielded calls and walk-ins for other HCV staff but did not know for any given call or walk-in what the client interaction concerned (e.g., application status, annual recertification, informal hearing). For these staff, 100 percent of their time was assigned to "general customer service," and they did not receive an RMS device. However, staff who spent part of their time on the front desk and part of their time on other HCV functions did generally receive a device and participate in RMS.

In a few other cases, PHAs identified staff who primarily served overhead functions but spent close to 10 percent of their time on frontline HCV activities such as providing data for HUD's Voucher Management System. Some PHAs requested that these staff not participate in RMS because it would be burdensome, given that the vast majority of their time was spent on overhead work. In these cases, we worked with the PHA to develop an estimate of the time spent on frontline activities—for example, eight hours per month—and added that time to the estimate of frontline HCV time and cost derived from the RMS data collection.

A final exception is that we did not include all frontline HCV staff at six PHAs that had very large or dispersed HCV programs. Five of the six PHAs administered more than 10,000 vouchers and, therefore, had staffs of 100 or more, and two of the six ran state programs that were dispersed geographically. For these six PHAs, we worked with PHA staff to develop a sampling approach so that a representative subset of the staff working on each type of HCV activity would participate in the RMS data collection. We included in the RMS data collection all the staff who served unique functions and sampled only among groups of staff who served the same function.

For two of the three state programs, we selected, in consultation with the PHA, two or three branch offices at which to do RMS data collection. These branch offices were chosen to be representative of

the agency as a whole in terms of the work performed and to include the full range of frontline activities required for HCV administration.[14]

In each of the sites where staff were sampled for RMS, we matched each sampled staff member to one or more non-sampled staff by job title and responsibilities, with the help of the PHA. When developing estimates of time spent on the program, we applied the time from the sampled staff to the non-sampled staff based on the matching system and information on staff work responsibilities provided by the PHA. Typically, we applied the average time and work patterns recorded by a group of sampled staff to the group of non-sampled staff with the same program responsibilities. In a few cases, we assigned the time recorded by a single sampled staff to one or two non-sampled staff.

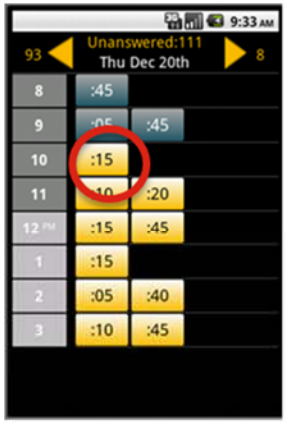
### 3.1.3 Which Activities Are Captured

The goal for RMS data collection was to capture all work related to frontline voucher program functions, including work that does not result in a voucher lease-up. Based on consultation with the study's HCV program experts, the study team developed a comprehensive list of frontline staff activities performed to administer the HCV program. The list was organized into activity categories and sub-categories to allow staff to quickly drill down to their activity with a few touches on the RMS device. Exhibit 3-2 above shows the frontline functions and activities captured through RMS. Exhibit C-1 in Appendix C provides detailed examples of tasks within each activity.

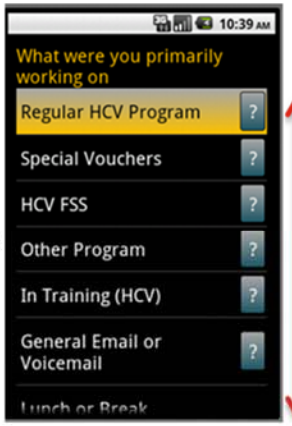
To record their work on activities and tasks, PHA staff scrolled through a series of screens on their RMS devices, touching their responses on each screen and confirming their overall response at the end. The number of screens that staff scrolled through depended on what they were working on, because the study did not collect the same level of detail on all activities. The minimum number of screens a person touched was two, and the maximum was six. Exhibit 3-3 provides a few screen shots to illustrate what the RMS notifications look like on the RMS device and how staff navigated the device. Exhibit C-2 in Appendix C presents the full screen flow for the RMS data collection, showing how staff moved from screen to screen, depending on their responses.

[14] For the other state program in the study, which operates through local housing agency partners, we conducted time data collection at one of the partners but did not do any sampling within that agency.

**Exhibit 3-3. RMS Device Screen Shots**

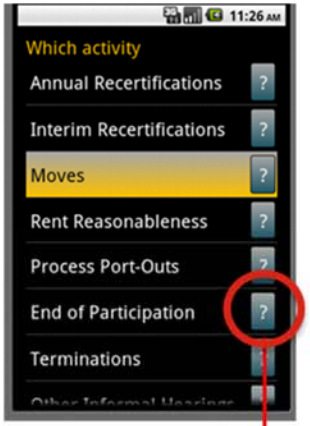



Select an unanswered moment



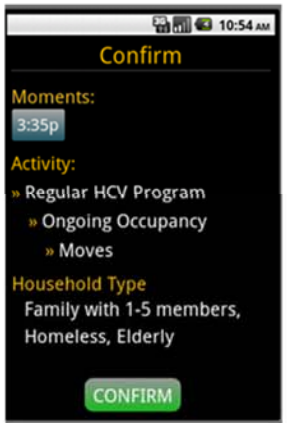

Scroll up and down

Select activity by tapping the white text


The ? button opens a window with a brief description of activities in each category.

If prompted for household type, choose **ALL** that apply


Press Confirm when done

Or BACK to change

### Special Voucher Programs

In addition to the main HCV functions and activities, the RMS data collection tool also captured data for special voucher program types when the PHA staff person was able to identify that what he or she was working on was for a given special voucher program or type of client.

Before selecting the HCV category, staff were asked to identify which voucher type they were working on, regular tenant-based HCV or one of eight special voucher types: project-based, homeownership, HUD-Veterans' Affairs Supportive Housing (HUD-VASH), family unification program (FUP), mainstream, non-elderly disabled (NED), tenant protection vouchers, and disaster vouchers.

Although we were able to generate time estimates for some special voucher activities, special voucher work represents a small percentage of overall voucher work, so the data points captured for special vouchers were small in relation to the overall number of data points captured for HCV work overall. If staff were unable to determine the special voucher type, or if the activity was being done for regular vouchers as well as special vouchers, staff were instructed to classify the work as regular tenant-based HCV, which means that in PHAs with a lot of shared work across programs, the study might have underestimated time on special vouchers.

### Household Type

The RMS approach also allowed us to collect information on household type for certain HCV functions. For each of these activities, PHA staff were asked to select one or more household types to indicate the type of client they were working with at the time of receiving the RMS notification:

- Homeless at admission
- Elderly
- Non-elderly disabled
- Family with 1 to 5 members
- Family with 6 or more members

Staff could also answer "not able to specify" if they were not able to specify a household type, either because they did not have access to the information at the time they responded to the RMS notification or because they were doing the activity in bulk for multiple household types at the same time (e.g., applicant intake).

The study originally requested information on household type for 16 HCV activities. We found, however, that staff were unable to identify household type reliably for 5 of the 16 activities, meaning that staff reported "not able to specify" in at least 15 percent of the cases for these five activities.[15] Thus, the study collected information about household type for these 11 activities:

[15] The five activities were applicant intake, rent reasonableness, other informal hearings, preparing for annual recertifications, and sending notifications and responding to questions after annual recertifications.

- Processing port-ins
- Processing port-outs
- Eligibility determinations
- Informal reviews for program eligibility
- Denial of eligibility
- Annual recertifications
- Interim recertifications
- Moves
- Reasonable accommodation
- Terminations
- End of participation

#### Non-HCV Activities

The RMS device also captured information on time spent on activities not related to the HCV program, special vouchers, or HCV FSS. This was necessary to capture time when staff were taking a break or not working for some other reason and time when staff were working on another program, which was common among smaller PHAs with less specialized staff. In addition to specifying regular vouchers, special vouchers, or HCV FSS, staff could respond via the RMS device that they were working on one of the following activities:

- **Work or training related to other programs** (includes time spent working on public housing, HOPE VI, Shelter Plus Care, and other HUD programs; USDA/Rural Development LIHTC; and other federal, state, or local programs, including work for other housing authorities or property management functions for PHA-owned or managed properties)
- **General email or voicemail** (email or phone work that cannot be attributed to a particular program, such as checking email after a period out of the office for a staff person who works on multiple programs)
- **Lunch, break, and time spent not at work** (e.g., doctor's appointments, sick leave, vacation, unpaid time off)
- **Overhead work** (work on overhead functions). This option was only available to PHA staff who served overhead functions as well as working on frontline activities

### 3.1.4 How Much Work Time Does RMS Cover

Each PHA participated in RMS for a two-month period, 40 working days.[16] Each participating staff member was provided an RMS device that was preprogrammed to send notifications 12–15 times a day for an eight-hour work schedule, and 6–8 times a day for a part-time schedule. If a staff person's regular schedule was 7:30 am to 4:30 pm, for example, all of this person's notifications would happen within that time period. The staff person would be responsible for answering all notifications. If the staff person took time off during the week, he or she would respond to the missed notifications upon returning to the office, using the "not at work" response option.

Sometimes PHA staff work outside of their regular working hours, coming in early, staying late, or working on the weekend. If any of the participating staff worked outside his or her usual schedule at

[16] PHAs with a data collection period that spanned Christmas and New Year's Day had an extra five calendar days of RMS data collection because the offices were closed for four to five days.

least once a week or four times per month, then that person's RMS device would be programmed to deliver extra notifications in the early morning, in the evening, and on weekends. Staff were instructed to respond to these "after hours" notifications only if they were working when they received one. Any after-hours notifications that were not answered within four hours would disappear from the device, unlike notifications during regular working hours, which would all need to be answered. In this way, the study team was able to collect information on all work done by each staff member, even if that work occurred outside of normal working hours.

### 3.1.5 Scheduling and Training for RMS

#### RMS Schedule and Cohorts

During the pretest conducted in the summer of 2012, we collected time measurement data from 4 of the 60 participating PHAs. The time measurement data collection for the remaining 56 PHAs began in January 2013 and took place over a 70-week period, ending in April 2014. Since each site required at least two months of time measurement, we conducted the data collection with cohorts of six to eight PHAs, with approximately two weeks between cohorts to allow the RMS devices to be reprogrammed. As shown in Exhibit 3-4, the largest share of the study sample participated in RMS data collection in calendar year 2013.

**Exhibit 3-4. RMS Data Collection by Calendar Year**

| Quarter and Year in Which RMS Began | Number of PHAs | Percent of PHAs |
|---|---|---|
| Q1 2012 (Jan – Mar) | 4 | 7% |
| Q1 2013 (Jan – Mar) | 12 | 20% |
| Q2 2013 (Apr – June) | 16 | 27% |
| Q3 2013 (July – Sept) | 11 | 18% |
| Q4 2013 (Oct – Dec) | 10 | 17% |
| Q1 2014 (Jan – Mar) | 7 | 12% |
| **Total** | **60** | **100%** |

Conducting data collection over 16 months gave the study team time to train staff at each agency in person as it launched the data collection and to monitor closely the data collection activities of all active PHAs during the two-month RMS period.

Conducting data collection throughout the year also allowed the team to observe a full year's worth of HCV activities, including activities that may occur infrequently, such as completing reports associated with fiscal year-end or processing large cohorts of annual recertifications.[17] Many HCV activities are not conducted in the same proportions year round. PHAs may have intensive lease-up periods during the year based on when vouchers become available. In contrast, annual recertifications tend to be conducted at several points during the year for different groups of participants, since annual recertifications must be completed before the anniversary date of lease-up. Monitoring and

[17] To match the cost data collected from PHAs with the corresponding time measurement data, we scheduled each PHA's RMS data collection so that the two-month time measurement period took place within a single fiscal year.

supervisory activities, such as preparing reports and assembling SEMAP data, may happen more intensively toward the end of the PHA's fiscal year. Updating the HCV wait list generally happens once a year or less often, so some PHAs were observed doing this function (increasing the time spent on intake and eligibility activities), while others were not.

Collecting time data from different PHAs at different times of the year allowed the study to measure program times and costs at different points in the program cycle, which is very important for ensuring that activities that do not happen very often or happen only once a year are not missed. The disadvantage of this approach is a higher level of variation across PHAs in time observed for different activities. This variation can be seen in the time estimates presented in Chapter 4 and in the cost estimates presented in Chapter 5.

### Training PHA Staff

While smartphone data collection was relatively easy for PHA staff, it nevertheless required training and ongoing support to ensure that PHA staff continued to participate fully over the two-month data collection period. Each of the 60 PHAs participating in the time measurement study was assigned to an Abt Associates staff member who served as a site liaison. We also asked each PHA to designate a staff person to serve as the PHA liaison to the study during the RMS period to help troubleshoot any problems and encourage staff to respond to notifications in a timely manner.

Several weeks before the start of data collection, the Abt site liaison communicated with the PHA liaison by telephone and email to collect background information needed for the time measurement data collection, including a list of all HCV program staff, their responsibilities, and their schedules. The liaisons worked together to determine which staff worked on HCV frontline activities and should participate in RMS.

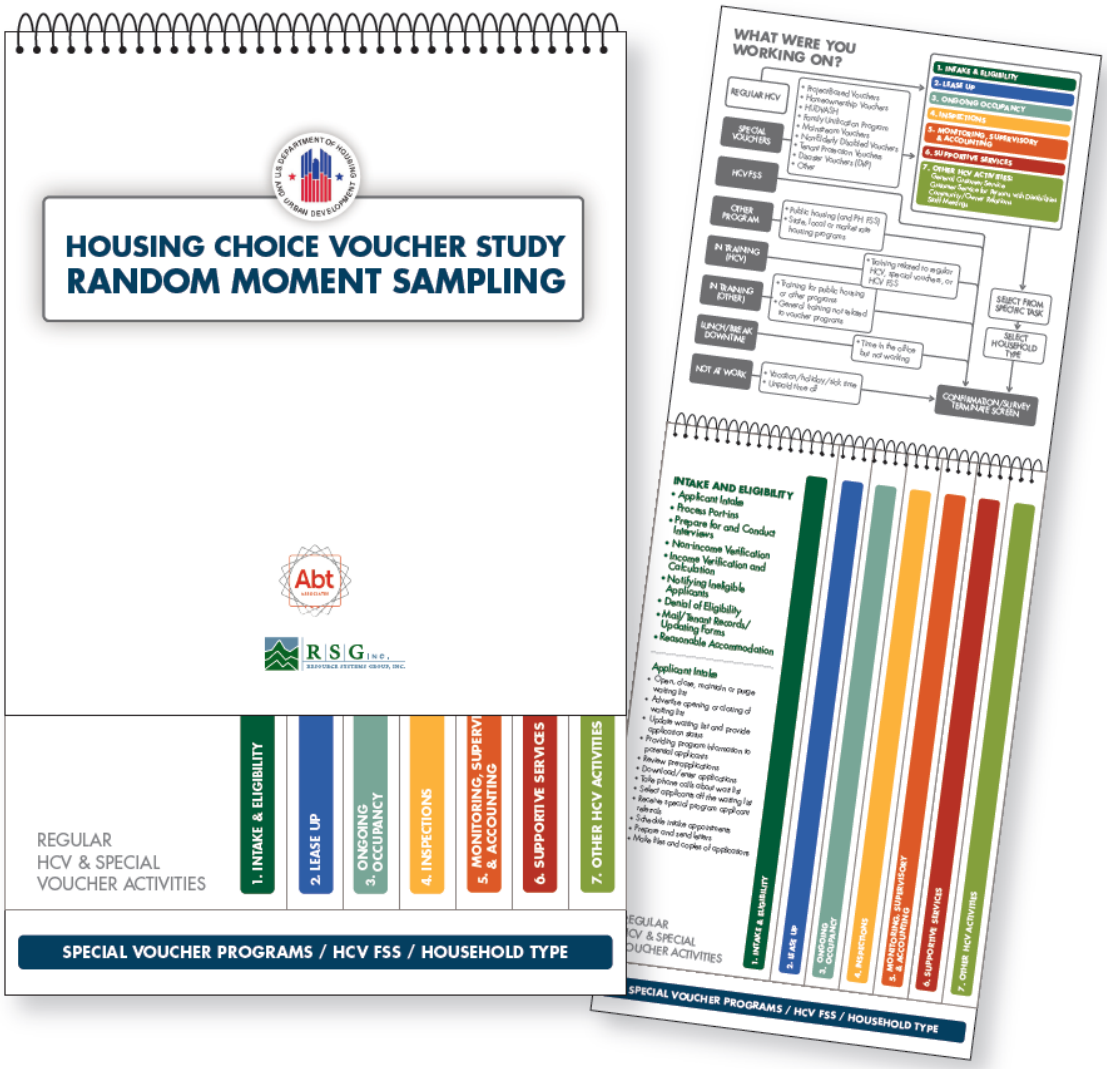
At the start of the RMS period, Abt site liaisons and staff from Abt's subcontractor, RSG, conducted a two-day in-person training at each PHA. On the day before the start of RMS data collection, Abt and RSG staff met with PHA staff to introduce them to the study and to show them how to use the smartphones and how to classify their work using the HCV activity and sub-activity categories. At smaller agencies, all staff were trained together. At larger agencies, we trained groups of staff based on staff function. For example, inspectors were often trained together as a group. For agencies with five or fewer staff participating in RMS, only the Abt liaison traveled to the PHA and conducted the training. On rare occasions where staff were not available or in the office during our scheduled training dates, we conducted follow-up training remotely with individual staff members using screen-sharing telecommunication software.

During the initial training, we provided staff with a PowerPoint presentation on the smartphone technology and a printed training booklet explaining how the activity categories were organized and defined (see Exhibit 3-5 for a photo of the booklet). The staff also received hands-on instruction on how to use the smartphone and time to practice responding to notifications. RMS participants started receiving notifications on their smartphones on the day of training, and these were used as test responses. The notifications used for analysis did not start until the second day of training.

On the second day of training, Abt and RSG staff met individually with each staff member (or in small groups at larger agencies) to address questions and determine what specific categories and sub-categories staff should be using for their own work functions. These individual meetings also gave the

study team an opportunity to take detailed notes on individual staff members' HCV activities in order to monitor the accuracy of their responses during the two-month period.

**Exhibit 3-5. RMS Training Booklet**




## Monitoring RMS Participation

The study team established several methods to monitor RMS participation during the two-month data collection period, which included maintaining ongoing communication with the PHA liaison, establishing a study email address and a messaging system through the smartphone for participant questions, and monitoring the PHA staff responses to RMS notifications through a shared website. One of the benefits of using the smartphone technology was that all notifications were continuously uploaded to a central server and could be viewed virtually in real time. For each PHA, the website included information on staff participating in RMS, their schedules, how many notifications were outstanding, the response (HCV category) and response time for each notification, all messages sent to and from each staff person, and the battery power of each RMS device.

RSG staff monitored the website to ensure that staff responded to notifications within a reasonable period of time (usually within 15 to 60 minutes). The server was also set up to send an email notification to the RSG and Abt liaisons if certain conditions occurred—for example, no response for several hours when it was not known that the staff person was out of the office or if a staff person provided exactly the same response for several sequential notifications. If a staff person did not respond in a timely manner or if the study team needed to confirm a response, RSG staff would contact the staff member through the RMS device via a two-way text messaging system programmed into the device (akin to a text message). If the liaisons did not resolve the issue through the messaging system, the study team reached out to the PHA liaison for further information or to have the PHA liaison contact the participating staff person.

Abt staff also used the RMS website to monitor responses for accuracy. Abt liaisons regularly reviewed staff responses to notifications and compared the HCV activities selected to the staff person's assigned work areas, as provided by the PHA liaison and by the staff person during the second day of training. Any inconsistencies were confirmed with the staff person via messaging. For example, if a housing specialist who primarily worked on annual recertifications responded to a notification saying that she was conducting an inspection, we confirmed with her that the response was accurate. If the study team detected any unusual patterns in responses that could indicate trouble in understanding the reporting categories, we contacted the PHA liaison or staff directly for retraining on the HCV activities and categories.

The Abt liaison maintained weekly telephone or email communication with the PHA liaison to address any questions or concerns. The study team also established an email address specific to this study and encouraged study participants to use that email address for any questions related to the study during the two-month data collection period. The email account was monitored in real time by members of the Abt study team.

In addition to the remote monitoring, approximately one month into data collection we provided the PHA liaison with a report on the RMS responses in aggregate for all participating RMS staff and their overall median response time. This midpoint report was another opportunity to detect any inconsistencies in reporting and it helped motivate staff to continue their timely responses to notifications.

### 3.1.6 PHA Compensation

The 60 PHAs participating in the time measurement study received monetary compensation to defray personnel costs directly associated with the information collection. The compensation was provided in two payments:

- Each PHA received a $2,800 flat fee after providing initial cost data and participating in two weeks of RMS time measurement.
- Each PHA received an amount equal to $300 per staff participating in the time measurement once all study data collection activities were complete.

Because of the per-staff component, the total amount of compensation varied by HCV program size. The total amount paid to participating PHAs (including the $2,800 flat fee) ranged from approximately $3,500 to approximately $29,000, with an average of approximately $7,500.

To receive the payments, each PHA entered into a grant agreement with Abt Associates that specified the PHA's obligations, those of the study team, and the terms of the compensation. The payments were made by Abt Associates to each PHA, not to individual PHA staff.

## 3.2 Cost Data Collection

The cost data collection and time measurement components of the study work hand in hand to produce an accurate estimate of total HCV costs (and FSS costs, as applicable). The cost data collection provides the salary and benefit information to attach to the frontline staff time measured through RMS, as well as the frontline non-labor costs and the overhead costs (labor and non-labor) that round out the total costs of administering the HCV program.

The goal of both the time and the cost data collection is to build an accurate picture of total HCV administrative costs that *includes* costs that were incurred by and charged to the HCV program and costs that were incurred by the HCV program but not charged to the HCV program, and *excludes* costs that were charged to the HCV program but were incurred by other programs. The approach is used to estimate the total cost of operating the program as a stand-alone program, as well as the value of the goods and services used by the HCV program but paid for by other revenue sources or donated by partners such as local government agencies.

The approach was to develop an estimate of total HCV program costs that is the sum of all frontline labor, frontline non-labor, and overhead costs incurred by the program. The time estimates collected through RMS were used in two ways. First, we used the RMS to determine, for each participating staff member, the overall percentage of their working time spent on the HCV program. We used the overall percentages spent on HCV to determine the frontline labor cost of the program, as described further below. Second, once we had the total cost of the program—frontline labor + frontline non-labor + overhead—we used the RMS data on the proportions of time spent on different activities within the HCV program to allocate the total program cost among the different activities.[18]

The cost data collection approach described in this section of the chapter applies only to the time measurement sample of 60 PHAs. Our approach to cost data collection for 130 PHAs participating in the small program interviews was different, and is described in Section 3.4.

### 3.2.1 Collecting Cost Data From the PHA

There cost data collection process had two main components:

- Collection and review of available financial data
- In-depth data collection from PHA staff

[18] An alternative approach would have been to estimate the cost of one activity, such as an inspection, and multiply that cost by the number of inspections to estimate the total inspection cost. That is not the method employed by this study. Instead, we estimated the cost of inspections by multiplying total HCV costs by the percentage of staff time spent on inspections.

### Collection and Review of Available Financial Data

In advance of the cost data collection, the study team obtained and reviewed the following information from HUD's financial data systems:

- **Year-End Financial Statements.** The PHA's latest approved unaudited or audited submission to HUD's FDS, which covers the 12-month period as of the PHA's fiscal year-end.
- **Monthly Financial Statements.** Monthly financial statements available from the date of the year-end financial statements to the date of the PHA review or any year-to-date financial statements available from HUD.

The team also asked each PHA in the study to provide the following documents, working with the PHA's fee accountant if necessary:

- **HCV program budget documents** such as year-end settlement or general ledger documents for the HCV program, the Central Office Cost Center (COCC) (if applicable), and any other programs that support the HCV program.
- **Depreciation schedule** and list of capital outlays for the HCV program over the past 10 years.
- **Organizational charts** for the agency as a whole and detailed charts for the HCV program, the COCC (if applicable), and any other programs that support the HCV program.
- **Salary and benefits** for all staff who directly or indirectly support the HCV program. This includes all staff charged in full or in part to the HCV program, staff charged to the COCC (if applicable), overhead staff that support the HCV program, and staff from other programs that support the HCV program. We requested the salary and benefits information for the most recently completed fiscal year. We also asked the PHA to provide estimated annualized salary and benefits for each staff participating in the RMS data collection for the year in which RMS took place.
- **Cost allocation plans** used to support Financial Data Schedule (FDS) reporting, especially any cost allocation plans that are specifically used to support costs associated with the HCV program and COCC or any overhead departments.

### Detailed Cost Data Collection

The documents listed above provided most of the information needed for the study, but the study team typically needed the PHA's assistance in understanding the breakdown of frontline non-labor costs, contract costs, and overhead costs incurred by the HCV program. In particular, the team needed to make sure that all costs that could be incurred by the HCV program were accounted for, even if they were paid for from sources of revenue other than the HCV administrative fee or provided as in-kind services by other entities.

The study team prepared an Excel-based cost data collection tool and requested a breakdown of costs across 20 different cost areas. Exhibit C-3 in Appendix C presents the full set of costs requested. Not all cost items are applicable to all PHAs. The reason for collecting costs at this level of detail was to make sure that we were not omitting any costs that are required for administering a high-performing and efficient HCV program, even if those costs were not "charged" to the HCV program. The goal

was to attach a dollar value to all costs incurred by the program, including those that appear in the form of goods and services provided free of charge to the program—for example, inspections of PHA-owned units conducted by city inspectors.

In most cases, the PHA completed the cost data collection tool as fully as possible and returned it to the study team, which reviewed it in detail and prepared a list of questions for the PHA. The PHA and study team typically met several times by phone to discuss these items and to complete and review the tool.

In some cases, the PHA was unable or unwilling to enter information into the cost data collection tool. In these cases, the study team completed the tool based on the documentation provided by the PHA (mainly the trial balance[19]) and raised questions as needed with the PHA.

Most PHAs in the study were extremely helpful in providing the requested information and working with the study team to make sure that we were interpreting the information correctly. The cost data collection was the most challenging aspect of the study for most PHAs, as many did not have financial systems that could readily provide all of the requested data elements, which go far above what is required for reporting to HUD. Nevertheless, examining program costs at this level of detail was important for making sure that no cost elements were omitted or misrepresented.

### 3.2.2 Addressing Administrative Fee Proration and Sequestration

The proration of HCV administrative fees over the past five years has important implications for the study's time and cost data collection. Reduced fee revenue has forced some PHAs to cut back on program staffing or on activities that are critical to administering a high-performing and efficient HCV program. Measuring program costs at these PHAs without understanding the cuts that have been made could result in incomplete estimates of what it costs to run a high-performing and efficient program.

The study team discussed this issue extensively with HUD and the EITRG during the study design phase and after data collection was completed. The study team determined that the most feasible approach to addressing the impact of fee cuts on program staffing and quality would be to adjust the study's estimates for cost-cutting actions taken between the time of the site visit, when the HCV program was determined to be high-performing and efficient, and the time of cost data collection. Exhibit 3-6 presents the timeframe considered for cost-cutting adjustments for the PHAs in the study, based on the timing of the site visit and the timing of the RMS data collection.[20]

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[19] The trial balance is the list of expenses and revenues that PHAs prepare annually for each program as the first step towards the preparation of financial statements for the close of the fiscal year.

[20] Some EITRG members recommended that we adjust the study's cost estimates for cost-cutting actions taken before the site visit took place. We considered this concern at length but ultimately decided not to adjust for cost-cutting measures taken before the site visit. The rationale was that all PHAs had been judged to be high performing at the time of the site visit even though some had taken cost-cutting measures, and that it would be difficult to know how far back to go with cost-cutting efforts. Nevertheless, some cost-cutting decisions—such as not filling a vacant position or foregoing raises—were revisited by the PHA between the time of the site visit and the time of RMS data collection and were added to the cost estimates.

**Exhibit 3-6. Years for Consideration of Cost-Cutting Actions Based on Timing of Site Visit and RMS Data Collection**

| Timing of Site Visit and RMS | Number of PHAs | Years for Consideration of Cost Cutting Actions |
|---|---|---|
| Site visit in 2011 and RMS in 2012 | 4 | 2011, 2012 |
| Site visit in 2011 and RMS in 2013 | 28 | 2011, 2012, 2013 |
| Site visit in 2011 and RMS in 2014 | 0 | n/a |
| Site visit in 2012 and RMS in 2012 | 0 | n/a |
| Site visit in 2012 and RMS in 2013 | 18 | 2012, 2013 |
| Site visit in 2012 and RMS in 2014 | 2 | 2012, 2013, 2014 |
| Site visit in 2013 and RMS in 2013 | 3 | 2013 |
| Site visit in 2013 and RMS in 2014 | 5 | 2013, 2014 |

The study adjusted for all cost-cutting actions taken between the site visit and cost data collection with two exceptions: we did not adjust for cost-cutting actions that the PHA identified as improvements to the program, and we did not adjust for cost-cutting actions that the PHA confirmed had not negatively affected program quality as of the time of RMS data collection. If the PHA study was unsure how a cost-cutting action had affected program quality or reported a negative impact, we made the cost adjustment for that action. If the cost-cutting action was taken before the site visit, but the decision was revisited and retaken by the PHA each year, the study team included a cost adjustment for that action.

Exhibit 3-7 describes how the study team treated particular types of cost-cutting actions. The information on cost-cutting actions taken in the past two years was provided by the PHA at two points in time—at the initial site visit and at the time of the RMS data collection. PHAs were asked to list all cost-cutting actions (of all types) and the dollar value of the associated savings. As part of the RMS and cost data collection effort, the study team then reviewed the cost-cutting actions with the PHA.

The study team also requested from each PHA the personnel costs for the HCV program (salary and benefits) at the individual staff level for the PHA fiscal year in which RMS took place and for the previous fiscal year. The study team reviewed both years of personnel costs very carefully, looking for discrepancies between the two that might indicate cost-saving measures. For example, if a staff person appeared on the previous year's roster but not on the current fiscal year roster, the study team asked the PHA about that person and whether he or she was let go or retired early as part of a cost-cutting initiative. The study team also looked for differences in salary and benefits from year to year on an individual staff level and also for the program as a whole. This was the main way that the study team sought to ensure that any staff cuts were picked up by the cost estimates. We did not go through the same process for non-labor costs, as we were already using the previous fiscal year's non-labor cost data. However, we asked PHAs to provide information on any cost-cutting actions that affected non-labor and overhead costs and included adjustments for those actions if they met the criteria presented in Exhibit 3-7.

**Exhibit 3-7. Adjustment Approach to Cost-Cutting Measures Taken Between Time of Site Visit and RMS Data Collection**

| Cost Cutting Measure | Study Approach |
|---|---|
| Staff reductions (layoffs, not replacing departing staff, furloughs) | The general approach was to add the cost of the reduced or eliminated staff to the study's estimate of HCV labor costs. If the staff person did not participate in RMS or was let go before RMS, we followed PHA guidance to split the cost of that staff between HCV and other programs and used the staff's role to allocate the cost among different HCV activities. For furloughs, we quantified the savings in labor costs resulting from furloughs and added to the estimate of labor costs. |
| Freeze on bonuses or raises | We used the bonuses or raise factors in effect at the time of the site visit and applied the same percentage to the personnel costs at the time of cost data collection. |
| Private management firm foregoes usual profit or narrows profit margin | We used the profit in effect at the time of the site visit and applied that profit as an adjustment to the program costs at the time of cost data collection. |
| Freeze on travel or training costs | We used the travel and training costs in effect at the time of the site visit and applied those costs as an adjustment to the program costs at the time of cost data collection. |
| Eliminating activity required for program compliance or SEMAP high performance | We worked with the PHA to estimate the cost of the eliminated activity and adjust the study's cost estimate to include that cost. If eliminating the process resulted in a layoff, we captured the cost as a staff reduction, as described above. |
| Eliminating activities not specified in SEMAP but that PHAs say is needed for high-performance | If the PHA had this practice at the time of the site visit and reported that eliminating the practice could negatively affect program quality, we worked with the PHA to estimate the cost of the eliminated activity and adjust the study's cost estimate to include that cost. |
| Administrative streamlining measures based on guidance HUD provided in 2012 and 2013[a] | If the administrative streamlining contributed to staff reductions (as described above), we picked up the cost of those staff reductions as described above. If administrative streamlining contributed to staff being reallocated within the HCV program but no reduction in the level or cost of the staffing, we did not make any adjustment. |
| Cost cutting measures that PHA identifies as improving the program or confirms as not harming the program. | We did not make cost adjustments for these types of cost savings measures because high-performing PHAs make administrative changes to increase efficiency in the normal course of business. |

| Cost Cutting Measure | Study Approach |
|---|---|
| Not issuing new vouchers | Many PHAs in the study stopped issuing vouchers or reduced voucher issuance before the cost data collection period. There are three scenarios:<br>• Staff who used to work on voucher issuance activities were laid off, have reduced hours, or reduced pay. In this case, we treated the staff as a staff reduction and adjusted as described above.<br>• Staff who used to work on voucher issuance activities were transferred to other functions within the HCV program. In this case, we did not make an adjustment as the total HCV cost was the same, even though the mix of activities changed.<br>• Staff who used to work on voucher issuance activities were transferred to work on other programs, such as public housing. This is a net loss of hours to HCV so we treated them as staff reductions. |
| No actions taken but PHA is concerned about declines in program quality, increased incidence of fraud, or higher staff turnover. | The study did not document declines in program quality between the time of the site visit and the time of cost data collection. The study adjusted for reduced staff or eliminated processes as indicated above but did not estimate the cost of possible higher incidence of program fraud or lower quality inspections. |

[a] See HUD notices PIH 2012-15 (HA), PIH 2013-03 (HA), and PIH 2013-26 (HA).

One concern raised by the EITRG about the approach to cost cutting actions is that we may have missed costs associated with cost cutting measures taken before the site visit. Analysis of the information collected through the site visits suggests that 25 of the 60 PHAs (42 percent of the sample) had indeed taken one or more cost-cutting actions in response to administrative fee reductions before the site visit (Exhibit 3-8).[21] For 14 of these 25 PHAs, we included one or more cost cutting actions taken before the site visit as adjustments to our cost estimates, because in these cases the PHA had revisited the decision in the period between the site visit and the RMS data collection and made the same decision again because of lack of funding. For the other 11 PHAs, we did not make adjustments for cost cutting actions taken before the site visit, because the PHAs were determined to be high performers at the time of the site visit, even with the cuts in place, and the PHAs had not revisited the cost-cutting decision.

[21] As a point of comparison, a 2012 survey conducted by the Public Housing Authorities Directors Association (PHADA) found that 47 percent of the 232 HCV programs surveyed had reduced or eliminated staff training, travel, and education to keep their HCV programs financially viable and 28 percent had reduced staffing or staff hours (PHADA 2013).

**Exhibit 3-8. Adjustments for Cost-Cutting Actions Taken Before Site Visit**

| | Number of PHAs | Percent of PHAs |
|---|---|---|
| **Cost-Cutting Actions Taken Before Site Visit** | | |
| PHA had taken cost cutting actions before site visit | 25 | 42% |
| PHA had not taken cost cutting actions before site visit | 35 | 58% |
| **Total** | **60** | **100%** |
| **Adjustments for Cost-Cutting Actions Taken Before Site Visit** | | |
| PHA had taken cost cutting actions before site visit and those actions were included in the study estimates | 14 | 23% |
| PHA had taken cost cutting actions before site visit and those actions were not included in the study estimates | 11 | 18% |
| PHA had not taken cost cutting actions before site visit | 35 | 58% |
| **Total** | **60** | **100%** |

Whether or not they had made cuts before the site visit, many PHAs began making cuts or made further cuts between the time of the site visit and the time of RMS data collection. Overall, the study made cost adjustments for 45 PHAs, 75 percent of the sample. The magnitude of the cost adjustments ranged from less than 1 percent of the PHA's HCV cost estimate to 19 percent of the PHA's cost estimate, with average adjustment equal to 6 percent of the final cost estimate. Exhibit 3-9 shows the types of cost-cutting actions taken and picked up as adjustments by the study.

**Exhibit 3-9. Types of Cost-Cutting Actions Included as Adjustments to the Cost Estimates**

| | Number of PHAs with this Type of Adjustment | Percent of Adjustments |
|---|---|---|
| Staff reductions (layoffs, furloughs, early retirement, not filling vacant positions, replacing with contracted or less expensive staff) | 31 | 48% |
| Reduction or elimination of bonuses or pay increases | 10 | 15% |
| Reduction or elimination of travel, training, or staff events | 11 | 17% |
| Changes to program processes that could affect program quality | 7 | 11% |
| Reductions of spending on postage and office supplies | 4 | 6% |
| Reduction or elimination of planned expenditures | 2 | 3% |
| **Total** | **65** | **100%** |

The list of cost-cutting actions in Exhibit 3-9 does not reflect the full set of cost cuts picked up by the study. Most importantly, the study used the previous fiscal year's data for non-labor and overhead costs, so if the PHA reduced its non-labor or overhead costs between the previous fiscal year and the fiscal year in which RMS data collection took place, those reductions would not have been counted as cost cutting actions as the study was already picking up the pre-reduction costs.[22]

Also not shown in Exhibit 3-9 are adjustments for cost-cutting actions in cases where during or shortly after RMS data collection the PHA planned to change to contracted-out inspections as a cost-cutting measure. This was the case for three PHAs in the study. Since these PHAs reported that they would not have made the change without the reduction in administrative fee funding, we estimated costs for the year for the program as if inspections would continue to be done by PHA staff. [23]

### 3.2.3 Calculating HCV Costs

The cost tools produced estimates of three types of program costs, which combined to give a total cost for the HCV program and for FSS activities as applicable. The three types of program costs are frontline labor costs, frontline non-labor costs, and overhead costs, which include labor and non-labor costs. The study collected frontline labor and non-labor costs separately for all PHAs and overhead costs separately for most PHAs.[24] Overhead costs could not be separated from frontline labor costs for some of the smaller and HCV-only PHAs. The study used somewhat different methodologies for calculating each of these costs, as summarized in Exhibit 3-10. Each component is described further below.

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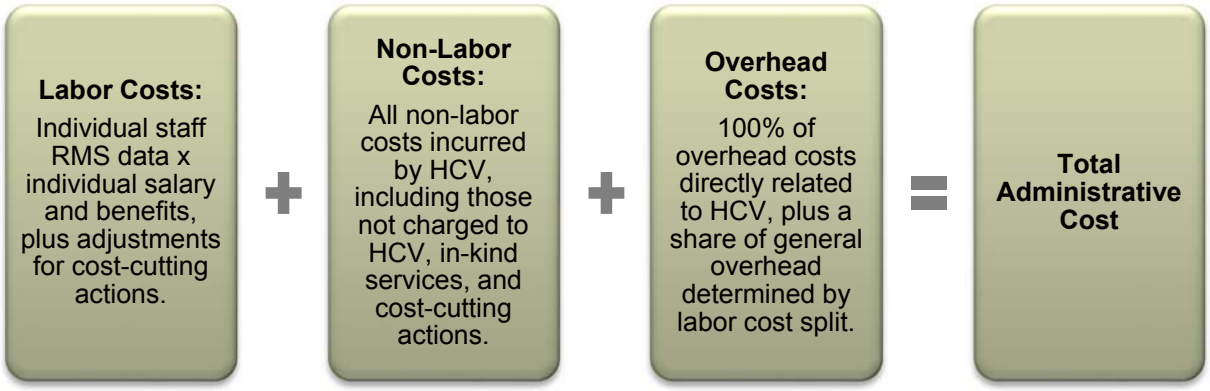
22 This is one reason why there are not more examples of reductions on postage and office supplies shown in Exhibit 3-9. Many PHAs reduced costs on postage and office supplies in 2013 with the dramatic reduction in administrative fees. However, our study typically picked up the costs of these items from the previous year.

23 One EITRG member suggested that we test the study's cost-cutting adjustments further by reviewing differences over time in the operating costs for the HCV program as reported on the FDS. We did not do so because our cost estimates did not match the costs reported on the FDS (we often picked up costs incurred by and not charged to the HCV program and the study used a different method for calculating overhead costs, so the study costs were typically higher). Also, the FDS does not provide much detail on non-labor and overhead costs. Thus, we were not able to reliably compare year-to-year differences in costs reported on the FDS versus costs estimated by the study based on the information available and resources were not available for additional data collection from the participating PHAs.

24 Overhead costs could not be separated from frontline labor costs for 20 of the 60 PHAs. At some of the smaller PHAs, staff in overhead positions participated in RMS but identified very little of their work as overhead. Other PHAs could not provide the information required for separate analysis of overhead costs.

**Exhibit 3-10. Calculating HCV and FSS Administrative Costs**




### Labor Costs – Salaries and Benefits

For each PHA, the study team collected information on the salaries and benefits of all staff working on frontline HCV functions. The salary and benefit information was collected for the fiscal year in which the RMS data collection took place and for the most recently completed fiscal year as a point of comparison. PHA staff provided actual salary and benefits data for the portion of the fiscal year that had already occurred and estimated salary and benefits for the remainder of the fiscal year, taking into account any anticipated pay raises or changes in benefits.

We included all benefits provided to staff in our estimates of total compensation. The salary and benefits costs collected included the following items:

- Base salary
- Overtime pay
- Bonus and other salary
- Employer-paid Social Security, Medicare, and FUTA
- Employer health insurance contribution
- Employer retirement contribution
- Payroll costs associated with liquidation of leave or any other severance payout for staff who left the PHA between the end of the most recently completed fiscal year and the RMS data collection period
- Post-employment benefits such as life insurance
- Annual costs associated with other post-employment benefits (OPEB)

The salary and benefits data from the most recently completed fiscal year provided a point of comparison for the data provided for the RMS data collection period. The study team carefully compared the costs for individual staff to make sure that they were consistent across the two time periods (assuming some raise or cost of living adjustment) and to identify any changes in staff schedules or benefits that needed to be explained through interviews with finance staff.

The study team used the following steps to calculate the frontline labor costs for the HCV program (and for FSS as applicable):

1. For each staff participating in RMS, we used RMS data to calculate the percentage of that individual's working time spent on HCV overall and by the following categories of activities (as applicable): intake and eligibility, lease-up, ongoing occupancy, inspections, monitoring and supervisory, general customer service, staff training, staff meetings, and FSS.
2. For each staff, we multiplied the percentage of time spent on HCV activities by the individual's salary and benefits for the fiscal year in which RMS took place. If bonuses or raises were frozen as a cost-cutting measure, we calculated the value of the foregone bonus or raise (based on prior year information provided by the PHA) to the individual's actual salary and benefits.
3. We used the time data to identify staff who demonstrated a pattern of working more than the hours for which they are paid. This included staff who worked very long days or who worked more than 10 total hours of extra time above a full-time schedule during the two-month RMS period.[25] For each staff found to work additional time, we calculated the percentage of time worked over that individual's regular schedule. We then calculated the additional personnel costs that the extra time represents for those staff found to work additional time.[26]
4. For each staff person that did not participate in RMS but performed some frontline HCV tasks, we estimated the percentage of time that staff spent on frontline HCV (or FSS) activities, either by using another staff person as a proxy (in the case of sampled staff) or based on information provided by the PHA. We then multiplied the percentage of time spent on HCV (or FSS) activities by the individual's salary and benefits for the fiscal year in which RMS took place.
5. We calculated a labor cost for any staff laid off as a cost-cutting measure (see discussion in Section 3.2.2 above) or for any reduction in staff hours worked on the program, such as furlough days. We distributed that cost across HCV (or FSS) activities based on the distribution of time for current staff with the same job title or as directed by the PHA.
6. We summed the labor costs calculated in steps 2-5 to produce a total frontline labor cost for the HCV and FSS programs and for key activities within those programs.

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[25] Staff who participated in RMS data collection for less than 2.5 weeks or were part-time were not assessed for extra time.

[26] To calculate the additional personnel cost, the study team first reviewed in detail the personnel cost data provided by the PHA for each staff found to work additional time. If the total personnel costs for the individual included overtime pay consistent with the amount of additional time worked, the individual's personnel costs were not adjusted. If the personnel cost for the individual did not include any costs for overtime pay, the additional personnel cost that the extra time represents (salary and benefits) were calculated. This provides an estimate of the cost of the additional staff time needed to do the work (at the appropriate salary and benefits levels) that we observed was being done for free.

### Non-Labor Costs

For the purposes of this study, non-labor costs is a broad category that includes the following types of costs related to frontline HCV work:[27]

- Building costs (rent or mortgage, utilities, maintenance, security)
- Computer and telecommunications costs
- Office supplies, postage, travel, and miscellaneous costs
- Audit, legal, and other services and fees
- Memberships and training costs
- Administrative contracts (e.g., inspections contracts) and other types of contracts
- Insurance
- Vehicles and mileage reimbursement
- Capital outlays (depreciation costs)
- Costs for services provided by or rendered to other entities
- Cost-saving measures other than those related to frontline labor

More detail on each cost type is provided in Appendix C, Exhibit C-3.

The study collected information on non-labor costs for the most recently completed fiscal year at the time of RMS data collection, not for the fiscal year during which RMS took place. For example, for a PHA with a fiscal year ending June 30 and RMS data collection taking place in September 2013, the study collected frontline labor costs for the PHA's 2014 fiscal year (with the PHA projecting labor costs for the remainder of the year if necessary) and non-labor costs for the PHA's 2013 fiscal year.

The reason for collecting non-labor costs for the most recently completed fiscal year is that accurate data on non-labor costs are not readily available until the end of each fiscal year. However, part of the cost data collection process was to interview PHA financial staff to ensure that non-labor costs incurred the previous year were generally appropriate as estimates of this year's costs, allowing for inflation. If the PHA made a major purchase the previous year (such as purchasing new computers or software), that cost would be included in the study as a normal (if infrequent) program cost.

Non-labor costs were allocated across the different functional activities of HCV based on the proportion of frontline labor cost assigned by the study for each relevant activity. General non-labor costs such as building costs were assigned across all HCV activities based on the distribution of the PHA's frontline labor costs across those activities. Non-labor costs that were clearly specific to a particular activity, such as a contract for HQS inspections or the cost of criminal background checks, were assigned only to the relevant activity.

These steps resulted in estimated non-labor costs for each HCV activity, and a total non-labor cost for HCV as a whole, for the most recently completed fiscal year. The study then applied an inflation

[27] Non-labor costs for overhead are captured under overhead.

factor to the non-labor costs to adjust them to the fiscal year for which frontline labor costs were collected. To calculate the inflation factor for each PHA the study team used the Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW). (The use of the QCEW is described further in Section 3.2.4.) In the example cited above, we would have collected non-labor costs for the period July 1, 2012–June 30, 2013 (the PHA's FY 2013) and frontline labor costs for the period July 1, 2013–June 30, 2014 (the PHA's FY 2014). The non-labor costs were adjusted using the QCEW so that they could be applied to the PHA's FY 2014 taking into account inflation.

### Overhead Costs

Overhead costs are costs that are shared across multiple programs such as both HCV and public housing. They often include costs for staff who perform activities for the agency as a whole that are allocated across all or several programs—for example, the executive director and the finance director.

The first step in calculating overhead costs for the HCV and FSS programs was to collect information on the agency's overall overhead costs. For PHAs with larger HCV programs, the study team was able to use the overhead costs reported to HUD's FDS as a starting point. PHAs report their overhead costs to the FDS in one of two ways:

1. **Fee-for-Service.** Under this model, the PHA has implemented asset management, is using a fee-for-service approach, and has therefore established a Central Office Cost Center (COCC). PHAs using this model will show amounts for Management Fee (FDS Line 91300) at a rate of up to either $12.50 per voucher leased monthly or 20 percent of the Administrative Fee and a Bookkeeping Fee (FDS Line 91310) at a rate of up to $7.50 per voucher leased monthly.
2. **Allocated Overhead (FDS Line 91810).** PHAs using this model have implemented asset management but the PHA has opted not to use a fee-for-service approach. Therefore, the PHA has not established a COCC but is instead reporting overhead costs using the Allocated Overhead line of the FDS (FDS Line 91810).

Smaller PHAs are not required to distinguish between frontline and overhead costs in their financial reporting and thus do not report overhead costs separately on the FDS. For smaller PHAs, the study team had to obtain initial information on overhead costs from interviews with the PHA financial staff and review of PHAs budgets and general ledger reports.

For every PHA in the study, regardless of how the PHA reported its overhead costs, the study team reviewed organizational charts, salary rosters, the year-end settlement for the COCC (if applicable), and overhead allocation plans (if applicable) to understand the overhead cost components and to produce an estimate of overall overhead costs for the agency. Like non-labor costs, these overhead costs were collected for the most recently completed fiscal year, since the source was FDS data and trial balances.

After determining the agency's total overhead cost, the study team used the organizational charts, salary rosters, and allocation plans to identify any overhead costs that directly supported one or more of the PHA's programs. In particular, the team sought to divide the total overhead costs into three buckets:

1. Overhead costs that only supported the HCV program (or the FSS program)

2. Overhead costs that only supported PHA programs other than HCV or FSS
3. General overhead costs that supported all programs

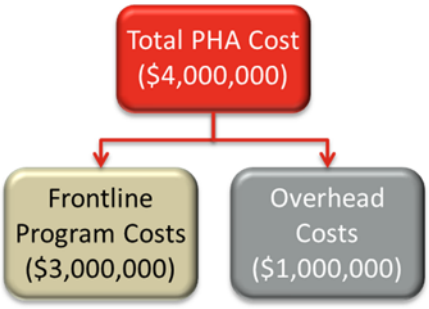
Any overhead costs identified as only supporting the HCV (or FSS) program were automatically included in the study's estimate of HCV overhead costs. One hundred percent of the overhead costs identified as only supporting the HCV (or FSS) program were included in the estimate of HCV overhead costs.

Overhead costs identified as only supporting other PHA programs were excluded from the study's estimate of HCV overhead costs.

General overhead costs were allocated between the HCV program and the PHA's other programs based on the proportion of the PHA's frontline labor costs that were charged to the HCV program in the most recently completed fiscal year. Exhibit 3-11 provides a simplified example of how this allocation was done.

In the example provided in Exhibit 3-11, total PHA costs are $4 million: $3 million in frontline program costs and $1 million in overhead costs. The example assumes that all overhead costs are general overhead costs and that the PHA only administers two programs, HCV and public housing (PH). To allocate a portion of the $1 million in overhead costs to the HCV program, the study calculates the percentage of the PHA's frontline (or direct) labor costs that is attributable to HCV. In this case, the HCV program has $800,000 in frontline labor costs, 40 percent of the PHA's total frontline labor costs. Thus, the study assigns $400,000 in overhead costs to the HCV program (40 percent of $1 million). The total cost of the HCV program is $1.6 million: $800,000 in frontline labor costs, $400,000 in non-labor costs, and $400,000 in overhead costs.

**Exhibit 3-11. Example of Allocating General Overhead Costs to HCV Using Frontline Labor**




| Line Description | HCV | PH | Total |
|---|---|---|---|
| Frontline Labor | $800,000 | $1,200,000 | $2,000,000 |
| Frontline Non Labor | $400,000 | $600,000 | $1,000,000 |
| Total Frontline Costs | $1,200,000 | $1,800,000 | $3,000,000 |
| Frontline Labor | $800,000 | $1,200,000 | $2,000,000 |
| % Frontline Labor | 40% | 60% | 100% |
| Overhead | $400,000 | $600,000 | $1,000,000 |
| **Total** | **$1,600,000** | **$2,400,000** | **$4,000,000** |

For most of the study sites, the team identified HCV-specific overhead costs as well as the portion of general overhead costs attributable to HCV. Summing these two parts provides an estimate of total overhead costs for the HCV program for the PHA's most recently completed fiscal year. This cost was then allocated among the different HCV (and FSS) activities based on the proportion of frontline labor costs attributed to each activity in the most recently completed fiscal year (as was done for the non-labor costs). This provides an estimate of overhead costs for each activity and an estimate of overhead costs for the HCV and FSS programs as a whole. The team used the inflation factor derived from the QCEW to adjust the overhead costs from the most recently completed fiscal year to the fiscal year during which RMS took place, as described in Section 3.2.4. The PHAs participating in the study had an opportunity to review the study's cost estimates and to discuss the study's methodology for determining overhead costs.[28]

#### Total HCV Costs

Summing the three elements described above provides an estimate, for each PHA, of the total costs for the HCV program and for FSS. The costs are available for each activity and for each cost type—frontline labor, frontline non-labor, and overhead. Using the inflation factors described above, the three types of costs were reconciled to be for the same time period—the fiscal year in which the PHA's RMS took place. A final element in the cost data collection, described below, was to convert total program costs from the PHA's fiscal year to calendar year 2013, so that the costs for each PHA are for a comparable time period and can be compared to administrative fees received at the same level of proration.

### 3.2.4 Calculating per Voucher Costs

Much of the cost analysis in this study presents HCV program costs in terms of cost per voucher under lease. Cost per voucher under lease is calculated for the PHA's fiscal year in which RMS took place. The voucher count used to calculate cost per voucher is also for the fiscal year in which RMS took place and comes from HUD's Voucher Management System (VMS).

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[28] Members of the EITRG asked whether the proportion of frontline labor costs charged to the HCV program in the PHA's most recently completed fiscal year was a good representation of the PHA's labor cost split and therefore a good basis for allocating general overhead costs. This was a particular concern for PHAs whose most recently completed fiscal year at the time of data collection was 2013. In 2013, due to the low administrative fees, the share of frontline labor costs charged to the HCV program may have decreased, resulting in a lower overhead cost estimate. In response to this concern, we analyzed the percent of frontline labor charged to HCV in the fiscal year used by the study and in the previous fiscal year. We found that, for most PHAs, the labor split did not change more than one or two percentage points. Moreover, 40 of the 60 PHAs either had no change from the previous year or had a higher share of frontline labor allocated to HCV in the study year compared to the previous year. More detailed analysis is shown in Appendix C.

The formula for calculating total vouchers under lease for each PHA is as follows:

**Total unit months leased (including special vouchers) for the PHA's fiscal year**

**PLUS**

**Total port-in unit months leased for the PHA's fiscal year**

**MINUS**

**Total port-out unit months leased for the PHA's fiscal year**

This voucher count is designed to match the administrative work that PHAs do that is captured in RMS. PHAs do the full set of ongoing occupancy activities for port-in vouchers, but they do not do these activities for port-out vouchers. For this reason we include port-in vouchers in the denominator in calculating cost per voucher and exclude port-out vouchers.

Thus, total HCV per voucher unit month leased (UML):

**Total HCV Cost / (Total UML + Port-In UML – Port-Out UML)**

This cost per voucher is calculated for the PHA's fiscal year and inflated to calendar year 2013 using the inflation factors discussed in the next section.

### 3.2.5 Inflation Factors

The study uses inflation factors for the following two types of adjustments:

- Adjusting non-labor and overhead costs from the most recently completed fiscal year to the PHA fiscal year in which RMS data collection took place.
- Adjusting cost per voucher under lease from the PHA fiscal year in which RMS data collection took place to calendar year 2013.

The study calculates inflation factors based on the Bureau of Labor Statistics QCEW. The QCEW is a comprehensive dataset of employment and wage information for workers covered by state unemployment insurance (UI) laws and federal workers covered by the Unemployment Compensation for Federal Employees (UCFE) program. HUD currently uses QCEW data to update the administrative fee formula (see Section 1.1.2 above). The QCEW is also used by the Departments of Commerce and Labor. [29]

[29] Before settling on the QCEW, the study team considered inflating PHA costs using the BLS's Consumer Price Index for All Urban Consumers (CPI-U). The CPI-U is the broadest and most comprehensive CPI and is the "official CPI" reported in the media. However, the CPI reflects changes in prices of all goods and services purchased for consumption by urban households, not necessarily changes in wage rates. Based on feedback from the EITRG, we determined that an inflation rate based on the QCEW would be more appropriate because it would reflect changes in labor costs for the segment of workers (local government workers) that closely approximates PHA staff. Since most HCV program costs are labor, using a labor-based inflation rate was more appropriate than one based on goods and services.

The QCEW provides quarterly and annual data on average wages by county, metropolitan statistical area (MSA), and state for different types of occupations. The occupation most relevant to this study is local government workers.

QCEW data on wage rates for local government workers are not available for every county or metropolitan statistical area. In compiling QCEW data for the study, we found that MSA-level estimates of local government wages were not available for several of the study PHAs located in MSAs. The same was true for some counties. Further, for smaller counties we found substantial volatility in the QCEW estimates for local government wages from year to year, which does not make sense in a PHA context where pay rates for employees do not change substantially from year to year.

Given these limitations, we decided to use the same methodology for calculating changes in local government wage rates as HUD uses for the current administrative fee formula. The approach is to calculate two estimates of the average annual wage for local government employees for each state:

- The first estimate is the average total wage for local government workers located in **metropolitan areas** in the state for a given year. This is calculated by summing total wages for all the metropolitan counties for that year and dividing by annual average employment count for all the metropolitan counties. Metropolitan counties are defined as counties located in metropolitan areas of core based statistical areas (CBSAs).
- The second estimate is the average total wage for local government workers located in **non-metropolitan areas** of the state for a given year. This is calculated by summing total wages for all the non-metropolitan counties and dividing by annual average employment count for all the non-metropolitan counties. Non-metropolitan counties are defined as counties in micropolitan areas of CBSAs and counties not in CBSAs.

Each PHA in the study, including the three PHAs with statewide jurisdictions, was assigned to the metropolitan or non-metropolitan group based on the county in which the PHA's headquarters is located. For PHAs in metropolitan areas, we used the average wage for the metropolitan areas in the state in which the PHA is located. For PHAs in non-metropolitan areas, we used the average wage for the non-metropolitan areas in the state in which the PHA is located. Using these metropolitan and non-metropolitan averages avoids the problems of missing or volatile data for local government wage rates described above.

The study team then calculated, for each PHA, the percentage change in the average annual wage applying to that PHA (either metropolitan or non-metropolitan, as described above) between the fiscal year corresponding to the HCV non-labor and overhead costs and the fiscal year in which RMS took place. The team multiplied the non-labor and overhead costs by the percentage change and added these costs to the HCV labor costs to arrive at a total cost for the HCV program for the PHA fiscal year in which RMS took place.

To convert the HCV cost per voucher from the PHA's fiscal year to calendar year 2013, we calculated the percentage change in the average annual wage between the PHA's fiscal year and calendar year 2013, and multiplied the HCV cost by this percentage change. Exhibit 3-12 summarizes these calculations and adjustments.

**Exhibit 3-12. Inflation Adjustments for Cost Data Collection**

| FY for Labor Costs | FY for Non-labor and Overhead Costs | Adjustment to Non-labor and Overhead Costs (to bring costs to same PHA FY) | Adjustment to HCV (or FSS) Cost Per Voucher (to convert from PHA FY to CY13) |
|---|---|---|---|
| 2012 | 2011 | Change in average annual pay from 2011 to 2012 | Change in average annual pay from 2012 to 2013 |
| 2013 | 2012 | Change in average annual pay from 2012 to 2013 | No adjustment |
| 2014 | 2013 | No adjustment | No adjustment |

## 3.3 Transaction Counts

The term "transaction count" refers to the number of times an HCV program activity, such as an annual inspection, is completed in a given period of time. (Transaction counts are also sometimes referred to as product counts.) We needed transaction counts for different HCV activities in order to translate the time spent on that activity during the two-month data collection period into a time per activity or cost per activity.

Exhibit 3-13 shows the counts obtained from participating PHAs and used for the time data analysis. We requested these counts for two periods of time: the 12-month period immediately before the start of RMS data collection and the two-month RMS data collection period.

Some of the transactions counted take place once a year for each household under lease, some take place several times a year, and some take place only for certain households. Exhibit 3-13 shows the median incidence of each transaction across the study PHAs based on the transaction counts provided—how many times the transaction happens per year relative to the total number of households under lease—and gives a brief explanation of the incidence.

Understanding the incidence of each type of transaction relative to the number of households under lease is useful for interpreting the time data presented in Chapter 4. The time data sometimes present two different estimates of time per activity: time per activity *per voucher under lease* and time per activity *per transaction*. As can be seen from Exhibit 3-13, two transactions are performed each year for every voucher under lease: annual recertifications and first inspections for the annual inspection. The other transactions happen with less frequency—that is, the transaction is not performed every year for every voucher under lease. In addition, some transactions—for example, voucher issuances and port-ins processed—do not apply to households currently under lease but rather apply only to households joining the program. The median incidence shown in the table is calculated as a percentage of all vouchers under lease.

**Exhibit 3-13. HCV Program Transactions Counts From Participating PHAs and Used for Time Data Analysis**

| Transaction | Median Incidence[a] | Explanation for the Incidence |
|---|---|---|
| Vouchers issued, not including transfers | 15% | Only households new to the program are issued vouchers. |
| Annual recertifications | 102% | All households under lease receive an annual recertification. The fact that the incidence is not 100% likely is due to households joining the program during the year (their annual recertification would take place the following year) and households leaving the program before their annual recertification. |
| Interim recertifications | 59% | PHAs conduct interim recertifications at the request of the household and based on PHA policies. Not all households receive interim recertifications (and some households receive more than one interim recertification during a given year). |
| Moves | 12% | Only a small share of households under lease move during the year. |
| First inspections (new units and annuals) | 125% | All units that are new to the program have a first inspection and all units on the program have an annual inspection. |
| Reinspections (new units and annuals) | 43%[b] | Units that fail their first inspection in most cases will be reinspected one or more times until they pass inspection. |
| Quality control inspections | 2% | PHAs conduct quality control inspections for a small fraction of vouchers under lease. |
| Complaint or emergency inspections | 3% | PHAs conduct complaint or emergency inspections for a small fraction of vouchers under lease. |
| Incoming ports processed | 1% | Households that port-in during a given year are only a small share of total vouchers under lease. |
| Outgoing ports processed | 2% | Households that port-out during a given year are only a small share of total vouchers under lease. |

[a] For each PHA, we calculate an incidence for each transaction, defined as the transaction count divided by the number of vouchers under lease. The median incidence is the median of the individual PHA incidences.

[b] The 43 percent in the exhibit is the median incidence of reinspections, where incidence is defined as the number of reinspections divided by the number of vouchers under lease. The incidence of reinspections is not the same as the inspection fail rate (i.e., the percent of units that fail first inspection). Across our sample, on average, the number of reinspections reported averages 36 percent of the number of first inspections reported. However, the data do not allow us to determine how many of the reinspections were for the same unit (i.e., repeat reinspections), versus reinspections of different units.

Source: Transaction count data provided by PHAs for RMS period, annualized and divided by number of vouchers under lease.

In most cases, PHAs were able to provide counts for all the items requested, for their HCV programs as a whole. Transaction counts by special voucher type and by household type were less widely available. Most PHAs pulled the information from their system of record but in many cases generating counts required a specialized report. In a few cases the data were not available. When possible, PHAs collected any missing counts by hand for the two-month RMS data collection period, but these data were not always readily available.

To supplement the transaction counts that we requested from the PHAs, we also received data from HUD's PIC system for six counts:

- New admissions
- Port-ins
- Port-outs
- Annual recertifications
- Interim recertifications
- End of participations

## 3.4 Small Program Interviews

The starting point for data collection for the small program interviews was the cost information reported by each PHA to HUD's Financial Data System. HUD provided the study team the FDS information reported by the PHA for the most recently completed fiscal year. The study team requested more detailed cost documents from each participating PHA such as the HCV trial balance or general ledger and a salary roster for HCV staff. The final sample includes 130 PHAs that agreed to participate in the interviews and provide cost documents. Most participating PHAs also completed a pre-survey to identify costs that were under- or over-reported to the FDS.

Before conducting the interview, the study team analyzed the FDS data and any information provided by the PHA to understand the major cost elements of the HCV program—frontline labor costs, building and other major non-labor costs, contract costs, and overhead costs—and how costs reported to the FDS may differ from those actually incurred by the HCV program. During the interview, the study team probed to clarify the information provided in advance to identify any other costs incurred by the HCV program but not charged to the HCV program and the reasons for any uncharged or undercharged costs. The interviews were typically conducted with the PHA's executive director or HCV director. In many cases, the PHA's fee accountant also participated in the call or provided input for the pre-survey.

Generally the uncharged or under-charged costs were either provided free of charge to the HCV program (e.g., covered by the city or county) or absorbed by another PHA program. In some cases, the study team had to work with the PHA or conduct additional external research to translate the value of goods and services provided free of charge to the HCV program into dollar costs. The most common example is office space, which was often provided free to the HCV program. The interviewers also probed for costs charged to the HCV program but not actually incurred by the program. Such costs were very rare, but when they did occur they generally involved a staff person's

time being charged 100 percent to the HCV program when the staff person had spent some time on another program.

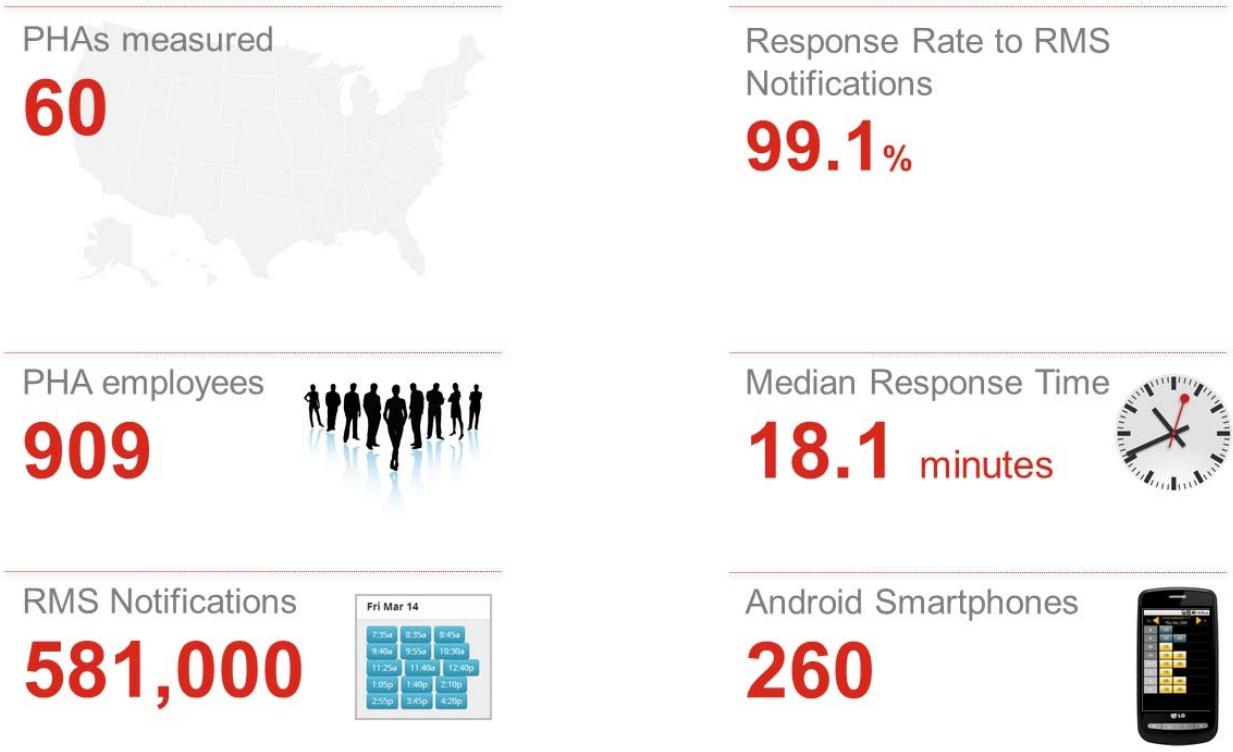
To the extent that the PHA had taken cost-cutting actions in 2013 in response to sequestration that were reflected in its FDS data for the most recently completed fiscal year, the team quantified the value of these cost cuts and added them to the total cost estimate as an adjustment, using the same approach as for the time measurement sites. However, given that PHAs were asked explicitly about uncharged or undercharged costs throughout the interview, most of the cost cuts were picked up as part of the discussion of what items were not being fully charged to the HCV program.

Using data gathered from the interviews and document review, the study team estimated the cost per voucher for each PHA for the most recently completed fiscal year. The interviews also provided qualitative information on cost-cutting actions the PHAs had taken or planned to take in response to sequestration and the challenges that they faced in operating a high-performing small HCV program in the current fee environment.

# 4. Descriptive Findings From Time Measurement

The RMS data collection resulted in a robust set of time data across the 60 PHAs. Across all study sites, as shown in Exhibit 4-1, the response rate to RMS notifications was 99 percent. The median notification response time was about 18 minutes, meaning that most staff responded quickly to most notifications and would have had good recall of what they were working on at the time of the notification. Across the 60 PHAs, the study collected 581,000 data points from more than 900 PHA employees on how they spent their time during the 40-day RMS period. Taking into account the estimated time for non-sampled staff at the six PHAs where the team used a sampling approach and for other frontline staff who were not able to participate in RMS (see Section 3.1.2 above), the 909 participating staff represent the work of more than 1,400 PHA employees across the 60 PHAs.

**Exhibit 4-1. RMS Results**




All of the PHA staff measured through the study worked on frontline HCV tasks, and most worked exclusively on the HCV program. On average, across the 60 PHAs in the study

- 81 percent of the time recorded was spent on the regular tenant-based HCV program;
- 7 percent was spent on special voucher programs;
- 3 percent was spent on HCV FSS activities (separate from routine HCV functions);
- 8 percent was spent on programs other than HCV.

This chapter focuses on time spent on the regular HCV program and on special voucher programs. Time spent on HCV FSS activities is discussed in Chapter 7.

## DESCRIPTIVE FINDINGS FROM TIME MEASUREMENT

The analysis in this chapter aggregates all the time data collected through RMS into the following five core categories of HCV work:

- Intake, eligibility, and lease-up
- Ongoing occupancy
- Inspections
- Monitoring and supervisory
- Supportive services (not FSS)

Exhibit 4-2 summarizes the activities in each category. A full list of activities is provided in Appendix C. The study also collected information on time spent on supporting activities for these core functions. These supporting activities include general customer service, owner and resident relations, staff training, and staff meetings. The time spent on these activities has been allocated across the five core categories as described in Appendix D so that all measured time is included. Appendix D also provides a technical discussion of the accuracy of the time data collected through RMS.

**Exhibit 4-2. Core Categories for Analysis of Time Spent on HCV Program**

| Core Function | General Description | Main Activities Included |
|---|---|---|
| Intake, Eligibility, and Lease-Up | Work on behalf of households applying to and entering the HCV program | • Wait list and applications<br>• Port-ins<br>• Eligibility determinations<br>• Briefings<br>• Voucher issuance and housing search<br>• Unit approval (RFTA processing and rent reasonableness for new units)<br>• HAP contracts<br>• Reasonable accommodation<br>• Associated data entry, file management, and reports |
| Ongoing Occupancy | Work on behalf of existing voucher participants | • Annual and interim recertifications<br>• Moves<br>• Rent reasonableness<br>• Port-outs<br>• End of participation<br>• Terminations (includes informal hearings related to termination)<br>• Other informal hearings (not related to termination)<br>• Reasonable accommodation<br>• Associated data entry, file management, and reports |
| Inspections | All work related to HQS inspections for new and existing voucher participants | • Scheduling and notifications<br>• Preparing for inspection<br>• Driving to and from inspection<br>• Conducting inspection<br>• Post-inspection paperwork<br>• HQS enforcement<br>• Reasonable accommodation |

| Core Function | General Description | Main Activities Included |
|---|---|---|
| Monitoring and Supervisory | Supervisory and management activities and planning | • Plans/policies<br>• Preparing, approving, distributing HAP<br>• SEMAP and file quality control<br>• PIC, EIV, and VMS submission<br>• Monitoring utilization, unit rental success, applicant response rates, and other data<br>• HCV staff supervision<br>• Board support<br>• Community relations<br>• Billing and budget support<br>• Audit support |
| Supportive Services (not FSS) | Optional services provided to voucher participants (excluding those provided only to FSS participants) | • Working with partners<br>• Marketing, outreach, and enrollment of participants<br>• Case management, services, and referrals<br>• Homeownership-related services and referrals<br>• Work related to expanding housing opportunities in areas of low poverty |

### *Notes for Interpreting the Tables and Exhibits in this Chapter*

The following information will be helpful in interpreting the tables in this chapter:

- The estimates in this chapter only represent the time spent on the program by PHA employees who spend all or part of their time working on frontline HCV tasks, as defined in Section 3.1.2 above. The time estimates *do not include* time for staff who work on the HCV program but are not PHA employees or for PHA staff who mostly perform overhead functions. (The cost estimates in Chapter 5 do include costs for non-PHA staff and overhead staff.)
- The time data presented in this chapter are weighted using the study's sampling weights to represent time spent by frontline PHA staff across all high-performing HCV programs with more than 100 vouchers.
- Unless otherwise noted, the tables present time estimates for regular and special vouchers combined.
- Most of the tables are structured to provide five descriptive measures of the data: mean, median, 25th percentile (25th PCTL), 75th percentile (75th PCTL), and a 95 percent confidence interval around the mean (95% CI). The mean is the arithmetic average of each PHA's data, and percentiles show the values for PHAs at different points in the distribution.[30] The minimum and maximum values are generally not presented because there is substantial variation across individual PHAs in the time spent for different HCV activities (see text box).

[30] The median (50th percentile) is the middle of the distribution—meaning that half the PHAs in the sample have values higher than the median and half have values lower than the median. The 25th percentile is the lower end of the distribution—75 percent of PHAs have values higher than the 25th percentile. The 75th percentile is the upper end of the distribution—25 percent of PHAs have values higher than the 75th percentile.

The 95 percent confidence interval shows a range of values in reference to the mean and indicates that we can be 95 percent confident that the true value of the mean is within this range. The 95 percent confidence interval is derived from the standard error of the mean (approximately equal to the mean +/- 1.96 times the standard error of the mean).

- For some activities, the time estimates are based on a subset of agencies in the sample, not all 60. This occurs because agencies either do not perform work in these areas (e.g., supportive services) or do not lease specific types of vouchers. As an example, since only some of the sample agencies have HUD-VASH vouchers under lease, we must omit the other agencies from time estimation on activities related to HUD-VASH. This is also necessary for estimating time for inspection activities, which is explained in Section 4.5. As an aid, the PHA counts are provided in chart and table notes.

### Variation in Time Estimates

The observed variation across PHAs in time per voucher and per activity reflects the fact that each PHA has a different way of approaching the program, even among high performers. The variation also reflects the study design of collecting data at different points of the year for different PHAs. Many HCV activities are not conducted in the same proportions year-round. PHAs may have intensive lease-up periods during the year based on when vouchers become available. In contrast, annual recertifications tend to be conducted at several points during the year for different groups of participants, since annual recertifications must be completed before the anniversary date of lease-up. Monitoring and supervisory activities, such as preparing reports and assembling SEMAP data, may happen more intensively toward the end of the PHA's fiscal year. Updating the HCV wait list generally happens once a year or less often, so some PHAs were observed doing this function (increasing the time spent on intake and eligibility activities), while others were not.

Collecting time data from different PHAs at different times of the year allows the study to measure program times and costs at different points in the program cycle, which is very important for ensuring that activities that do not happen very often or happen only once a year are not missed. The disadvantage of this approach is a higher level of variation across PHAs in time observed for different activities, particularly when the time observed during the two-month data collection period is annualized and divided by all vouchers under lease, as is shown in the tables that present time per voucher under lease.

The variation in overall time per voucher affects the study's estimates or per unit administrative costs because labor is a large component of program costs. As discussed in Chapter 6, the models that we developed to explain the observed variation in per unit administrative costs include several variables derived from the time estimates, including total time per voucher and time spent on different components of the program such as intake and ongoing occupancy.

## 4.1 Distribution of Time by Core Categories

Exhibit 4-3 shows the average distribution of frontline staff time across the five core categories of HCV work. Ongoing occupancy activities—that is, the work done on behalf of existing HCV participants—take up the largest share of frontline staff time (50 percent). This is followed by intake, eligibility, and lease-up activities for households applying to and entering the program (16 percent), inspection activities for new admissions as well as existing participants (16 percent), and monitoring and supervisory activities (15 percent). On average, staff spent only 2 percent of their time providing supportive services outside of the Family Self-Sufficiency program.

Exhibit 4-4 also shows confidence intervals for the mean estimates (95% CI). The confidence intervals can be interpreted as follows: we can be 95 percent confident that the mean percent of time spent on ongoing occupancy is between 46 percent and 54 percent.

**Exhibit 4-3. Distribution of Percent of Frontline Staff Time by Core HCV Category**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI[a] |
|---|---|---|---|---|---|---|---|
| Ongoing occupancy | 25% | 43% | 53% | 50% | 58% | 70% | 46%-54% |
| Intake, eligibility, and lease-up | 1% | 10% | 14% | 16% | 20% | 49% | 13%-20% |
| Monitoring and supervisory | 0% | 9% | 15% | 15% | 19% | 32% | 13%-18% |
| Inspections | 1% | 10% | 16% | 16% | 23% | 33% | 13%-18% |
| Supportive services (not FSS) | 0% | 0% | 1% | 2% | 3% | 11% | 1%-3% |

[a] The 95% CI is the mean +/- 1.96 times the standard error of the mean.

Note: Only the mean percentages sum to 100 percent across the categories. This is because the PHA with the minimum percent of time spent on ongoing occupancy, for example, will not be the same PHA with the minimum percent of time spent on inspections.

N=60 PHAs.

Source: RMS data collection.

The modest share of time spent on intake is consistent with the fact that the HCV programs in the study were not growing during the study period, as was true of the HCV program as a whole. Thirty-seven of the 60 PHAs in the study experienced a decline in the number of vouchers under lease between 2011 and 2013, with an average decrease of -4.5 percent. For the remaining 23 PHAs, the number of vouchers under lease increased by an average of 8 percent. Across the sample as a whole, the average growth in vouchers under lease was less than 1 percent.

The stasis in the number of vouchers under lease can also be seen in the utilization rates for the study sample. Between 2011 and 2013, 53 of the 60 PHAs experienced a decrease in their unit utilization rate. Across the sample, the average unit utilization rate decreased from 93 percent to 88 percent, and the median unit utilization rate decreased from 96 percent to 91 percent. Thus, few PHAs were growing their programs at the time we conducted data collection, and many were reducing the number of vouchers under lease, either in absolute terms or relative to the number of vouchers allocated.

As discussed in Section 3.2.2 above, we attempted to capture and adjust for cost-cutting measures taken in response to the reduced fee revenue (which resulted from both the administrative fee proration and from the PHAs having fewer vouchers under lease), but we did not add back time for

intake staff that might have been let go or reassigned to other tasks within the PHA. Thus, the study's estimates of the overall time per voucher are likely lower than they would have been if the study had been conducted at a time of program growth. The distribution of staff time across HCV activities, particularly the large share of time spent on ongoing occupancy, would also probably be somewhat different had the study sites been measured at a time of intense lease-up.

Exhibit 4-4 provides information on the amount of staff time spent on each category of HCV work and the HCV program overall across the 60 PHAs. In order to produce the data in this table, we took the total time spent on the HCV program (including regular and special vouchers) during the eight-week RMS period, annualized it by dividing by 8 and multiplying by 52, and divided the annual time by the total number of vouchers (regular and special vouchers) under lease at the time of RMS data collection.

Exhibit 4-4 shows time in terms of vouchers under lease, but includes time spent on all the intake, eligibility, and lease-up activities required to get vouchers under lease. In other words, even though the time is presented in terms of vouchers under lease, this time includes work done for families that may have applied for the program but were never issued a voucher and work done for families who were issued vouchers but did not lease-up. Later in this chapter we present time estimates for individual transactions, such as the average time per interim recertification, using as the denominator the number of interim recertifications conducted by the PHA during the data collection period. In contrast, Exhibit 4-4 provides an overview of the average amount of work over the course of a year expressed as hours per voucher under lease.

**Exhibit 4-4. Hours per Year per Voucher Under Lease**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Ongoing occupancy | 3.5 | 5.3 | 6.5 | 6.8 | 8.2 | 13.6 | 6.2-7.4 |
| Intake, eligibility, and lease-up | 0.2 | 1.3 | 1.9 | 2.3 | 2.8 | 7.4 | 1.7-2.9 |
| Inspections | 0.1 | 1.2 | 2.0 | 2.2 | 2.9 | 4.9 | 1.8-2.6 |
| Monitoring and supervisory | 0.0 | 1.1 | 1.9 | 2.2 | 2.8 | 5.6 | 1.7-2.6 |
| Supportive services (not FSS) | 0.0 | 0.0 | 0.1 | 0.3 | 0.4 | 1.4 | 0.2-0.4 |
| **Total hours** | **7.2** | **11.0** | **14.2** | **13.8** | **15.6** | **21.4** | **12.9-14.6** |

N=60 PHAs.

Source: RMS data collection.

Exhibit 4-4 shows that, for every voucher under lease, PHAs spent, on average, 13.8 hours per year on frontline HCV activities. The 95 percent confidence interval for this average is 12.9 to 14.6 hours per voucher under lease per year. The lowest time per voucher observed was 7.2 hours, and the highest was 21.4 hours. Time spent on ongoing occupancy, the most time-consuming of the core HCV functions, ranged from 3.5 hours per voucher per year to 13.6 hours per voucher per year, with an average of 6.8 hours per voucher per year.

To make the data on time per voucher under lease shown in Exhibit 4-4 and subsequent exhibits more concrete, we present a simple example of a PHA with 1,000 vouchers under lease. As shown in Exhibit 4-5, a PHA administering 1,000 vouchers with the same distribution of time as the average PHA in the study would need 13,770 hours of staff work time per year, of which 6,815 hours would

be spent on ongoing occupancy. The time data collected through this study suggest that full-time PHA staff work an average of 1,702 per year, or 82 percent of a 40-hour work week, the rest of the time being spent on paid and unpaid time off. This is consistent with national estimates for worker productivity. According to data compiled by the Federal Reserve Bank of St. Louis, Americans worked an average of 1,704 hours per year in 2011 (www. research.stlouisfed.org). Using 1,702 as the total working hours for a full-time employee in a year, the 13,770 hours of frontline staff time needed to administer the 1,000-voucher program translates to 8.1 full-time equivalent staff (FTEs).

Caution should be exercised in extrapolating from the data in this way, as we observe wide variation in the total staff time per voucher across PHAs. For example, programs administering more than 500 vouchers spend somewhat less time per voucher per year than smaller programs, demonstrating some savings from economies of scale.[31]

**Exhibit 4-5. Example of Mean Hours per Voucher Under Lease per Year Translated to FTEs for 1,000-Unit HCV Program**

| | Hours per Voucher per Year | Total Hours per Year | FTEs |
|---|---|---|---|
| Intake, eligibility, and lease-up | 2.3 | 2,302 | 1.4 |
| Ongoing occupancy | 6.8 | 6,815 | 4 |
| Inspections | 2.2 | 2,182 | 1.3 |
| Monitoring and supervisory | 2.2 | 2,196 | 1.3 |
| Supportive services | 0.3 | 275 | 0.2 |
| **Total Hours** | **13.8** | **13,770** | **8.1** |

N=60 PHAs.

Source: RMS data collection.

The remaining sections of this chapter explore the main categories of HCV work in detail, followed by analysis of the available data on time spent on special voucher programs and for different types of households. We do not show work on supportive services in detail in this chapter, as supportive services represents only 2 percent of total HCV labor time overall, or less than 20 minutes per voucher per year.

[31] There is a weak negative correlation (correlation coefficient of -.210) between time spent on the program and program size, suggesting that the larger the program size the fewer hours spent per voucher. This correlation was close to being significant at the 10 percent level.

## 4.2 Intake, Eligibility, and Lease-Up for New Households

Intake, eligibility, and lease-up covers all the frontline work conducted on behalf of new applicants to the HCV program and those entering the program from the time a household applies to the program to the time it comes under lease, with the exception of time spent on HQS inspections for new households. We organized the time data collected on intake, eligibility, and lease-up work into seven categories:

- **Wait list and applications:** includes activities related to opening, closing, and maintaining the wait list, taking applications, providing wait list status to applicants, and selecting applicants off the wait list.
- **Port-ins:** includes sending and receiving HUD Form 52665, billing for port-ins, communicating with sending PHAs, and responding to inquiries about port-ins.
- **Determination of eligibility:** includes conducting eligibility determinations, denial of eligibility, and informal reviews.
- **Voucher issuance and housing search:** includes briefing households, issuing vouchers, providing housing search assistance, and processing search time extensions and withdrawals.
- **Unit approval:** includes processing the request for tenancy approval (RFTA) and conducting rent reasonableness.
- **HAP contract:** includes work associated with preparing and updating the HAP contract and landlord payment information.
- **Reasonable accommodation:** includes additional work conducted on behalf of applicants and voucher recipients needing reasonable accommodation.[32]

Time spent on intake, eligibility, and lease-up also includes supportive administrative work such as data entry, filing, copying, and phone calls and emails related to intake and leasing. The time spent on these administrative activities has been allocated across the seven categories based on the relative proportion of staff time spent in these areas.

### 4.2.1 Time on Intake, Eligibility, and Lease-Up Activities per Voucher Leased

Exhibit 4-6 shows the time spent on each of these activities, in minutes, using as the denominator all the vouchers under lease per year, including vouchers used by existing HCV participants who do not require this work. Across all of the vouchers under lease in the program, PHAs spent an average of 138 minutes (2 hours and 18 minutes) per voucher working on activities related to managing the waiting list, processing new applicants, and helping newly admitted households lease a unit. The 95 percent confidence interval for this average is 102 to 174 minutes per voucher under lease per year.

[32] Time spent processing port-outs is not included under intake, eligibility, and lease-up, even though some households may port out of the PHA's jurisdiction immediately upon receiving the voucher. For the purposes of data collection and analysis, time spent processing port-outs is categorized under ongoing occupancy.

The most time-consuming aspects of intake, eligibility, and lease-up were managing the wait list and applications (average of 49 minutes per voucher under lease per year), determining eligibility (average of 33 minutes per voucher under lease per year), and issuing vouchers and assisting households through the search process (average of 16 minutes per voucher under lease per year).

**Exhibit 4-6. Minutes per Year per All Vouchers Leased for Intake, Eligibility, and Lease-Up Activities for Vouchers Issued to New Households**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Wait list and applications | 1 | 17 | 36 | 49 | 66 | 165 | 34-64 |
| Port-ins | 0 | 1 | 5 | 13 | 11 | 104 | 5-21 |
| Determination of eligibility | 1 | 11 | 18 | 33 | 44 | 165 | 22-44 |
| Voucher issuance and search | 0 | 3 | 7 | 16 | 19 | 103 | 8-24 |
| Unit approval | 0 | 3 | 8 | 12 | 18 | 62 | 9-16 |
| HAP contract | 0 | 3 | 9 | 13 | 17 | 65 | 9-17 |
| Reasonable accommodation | 0 | 0 | 0 | 1 | 1 | 9 | 1-2 |
| **Total** | **13** | **76** | **111** | **138** | **169** | **445** | **102-174** |

N=60 PHAs.

Source: RMS data collection.

### 4.2.2 Time on Eligibility Determinations and Voucher Issuances

Exhibit 4-7 shows the time spent on intake, eligibility, and lease-up transactions just for households that had a new or turnover voucher issued during the year, whether or not they succeeded in leasing up. These estimates are based on time collected through RMS and transaction counts collected from PHAs.[33] As shown in Section 3.3 above, vouchers issued represent only a small share of vouchers under lease, so the intake time per voucher issued is going to be much higher than intake time spread over all vouchers under lease.

The data in Exhibit 4-7 show that for every new or turnover voucher issued, PHAs spent an average of 196 minutes (3 and 16 minutes) on eligibility determinations and 85 minutes (1 hour and 25 minutes) on voucher issuance and assistance through the housing search process.

[33] The study collected transaction counts for the two-month RMS period and for the previous year. In most cases we used the counts for the two-month RMS period to derive time per transaction, but in some cases only annual counts were available.

**Exhibit 4-7. Intake, Eligibility, and Lease-Up Time (in Minutes) per Voucher Issued**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Minutes on eligibility determinations per voucher issued (n=54) | 11 | 59 | 126 | 196 | 257 | 1,037 | 124-269 |
| Minutes on voucher issuance and search per voucher issued (n=54) | 2 | 19 | 55 | 85 | 115 | 338 | 60-110 |

N=As noted in the exhibit.

Note: Transaction count data were not available for all counts and all PHAs. In order to be included, the PHA had to have time recorded for the activity and also had to have provided a count of the activity for the RMS data collection period or previous year.

Source: RMS data collection.

### 4.2.3 Time on Port-In Activities

Exhibit 4-8 shows the time spent processing port-ins, per port-in household. The time measured includes the time spent processing new port-ins as well as billing and paperwork associated with existing port-ins for which the PHA is billing.[34] The associated count includes the new port-ins processed by the PHA during the RMS period, plus any existing port-ins for which the PHA was billing.[35] PHAs spent an average of 155 minutes (2 hours 35 minutes) on port-in related activities for every port-in household (new port-ins and existing billed port-ins). However, there is a wide variance in time per port-in processed across the study sites, suggesting that the median time per port-in (100 minutes) may be a more reliable measure.

[34] The activities recorded in the time estimate include sending and receiving HUD Form 52665, billing for port-ins, communicating with sending PHAs, and responding to inquiries about port-ins.

[35] The count of new port-ins processed came from the transaction counts for the two-month RMS period provided by the PHA. In a few cases, the PHA was not able to provide the count so we obtained it from HUD's PIC data system. For many PHAs, the data obtained through PIC matched that obtained from the PHA, but for others it did not. Whenever possible, we used the counts obtained from the PHA as the PHAs were instructed to match the counts to the RMS data collection period whereas the data in PIC are lagged in some cases. We obtained the count of billed port-ins from HUD's VMS system. We used the count of billed port-ins for the two months when RMS took place (total port-in months billed over the two month period divided by two to obtain a count of port-in households for which the PHA was billing during this time frame.

**Exhibit 4-8. Time per Port-In Household**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Minutes per port-in processed (new ports plus existing ports for which the PHA bills) | 4 | 25 | 100 | 155 | 228 | 925 | 102-209 |

N=50 PHAs.

Note: Transaction count data were not available for all counts and all PHAs. In order to be included, the PHA had to have time recorded for the activity and also had to have provided a count of the activity for the RMS data collection period or previous year.

Source: RMS data collection, plus VMS data for count of billed port-ins.

The study did not collect separate time data for time spent processing new incoming ports and time spent on billing activities related to port-ins that the PHA was administering on behalf of another PHA. However, if we analyze the time per port-in among the nine PHAs that were mostly billing for ongoing port-ins during the RMS period (as opposed to processing new port-ins), the average time per port-in was much lower—31 minutes per household. If we assume that most of this time is spent on processing billing, which is done year-round, we can estimate that these nine PHAs spent about 202 minutes (3 hours and 22 minutes) per billed port-in over the course of a year. This is time spent in addition to the time spent on regular HCV functions, but there are also some functions that a PHA would not do for a billed port-in household—for example, waiting list activities and eligibility determinations and port-out processing. Together these functions amount to an average of 100 minutes of frontline staff time per year for these nine PHAs. Thus, we estimate that the additional time spent on billed port-in households (compared to the PHA's own households) to be about 102 minutes per year (1 hour and 42 minutes).

## 4.3 Ongoing Occupancy

Ongoing occupancy covers all the work conducted for the tenancy of existing HCV participants, with the exception of time spent on HQS inspections. We organized the time data collected on ongoing occupancy into seven categories:

- **Annual recertifications:** includes preparing for and scheduling annual recertifications, conducting interviews, verifying income and household composition, reviewing EIV, and calculating total tenant payment and HAP.
- **Interim recertifications:** includes receiving and processing requests for interim recertifications, conducting interviews and verifying income, calculating total tenant payment and HAP, and processing vendor changes and notifications.
- **Moves:** includes receiving and processing move requests, determining eligibility for a move, and conducting move briefings.
- **Processing port-outs:** includes determining participants' eligibility for port-out, providing participants with information on porting, sending HUD Form 52665, communicating with receiving PHAs, and updating participant files.
- **Terminations:** includes investigating cases that could lead to terminations as well as processing terminations, conducting hearings, and coordinating post-termination litigation.

- **End of participation:** includes processing the end of participation agreement and updating files and data systems following an end of participation.
- **Reasonable accommodation:** includes additional work conducted on behalf of participants needing reasonable accommodation.

Time spent on ongoing occupancy also includes supportive administrative work such as data entry, filing, copying, and phone calls and emails related to ongoing occupancy, and informal hearings not related to termination. The time spent on these activities has been allocated across the seven categories based on the relative proportion of staff time reported in these areas.

### 4.3.1 Time on Ongoing Occupancy Activities per Voucher Leased

Exhibit 4-9 shows the time spent on each of these activities per year, in minutes, as an average for all vouchers under lease per year, including vouchers leased up by newly admitted households. For every voucher in the program, PHAs spent an average of 409 minutes (6 hours and 49 minutes) per year performing tasks associated with maintaining households already in the program, not including inspections, management tasks, and supportive services.

The biggest component of ongoing occupancy work is the annual recertification required for all households in the program. PHAs spent an average of 232 minutes (3 hours and 52 minutes) conducting each annual recertification. The confidence interval on this estimate indicates that we can be 95 percent confident that the true average is between 206 minutes (3 hours and 26 minutes) and 257 minutes (4 hours and 17 minutes).

After annual recertifications, the next most time-consuming aspect of ongoing occupancy is interim recertifications, even though not all households in the program require interim recertifications. On average, interim recertifications take 100 minutes per household under lease (over an hour and a half). After annual and interim recertifications, the other aspects of ongoing occupancy are less time-consuming, averaging a total of 78 minutes per year per voucher under lease for work related to moves, port-outs, terminations, end of participation agreements, and reasonable accommodation.

**Exhibit 4-9. Minutes per Year per All Vouchers Leased for Ongoing Occupancy Activities**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Annual recertifications | 124 | 173 | 225 | 232 | 276 | 647 | 206-257 |
| Interim recertifications | 20 | 63 | 87 | 100 | 119 | 257 | 84-116 |
| Moves | 0 | 19 | 29 | 36 | 53 | 78 | 28-43 |
| Processing port-outs | 0 | 4 | 7 | 11 | 13 | 59 | 7-14 |
| Terminations | 0 | 8 | 16 | 20 | 29 | 79 | 15-26 |
| End of participation | 0 | 3 | 5 | 8 | 9 | 61 | 5-10 |
| Reasonable accommodation | 0 | 0 | 2 | 3 | 5 | 19 | 2-4 |
| **Total** | **211** | **321** | **391** | **409** | **491** | **818** | **372-446** |

N=60 PHAs.

Source: RMS data collection.

### 4.3.2 Time on Annual Recertifications, Interim Recertifications, and Moves

Exhibit 4-10 shows time spent per annual recertification, per interim recertification, and per move. These estimates are based on the transaction counts collected for the study. The number of annual recertifications conducted in a year is similar to the total number of vouchers under lease, so the average time per annual recertification, 228 minutes (Exhibit 4-10), is similar to the average time spent on annual recertifications per all vouchers leased, 232 minutes (Exhibit 4-9). By contrast, not every household receives an interim recertification, so the average time per interim recertification for those households who received interim recertifications, 156 minutes (Exhibit 4-10) is substantially higher than the average time spent on interim recertifications per all vouchers leased, 100 minutes (Exhibit 4-9).

**Exhibit 4-10. Minutes per Transaction for Select Ongoing Occupancy Activities**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Minutes per annual recertification (n=58) | 79 | 150 | 187 | 228 | 310 | 498 | 192-264 |
| Minutes per interim recertification (n=60) | 41 | 95 | 123 | 156 | 186 | 661 | 121-191 |
| Minutes per move (n=46) | 47 | 103 | 187 | 247 | 282 | 785 | 181-313 |

N=As noted in the exhibit.

Note: Transaction count data were not available for all counts and all PHAs. In order to be included, the PHA had to have time recorded for the activity and also had to have provided a count of the activity for the RMS data collection period or previous year.

Source: RMS data collection.

Interim recertifications took less time on average than annual recertifications—156 minutes per interim compared to 228 minutes per annual. PHA staff may only look at some changes in income or expenses during an interim recertification (such as an increase or decrease in income) and do not necessarily re-verify all income and assets that were verified during the annual recertification or re-test for rent reasonableness.

### 4.3.3 Time on Port-Out Activities

Exhibit 4-11 shows the time spent processing port-outs, per port-out household. The time measured includes the time spent processing new port-outs as well as billing and paperwork associated with existing port-outs for which the PHA is being billed.[36] The associated count includes the new port-outs processed by the PHA during the RMS period, plus any existing port-outs for which the PHA was billed.[37] On average, PHAs spent an average of 71 minutes (1 hour 11 minutes) on port-out

[36] The activities recorded in the time estimate include determining participants' eligibility for port-out, providing participants with information on porting, sending HUD Form 52665, communicating with receiving PHAs, verifying and approving port-out bills, and updating participant files.

[37] The count of new port-outs processed came from the transaction counts for the two-month RMS period provided by the PHA. In a few cases the PHA was not able to provide the count so we obtained it from HUD's PIC data system. We obtained the count of billed port-outs from HUD's VMS system. We used the count of billed port-outs from the month before the start of RMS so as to avoid double counting between existing billed port-outs and new port-outs for which the PHA might be billed in the future.

related activities for every port-out household (new port-outs and existing billed port-outs). However, as with port-ins, there is a wide variance in time per port-out processed across the study sites, suggesting that the median time per port-out (41 minutes) may be a more reliable measure.

**Exhibit 4-11. Time per Port-Out Household**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Minutes per port-out processed (new ports plus existing ports for which the PHA is billed) | 4 | 23 | 41 | 71 | 86 | 296 | 47-95 |

N=57 PHAs.

Note: Transaction count data were not available for all counts and all PHAs. In order to be included, the PHA had to have time recorded for the activity and also had to have provided a count of the activity for the RMS data collection period or previous year.

Source: RMS data collection, plus VMS data for count of billed port-outs.

The study did not collect separate time data for time spent processing new outgoing ports and time spent on billing activities related to port-outs being administered by another PHA. However, it was important for the development of the proposed fee formula to understand the relative cost of these two components (see Chapter 7).[38] Specifically, we needed to determine approximately how much time PHAs spend on ongoing billing activities for port-outs versus processing new port-outs in order to determine whether the new formula needed to provide additional compensation for port-out activities.

To determine approximately how much time PHAs spend on ongoing billing activities for port-outs, we created a regression model to explain the observed variation in time spent on port-out activities across the PHAs in the study. The dependent variable in the model was minutes spent on port-out processing during the eight-week RMS period and the independent variables were the number of outgoing ports processed during that period (i.e., new port-out transactions) and the number of port-out households that the PHA was billing for during that period). The model is ordinary least squares with no intercept term. The intercept term was left out, or in other words restricted to be zero, because it does not make sense to have a non-zero intercept if the PHA has zero port-out transactions and zero port-outs billed. We also excluded two PHAs that were determined to be outliers. [39]

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[38] We did not use this approach for understanding the relative time spent on billing versus processing new ports for port-in households because we determined that the formula should compensate PHAs fully (at 100 percent of their fee) for port-in households administered on another PHA's behalf. For port-ins, the costs associated with both billing and processing new port-ins, as well as the costs associated with doing the regular program functions for the billed port-ins, are included in the cost estimates from which the formula is derived. Under the proposed formula, PHAs are compensated separately for the billing activities that they have to undertake for households that port-out but that are not absorbed by the receiving PHA; thus the importance of estimating the time (and cost) of this work separately.

[39] The rule for identifying outliers was PHAs for which the absolute value of the regression residual was three standard deviations larger than the mean for a PHA with given number of port-outs. This is a standard method for identifying outliers.

Exhibit 4-12 shows the results of the regression model. Only the number of billed port-out households is a statistically significant driver of time spent on port-out processing during the RMS period, which may in part be explained by the much larger number of port-outs being billed (6,153) than port-out transactions (514) at the study sites during RMS period. The coefficient on the number of billed port-out vouchers is 23.6, suggesting that, on average, each billed port-out voucher takes about 24 minutes of time over an eight-week period, or about 156 minutes of time over the course of the year. In other words, on average, PHAs spent just over 2.5 hours per year for every port-out voucher billed. As shown in Exhibit 4-4, the overall time spent on all frontline voucher activities (including time spent processing port-out transactions) was 13.8 hours (828 minutes) per voucher under lease per year. Thus, the frontline time spent on port-out billing equates to about 19 percent of the time spent administering non-port-out vouchers (156/828=0.19). These estimates are revisited in the context of the proposed fee formula in Chapter 7.

**Exhibit 4-12. Coefficient Estimates for Model Estimate of Time Spent on Port-Out Processing During the RMS Period**

| Time Spent on Port Out Processing Regression Results | |
|---|---|
| Number of port-out vouchers for which PHA was billing at time of RMS data collection | 23.60*** |
| Number of new outgoing ports during RMS data collection period | 20.82 |

Notes: *** indicates significant at 1 percent level, ** at 5 percent level, and * at 10 percent level. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected. The R-squared value is not reported because this value cannot be correctly calculated when the intercept term is restricted to zero. We also excluded two PHAs that were outliers based on preliminary testing of the model. Note that in a model with the intercept term and all 57 PHAs, the port-out billed coefficient was slightly smaller, 23.1.

N=55 PHAs.

## 4.4 Inspections

Time spent on inspections covers all the work related to Housing Quality Standards (HQS) inspections, including inspections of new units as well as annual inspections. We organized the time data collected on inspections into seven categories:

- **Scheduling and notifications:** includes scheduling inspections with landlords and tenants, sending notices and responding to inquiries about scheduled inspections, and working with contractors to schedule inspections and evaluate inspection results.
- **Preparing for inspections:** includes time spent preparing for inspections in the field including downloading itinerary/schedule, planning routing, and reviewing prior inspection results.
- **Driving to and from inspections:** includes the time spent driving to, from, and between field inspections, and any related car activities such as buying gasoline.
- **Conducting inspections:** includes the time spent conducting a field inspection, including waiting for landlords or tenants. Inspections are categorized as follows:
  - First inspection for a new unit
  - Reinspection for a new unit
  - First annual inspection

  - Reinspection for annual
  - Complaint, emergency, or other special inspection
  - Quality control inspection
  - Inspection type unknown

- **Post-inspection paperwork:** includes general administrative activities, email, and phone calls related to inspection such as completing the HUD form 52641 and other post-inspection paperwork, uploading data from handheld devices, evaluating routine inspection results, 50058/PIC completion and submission, data entry, filing, mailing, and data storage.
- **HQS enforcement:** includes evaluating inspection results for possible need for HQS enforcement, placing or lifting unit abatements, communicating deficiencies and abatements to owners and tenants, and participating in related court proceedings.
- **Reasonable accommodation:** includes any additional activities related to scheduling or conducting inspections for participants with disabilities including working with legal assistance, advocates, and service providers to respond to reasonable accommodation requests, and scheduling inspections with service providers or additional PHA staff.

Only employees of the PHA participated in RMS data collection. This is critical for the analysis of inspections because 9 of the 60 PHAs had fully or mostly contracted out their inspections before the start of RMS data collection.[40] This means that we collected time data on all inspection-related activities for only 51 of the 60 PHAs, those that, at the time of data collection, conducted their inspections exclusively (or almost exclusively) in house, using PHA employees. Four of the PHAs that conducted their inspections in-house were in the process of transitioning to contracted inspections at the time of RMS data collection. Thus, the time data for these PHAs is less reliable because the in-house inspectors only participated in RMS for part of the time period or were being phased out and therefore worked less than usual. As a result, we have reliable time estimates on inspections costs for 47 PHAs.

Not having time data for PHAs with contracted out inspections or in the process of transitioning to contracted inspections is not a problem for the cost estimates presented in Chapter 5. The cost estimates include the full cost of the inspections contract (for PHAs that contract out inspections) as well as for any staff that recorded time on inspections (mostly for working with the contractors). For those PHAs in the process of transitioning to contracted inspections, the cost estimate includes the full salary and benefits of the PHA staff who had done inspections full-time before the transition; thus, for these PHAs the study captures the full cost of inspections work before the PHA's transition to contract inspections.

Exhibit 4-13 compares the time spent on all inspection-related activities for the 47 PHAs that conduct their inspections in house and have reliable time data and for the 9 PHAs that contract out their inspections. We found that PHAs that conduct their inspections in house spent, on average, 163

[40] Four PHAs in the study used a mix of contracted and in-house inspectors at the time of data collection. One of these PHAs was assigned to the "contract inspectors" group because the value of its inspections contract was more than half the total inspection cost calculated by the study. The other three were assigned to the "in-house" group because the majority of their inspections costs were for in-house staff.

minutes (2 hours and 43 minutes) per year per voucher under lease on inspection-related activities, compared to 37 minutes for those who contract out their inspections. PHA staff time is substantially lower for PHAs that contract out their inspections, but some staff time is still needed to coordinate with the contractor, review inspection results, communicate with landlords and program participants, and conduct quality control inspections, among other activities. The time estimates in Exhibit 4-13 include all inspection work, including new unit inspections, annual inspections, and any reinspections resulting from HQS violations found during the first inspection.

**Exhibit 4-13. Minutes Spent by PHA Staff per Year per All Vouchers Leased for All Inspections Activities, In-House Versus Contracted-Out Inspections**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| PHAs using in-house inspectors (n=47) | 54 | 110 | 156 | 163 | 206 | 292 | 139-186 |
| PHAs using contract inspectors (n=9) | 7 | 13 | 31 | 37 | 52 | 61 | 16-58 |
| All PHAs combined (n=56) | 7 | 61 | 135 | 136 | 192 | 292 | 110-161 |

N=As noted in the exhibit.

Note: Four PHAs were excluded from this analysis because the PHA transitioned from using in-house inspectors to using contractors during the RMS data collection period and thus the data are less reliable.

Source: RMS data collection.

The rest of this section focuses on the time measured for those PHAs that conduct their inspections in house.

Exhibit 4-14 shows the time spent on each of the seven inspections-related activities, in minutes, per voucher under lease per year. As would be expected, the largest share of the total time spent on inspections is spent conducting the inspections (42 minutes) and on driving to inspections (37 minutes). Together, these two activities represent about half the time that the average PHA spent on inspection-related activities. The other half of the time was spent on post-inspection paperwork (35 minutes on average), scheduling the inspections and notifying landlords and participants (26 minutes), and preparing for inspections (15 minutes). PHAs spent relatively little time on HQS enforcement activities and reasonable accommodation when spread across the entire portfolio of vouchers.

**Exhibit 4-14. Minutes per Year per All Vouchers Leased for Inspection Activities, In-House Inspections Only**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Scheduling and notifications | 0 | 14 | 23 | 26 | 31 | 69 | 19-34 |
| Preparing for inspection | 0 | 8 | 12 | 15 | 17 | 43 | 11-19 |
| Driving to/from inspection | 7 | 23 | 34 | 37 | 47 | 98 | 30-44 |
| Conducting inspection | 7 | 31 | 40 | 42 | 54 | 87 | 36-49 |
| Post-inspection paperwork | 0 | 22 | 38 | 35 | 47 | 85 | 30-41 |
| HQS enforcement | 0 | 1 | 3 | 5 | 6 | 21 | 3-7 |
| Reasonable accommodation | 0 | 0 | 0 | 1 | 1 | 29 | 0-3 |
| **Total** | **54** | **110** | **156** | **163** | **207** | **292** | **139-186** |

N=47 PHAs.

Source: RMS data collection.

Within the category of conducting inspections, we collected information on the type of inspection (e.g., initial occupancy inspection, annual inspection, complaint inspection). Using the transaction count data collected through the study, we analyzed time per inspection for different types of inspections, as shown in Exhibit 4-15. The times shown in Exhibit 4-15 are shorter than those shown in Exhibit 4-14, because, counting reinspections, PHAs typically conduct more than one inspection per year for each voucher under lease, so the time in Exhibit 4-14 is spread over a smaller denominator (all vouchers leased) than the time in Exhibit 4-15 (inspections conducted).

Exhibit 4-15 presents time per inspection for four types of inspections—first inspections; reinspections; complaint, emergency, or other special inspections; and quality control inspections.[41] The exhibit shows only *the time spent driving to and from the inspection and actually conducting the inspection*.

Across all inspection types, PHAs spent an average of 53 minutes per inspection conducting and getting to and from the inspection. The 95 percent confidence interval for this average is 42 to 64 minutes. PHAs spent only slightly more time on first inspections than on reinspections (52 minutes versus 47 minutes, on average).

We observed a very wide range of time spent on complaint, emergency, and special inspections, which is not surprising, given that these types of inspections occur relatively infrequently. The median time spent conducting and getting to and from complaint, emergency, and special inspections was 75 minutes and the mean (average) was 114 minutes. The 95 percent confidence interval for the average time on complaint, emergency, and special inspections is wide—49 to 179 minutes—suggesting that the estimate is not very reliable. Quality control inspections took the least time (45 minutes on average) but also had a fairly wide confidence interval.

[41] The number of PHAs from which we derived the estimates varies by inspection type, because not all PHAs recorded time on a given inspection type during the RMS period, and not all PHAs provided a count of the number of inspections conducted of that type.

**Exhibit 4-15. Minutes Conducting and Driving to/From Inspections, per Inspection, by Inspection Type, In-House Inspections Only**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Minutes per first inspection (annual or new unit) (n=45) | 9 | 35 | 47 | 52 | 62 | 210 | 42-62 |
| Minutes per reinspection (annual or new unit) (n=43) | 9 | 26 | 36 | 47 | 64 | 153 | 37-58 |
| Minutes per complaint, emergency, or special inspection (n=32) | 5 | 24 | 75 | 114 | 149 | 375 | 49-179 |
| Minutes per quality control inspection (n=13) | 19 | 19 | 22 | 45 | 50 | 146 | 13-78 |
| **Minutes per inspection, all types (n=47)** | **13** | **30** | **44** | **53** | **62** | **209** | **42-64** |

N=As noted in the exhibit.

Note: Transaction count data were not available for all counts and all PHAs. In order to be included, the PHA had to have time recorded for the activity and also had to have provided a count of the activity for the RMS data collection period or previous year.

Source: RMS data collection.

Exhibit 4-16 shows the time per inspection for *all inspection activities*, including preparing for the inspection and post-inspection paperwork, as well as conducting the inspections. Overall, PHAs spent an average of 104 minutes (1 hour and 44 minutes) per inspection. Consistent with Exhibit 4-15, PHAs spent slightly more time on average on first inspections than on reinspections. Complaint, emergency, and special inspections were the most time-consuming (230 minutes on average), but varied greatly across PHAs. Quality control inspections were the least time-consuming (91 minutes on average) but also varied greatly across PHAs.

**Exhibit 4-16. Minutes on All Inspection Work, per Inspection, by Inspection Type, In-House Inspections Only**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Minutes per first inspection (annual or new unit) (n=45) | 41 | 69 | 96 | 107 | 128 | 306 | 88-125 |
| Minutes per reinspection (annual or new unit) (n=43) | 21 | 56 | 80 | 99 | 117 | 320 | 78-121 |
| Minutes per complaint, emergency, or special inspection (n=32) | 12 | 43 | 161 | 230 | 314 | 802 | 92-369 |
| Minutes per quality control inspection (n=13) | 36 | 40 | 42 | 91 | 128 | 272 | 30-152 |
| **Minutes per inspection, all types (n=47)** | **32** | **72** | **95** | **104** | **128** | **303** | **89-119** |

N=As noted in the exhibit.

Note: Transaction count data were not available for all counts and all PHAs. In order to be included, the PHA had to have time recorded for the activity and also had to have provided a count of the activity for the RMS data collection period or previous year.

Source: RMS data collection.

## 4.5 Monitoring and Supervisory Activities

Monitoring and supervisory activities are mainly done by HCV program supervisors but are still considered frontline activities because they directly support the HCV program only. This category includes HUD reports, internal program monitoring and reports, quality control activities, audit and board support, and staff supervision. We organized the time data collected on monitoring and supervisory work into four categories:

- **Planning and monitoring:** includes developing annual and administrative plans and procedures, monitoring utilization and other program metrics, interacting with HUD and the PHA's Board of Commissioners, and working on community relations.
- **Budget and HAP:** includes preparing annual budgets, monitoring program spending, and preparing monthly HAP payments to landlords.
- **HUD reporting and quality control:** includes uploading data to the PIC, EIV, and VMS systems and making corrections, conducting file reviews and reporting for SEMAP, and implementing internal quality control procedures (other than quality control HQS inspections, which are captured under Inspections).
- **Staff supervision:** includes providing training and supervision to other HCV staff.

Exhibit 4-17 shows the time spent on each of the four monitoring and supervisory activities, in minutes, per voucher under lease per year. The data suggest that the average PHA spent 132 minutes (just over 2 hours) per year for every voucher under lease on frontline monitoring and supervisory activities. Planning and monitoring work took up the largest share of this time (51 minutes), followed by work associated with monitoring the budget and preparing HAP payments (43 minutes). On average, HUD reporting took less than half an hour per voucher under lease per year, and staff supervision less than 15 minutes. The amount of time spent on HUD reporting is modest on a per voucher basis—an average of 24 minutes per year per voucher under lease—but translates to about 400 hours per year for a program of 1,000 vouchers, or about one-quarter of a full-time equivalent staff.

**Exhibit 4-17. Minutes per Year per All Vouchers Leased for Monitoring and Supervisory Activities**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Planning and Monitoring | 0 | 22 | 32 | 51 | 80 | 197 | 34-67 |
| Budget and HAP | 0 | 17 | 32 | 43 | 60 | 168 | 32-55 |
| HUD Reporting | 0 | 12 | 17 | 24 | 33 | 111 | 18-31 |
| Staff Supervision | 0 | 4 | 11 | 13 | 15 | 95 | 10-16 |
| **Total** | **0** | **66** | **112** | **132** | **169** | **338** | **105-159** |

N=60 PHAs.

Source: RMS data collection.

## 4.6 Time by Special Voucher Type

The study asked PHA staff to record time working on special voucher programs whenever they were aware they were working on these programs, with the goal of estimating a time per voucher for certain special voucher programs that could be compared to the time per voucher for the regular program. The special voucher types included in this analysis are project-based, tenant protection, Veterans Affairs Supportive Housing (HUD-VASH), non-elderly disabled (NED), family unification program (FUP), mainstream, disaster, and homeownership vouchers. HUD-VASH, NED, FUP, mainstream, and disaster vouchers are programs with special appropriations of funds that PHAs have been encouraged to apply for in order to serve populations with special needs. Tenant-protection vouchers are issued to replace public housing or project-based Section 8 units that have left the assisted housing stock. Project-based vouchers and homeownership vouchers are options available to a PHA for using the funds that have already been allocated to them.

Collecting time data related to special vouchers was challenging because of the very small size of the special voucher programs. Nine of the 60 PHAs had no special vouchers at all. For the remaining 51 PHAs, all special voucher types put together only represented, on average, only 15 percent of the total vouchers under lease. Some PHAs administered only a handful of special vouchers.

Exhibit 4-18 shows the number of vouchers of each type under lease. After regular vouchers, the next largest program was project-based vouchers (11,088 across 29 PHAs), followed by tenant protection vouchers (5,463 across 35 PHAs) and HUD-VASH (4,303 across 21 PHAs).

The third column of the exhibit shows the number of PHAs with at least 50 such vouchers under lease, by program type. The majority of PHAs in the study have special voucher programs with fewer than 50 such vouchers under lease. For the smaller special voucher programs, the study likely did not observe all facets of program administration, and estimates of time per activity are less reliable than those for regular vouchers.

**Exhibit 4-18. Number of Vouchers Leased by Voucher Type, PHAs in Study Sample**

| | Number of Vouchers Leased | Number of PHAs with Vouchers Leased of Each Type | Number of PHAs with > 50 Vouchers Leased of Each Type |
|---|---|---|---|
| Regular | 149,924 | 60 | 60 |
| Project-based | 11,088 | 29 | 24 |
| Tenant protection | 5,463 | 35 | 14 |
| HUD-VASH | 4,303 | 21 | 16 |
| Non-elderly disabled | 3,119 | 21 | 14 |
| Family unification program | 1,524 | 15 | 7 |
| Mainstream | 844 | 13 | 9 |
| Homeownership | 768 | 33 | 5 |
| Disaster | 3 | 1 | 0 |
| **Total** | **177,036** | **60** | **60** |

N=60 PHAs.

Source: Data obtained from HUD's Voucher Management System for calendar year 2013.

While recognizing these challenges, we attempted to develop estimates of the relative time spent on some special voucher types and for different aspects of the programs. PHA staff recorded a fair amount of time spent on three of the special voucher programs—project-based vouchers, HUD-VASH, and homeownership vouchers—but very little time on any of the other voucher types. Thus, we present time estimates only for these three special voucher types.

Exhibits 4-19 through 4-21 show the mean time per voucher under lease for each special voucher type—project-based, HUD-VASH, and homeownership—compared to the mean time per voucher for regular vouchers. For each special voucher type, we present time estimates for the group of PHAs that has vouchers of that type under lease and recorded time spent on those vouchers during the RMS data collection period. We compare the time spent on regular vouchers for the same group of PHAs since PHAs vary in how much time they spend per voucher overall and we did not want that to confuse the special voucher/regular voucher time comparison.

The estimates in Exhibits 4-19 through 4-21 show time spent on all HCV activities *except* time spent on inspections. The inspectors in the study told the study team that they typically did not know what type of voucher or household they were conducting an inspection for and, therefore, would not be able to reliably identify voucher type.

### Project-Based Vouchers

We were able to develop time estimates for 27 of the 29 PHAs in the study that had made the decision to use some of their voucher funding as project-based vouchers.[42] The 27 PHAs all had at least one project-based voucher under lease and recorded time spent on project-based vouchers during the RMS period.

One PHA was very different from the others in that it recorded 95 hours of work time on project-based vouchers during the RMS period but had only one project-based voucher under lease at that time (and only two project-based vouchers under lease six months later). During the RMS period, this PHA was in the process of developing and issuing an RFP for project-based vouchers and therefore expended a lot of time on the program before having vouchers under lease. The PHA's HCV Director recorded 52 hours of work during the eight-week RMS period under the "monitoring and supervisory" activity that included developing and issuing the RFP. This is indicative of the upfront work involved in the project-based voucher program, but should be considered a lower bound as the upfront work may have begun before and continued after the eight-week period.

The other 26 PHAs in the study with project-based vouchers under lease were not seeking to create new project-based units and therefore were operating the program in a steady state. As shown in Exhibit 4-19, these 26 PHAs spent about the same amount of time per voucher for project-based vouchers as for regular vouchers once the project-based vouchers were under lease. Among the 26 PHAs, the average time spent on PBVs was 10.3 hours per voucher per year. There was substantial variation across the 26 PHAs in the time spent per voucher on project-based vouchers and thus a wide confidence interval around the average—4.6 to 16.0 hours. If HUD is contemplating incentivizing

[42] Two PHAs had project-based vouchers under lease but did not report any time on them during the RMS period.

project-based vouchers through administrative fees, further research would be needed into both the upfront and ongoing costs of project-based vouchers.

**Exhibit 4-19. Mean Hours per Year per Voucher Under Lease by Voucher Type, Project-Based and Regular Vouchers, Not Including Start-Up Programs**

| | Project-Based Vouchers (n=26) | Regular Vouchers (n=26) |
|---|---|---|
| Intake, eligibility, and lease-up | 3.1 | 2.2 |
| Ongoing occupancy | 5.2 | 7.2 |
| Monitoring and supervisory | 1.3 | 1.8 |
| Supportive services | 0.6 | 0.2 |
| **Total (excluding inspections)** | **10.3** | **11.4** |

N=26 PHAs. Excludes PHAs that were missing either the transaction count or time data for the voucher type. Excludes one PHA that was in the process of issuing an RFP for project-based vouchers, as discussed above.

Source: RMS data. Special voucher counts obtained from HUD's Voucher Management System for calendar year 2013.

### Homeownership Vouchers

We were able to develop time estimates for 27 of the 33 PHAs in the study that had chosen to use some of their voucher funding for a homeownership program.[43] On average, excluding time spent on inspections, the 27 PHAs spent 22.1 hours per voucher per year for homeownership vouchers, compared to 13.6 hours per voucher per year for regular vouchers (Exhibit 4-20). As was the case with project-based vouchers, there was substantial variation across the 27 PHAs in the time spent per voucher on homeownership vouchers and thus a large confidence interval around the average—6.2 to 38.1 hours. The main driver of the higher time per voucher was the greater amount of time spent on supportive services for homeownership vouchers. This includes all the work related to counseling families about homeownership and supporting them through the home-buying process.

**Exhibit 4-20. Mean Hours per Year per Voucher Under Lease by Voucher Type, Homeownership and Regular Vouchers**

| | Homeownership Vouchers (n=27) | Regular Vouchers (N=27) |
|---|---|---|
| Intake, eligibility, and lease-up | 3.1 | 2.4 |
| Ongoing occupancy | 5.4 | 8.0 |
| Monitoring and supervisory | 1.0 | 3.0 |
| Supportive services | 12.7 | 0.2 |
| **Total (excluding inspections)** | **22.1** | **13.6** |

N=27 PHAs. Excludes PHAs that were missing either the transaction count or time data for the voucher type.

Source: RMS data. Special voucher counts obtained from HUD's Voucher Management System for calendar year 2013.

[43] Six PHAs had homeownership vouchers under lease but did not report any time on them during the RMS period.

The 27 PHAs in Exhibit 4-20 include seven PHAs that experienced homeownership closings during the RMS period. As would be expected, the time per voucher was higher among the PHAs with homeownership closings. During the two-month RMS period, these PHAs spent an average of about six hours per homeownership voucher, compared to about three hours per homeownership voucher among the PHAs without closings, and about two hours per regular voucher. Not every voucher administered by these seven PHAs had a closing during the RMS period, so the amount of time spent on the vouchers that experienced closings is likely higher than the average of six hours.

### HUD-VASH Vouchers

We collected time data for 21 PHAs in the study that administered HUD-VASH vouchers, a program with separate appropriations with the purpose of ending veteran homelessness. Two of the 21 PHAs recorded spending very large amounts of time on HUD-VASH during the RMS data collection period but had very few HUD-VASH vouchers under lease. One of the PHAs recorded 59 hours spent on HUD-VASH during the two-month data collection period, with only one HUD-VASH voucher under lease. The other PHA recorded 30 hours spent on HUD-VASH during the two month period, with only three HUD-VASH vouchers under lease. These two PHAs were in the process of developing new HUD-VASH programs and logged a large amount of time developing partnerships and providing service referrals for clients.

The large amount of time spent by the two PHAs with new programs suggests that the HUD-VASH program is very time consuming in the early stages. However, further research and a larger sample size would be needed to make this claim definitively and to estimate the upfront time needed for an average PHA starting a HUD-VASH program.

The study results were not conclusive regarding time spent on the HUD-VASH program once established. Exhibit 4-21 shows the average time spent on the HUD-VASH program for the 19 PHAs in the study that were not in the process of starting new HUD-VASH programs. The average time per HUD-VASH voucher was 10.4 hours per voucher per year, compared to 13.0 hours per voucher per year for regular vouchers. However, as with the other special voucher types, the 95 percent confidence interval around the average time spent per HUD-VASH voucher was wide—7.5 to 13.2 hours.

That the study did not find definitive evidence that administering the HUD-VASH vouchers takes more time than administering regular vouchers on an ongoing basis was surprising to the study's EITRG and was not consistent with what PHAs in the study told us, which was that HUD-VASH is a very time-consuming program. The study may have underestimated the time spent on HUD-VASH vouchers because the program is so small (less than 5 percent of the voucher portfolio for most PHAs in the study) and some aspects of program administration are done for several voucher types at the same time. It could also be that staff had difficulty differentiating among voucher types for some activities and therefore defaulted to recording their time under regular vouchers. Another possibility is that part of the additional work required for the HUD-VASH programs was conducted by senior managers—overhead staff who at most study sites did not participate in RMS. In view of the important policy objective of the HUD-VASH program and the importance of encouraging PHAs to apply for and administer HUD-VASH, we recommend that HUD undertake further research into the type and amount of work required for the ongoing administration of the HUD-VASH program and how it may differ from that required for the regular HCV program.

**Exhibit 4-21. Mean Hours per Year per Voucher Under Lease by Voucher Type, HUD-VASH and Regular Vouchers Not Including Start-Up Programs**

| | HUD-VASH, Excluding PHAs with New VASH Programs (n=19) | Regular Vouchers (n=19) |
|---|---|---|
| Intake, eligibility, and lease-up | 4.1 | 2.0 |
| Ongoing occupancy | 5.3 | 8.7 |
| Monitoring and supervisory | 0.7 | 2.2 |
| Supportive services | 0.2 | 0.2 |
| **Total (excluding inspections)** | **10.4** | **13.0** |

N=As shown in the exhibit. Excludes PHAs that were missing either the transaction count or time data for the voucher type.

Source: RMS data. Special voucher counts obtained from HUD's Voucher Management System for calendar year 2013.

## 4.7 Time by Household Type

For a few select HCV activities, the study asked PHA staff to identify what type of household they were working with. The activities were ones for which it was reasonable to expect staff to know the household type or to have it readily available, such as when they are working in a participant's file. For each household type, Exhibit 4-22 shows the median and mean minutes per voucher for annual recertifications, as well as the 95 percent confidence interval around the mean. We also collected data by household type on time spent on eligibility determinations, interim recertifications, and moves. However, very few PHAs were able to provide transaction counts by household type. Without these counts, it would be impossible to determine, for example, if less time spent on moves for elderly households was the result of elderly households requiring less assistance per move than other household types or fewer elderly households moving. Annual recertifications does not have this problem as the number of annual recertifications by household type is very close to the number of households under lease, for which we have more reliable data by household type.

The average time to conduct annual recertifications was lower for elderly and non-elderly disabled households than it was for family households. The average time spent on annual recertifications was 3.0 hours per voucher per year for elderly households and 2.4 hours per voucher per year for non-elderly disabled households, compared to 5.6 hours per voucher per year for family households of any size, 5.7 hours per year for small families (1–5 members), and 4.4 hours per voucher per year for large families (6 or more members).

**Exhibit 4-22. Hours per Voucher per Year on Annual Recertifications by Household Type**

| | N | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|---|
| Family (any size) | 60 | 2.0 | 3.9 | 5.0 | 5.6 | 6.8 | 18.4 | 4.8-6.3 |
| Small Family (1-5 members) | 60 | 2.0 | 4.0 | 5.2 | 5.7 | 6.8 | 18.4 | 4.9-6.5 |
| Large Family (6+ members) | 54 | 0.7 | 2.1 | 3.4 | 4.4 | 4.8 | 23.5 | 3.3-5.5 |
| Elderly | 60 | 0.5 | 1.6 | 2.1 | 3.0 | 3.2 | 15.6 | 1.9-4.1 |
| Non-elderly disabled | 58 | 0.4 | 1.4 | 2.1 | 2.4 | 2.8 | 9.0 | 2.0-2.8 |
| Homeless | 12 | 0.4 | 1.5 | 2.7 | 4.6 | 6.4 | 11.8 | 2.2-7.1 |
| **All Households** | **60** | **1.6** | **2.7** | **3.2** | **3.7** | **4.6** | **11.4** | **3.2-4.1** |

N=As noted in the exhibit.

Note: In order to be included, the PHA had to have time recorded for the activity and also had to have an associated household count in HUD's PIC data. Two PHAs were excluded from the analysis because the time recorded was not at all consistent with household count. In another case, we used the PHA's count of households instead of the PIC count because the PIC count was not consistent with the other information provided by the PHA.

Source: RMS data collection and counts by household type obtained from HUD PIC data and from the PHAs.

Elderly and non-elderly disabled households are more likely than family households to be receiving Social Security, Supplemental Security Income, or other fixed and easily documented sources of income, requiring less time to verify and calculate income.[44] PHAs are also more likely to conduct interim recertifications for family households. Analysis of PIC data obtained for the study found that PHAs conduct far fewer interim recertifications for elderly households than for family households. Moreover, when we add the time recorded (via RMS) on interim recertifications to the time recorded on annual recertifications shown in Exhibit 4-22, we find that the PHAs in the study spent an average of 8.3 hours per voucher per year on annual and interim recertifications for family households (95 confidence interval: 7.3 to 9.3), compared to an average of 3.5 hours per voucher per year for elderly households (95 confidence interval: 2.3 to 4.7), and average of 3.2 hours per voucher per year for non-elderly disabled households (95 confidence interval: 2.7 to 3.6).

As shown in Exhibit 4-22, the average time spent on annual recertifications for households identified as homeless at admission was 4.6 hours. The 95 percent confidence interval around the homeless estimate is very wide, from 2.2 to 7.1, indicating that this estimate is not very precise.

The estimate for homeless households is less reliable than the estimates for the other household types for several reasons. First, homeless households were a small percentage of households served for

[44] One of the EITRG members asked whether the lower amounts of time spent on recertifications for elderly and non-elderly disabled households could be due to the 60 PHAs in the study sample having fewer households with medical and disability deductions. We compared data on the percent of elderly and non-elderly disabled households with unreimbursed expenses and found that the study sample was not significantly different from the universe of all HCV programs. In 2013, the average percent of households with unreimbursed medical and disability expenses was 32.5 percent for the sample and 34.3 percent for all other HCV programs.

most PHAs, so the data collected on time spent working with homeless households are quite thin. Time spent on homeless households accounted for only three percent of the total data points collected by household type. Second, the sample size for the homeless households estimate (12 PHAs) is smaller than for the other household types, because many PHAs did not record any time spent working with homeless households.[45] In reporting their time through RMS, PHA staff may not always have been aware of when they were working with a formerly homeless client. This could have affected the amount of time reported by staff as well the number of PHAs that recorded any time spent with homeless households.

In analyzing the data on homeless households, we observed inconsistency across PHAs in terms of how and when a household gets identified as homeless at admission in the system of record, as well as substantial discrepancies for some PHAs between the PHA-reported counts of homeless households being served and the counts in HUD's PIC system. We expect this to improve over time with the growth of the HUD-VASH program and the increasing emphasis on accurate counting of homeless households across all federal housing programs.

[45] A total of 45 PHAs had at least one household under lease that was homeless at admission at the time of the time measurement time data collection. However, only 14 of these 45 PHA recorded any time spent serving homeless households during the eight-week data collection period. Two of these PHAs reported an unrealistically small amount of time relative to the number of homeless households under lease and were therefore excluded from the time analysis.

# 5. HCV Program Administrative Costs

This chapter presents the study's estimates of per voucher administrative costs and discusses the components of those costs for the average PHA. All costs are in 2013 dollars.

## 5.1 Costs per Voucher

Following the methodology described in Chapter 3, the study calculated total HCV administrative costs for each PHA in the sample and divided the total by the number of vouchers under lease to compute total HCV costs per voucher under lease.[46] Total HCV costs include costs for regular vouchers as well as for the special vouchers included in the study—project-based, homeownership, HUD-VASH, FUP, mainstream, non-elderly disabled, tenant protection, and disaster vouchers.

Across the 60 PHAs, per voucher costs range from $42.06 per unit month to $108.87 per unit month (Exhibit 5-1). This range is similar to that observed in the 2013 administrative fee rates, which, before proration, range from $49 to $108 per voucher per month. The average cost per unit month is $70.03 and the median cost per unit month is $64.84. The 95 percent confidence interval for the average is $65.11 to $74.95. On an annual basis, the average cost is $840 per voucher per year and the median cost is $778 per voucher per year. These costs are estimated for the year 2013.

As a point of comparison, the 1988 study of the voucher program estimated an average annual cost per voucher per year of $326 for large urban PHAs (Leger and Kennedy 1988). This translates to $642 in 2013 dollars, compared to $840 for the current study.[47] Of course, the program was very different in the late 1980s in terms of program requirements and the funding environment, which makes it difficult to interpret this comparison. Also, the 1988 study focused only on large urban PHAs, while this study is based on a broader sample. Nevertheless, the current study estimates a substantially higher administrative cost per voucher.

**Exhibit 5-1. Cost per Voucher Under Lease per Month and Per Year (CY 2013), Including Regular Vouchers and Special Vouchers**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Per unit per month | $42.06 | $58.04 | $64.84 | $70.03 | $83.85 | $108.87 | $65.11-$74.95 |
| Per unit per year | $505 | $696 | $778 | $840 | $1,006 | $1,306 | $781-$899 |

N=60 PHAs.

Source: RMS and cost data collection.

[46] As described in Section 3.2.4, the "vouchers under lease" used for this analysis are defined as follows: total unit months leased (including special vouchers) for the PHA's fiscal year PLUS total port-in unit months leased for the PHA's fiscal year MINUS total port-out unit months leased for the PHA's fiscal year. This voucher count is designed to match the administrative work that PHAs do that is captured in RMS.

[47] 1988 dollars converted to 2013 using the CPI inflation factor of 1.9692 (http://www.bls.gov/data/inflation_calculator.htm), not adjusted for wage difference by region.

Exhibit 5-2 shows how total HCV costs break down into the categories of frontline labor, frontline non-labor, and overhead. These categories are defined in Section 3.2.3 in Chapter 3. We were not able to separate overhead from frontline labor costs for 20 of the 60 PHAs, so these PHAs are not included in Exhibit 5-2.[48]

Frontline labor costs are the largest component of HCV program costs, representing 57 percent of program costs on average. Some labor costs are also included in the frontline non-labor and overhead categories. For example, contract costs are included in the frontline non-labor category, but these contracts (e.g., contracts for inspections) often include a labor component that is not easily separated out. Also, overhead includes labor that supports the HCV program indirectly. Frontline non-labor costs represent 24 percent of program costs on average), followed by overhead costs (19 percent on average).

As can be seen from the 25th and 75th percentile observations, the relative proportions of the three cost components vary quite a bit from PHA to PHA. Examining the cost breakdown by program size, we observed that the largest PHAs tended to have somewhat higher overhead costs, but this could be because they are more easily measured for the large PHAs that operate a Central Office Cost Center.

**Exhibit 5-2. Share of per Voucher Cost That Is Frontline Labor, Frontline Non-Labor, and Overhead**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Frontline labor | 43% | 51% | 57% | 57% | 62% | 75% | 53%-61% |
| Frontline non-labor | 8% | 18% | 23% | 24% | 31% | 39% | 20%-28% |
| Overhead | 6% | 10% | 19% | 19% | 26% | 39% | 15%-24% |

Note: Only the mean percentages sum to 100 percent across the categories. This is because the PHA with the minimum percent of frontline labor cost, for example, is not necessarily the same PHA with the minimum percent of frontline non-labor cost.

N=40 PHAs. The study was not able to separate overhead from frontline labor costs for 20 of the 60 study PHAs.

Source: Cost data collection.

## 5.2 Cost Compared to Full Fee Rate and Prorated Fees Received

Exhibit 5-3 shows how costs compare to fees across the 60 PHAs. The first row of the exhibit shows the percentage of costs that would be covered were PHAs to have received the full fee amount, as predicted by the current formula, between July 1, 2013 and June 30, 2014. The data show that, for the average PHA, the full fee amount per voucher is equal to 103 percent of the cost per voucher. In other words, this PHA would have 103 percent of its costs covered by the full fee. Half the sample would be worse off, with the worst off PHA having only 61 percent of its costs covered, and half the sample would be better off, with the most-funded PHA receiving fees equal to 153 percent of its costs.

The second row of Exhibit 5-3 shows the ratio of prorated fees to cost. The prorated fee is the actual fee that each PHA received between July 1, 2013, and June 30, 2014, calculated on a per voucher

[48] At some PHAs, staff in overhead positions participated in RMS but identified very little of their work as overhead. Other PHAs could not provide the information required for separate analysis of overhead costs.

basis. The average administrative fee proration in effect between July 1, 2013 and June 30, 2014, which spans two calendar years, was 75 percent. For the median PHA in the study, the fees received during this timeframe covered 81 percent of the estimated cost. The PHA that received the least funding relative to cost received fee funding equal to 45 percent of its costs. The PHA that received the most funding relative to cost received fee funding equal to 115 percent of its costs.

**Exhibit 5-3. Share of CY13 Costs Covered at Full Fees and Prorated Fees, July 1, 2013–June 30, 2014**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Ratio of full fees to cost | 61% | 88% | 107% | 103% | 118% | 153% | 97%-110% |
| Ratio of prorated fees to cost (75% proration) | 45% | 66% | 81% | 77% | 89% | 115% | 72%-82% |

N=60 PHAs.

Source: RMS and cost data collection.

Note: The fee is calculated based on the number of vouchers under lease between July 1, 2013, and June 30, 2014. Port-outs are excluded from the voucher count and therefore the fee amount does not include fees received for port-outs. Port-ins are included and port-in fee revenue is included in the fee calculation.

We examined the administrative fee reserves of the PHAs in the study to examine whether PHAs with a higher ratio of fees to costs had higher levels of administrative fee reserves (Exhibit 5-4). We did not find a clear pattern. The PHAs with the lowest average administrative fee equity per voucher in 2013 (those with an average of $27.76 per voucher in fee equity) were those with the lowest ratio of fees to costs (fees equal to less than 61 percent of costs). However, this was not the case in 2012, when the PHAs with the lowest average administrative fee equity per voucher ($30.60) had the highest ratio of fees to costs (84 percent or more).

**Exhibit 5-4. Average Administrative Fee Equity per Voucher Month in 2012 and 2013 by Level of Cost Covered by Fees, July 1, 2013–June 30, 2014, 75 Percent Proration**

| Ratio of Fees to Costs: | 2012 | 2013 |
|---|---|---|
| Less than 61% | $39.03 | $27.76 |
| 61% to less than 79% | $48.72 | $43.74 |
| 79% to less than 84% | $30.65 | $29.06 |
| 84% or more | $30.60 | $31.24 |

N=60 PHAs.

Source: RMS and cost data collection. Administrative fee equity data compiled from HUD Financial Data Systems. Administrative fee equity calculated as follows: FDS line 11170 (administrative equity) *minus* FDS line 508.1 (invested in capital assets, net of related debt) *minus* FDS line 508.4 (net investment in capital assets–only relevant for PHAs with FYE 12/31/13).

## 5.3 Cost by Activity

Exhibit 5-5 shows the cost per voucher under lease per year for the five categories of HCV administrative work. Ongoing occupancy activities—work conducted on behalf of existing program participants, not including inspections—is the largest component of program cost, $397 per voucher

per year on average. This is followed by inspections—conducted on behalf of both new and existing program participants—which cost $147 per voucher per year on average. The average PHA spent a similar amount of time on monitoring and supervisory activities—$142 per voucher per year—and slightly less on intake, eligibility, and lease-up activities—$130 per voucher per year. Supportive services, not including FSS, are the least costly aspect of the program, costing PHAs, on average, $24 per voucher under lease per year. Although PHAs spent relatively little time on supportive services activities on a per voucher basis, some PHAs work closely with individual families providing case management and other supportive services.

**Exhibit 5-5. Cost per Year per Voucher Leased by HCV Activity (CY 2013)**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Ongoing occupancy | $143 | $289 | $378 | $397 | $470 | $816 | $353-$440 |
| Inspections | $41 | $102 | $139 | $147 | $183 | $316 | $130-$164 |
| Monitoring and supervisory | $0 | $78 | $133 | $142 | $172 | $317 | $113-$172 |
| Intake, eligibility, and lease-up | $16 | $84 | $113 | $130 | $168 | $335 | $105-$155 |
| Supportive services (not FSS) | $0 | $3 | $8 | $24 | $20 | $199 | $5-$43 |
| **Total** | **$505** | **$696** | **$778** | **$840** | **$1,006** | **$1,306** | **$781-$899** |

N=60 PHAs.

Source: RMS and cost data collection.

### 5.3.1 Intake, Eligibility, and Lease-Up Costs

Exhibit 5-6 uses the transaction counts collected to measure the costs associated with eligibility determinations and voucher issuance on a per voucher issued basis. Relating the costs of intake and issuance to vouchers issued provides a more accurate estimate of what each new voucher brought into the program (or turned over to a new household) costs to bring under lease. Overall, the average cost of the eligibility determination component is $199 per voucher issued and the average cost of the work related to voucher issuance and the housing search process is $88 per voucher issued.

**Exhibit 5-6. Cost per Transaction for Select Activities (CY 2013)**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Cost of eligibility determinations per voucher issued | $9 | $70 | $110 | $199 | $262 | $1,379 | $132-$266 |
| Cost of voucher issuance and search activities per voucher issued | $2 | $27 | $55 | $88 | $130 | $386 | $54-$121 |

N=54 PHAs.

Note: Transaction count data were not available for all counts and all PHAs. In order to be included, the PHA had to have time recorded for the activity and also had to have provided a count of the activity for the RMS data collection period or previous year.

Source: RMS and cost data collection.

### 5.3.2 Costs for Ongoing Occupancy Activities

Exhibit 5-7 shows cost per year per voucher under lease for the components of ongoing occupancy, the most costly part of HCV program administration. More than half the cost for ongoing occupancy comes from annual recertifications. On average, annual recertifications cost about $225 per voucher under lease per year. The next highest cost is for interim recertifications, which cost an average of $94 per voucher under lease per year.

**Exhibit 5-7. Cost per Year per Voucher Leased by Ongoing Occupancy Activity (CY 2013)**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Annual recertifications | $98 | $162 | $200 | $225 | $263 | $577 | $196-$253 |
| Interim recertifications | $19 | $61 | $92 | $94 | $123 | $210 | $81-$108 |
| Moves | $0 | $18 | $26 | $35 | $51 | $99 | $27-$44 |
| Process port-outs | $0 | $4 | $7 | $10 | $11 | $41 | $7-$13 |
| End of participation | $0 | $3 | $5 | $8 | $9 | $109 | $4-$13 |
| Terminations | $0 | $6 | $16 | $21 | $29 | $75 | $15-$27 |
| Reasonable accommodation | $0 | $0 | $2 | $3 | $4 | $23 | $2-$5 |
| **Total** | **$143** | **$289** | **$378** | **$397** | **$470** | **$816** | **$353-$440** |

N=60 PHAs.

Source: RMS and cost data collection.

Exhibit 5-8 uses the transaction counts collected through the study to calculate the cost per annual recertification and per interim recertification, rather than using overall vouchers leased as the denominator, as in Exhibit 5-5 above.[49]

**Exhibit 5-8. Cost per Transaction for Select Activities**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Cost per annual recertification conducted (n=60) | $74 | $133 | $194 | $226 | $269 | $655 | $183-$269 |
| Cost per interim recertification conducted (n=60) | $30 | $88 | $123 | $144 | $170 | $515 | $119-$169 |
| Cost per move conducted (n=46) | $46 | $102 | $173 | $228 | $283 | $873 | $169-$286 |

N=As noted in the exhibit.

Note: Transaction count data were not available for all counts and all PHAs. In order to be included, the PHA had to have time recorded for the activity and also had to have provided a count of the activity for the RMS data collection period or previous year.

Source: RMS and cost data collection.

[49] The transaction counts were collected for the RMS data collection period and then annualized to correspond to the annual cost data. In cases where transaction counts were not available for the two-month RMS period but were available for the previous year, we used the annual data as the denominator for calculating cost per activity. The study team also reviewed each count carefully and determined in some cases that the annual count was a more accurate representation of activity for the year than the annualized RMS count.

The average cost per annual recertification shown in Exhibit 5-8, $226, is similar to the cost per voucher under lease ($225) shown in Exhibit 5-7 because each voucher under lease has an annual recertification each year. By contrast, the average cost per interim recertification, $144, is higher than the annual cost per voucher under lease ($94, Exhibit 5-7), because not every voucher under lease has an interim recertification each year. The average cost per move, $228, is higher still, because on average across our sample, only 15 percent of voucher participants moved during the course of a year.

### 5.3.3 Inspection Costs

Exhibit 5-9 compares the annual cost per voucher under lease for PHAs that conduct their HQS inspections primarily in house, using PHA staff, compared to PHAs that primarily use outside contractors and to PHAs that use a mix of in-house and contract inspectors. The analysis suggests that using contractors is generally less expensive, with an average cost of $106 per year per voucher under lease, compared to $157 using mostly in-house inspectors. This difference in the mean cost for the in-house group and the contracted out group is statistically significant at the 1 percent level.[50] Overall, the average cost of inspections per voucher under lease is $147 per voucher per year.

**Exhibit 5-9. Cost per Year per Voucher Leased for Inspections, In-House Versus Contracted-Out Inspections**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| PHAs using mostly in-house inspectors (n=51) | $41 | $113 | $143 | $157 | $191 | $316 | $137-$176 |
| PHAs using mostly contract inspectors (n=9) | $51 | $86 | $101 | $106 | $108 | $159 | $80-$131 |
| **Total (n=60)** | **$41** | **$102** | **$139** | **$147** | **$183** | **$316** | **$130-$164** |

N=As noted in the exhibit.

Note: Transaction count data were not available for all counts and all PHAs. In order to be included, the PHA had to have time recorded for the activity and also had to have provided a count of the activity for the RMS data collection period or previous year.

Source: RMS and cost data collection.

The total inspection costs shown in Exhibit 5-9 include many types of work supporting the inspections in addition to the actual work of conducting the inspections. Exhibit 5-10 shows the breakdown of these costs for the 47 PHAs that conduct inspections in house for which we have reliable time data.[51] The work of driving to the inspections and conducting them, taken together, cost

[50] We also tested the differences in means after adjusting the cost numbers for differences in local labor costs using the wage index developed for the study. The mean adjusted cost per voucher for inspections for PHAs that conduct inspections mainly in house is $157 and the mean for the PHAs that mainly contract out inspections is $126. The difference between the means is statistically significant at the 10 percent level.

[51] As discussed in Chapter 4, we are missing reliable time data on inspections for four PHAs that were transitioning from in-house to contracted inspectors at the time of data collection. Data on the breakdown of time by inspection category is needed to calculate the costs in Exhibits 5-10 and 5-11. We have reliable data on the overall costs for inspections for these PHAs, however, since we assumed the full cost of the in-house inspectors (as if the PHA had not begun transitioning to contracted inspections). That is why all 60 PHAs are included in the estimates in Exhibit 5-9.

an average of $73 per voucher under lease per year, representing about 48 percent of the total inspection cost per voucher. The next largest cost element is preparing for inspections. PHAs spend an average of $37 per voucher per year preparing for inspections, and this represents about 26 percent of the total inspection cost per voucher.

**Exhibit 5-10. Cost per Year per Voucher Leased by Inspection Activity, In-House Inspections (CY 2013)**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Preparing for inspection | $0 | $23 | $37 | $39 | $50 | $114 | $30-$49 |
| Driving to/from inspection | $10 | $22 | $35 | $34 | $43 | $81 | $29-$38 |
| Conducting inspection | $10 | $31 | $38 | $39 | $49 | $90 | $35-$44 |
| Post-inspection paperwork | $0 | $21 | $31 | $34 | $47 | $82 | $28-$44 |
| HQS enforcement | $0 | $1 | $3 | $5 | $7 | $22 | $3-$7 |
| Reasonable accommodation | $0 | $0 | $0 | $2 | $1 | $35 | $0-$3 |
| **Total** | **$41** | **$109** | **$145** | **$153[a]** | **$188** | **$316** | **$132-$173** |

N=47 PHAs.

[a] Average cost is slightly different from Exhibit 5-9 because this exhibit is based on 47 rather than 51 PHAs.

Source: RMS and cost data collection.

Exhibit 5-11 uses the transaction counts collected through the study to calculate the average and median costs for different types of inspections. The costs per inspection are lower than the inspection costs per voucher under lease shown in Exhibit 5-9 because PHAs typically conduct more than one inspection a year (including reinspections) for every voucher under lease.

The average cost of all inspection-related activities is $98 per inspection. Average per inspection costs are higher for first inspections ($103 per inspection) than for reinspections ($94 per inspection), as expected. Consistent with the time data presented in Section 5.4, complaint, emergency, and special inspections are most expensive with an average of $215 per inspection. The cost per quality control inspection is $79 per inspection on average.

**Exhibit 5-11. Cost per Inspection by Inspection Type, In-House Inspections (CY 2013)**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| Cost per first inspection (initials and annuals) (n=45) | $36 | $58 | $90 | $103 | $117 | $251 | $83-$123 |
| Cost per reinspection (initials and annuals) (n=43) | $15 | $56 | $84 | $94 | $104 | $319 | $76-$112 |
| Cost per complaint, emergency, or other special inspection (n=33) | $0 | $38 | $121 | $215 | $186 | $878 | $68-$363 |
| Cost per quality control inspection (n=14) | $0 | $35 | $44 | $79 | $123 | $230 | $30-$127 |
| **Cost per inspection (all types) (n=47)** | **$37** | **$62** | **$92** | **$98** | **$112** | **$317** | **$84-$112** |

N=As noted in the exhibit.

Note: Transaction count data were not available for all counts and all PHAs. In order to be included, the PHA had to have time recorded for the activity and also had to have provided a count of the activity for the RMS data collection period or previous year.

Source: RMS and cost data collection.

# 6. Factors That Drive Variation in HCV Administrative Costs

The ranges in the cost estimates in the preceding chapter indicate that administrative costs vary substantially across PHAs. This was also a theme in Chapter 4, which showed wide ranges in the amount of time spent on a per voucher basis and by activity. One of the key questions for this study was to understand what accounts for the observed variation in per voucher administrative costs.

The first step the study team took to identify the factors driving variation in HCV administrative costs was to work with HUD and the EITRG to identify a list of PHA and market factors that could theoretically be expected to affect per voucher administrative costs. Through this process we identified more than 50 potential cost drivers, discussed in Section 6.1, Identifying Potential Cost Drivers.

The next step was to develop a simple regression model that held key cost drivers constant and allowed us to test the relative importance of the other variables as cost drivers by adding each new potential cost driver one at a time. This process is discussed in Section 6.2, Testing Potential Cost Drivers. Through the testing process we narrowed the initial set of cost drivers to a smaller group of variables that were found to be statistically significant cost drivers in a simple regression model controlling for program size and local wage rates.

We then further tested these cost drivers in combinations to arrive at a final set of cost drivers for consideration in a potential fee formula model. This process is described in Section 6.4, Further Testing of Potential Cost Drivers. Section 6.5 presents our conclusions from the cost driver analysis.

## 6.1 Identifying Potential Cost Drivers

Throughout the course of the study, starting with the study design but continuing through the data collection and analysis phases, the study team worked to identify PHA, program, and market characteristics that would be expected to affect HCV per unit administrative costs. We focused on trying to explain the observed variation in *per unit* HCV administrative costs because differences in overall program costs would be overwhelmingly explained by the number of vouchers under lease. Using per unit costs allows us to examine the other factors that affect program costs.

The team tested more than 50 potential cost drivers. Exhibit 6-1 lists the main cost drivers examined, grouped by cost driver type.[52] Each cost driver has a theoretical basis for how we would expect it to affect per voucher administrative costs, shown in the last column of Exhibit 6-1.

Most of the cost drivers in Exhibit 6-1 can be measured through data available from HUD administrative data or from a public dataset such as the American Community Survey. However, the study team also tested a series of variables that capture how the PHA allocates its frontline staff time. These variables are shown at the end of Exhibit 6-1 in the category "allocation of staff time." An example is the hours per voucher per year spent on intake activities. The "allocation of staff time" variables are based on the direct measurement of time at the 60 PHAs and are, therefore, only available for those 60 PHAs.

[52] Through the course of the analysis, the team actually tested many more variables than the 51 listed in Exhibit 6-1. In particular, we tested multiple ways of characterizing the PHA's jurisdiction as urban, rural, suburban, metropolitan, non-metropolitan, and so on, even though Exhibit 6-1 only presents three variables related to this topic.

**Exhibit 6-1. Potential Cost Drivers and Associated Variables**

| Category | Cost Driver Type | Associated Variable(s)[a] | How Variable Could Affect Per Voucher Administrative Costs |
|---|---|---|---|
| Local market costs | Labor costs, wages | QCEW index of local government wage rates (metro or non-metro average wage rate for the state) | PHA staff may be paid at different wage rates based on the prevailing wage in the part of the country in which the PHA is located. |
| Local market costs | Labor costs, benefits | Index of overall benefits costs for private sector employees, based on BLS Employer Costs for Employee Compensation (ECEC) survey | Benefits are an important component of a PHA's personnel costs and may vary based on the PHA's location. |
| Local market costs | Labor costs, benefits | Index of health insurance costs based on U.S. Department of Health and Human Services (HHS) Medical Expenditure Panel Survey | Health insurance costs are a leading component of benefits costs to PHAs. Health insurance costs may vary based on the PHA's location. |
| Local market costs | Non-labor costs | Fair Market Rent (FMR), 2014[b] | The FMR could serve as a proxy for local non-labor costs of the program, such as office space costs and the cost of goods and services. FMR may also indicate the extent to which PHA costs reflect what they have historically received in administrative fees. |
| Local market costs | Non-labor costs | Office rent per square foot, based on data collected by GSA on federal government office space | A more direct measure of office space cost than FMR is lease data from the U.S. Government Services Administration (GSA). These data indicate the rent per square foot paid for office space by the government in June 2013. |
| PHA size | Size of HCV program | Number of vouchers administered (vouchers under lease plus port-ins minus port-outs) | Larger programs would be expected to have lower per voucher administrative costs, as for tasks such as waiting list management the marginal cost of doing the task for one extra voucher is small. |
| PHA size | Multiple programs | HCV only (versus HCV and public housing) based on HUD FASS-PH data | PHAs with public housing may have more opportunity to share overhead costs such as accounting costs, which would suggest lower costs per voucher. However, PHAs operating multiple programs could also have more overhead staff or more costly overhead staff or systems that would increase per voucher administrative costs. |
| PHA jurisdiction size and type | Size of jurisdiction | Area (in square miles) served by HCV program based on 2010 Census | PHAs serving larger jurisdictions would be expected to have higher administrative costs, because they would need to travel farther to conduct HQS inspections or establish branch offices for program administration. |

| Category | Cost Driver Type | Associated Variable(s)[a] | How Variable Could Affect Per Voucher Administrative Costs |
|---|---|---|---|
| PHA jurisdiction size and type | Size of jurisdiction | PHA's jurisdiction covers more than one county | See above |
| PHA jurisdiction size and type | Size of jurisdiction | Median distance (miles) from PHA headquarters to voucher holder | See above |
| PHA jurisdiction size and type | Size of jurisdiction | Percent of voucher holders living more than 50 miles from PHA headquarters (excluding ported vouchers) | See above |
| PHA jurisdiction size and type | Size of jurisdiction | Percent of voucher holders living more than 60 miles from PHA headquarters (excluding ported vouchers) | See above |
| PHA jurisdiction size and type | Size of jurisdiction | Median drive time (minutes) from PHA office to voucher holder, 2014, based on Google Analytics | PHAs that serve highly congested areas could have higher administrative costs because it takes inspectors longer to get to and from units. |
| PHA jurisdiction size and type | Density of jurisdiction | HCV participants per square mile based on 2010 Census | HCV programs in which voucher participants are more dispersed across the jurisdiction would be expected to have higher administrative costs for the same reasons cited above under size of jurisdiction. |
| PHA jurisdiction size and type | Metro PHA | A majority of the population in the PHA's jurisdiction lives in metropolitan areas, based on USDA ERS' Rural Urban Continuum Codes | HCV programs in metropolitan or urban areas could have lower administrative costs because the voucher population is less dispersed. However, there could be other factors (such as households with more complex needs) that may increase administrative costs in these areas. |
| PHA jurisdiction size and type | Urban PHA | The percentage of the overall population in the PHA's jurisdiction that lives in urban areas (as defined by 2010 Census) | See above |
| PHA jurisdiction size and type | Urban HCV | The percentage of the PHA's HCV households that lives in urban areas (as defined by 2010 Census) | See above |
| PHA jurisdiction size and type | Households in poverty | Percent of households in the tracts covered by the PHA's jurisdiction that have incomes below the poverty level (2008–2012 ACS)[c] | The overall poverty rate of the community in which the PHA operates could have an effect on administrative costs, but the mechanism and expected direction is unclear. |

## ADMINISTRATIVE COST DRIVERS

| Category | Cost Driver Type | Associated Variable(s)[a] | How Variable Could Affect Per Voucher Administrative Costs |
|---|---|---|---|
| Availability of affordable housing | Rental vacancy | ACS-based rental vacancy rate for the area covered by the tracts in the PHA's jurisdiction (2008–2012 ACS)[d] | PHAs serving housing markets with higher rental vacancy rates may have lower administrative costs since it is easier for participants to find housing that meets the program's quality and affordability guidelines and landlords may be more willing to retain existing voucher holders. |
| Availability of affordable housing | Residential vacancy | USPS residential vacancy rate for the area covered by the tracts in the PHA's jurisdiction (for Q3 of 2013)[d] | See above |
| Availability of affordable housing | Multifamily vacancy | USPS vacancy rate for multifamily dwellings in the area covered by the tracts in the PHA's jurisdiction (for Q3 of 2013)[d] | See above |
| Availability of affordable housing | Small area rent ratio | A measure of how the average rents in the zip codes where a PHA's voucher participants live compare to the average rents for the overall area[e] | More HCV participants in neighborhoods with relatively high rents could increase costs for the PHA as owners willing to accept vouchers are harder to find, more units available at or below the payment standard may fail inspection, and new voucher tenants may need more guidance in finding suitable housing in unfamiliar neighborhoods. |
| Availability of affordable housing | Age of housing stock | Median year built, for units under lease by HCV participants based on PIC data | PHAs located in parts of the country with an older housing stock may have higher administrative costs because more units would fail inspection. |
| Availability of affordable housing | Housing discrimination | State laws against source of income discrimination based on information from the Poverty and Race Research Action Council (as of May 2014) | PHAs located in states with laws against source of income discrimination may have lower costs because participants would find suitable housing more easily. |
| Complexity of HCV program | Utilization | Utilization rate based on HUD data | PHAs with high utilization rates may have higher administrative costs because of costs associated with maintaining high utilization. |
| Complexity of HCV program | Special purpose vouchers | PHA administers VASH, FUP, or NED based on VMS data | PHAs with special purpose vouchers may have higher administrative costs because of additional coordination with social service agencies or because intake and lease-up takes more time for these voucher types. |
| Complexity of HCV program | Special purpose vouchers | Sum of VASH, FUP, and NED vouchers under lease as percentage of total vouchers under lease | See above |
| Complexity of HCV program | Special purpose vouchers | Share of PBV vouchers under lease | See above |

| Category | Cost Driver Type | Associated Variable(s)[a] | How Variable Could Affect Per Voucher Administrative Costs |
|---|---|---|---|
| Complexity of HCV program | Special purpose vouchers | Share of homeownership vouchers under lease | See above |
| Complexity of HCV program | Portability | Port-in transactions as a percentage of total vouchers under lease | PHAs with more port-in transactions (i.e., households porting into the jurisdiction whether absorbed or billed) may have higher administrative costs because of the time associated with processing the port-in actions. |
| Complexity of HCV program | Portability | Port-out transactions as a percentage of total vouchers under lease | PHAs with more port-out transactions (i.e., households seeking to port out of the jurisdiction) may have higher administrative costs because of the time associated with processing the port-out actions. |
| Complexity of HCV program | Portability | Billed port-ins as a percentage of total vouchers under lease | PHAs with more billed port-ins may have higher administrative costs because of the time associated with working with the issuing PHAs. |
| Complexity of HCV program | Portability | Billed port-outs as a percentage of total vouchers under lease | PHAs with more billed port-outs may have higher administrative costs because of the time associated with working with the receiving PHAs. |
| Complexity of HCV program | New admissions | New admissions, (as a result of turnover or new allocations of vouchers, as percentage of total vouchers under lease, 2012 and 2013 PIC data | Higher rates of new admissions may increase administrative costs as the PHA needs to do intake and lease-up work for every voucher that turns over, which is more costly on a per voucher basis than ongoing occupancy work. |
| Complexity of HCV program | End of participation | Number of end of participations as percentage of total vouchers under lease, 2012 and 2013 PIC data | Higher rates of end of participation may increase administrative costs as the PHA needs to do intake and lease-up work for every voucher that turns over, which is more costly on a per voucher basis than ongoing occupancy work. |
| Complexity of HCV program | Moves | Number of moves in past year as percentage of total vouchers under lease based on PIC data | Higher rates of moves would be expected to increase administrative costs, as there is work associated with processing the move request and approving the new unit. |
| Participant characteristics | Homeless households | Homeless households as percentage of total vouchers under lease based on PIC data | PHAs with a higher share of homeless households may have higher costs because these households have unstable income that makes certification more complex and may need more assistance with housing search. |
| Participant characteristics | Homeless households | PHA has a strong preference for homeless households[f] | See above |

| Category | Cost Driver Type | Associated Variable(s)[a] | How Variable Could Affect Per Voucher Administrative Costs |
|---|---|---|---|
| Participant characteristics | Households with disabilities | Percent of households served that are headed by a non-elderly disabled head of household based on PIC data | PHAs serving a higher share of households with disabilities may have higher costs because these households may need more assistance with housing search. However, income certification may be simpler for these households if on fixed income. |
| Participant characteristics | Households with disabilities | Percent of households served with one or more disabled members based on PIC data | See above |
| Participant characteristics | Family households | Percent of households served that are family households based on PIC data | PHAs serving a higher share of family households may have higher intake and lease-up costs because these households may need more assistance with housing search and may have more income fluctuations as they deal with childcare, medical, and school issues. |
| Participant characteristics | Large households | Percent of households served with three or more minors based on PIC data | See above |
| Participant characteristics | Large households | Percent of households served with six or more members based on PIC data | See above |
| Participant characteristics | Elderly households | Percent of households served headed by an elderly person based on PIC data | PHAs serving a higher share of elderly households may have lower administrative costs because conducting recertifications is simpler for households on fixed incomes. Elderly households may also be more likely to lease in place and may be less likely to move while on the program. |
| Participant characteristics | Employment | Percent of households with majority of income from earnings based on PIC data | PHAs serving a higher share of wage earning households may have higher administrative costs because conducting annual recertifications is more complex for wage earning households. |
| Participant characteristics | Employment | Percent of households with any income from earnings based on PIC data | See above |
| Participant characteristics | Limited English proficiency (LEP) | Percent of the population in the PHA's jurisdiction with LEP (2008–2012 ACS) | PHAs serving a population with a higher share of people with LEP may have to spend more on translating program materials or paying for interpreters to work with clients. |
| Allocation of staff time[g] | Inspections | Whether PHA contracts inspections or uses PHA staff | PHAs with contracted inspections may have lower administrative costs if the contracted labor is less expensive or more efficient than PHA labor. |
| Allocation of staff time | Inspections | Hours per voucher spent on inspections | PHAs that spend more time on inspections could have higher administrative costs. |

| Category | Cost Driver Type | Associated Variable(s)[a] | How Variable Could Affect Per Voucher Administrative Costs |
|---|---|---|---|
| Allocation of staff time | Inspections | Percent of total time spent on inspections | See above |
| Allocation of staff time | Housing opportunities | Hours per voucher spent on expanding housing opportunities | PHAs that put more time into expanding housing opportunities for participants could have higher overall administrative costs. |
| Allocation of staff time | Reasonable accommodation | Hours per voucher spent on reasonable accommodation | PHAs that spend more time on reasonable accommodation could have higher overall administrative costs. |
| Allocation of staff time | Supportive services | Hours per voucher spent on supportive services (outside of FSS) | PHAs that spend more time on supportive services for HCV participants (outside of FSS) could have higher overall administrative costs. |
| Allocation of staff time | Intake | Hours per voucher spent on intake activities | PHAs that spend more time on intake activities could have higher overall administrative costs. |
| Allocation of staff time | Intake | Percent of total time spent on intake activities | PHAs that spend a higher share of their time on intake activities could have higher overall administrative costs. |
| Allocation of staff time | Ongoing occupancy | Hours per voucher spent on ongoing occupancy activities | PHAs that spend more time on ongoing occupancy could have higher overall administrative costs. |
| Allocation of staff time | Ongoing occupancy | Percent of total time spent on ongoing occupancy activities | PHAs that spend a higher share of their time on ongoing occupancy could have higher overall administrative costs. |
| Allocation of staff time | Monitoring and supervisory | Hours per voucher spent on monitoring and supervisory activities | PHAs that spend more time on monitoring and supervisory activities could have higher overall administrative costs. |

[a] Data are from calendar year 2013 unless otherwise noted. In calculating variables for a PHA's jurisdiction, we defined the jurisdiction based on the counties (and census tracts in counties) where at least 5 percent of voucher holders reside.

[b] Calculated as the weighted average two-bedroom FMR for each PHA's jurisdiction, weighted by the number of voucher holders in each FMR area in the PHA's jurisdiction.

[c] Calculated as the weighted average vacancy rate for each PHA's jurisdiction, weighted by the number of voucher holders in each census tract in the PHA's jurisdiction.

[d] Calculated as total households with incomes below the poverty level across all the tracts that the PHA voucher holders are located in, divided by the total number of households (not just voucher holders) in those tracts.

[e] For PHAs in metropolitan counties, the small area rent ratio is calculated as the median gross rent for the zip codes where voucher holders live, weighted by the share of voucher holders in each zip code, divided by the median gross rent for the metropolitan area. For PHAs in non-metropolitan counties, the small area rent ratio is calculated as the unadjusted two-bedroom FMR for the non-metropolitan counties where the PHA operates divided by the published FMR.

[f] Based on 2014 HUD Study of PHA's Efforts to Help People Experiencing Homelessness.

[g] Data on allocation of allocation of PHA staff time were collected through RMS data collection, which took place in 2012 (4 PHAs), 2013 (49 PHAs), and 2014 (7 PHAs).

## 6.2 Developing a Base Regression Model

The first step in testing the cost drivers was to run correlations to examine, for each of the variables listed in Exhibit 6-1, whether there appears to be a relationship between that variable and the per unit voucher costs observed across the 60 PHAs in the time measurement study. The correlation analysis provided a general sense of which variables were likely to affect costs and served as the basis for developing a base model for conducting multivariate analysis.

The initial correlation analysis revealed that both HCV program size and the QCEW wage index were highly correlated with per unit administrative costs. Because we had a strong theory for how program size would affect per unit costs, via economies of scale, and because it was necessary to hold the local wage rates constant in order to detect the effect of other cost drivers, we included both of these variables in the base model.

### 6.2.1 Wage Index

The wage index was created based on annual data on local government wages collected by Bureau of Labor Statistics' Quarterly Census of Employment and Wages. As described in Chapter 3, the QCEW is a comprehensive dataset of employment and wage information for workers covered by state unemployment insurance (UI) laws and federal workers covered by the Unemployment Compensation for Federal Employees (UCFE) program. The QCEW provides quarterly and annual data on average wages by county, metropolitan statistical area, and state for different types of occupations.

We selected the QCEW to capture local variations in PHA wage rates because of the reliability of the data, based on a census rather than a sample, and because the QCEW collects wage rate data for local government workers, which are a good proxy for PHA staff.

To create the wage index for this study, we assembled data on the average wage for local government workers for each PHA. For each state, we calculated the average local government wage for metropolitan areas of the state and the average local government wage for non-metropolitan areas of the state.[53] We then designated each PHA as metropolitan or non-metropolitan based on the county in which the PHA's headquarters is located. If the PHA headquarters was in a metropolitan county, the PHA was designated metropolitan. If the PHA headquarters was in a non-metropolitan county, the PHA was designated non-metropolitan. Metropolitan PHAs were assigned the average local government wage rate for metropolitan areas in the PHA's state. Non-metropolitan PHAs were assigned the average local government wage for non-metropolitan areas in the PHA's state. After each PHA was assigned a local government wage rate based on its state's metropolitan or non-

[53] See section 3.2.5 above for the methodology for calculating the metropolitan and non-metropolitan averages.

metropolitan average, we created an index by dividing each PHA's wage rate by the national average wage rate.[54]

For 2013, the wage index values for the 60 study sites ranged from 0.63 to 1.32, with an average of 0.99, close to the national average. A wage index value of 0.63 means that the PHA's local wage rate is 63 percent of the national average wage rate, while a wage index value of 1.32 means that the PHA's local wage rate is 132 percent of the national average wage rate.

### 6.2.2 Program Size

The size of the voucher program has a strong theoretical foundation for affecting administrative costs per voucher, as the marginal costs of an additional voucher are expected to be smaller as the program becomes larger, both because any fixed costs are spread across more vouchers and because PHAs may take advantage of efficiencies as a program gets larger (better computer systems, specialized staff). The PHAs in the study ranged from approximately 100 to more than 45,000 vouchers under lease.

Exhibit 6-2 shows a scatter plot diagram of administrative cost per voucher leased by program size for the 60 PHAs in the study. In this diagram the largest programs in the study are presented in the 14,000 voucher range (rather than by their actual number of vouchers under lease) to ensure that the cost estimates cannot be linked to individual PHAs.

Exhibit 6-2 presents the estimated cost per voucher for each PHA, adjusted for variation in local wage rates using the QCEW index. The adjusted costs are actual costs divided by the wage index, which inflates the voucher costs for PHAs in labor markets with wage rates below the national average and deflates the costs for PHAs in markets with wages above the national average. This adjustment is a way of taking the variation in local wages out of the cost estimates by estimating PHA costs if their wages are at the national average so their costs can be compared on more equal footing. Exhibit 6-2 shows that after controlling for local wage costs, most of the higher cost PHAs are relatively small. It also shows that costs vary considerably within size categories, so factors other than the wage index and PHA size are also driving costs.

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[54] In developing the wage index variable, we tested an alternative measure of local wages, using county-level data rather than the state average for metropolitan or non-metropolitan areas. The model using county-level data did not perform as well (predicted costs for the 60 PHAs less accurately) and would be subject to more year to year volatility as the QCEW data for some counties are based on very small sample sizes. We also explored the availability of metropolitan statistical area (MSA) level data on local government wages, but found that these data were not available for several PHAs in the study located in MSAs. Given these data constraints, it was not possible to create a more localized measure of wage rates without subjecting the formula to substantial missing data or data volatility.

**Exhibit 6-2. QCEW-Adjusted Administrative Cost per Unit Month Leased by Vouchers Under Lease, 2013**


Source: RMS and cost data collection. BLS QCEW, 2013 Annual Wage Data on Local Government Employees. N=60 PHAs.

Choosing the appropriate size categories is not an exact science, as there is no theoretical basis to determine exactly what size programs have different costs per voucher. We tested various ways of controlling for program size, including a single (continuous) variable for number of vouchers, the number of vouchers plus a squared term, binary variables for different size categories, and interactions of binary variables and continuous variables.[55] We tested the size categories we have been using in presenting descriptive characteristics of PHAs to the EITRG and also size categories suggested by the scatter plot diagrams.[56]

Exhibit 6-3 presents the results of three regression models with different measures of program size. In this model, administrative cost per unit month leased is the dependent variable, and the independent variables are the QCEW wage index described above and the following three measures of program size:

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[55] A continuous variable can take on any value, whereas a binary variable has a value of 1 or 0. In this case, the continuous variable for program size is each PHA's actual number of vouchers under lease. Binary variables for program size represent program size categories. For example, we created a binary variable for programs with 500 or fewer vouchers. For this variable, PHAs with 500 or fewer vouchers receive a value of 1 and PHAs with more than 500 vouchers receive a value of 0.

[56] One EITRG member suggested using total program budget (administrative cost and HAP cost) as a measure of program size. We did not pursue this suggestion, because we thought that the number of vouchers under lease has a more direct relationship to administrative costs than the amount of HAP costs, which has a lot to do with the local FMR.

- A single binary variable for PHAs with 500 or fewer vouchers under lease
- Binary variables for PHAs with 500 or fewer vouchers under lease; 501–5,249 vouchers under lease; 5,250–9,999 vouchers under lease; and 10,000 or more vouchers under lease[57]
- A continuous variable for number of vouchers under lease

Both regressions with binary variables show that per unit administrative costs are higher for PHAs with 500 or fewer vouchers than for larger programs. The coefficients on the other size variables are not statistically significant, and the continuous variable measure of size is not statistically significant. On the basis of these results, we selected the binary variable for program size of 500 or fewer vouchers as the best measure of program size for the cost driver model.

**Exhibit 6-3. Coefficient Estimates for Base Model of HCV Administrative Costs per Unit Month Regressed on Wage Index and Alternative Program Size Variable(s)**

| Explanatory Variable | Model Using Binary Variable 500 Vouchers or Fewer Under Lease | Model using Binary Variables for Different Bands of Vouchers Under Lease | Model Using Vouchers Under Lease as a Continuous Variable |
|---|---|---|---|
| Intercept | 17.86 | 17.76 | 36.5** |
| Wage Index | 44.82*** | 44.21*** | 34.04** |
| Program with 500 or fewer vouchers | 14.91*** | 15.59*** | n/a |
| Program with 501 to 5,249 vouchers | n/a | omitted category | n/a |
| Program with 5,250 to 9,999 vouchers | n/a | 5.86 | n/a |
| Program with 10,000+ vouchers | n/a | 7.23 | n/a |
| Program size (continuous variable) | n/a | n/a | -0.0000436 |
| **R-Squared** | **0.347** | **0.354** | **0.158** |

N=60 PHAs.

Notes: *** indicates significant at 1 percent level, ** at 5 percent level, and * at 10 percent level. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

Source: Cost data collection, VMS, and BLS QCEW, 2013 Annual Wage Data on Local Government Employees.

### 6.2.3 Base Regression Model

Taking as a starting point the two variables wage index and program size, we created a base regression model defined as:

$$CPVM_i = \alpha + \beta_1 * WageIndex_i + \beta_2 * Size500_i + \varepsilon_i$$

Where:

$CPVM_i$ = Administrative costs per voucher unit month for $PHA_i$;

[57] The size category with the largest number of PHAs (501 to 5,249 vouchers under lease) is the omitted category in the regression.

$\alpha$ = The intercept for the regression model.

$\beta_1$ = The coefficient on the wage index variable.

$\beta_2$ = The coefficient on the program size variable.

$WageIndex_i$ = QCEW local wages for $PHA_i$ relative to national average.

$Size500_i$ = Binary variable equal to 1 for $PHA_i$ if $PHA_i$ has 500 or fewer vouchers, 0 otherwise.

$\varepsilon$ = The unexplained residual (or error term).

The base model is an ordinary least squares (OLS) regression, which is a statistical technique that attempts to find the linear fit that best approximates the data. OLS regressions have a dependent variable—the variable the model is trying to explain—and independent or explanatory variables.

For our base regression model, the dependent variable is administrative cost per UML. We considered two other alternatives for the dependent variable—overall HCV administrative cost and administrative cost per UML adjusted for local labor cost differences using the QCEW wage index. With overall HCV administrative cost as the dependent variable, we found that the size of the voucher program dominates the estimate of total costs and, therefore, obscures other factors that could affect costs.[58] Making the dependent variable cost per UML adjusted by the wage index gives the model less flexibility in that it assumes that there is an exact one-to-one relationship between costs and the QCEW wage index.[59]

The independent variables in the base regression model are program size (binary variable where 1 = 500 vouchers or fewer and 0 = more than 500 vouchers) and the QCEW wage index. The regression estimates for the base model are shown in Exhibit 6-4. As can be seen, the signs of the coefficients for the wage index (higher local wages is associated with higher costs per voucher) and the size variable (smaller programs have larger costs) are in the direction expected by theory—that is, they are consistent with what we would expect to see given what we know about the administration of the voucher program. The coefficients on both variables are also statistically significant, meaning that we are confident that these factors drive costs in the direction estimated. The R-squared also shows that these two measures explain a substantial share of the variation in costs per voucher across PHAs—34.7 percent. This is the starting or base model that we used to test what additional factors drive costs.

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[58] A technical reason for choosing costs per voucher rather than total cost is that one of the assumptions of an OLS regression is that the variance of the error term ($\varepsilon_i$) is not correlated with any of the explanatory variables (i.e., homoscedasticity), and we do not think that is a reasonable assumption for program size in a total cost regression. That is, we expect the variance of the error term for estimated cost from a total cost regression to be larger for larger PHAs than smaller PHAs, thus violating one of the OLS assumptions.

[59] Including the wage index as an explanatory variable in an OLS regression assumes that there is a linear relationship between per unit costs and the wage index. We tested a squared wage index variable to test for non-linearity, but it was not significant, suggesting that there is not a significant non-linear relationship.

**Exhibit 6-4. Coefficient Estimates for Base Model of HCV Administrative Costs per Unit Month Regressed on Wage Index and Program Size Variable**

| Explanatory Variable | Coefficient Estimate | Standard Error |
|---|---|---|
| Intercept | 17.86 | 12.25 |
| Wage Index | 44.82*** | 11.58 |
| Program with 500 vouchers or fewer under lease | 14.91*** | 3.73 |
| **R-Squared** | **0.347** | **n/a** |

N=60 PHAs.

Notes: *** indicates significant at 1 percent level, ** at 5 percent level, and * at 10 percent level. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

## 6.3 Testing Potential Cost Drivers Individually With the Base Model

Having identified a base model, we conducted exploratory analysis to determine what other hypothesized factors might help explain differences in costs across PHAs. Specifically, we used the base model to test the impact of each of the variables in Exhibit 6-1 one at a time after controlling for local wages and the size of the PHA's voucher program.

Exhibit 6-5 presents the results of the testing. A positive (+) coefficient sign means that PHAs that have higher values for that variable have higher costs. For example, the test model suggests PHAs with a higher share of port-in vouchers have higher per voucher costs, controlling for local wage levels and voucher program size. A negative (-) coefficient sign means that PHAs that have higher values for that variable have lower costs. For example, the test model suggests PHAs serving a higher share of households headed by non-elderly people with disabilities have lower per voucher costs, controlling for local wage levels and voucher program size.

The last column of the exhibit shows the statistical significance of the variable. Variables that are statistically significant are shaded. Variables are coded as significant at the 1 percent, 5 percent, or 10 percent level or not significant (NS). Statistically significant at the 1 percent level, for instance, means that there is less than a 1 percent probability that the relationship between the variable of interest and cost per unit month is purely by chance. Variables that are not statistically significant may nonetheless affect cost, but the lack of significance tells us that the measured effect is less certain.

**Exhibit 6-5. Results of Adding Variables Individually to the Base Model That Includes the QCEW Wage Index and Program Size Binary Variables**

| Variable Name | Description[a] | Coefficient Sign | Statistical Significance |
|---|---|---|---|
| ECEC benefits index | Index of overall benefits costs for private sector employees, based on BLS ECEC survey | - | NS |
| Health insurance cost index | Index of health insurance costs based on HHS Medical Expenditure Panel Survey | - | NS |
| FMR | Fair Market Rent (FMR) | + | 1% |
| Office rent | Office rent per square foot, based on data collected by GSA on federal government office space | + | NS |
| HCV only | HCV only (versus HCV and public housing) | - | NS |
| Area | Area (in square miles) served by HCV program | - | NS |
| Multicounty | PHA's jurisdiction covers more than one county | + | NS |
| Median distance | Median distance (miles) from PHA headquarters to voucher holder | + | NS |
| 50 miles | Percent of voucher holders living more than 50 miles from PHA headquarters | + | 5% |
| 60 miles | Percent of voucher holders living more than 60 miles from PHA headquarters | + | 1% |
| Drive time | Median drive time (minutes) from PHA office to voucher holder[b] | + | NS |
| Density | HCV participants per square mile | + | NS |
| Metro PHA | A majority of the population in the PHA's population lives in metropolitan areas, based on Rural Urban Continuum Codes | + | NS |
| Urban PHA | The percentage of the overall population in the PHA's jurisdiction that lives in urban areas (as defined by 2010 Census) | + | 1% |
| Urban HCV | The percentage of the PHA's HCV households that lives in urban areas (as defined by 2010 Census) | - | NS |
| Households in poverty | Percent of households in the tracts covered by the PHA's jurisdiction that have incomes below the poverty level | - | NS |
| Rental vacancy | ACS-based rental vacancy rate for the area covered by the tracts in the PHA's jurisdiction | + | NS |
| Residential vacancy | USPS residential vacancy rate for the area covered by the tracts in the PHA's jurisdiction | - | NS |

| Variable Name | Description[a] | Coefficient Sign | Statistical Significance |
|---|---|---|---|
| Multifamily vacancy | USPS vacancy rate for multifamily dwellings in the area covered by the tracts in the PHA's jurisdiction | - | NS |
| Small area rent ratio | A measure of how the average rents in the area where a PHA's voucher participants live compare to the average rents for the overall area[c] | + | 1% |
| Age of housing stock | Year built, for units under lease by HCV participants | + | NS |
| Housing discrimination | State laws against source of income discrimination | - | NS |
| Utilization | Utilization rate | + | NS |
| HUD-VASH, FUP, or NED under lease | PHA administers HUD-VASH, FUP, or NED | - | NS |
| Percent HUD-VASH, FUP, and NED | Sum of HUD-VASH, FUP, and NED vouchers under lease as percentage of total vouchers under lease | - | NS |
| Percent project-based vouchers | Project-based vouchers as a percentage of total vouchers under lease | + | 10% |
| Percent homeownership vouchers | Homeownership vouchers as a percentage of total vouchers under lease | + | NS |
| Port-in transactions | Port-in transactions as a percentage of total vouchers under lease | + | 1% |
| Port-out transactions | Port-out transactions as a percentage of total vouchers under lease | + | NS |
| Billed port-ins | Billed port-ins as a percentage of total vouchers under lease | + | 1% |
| Billed port-outs | Billed port-outs as a percentage of total vouchers under lease | - | NS |
| New admissions 2013 | Number of new admissions as percentage of total vouchers under lease in 2013 | - | NS |
| New admissions 2012 | Number of new admissions as percentage of total vouchers under lease (2012) | + | NS |
| End of participation 2013 | Number of end of participations as percentage of total vouchers under lease (2013) | + | NS |
| End of participation 2012 | Number of end of participations as percentage of total vouchers under lease (2012) | - | NS |
| Moves | Number of moves in past year as percentage of total vouchers under lease | - | NS |

## ADMINISTRATIVE COST DRIVERS

| Variable Name | Description[a] | Coefficient Sign | Statistical Significance |
|---|---|---|---|
| Homeless households | Homeless household as percentage of total vouchers under lease | - | NS |
| Homeless preference | PHA has a strong preference for homeless households | + | NS |
| Households with non-elderly disabled head | Percent of households served with non-elderly disabled head | - | 5% |
| Households with disabled members | Percent of households served with one or more disabled members | - | 1% |
| Family households | Percent of households served that are family households | + | 5% |
| Households with three or more minors | Percent of households served with three or more minors | + | 1% |
| Households with six or more members | Percent of households served with six or more members | + | 1% |
| Elderly-headed households | Percent of households served headed by an elderly person | - | NS |
| Majority income from earnings | Percent of households with majority of income from earnings | + | 1% |
| Any income from earnings | Percent of households with any income from earnings | + | 1% |
| Limited English proficiency (LEP) | Percent of the population in the PHA's jurisdiction with LEP | + | NS |
| Contracted inspections | PHA contracts inspections (vs. using PHA staff) | + | 10% |
| Hours on inspections | Hours per voucher spent on inspections | + | NS |
| Percent of time on inspections | Percent of total time on inspections | - | NS |
| Expanding housing opportunities | Minutes per voucher spent on expanding housing opportunities | + | 1% |
| Reasonable accommodation | Hours per voucher spent on reasonable accommodation | + | NS |
| Supportive services (non-FSS) | Hours per voucher spent on supportive services (outside of FSS) | + | NS |
| Hours on intake | Hours per voucher spent on intake activities | + | 10% |
| Percent of time on intake | Percent of total time spent on intake activities | + | NS |
| Hours on ongoing occupancy | Hours per voucher spent on ongoing occupancy activities | + | NS |
| Percent of time on ongoing occupancy | Percent of total time spent on ongoing occupancy activities | - | NS |

| Variable Name | Description[a] | Coefficient Sign | Statistical Significance |
|---|---|---|---|
| Hours on monitoring and supervisory work | Hours per voucher spent on monitoring and supervisory activities | - | NS |
| Percent of time on monitoring and supervisory work | Percent of total time spent on monitoring and supervisory activities | - | NS |

[a] Data are from calendar year 2013 unless otherwise noted. In calculating variables for a PHA's jurisdiction, we defined the jurisdiction based on the counties (and census tracts in counties) where at least 5 percent of voucher holders reside.

[b] Based on the location of the nearest branch office for statewide programs.

[c] For PHAs in metropolitan counties, the small area rent ratio is calculated as the median gross rent for the zip codes where voucher holders live, weighted by the share of voucher holders in each zip code, divided by the median gross rent for the metropolitan area. For PHAs in non-metropolitan counties, the small area rent ratio is calculated as the unadjusted two-bedroom FMR for the non-metropolitan counties where the PHA operates divided by the published FMR.

Summarizing the information from Exhibit 6-5, we found that 20 of the potential cost drivers tested were statistically significant in the model with wage index and program size (the sign of the coefficient is shown in parentheses):

1. Wage index (+)
2. Program with 500 or fewer vouchers under lease (+)
3. Urban PHA (percent of population in PHA's jurisdiction that lives in urban areas) (+)
4. Small area rent ratio (+)
5. Percent of voucher holders living more than 50 miles from PHA headquarters (+)
6. Percent of voucher holders living more than 60 miles from PHA headquarters (+)
7. Port-in transactions as a percentage of total vouchers under lease (+)
8. Billed port-in vouchers as a percentage of total vouchers under lease (+)
9. Percent of households served with non-elderly disabled head (-)
10. Percent of households served with one or more disabled members (-)
11. Percent of households served that are family households (+)
12. Percent of households served with three or more minors (+)
13. Percent of households served with six or more members (+)
14. Percent of households with majority of income from earnings (+)
15. Percent of households with any income from earnings (+)
16. Hours per voucher spent on expanding housing opportunities (+)
17. Hours per voucher spent on intake activities (+)
18. FMR (+)
19. Project-based vouchers as a percentage of total vouchers under lease (+)
20. PHA contracts inspections (vs. using PHA staff) (+)

### 6.3.1 Variables Excluded from Further Analysis

The team reviewed this list of statistically significant cost drivers and decided to pursue further testing with all but three of the variables. The three variables dropped from the analysis at this stage were FMR, project-based vouchers as a percentage of total vouchers under lease, and contracted inspections.

#### FMR

The team discussed FMR as a potential cost driver extensively. Among the 60 study sites, we observed a correlation between HCV per unit administrative costs and the FMR,[60] and the FMR remained statistically significant in the base regression model with wage index and program size. The team considered that the FMR might be a proxy for local variation in the non-labor costs that PHAs experience, such as office space costs and costs for vehicles, and thus have a direct relationship with program costs. However, the team also understood that since the FMR was the primary variable used to determine the base fee formula in 1993, the FMR could very well simply be reflecting the administrative PHA fees that PHAs receive, and the relationship between PHA costs and the funding they receive. Because of the uncertainty about the relationship between FMR and voucher administrative costs, and the very close relationship between the FMR and the existing fee formula, the team determined that it would not be appropriate to include FMR in our cost driver analyses. Instead, the team sought to identify other variables that might capture non-labor costs, such as the office rent variable (see discussion in Section 6.4.2).

#### Project-Based Vouchers

With respect to the share of project-based vouchers, it might be expected that a higher share of project-based vouchers would add complexity (and therefore cost) to program administration, and this is what the positive coefficient suggests. However, the study's time estimates on project-based vouchers did not show that project-based vouchers take more time to administer on an ongoing basis, and only one of the study sites was in the process of adding new project-based vouchers at the time of the study. We hypothesize that the project-based voucher variable must be picking up the effect of some other unmeasured program or PHA feature that is correlated with having project-based vouchers. Given this uncertainty, we did not pursue further testing with this variable.

#### Contracted Inspections

In the base regression model with wage index and program size, we found that contracted out inspections (i.e., inspections not performed by PHA staff) were a significantly positive cost driver. In other words, the model suggested that PHAs that contract out inspections have higher administrative costs, holding program size and local wage rates constant. The conventional wisdom in the field, and why PHAs in the study said they switched to contracted inspections, is that contracting inspections should result in *lower* costs. Moreover, our time and cost data analysis found that overall inspection costs were lower for PHAs with contracted out inspections (as would be expected) not higher. Like the project-based vouchers variable, the positive coefficient on the contracted inspections variable seems to be picking up the effect of some other unmeasured program or PHA feature that is correlated with contracted inspections, and thus we did not pursue further testing of this variable.

### 6.3.2 Addressing Correlation Among Statistically Significant Variables

The next step in our analysis of cost drivers was to look across the 17 variables that were candidates for further analysis to identify any strong correlations among them. It is not advisable to include variables that are very strongly correlated with each other in the same regression model because

[60] For per unit administrative costs and the 2014 FMR the correlation coefficient is 0.52. For per unit administrative costs and the 1993 FMR, the correlation coefficient is 0.50. As would be expected, the 2014 FMR and the 1993 FMR are highly correlated (correlation coefficient is 0.90).

including both can confound the regression results and make it difficult to detect the effect of each variable accurately. Exhibit 6-6 shows the correlation coefficients for the 17 variables. There are very strong correlations (correlation coefficient of 0.7 or more) among three types of variables: distance variables; port-in share variables; and household variables.

### Distance Variables

As might be expected, the variables representing the percent of voucher households living more than 50 miles from the PHA headquarters and the percent of voucher households living more than 60 miles from the PHA headquarters are strongly correlated, with a correlation coefficient of 0.91 (Exhibit 6-6).[61] We tested each of the variables separately in the base model with wage index and program size and found that the coefficient on the 60-mile variable was more statistically significant than that on the 50-mile variable and that the model with the 60-mile variable explained more of the observed variation in per unit costs.[62]

### Port-In Shares

We identified two variables associated with port-in activity that were each positively and significantly associated with per unit administrative cost when tested individually in the base model with wage index and program size. These two variables are billed port-in vouchers as a share of total vouchers under lease and port-in transactions as a share of total vouchers under lease. As would be expected, the two variables are strongly correlated, with a correlation coefficient of 0.77 (Exhibit 6-6). When placed together in a model with wage index and program size, only the billed port-in share remains statistically significant and positive. The port-in transaction variable loses its statistical significance and turns negative. Thus, we retained only the billed port-in share variable for further analysis.

### Household Variables

We tested many different measures of the characteristics of the HCV population served to see if this drove costs. Of those tested, seven were statistically significant when added to the base model with wage index and program size. Two of the seven variables—percent of households served with non-elderly disabled head and percent of households served with one or more disabled members—were associated with lower per unit costs. Five of the seven variables—percent of households that are family households; percent of households with three or more minors; percent of households with six or more members; percent of households with majority of income from earnings; percent of households with any income from earnings—were associated with higher per unit costs.

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[61] These distance variables are calculated from HUD PIC data on the locations of HCV households (excluding port-ins and port-outs) and the address of the PHA's headquarters. In other words, the distance is "as the crow flies."

[62] We also retested both variables in the proposed fee formula model presented in Chapter 7. The model with the 60 mile variable explained more of the variation in per unit costs than the model with the 50 mile variable (65 percent versus 62 percent).

**Exhibit 6-6. Correlations Among Potential Cost Driver Variables**

| Variables | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. | 17. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Wage index | 1.00 | | | | | | | | | | | | | | | | |
| 2. Program Size (500 or fewer vouchers) | -0.28 | 1.00 | | | | | | | | | | | | | | | |
| 3. Urban PHA | 0.57 | -0.47 | 1.00 | | | | | | | | | | | | | | |
| 4. Small area rent ratio | 0.13 | 0.07 | 0.17 | 1.00 | | | | | | | | | | | | | |
| 5. 50 miles | -0.09 | -0.08 | 0.03 | -0.11 | 1.00 | | | | | | | | | | | | |
| 6. 60 miles | -0.07 | -0.12 | 0.05 | -0.09 | 0.91 | 1.00 | | | | | | | | | | | |
| 7. Billed port-in share | 0.11 | 0.21 | 0.10 | 0.36 | -0.06 | -0.03 | 1.00 | | | | | | | | | | |
| 8. Port-in transaction share | 0.20 | 0.18 | 0.25 | 0.44 | -0.06 | -0.04 | 0.77 | 1.00 | | | | | | | | | |
| 9. Percent disabled headed | 0.18 | 0.08 | -0.20 | -0.24 | -0.01 | -0.01 | 0.02 | -0.16 | 1.00 | | | | | | | | |
| 10. Percent disabled members | 0.14 | 0.08 | -0.26 | -0.23 | 0.07 | 0.01 | -0.08 | -0.29 | 0.92 | 1.00 | | | | | | | |
| 11. Percent family households | -0.20 | -0.06 | 0.17 | 0.14 | -0.03 | 0.01 | 0.04 | 0.22 | -0.93 | -0.91 | 1.00 | | | | | | |
| 12. Percent with three or more minors | -0.05 | -0.08 | 0.22 | 0.23 | -0.06 | 0.00 | 0.45 | 0.64 | -0.61 | -0.72 | 0.74 | 1.00 | | | | | |
| 13. Percent with six or more members | 0.15 | -0.06 | 0.31 | 0.33 | -0.05 | -0.02 | 0.58 | 0.78 | -0.46 | -0.59 | 0.55 | 0.92 | 1.00 | | | | |
| 14. Percent majority wage earning | -0.05 | 0.14 | 0.24 | 0.32 | -0.13 | -0.10 | 0.21 | 0.43 | -0.75 | -0.82 | 0.76 | 0.67 | 0.64 | 1.00 | | | |
| 15. Percent wage earners | 0.01 | 0.08 | 0.34 | 0.38 | -0.08 | -0.06 | 0.20 | 0.39 | -0.76 | -0.79 | 0.76 | 0.61 | 0.61 | 0.93 | 1.00 | | |
| 16. Time on intake | -0.45 | 0.30 | -0.23 | 0.22 | -0.02 | 0.02 | 0.17 | 0.03 | -0.28 | -0.24 | 0.27 | 0.14 | 0.05 | 0.21 | 0.22 | 1.00 | |
| 17. Time on expanding housing opportunities | -0.09 | -0.28 | 0.10 | 0.10 | -0.06 | -0.04 | -0.05 | 0.09 | -0.08 | -0.10 | 0.12 | 0.17 | 0.08 | 0.06 | 0.04 | 0.01 | 1.00 |

The signs and significance of the coefficients for the household variables are consistent with the time study. As discussed in Section 4.3.2 above, the time study found that PHAs spent more time per annual recertification for non-disabled family households and large families and less time for disabled households. However, as shown in Exhibit 6-6, the household variables are highly correlated. Of the two variables representing the share of households with disabilities, the percent of households with one or more disabled members had greater statistical significance in the base model with wage and program size, so we retained that variable for further analysis.

We tested several combinations of the family and wage earner variables in the base model with wage index and program size. When any one of the family variables (percent family households, percent with three or more minors, percent with six or more members) are combined with one of the wage earning variables (percent with majority of income from wages or percent with any income from wages), the family variables lose their statistical significance and turn negative. Because there is a strong correlation between the family and the wage earning variables (correlation coefficients ranging from 0.61 to 0.76), they cannot be included in a model together. When the family and wage earning variables were tested individually in a model with wage index and program size, the model that included the percent of households with any income from wages had the highest R-squared. This suggests that of all the family and wage earning variables, the percent of households with any income from wages explains the most variation in program costs, controlling for local wage rates and program size. Also, the coefficient on the percent of households with any income from wages variable also had the strongest significance of the family and wage variables.

Thus, we determined that the percent of households with any income from wages was the strongest cost driver with a positive coefficient. To the model with wage index, program size, and percent of households with any income from wages, we added back the percent of households with one or more disabled members. The percent of households with any income from wages remains positive and statistically significant, while the percent of households with one or more disabled members loses its statistical significance. This is because the two variables are highly negatively correlated, with a correlation coefficient of -0.79. Thus, it does not make sense to retain both variables in a cost driver model. Of the two variables, the percent of households with any income from wages has the most explanatory power so this variable was retained for further analysis.

### 6.3.3 Testing Cost Drivers in Combination

After the analysis of correlations among the statistically significant variables, we were left with nine variables to test in combination with each other.

1. Wage index (+)
2. Program size, 500 or fewer vouchers under lease (+)
3. Urban PHA (percent of population in PHA's jurisdiction living in urban areas) (+)
4. Small area rent ratio (+)
5. Percent of voucher holders living more than 60 miles from the PHA's headquarters (+)
6. Billed port-in vouchers as a percentage of total vouchers under lease (+)
7. Percent of households with any income from earnings (+)
8. Time spent on expanding housing opportunities (+)
9. Time spent on intake activities (+)

With a sample size of 60, we were able to test all nine variables in a regression model together. The results of this combined cost driver model are shown in Exhibit 6-7. In the combined model, four variables that were statistically significant in a model with only the wage index and program size lose their significance. The variables that lose their statistical significance are the urban PHA variable (defined as the percent of the population within the PHA's jurisdiction that lives in urban areas), the small area rent ratio variable (a measure of how the average rents in the zip codes where voucher participants live compare to the average rents for the overall area), the billed port-in share variable (billed port-ins as a percentage of total vouchers under lease), and the time spent on intake (hours per voucher per year of staff frontline time spent on intake, eligibility, and lease-up activities). This model has an R-squared of 0.68.

**Exhibit 6-7. Combined Cost Driver Model**

| Explanatory Variable | Coefficient Estimate | Standard Error |
|---|---|---|
| Intercept | -32.606 | 26.312 |
| Wage index | 48.613*** | 7.143 |
| Program with 500 or fewer vouchers | 16.174*** | 2.670 |
| Urban PHA | 0.088 | 0.086 |
| Small area rent ratio | 12.626 | 28.988 |
| 60 miles | 0.882*** | 0.069 |
| Billed port-in share | 0.277 | 0.244 |
| Percent of households with earned income | 0.613*** | 0.210 |
| Time (minutes) on expanding housing opportunities | 1.298*** | 0.306 |
| Time (hours) on intake | 2.142 | 2.153 |
| R-Squared | 0.68 | n/a |

N=60 PHAs.

Notes: *** indicates significant at 1 percent level, ** at 5 percent level, and * at 10 percent level. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

## 6.4 Further Testing of Potential Cost Drivers

The combined cost driver model shown in Exhibit 6-7 includes all of the variables found to be significant cost drivers after taking into account local wage rates and program size and does not include any variables that are strongly correlated with each other. However, it does not include all potential cost drivers. At the start of the analysis, the team identified the following nine types of cost drivers that we expected to affect per unit costs (shown in second column of Exhibit 6-1 above):

- Labor costs, wages
- Labor costs, benefits
- Non-labor costs
- PHA size
- PHA jurisdiction and type
- Availability of affordable housing

- Participant characteristics
- Complexity of HCV program
- Allocation of PHA staff time

The combined cost driver model shown in Exhibit 6-7 includes variables that represent six of the nine cost driver types, as shown in Exhibit 6-8. However, three cost driver types—benefits costs, non-labor costs, and availability of affordable housing—are not represented in the model. The team revisited the complete list of hypothesized cost drivers after developing the combined cost driver model and identified several variables to retest in the combined model. These variables are shown in the last column of Exhibit 6-8.

**Exhibit 6-8. Variables From Combined Cost Driver Model Mapped to Cost Driver Types**

| Cost Driver Types | Variables Included in Combined Cost Driver Model | Variables Identified for Further Testing |
|---|---|---|
| Labor costs, wages | • Wage index | |
| Labor costs, benefits | | • ECEC benefits index<br>• Health insurance cost index |
| Non-labor costs | | • Office rent |
| PHA size | • Program with 500 or fewer vouchers | |
| PHA jurisdiction size and type | • Urban PHA<br>• Voucher holders more than 60 miles from PHA HQ | |
| Availability of affordable housing | • Small area rent ratio | • Rental vacancy (ACS)<br>• Residential vacancy (USPS)<br>• Multifamily vacancy (USPS)<br>• Age of housing stock |
| Complexity of HCV program | • Billed port-in share | • End of participation<br>• New admissions<br>• Success rates<br>• Moves |
| Participant characteristics | • Households with earned income | |
| Allocation of PHA staff time | • Time on expanding housing opportunities<br>• Time on intake | |

In most cases, the new variables tested represent cost driver types not included in the combined model. However, we also revisited the urban HCV variable (defined as the percentage of the PHA's HCV households that live in urban areas) within the "PHA jurisdiction size and type" cost driver category, and the HCV turnover variable (defined as new admissions to the program as a percentage of total vouchers under lease) within the "complexity of the HCV program" cost driver category. The rationale for revisiting each additional variable tested and the results of the testing are discussed below.

### 6.4.1 Benefits Costs

Based in part on feedback from the EITRG, we tested two measures of benefits costs. The rationale for testing benefits costs is that the cost of the benefits provided to HCV program staff are an

important component of HCV labor costs and may vary differently from the local wage rates captured by the QCEW index. We created two different indexes of benefits costs, the *ECEC Benefits Index* and the *Health Insurance Cost Index*:

- **ECEC Benefits Index:** This index is based on the BLS's Employer Costs for Employee Compensation (ECEC) survey, which measures employer costs for wages, salaries, and employee benefits for nonfarm private and state and local government workers. Estimates of benefits costs are available at the census region and division level for private industry workers but not for the state and local government workers that would be a better proxy for PHA staff. For private industry workers, the ECEC provides employer costs (including benefit costs) per hour worked by census region and division.[63] We created an index to test local variation in benefits costs for private industry workers by dividing the Total Benefits cost for each census division (from Table 7 of the ECEC release) by the Total Benefits cost for private industry workers for the nation as a whole (from Table 6 of the ECEC release).[64] We assigned an index value to each PHA in the sample based on the census division in which the PHA is located.
- **Health Insurance Cost Index:** This index is based on the Department of Health and Human Services' Medical Expenditure Panel Survey (MEPS) (http://meps.ahrq.gov/mepsweb/). The MEPS provides two sets of data that can be used to calculate the average cost of health insurance for private sector employers: average total employee-plus-one premium (in dollars) per enrolled employee at private-sector establishments that offer health insurance (Table II.E.1) and average total employee contribution (in dollars) per enrolled employee for employee-plus-one coverage at private-sector establishments that offer health insurance (Table II.E.1).[65] To create the index, we created a measure of employer health insurance cost for each state by subtracting the average total employee contribution from the average total employee-plus-one premium. We then averaged the employer health insurance cost across the states to produce a national average. We created an index by dividing each state's employer health insurance cost by the national average and assigned an index value to each PHA in the sample based on the state in which the PHA is located

The two benefits indexes are highly correlated with each other, with a correlation coefficient of 0.73. The two benefits indexes both had negative coefficients in the base model with wage index and program size (when tested individually) and were not statistically significant. When we tested each index separately in the combined cost driver model (from Exhibit 6-7), the coefficients on the indexes became positive but neither was statistically significant (Exhibit 6-9). The positive coefficient is what

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[63] The ECEC measures benefits in the following categories: paid leave, supplemental pay, insurance, retirement and savings, and legally required benefits. There are four census regions and nine census divisions.

[64] The quarterly ECEC releases can be found here: http://www.bls.gov/schedule/archives/ecec_nr.htm#2013. We averaged the quarterly data to create an annual average benefit cost for each census division and the nation as a whole.

[65] See http://meps.ahrq.gov/mepsweb/data_stats/quick_tables_search.jsp?component=2&subcomponent=2. Employee-plus-one coverage is defined as health insurance that covers the employee and one other family member.

we would expect—that is, higher local benefits costs are associated with higher per unit administrative costs for the HCV program.

As discussed further in Section 6.5 below, we concluded from this analysis that either variable could potentially be included in the proposed fee formula because of the strong rationale for the prevailing level of benefits costs being a cost driver and because the regression modelling produced coefficients that, while not statistically significant, were in the direction expected.

**Exhibit 6-9. Combined Cost Driver Model plus Benefits Variables**

| | Combined Model plus ECEC Benefits Index | | Combined Model plus Health Insurance Cost Index | |
|---|---|---|---|---|
| **Explanatory Variable** | Coefficients | Standard Error | Coefficients | Standard Error |
| Intercept | -46.096 | 31.109 | -43.411 | 33.135 |
| Wage index | 38.909*** | 10.162 | 45.347*** | 9.560 |
| Program with 500 or fewer vouchers | 13.699*** | 3.868 | 15.028*** | 3.140 |
| Urban PHA | 0.095 | 0.075 | 0.082 | 0.086 |
| Small area rent ratio | 12.626 | 32.160 | 10.824 | 31.154 |
| Voucher holders more than 60 miles from PHA HQ | 0.895*** | 0.073 | 0.900*** | 0.081 |
| Billed port-in share | 0.309 | 0.242 | 0.313 | 0.254 |
| Percent of households with earned income | 0.692*** | 0.212 | 0.647*** | 0.215 |
| Time on expanding housing opportunities | 1.175*** | 0.348 | 1.323*** | 0.321 |
| Time on intake | 2.324 | 2.123 | 2.052 | 2.172 |
| ECEC Benefits Index | 20.654 | 17.544 | n/a | n/a |
| Health Insurance Cost Index | n/a | n/a | 15.672 | 22.303 |
| R-Squared | 0.691 | | 0.685 | n/a |

N=60 PHAs.

Notes: *** indicates significant at 1 percent level, ** at 5 percent level, and * at 10 percent level. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

### 6.4.2 Office Rent

In seeking a more direct measure of non-labor costs than the local FMR, we obtained data from the U.S. Government Services Administration (GSA) on the rent per square foot that GSA pays to lease office space.[66] These data are available at the county and zip code level for counties where the GSA leases office space. This office rent variable was not statistically significant when added to the base model but had the expected sign (higher office rent leads to higher costs). When added to the combined cost driver model, the coefficient sign on the office rent variable remained positive but the variable was still not statistically significant (Exhibit 6-10).

[66] See http://www.gsa.gov/portal/content/101840.

**Exhibit 6-10. Combined Cost Driver Model Plus Office Rent Variable**

| Explanatory Variable | Coefficients | Standard Error |
|---|---|---|
| Intercept | -44.706 | 29.504 |
| Wage index | 41.202*** | 10.106 |
| Program with 500 or fewer vouchers | 17.002*** | 2.749 |
| Urban PHA | 0.104 | 0.084 |
| Small area rent ratio | 22.152 | 31.500 |
| Voucher holders more than 60 miles from PHA HQ | 0.918*** | 0.086 |
| Billed port-in share | 0.180 | 0.242 |
| Percent of households with earned income | 0.637*** | 0.205 |
| Time on expanding housing opportunities | 1.034** | 0.411 |
| Time on intake | 2.045 | 2.135 |
| Office space rent | 0.315 | 0.315 |
| R-Squared | 0.687 | n/a |

N=60 PHAs.

Notes: *** indicates significant at 1 percent level, ** at 5 percent level, and * at 10 percent level. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

A major disadvantage of the office rent variable is that the number of data points on which this variable is based varies substantially from county to county and state to state, since it depends on where GSA leases property. For example, county level data were not available for 19 of the 60 PHAs in the study sample; for these PHAs we had to use statewide averages instead.

As discussed further in Section 6.5 below, although there is a strong theoretical basis for local office rents to be a driver of HCV administrative costs, the study team concluded that the data available on office rents from the GSA are not sufficiently robust to include the office rent variable in a fee formula model.

### 6.4.3 PHA Jurisdiction Size and Type

The combined cost driver model includes the urban PHA variable, defined as the percent of the population within the PHA's jurisdiction that lives in urban areas, based on the 2010 census definition of an urban area. The coefficient on the urban PHA variable was significant and positive in the base model with wage index and program size as well as in the combined model once voucher turnover is included (see Exhibit 6-14 below).

The team spent a great deal of time on the urban PHA variable because, in developing the formula model, we found that the model was under-predicting costs for larger PHAs, which tend to be located in urban areas. Including the Urban PHA variable in the model helped predict costs more accurately for the larger PHAs.

The problem with the urban PHA variable was that there is not a strong theoretical basis for its effects on HCV program costs. In many ways, urban areas should be less expensive to serve, since the HCV units tend to be less dispersed, there are more landlords with multiple HCV units, and there is more multifamily housing, reducing time spent on inspections. The team considered that there might be something about the characteristics of an urban population—such as higher poverty rates or lower

rates of educational attainment—that would make program administration more expensive. However, if that were the case, one would expect that the percentage of the HCV population that lives in urban areas (the urban HCV variable) would also be a significant cost driver. In the base model with wage index and program size, the coefficient on the urban HCV variable was negative (not positive as would be expected if serving an urban population is more expensive) and was not statistically significant. When we retested the urban HCV variable in the combined cost driver model, in lieu of the urban PHA variable, the coefficient remained negative and not significant (Exhibit 6-11).

As discussed further in Section 6.5 below, we concluded from this analysis that the urban PHA variable could not be included in our final list of cost drivers for consideration for the proposed fee formula, because it is not clear how operating in a jurisdiction with a more urban population should increase program costs if serving more HCV households in urban areas does not increase program costs.

**Exhibit 6-11. Combined Cost Driver Model Plus HCV Urban Variable**

| | Combined Model With Urban PHA | | Combined Model With Urban HCV | |
|---|---|---|---|---|
| **Explanatory Variable** | Coefficients | Standard Error | Coefficients | Standard Error |
| Intercept | -32.606 | 26.312 | -30.490 | 27.992 |
| Wage index | 48.613*** | 7.143 | 61.162*** | 8.599 |
| Program with 500 or fewer vouchers | 16.174*** | 2.670 | 12.636*** | 3.047 |
| Urban PHA | 0.088 | 0.086 | n/a | n/a |
| Urban HCV | n/a | n/a | -0.155 | 0.143 |
| Small area rent ratio | 12.626 | 28.988 | 16.830 | 31.617 |
| Voucher holders more than 60 miles from PHA HQ | 0.882*** | 0.069 | 0.884*** | 0.073 |
| Billed port-in share | 0.277 | 0.244 | 0.382 | 0.256 |
| Percent of households with earned income | 0.613*** | 0.210 | 0.711*** | 0.185 |
| Time on expanding housing opportunities | 1.298*** | 0.306 | 1.500*** | 0.376 |
| Time on intake | 2.142 | 2.153 | 1.849 | 1.797 |
| R-Squared | 0.681 | n/a | 0.701 | n/a |

N=60 PHAs.

Notes: *** indicates significant at 1 percent level, ** at 5 percent level, and * at 10 percent level. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

### 6.4.4 Availability of Affordable Housing

The study team tested several variables to proxy the availability of affordable housing. The theory behind testing different measures of availability of affordable housing was that, the more readily available affordable housing is in the community, the less it would cost for PHAs to administer the HCV program, as they would not have to work so hard to recruit landlords to the program and voucher recipients would be more successful in leasing-up. We tested the following three measures of housing affordability, one from the ACS and two from the USPS:

- **Rental vacancy (ACS):** the vacancy rate from the five-year ACS (2008–2012) for rental units in census tracts in the PHA's jurisdiction
- **Residential vacancy (USPS):** third-quarter 2013 vacancy rate from the USPS for residences in census tracts in the PHA's jurisdiction
- **Multifamily vacancy (USPS):** third-quarter 2013 vacancy rate from the USPS for multifamily dwellings in census tracts in the PHA's jurisdiction

The ACS vacancy measure has the advantage of being available for rental units, rather than all residential units, but is based on data collected from 2008 through 2012 and therefore may not represent current market conditions. The USPS tracks residential vacancies on a quarterly basis, thus providing more up-to-date information. However, the USPS does not provide vacancy data separately for rental units, and thus may not capture the market conditions facing HCV households. A vacancy rate for multifamily units—which could be a closer approximation to the rental vacancy rate—can be created out of the USPS data through special analysis by HUD. The USPS multifamily rate created by HUD is the third vacancy rate variable that we tested.

In the base model with wage index and program size, none of the three vacancy measures was significant, although the coefficients on the two USPS measures were negative, meaning that higher rates of vacancy were associated with lower per unit costs, as would be expected.

As shown in Exhibit 6-12, in the combined cost driver model, the coefficients on all three vacancy rate variables remained insignificant, and the sign on the USPS multifamily vacancy rate variable was positive, but not in the direction expected. None of the coefficients were close to being statistically significant. We concluded from this analysis that residential vacancy rates, as captured by the available data, could not be included as a cost driver for consideration for the proposed fee formula.

**Exhibit 6-12. Combined Cost Driver Model Plus Vacancy Variables**

| | Combined Model Plus Rental Vacancy (ACS) | | Combined Model Plus Residential Vacancy (USPS) | | Combined Model Plus Multifamily Vacancy (USPS) | |
|---|---|---|---|---|---|---|
| **Explanatory Variable** | Coefficients | Standard Error | Coefficients | Standard Error | Coefficients | Standard Error |
| Intercept | -27.461 | 32.068 | -14.855 | 38.650 | -44.798 | 30.564 |
| Wage index | 48.353*** | 7.028 | 46.498*** | 7.915 | 49.397*** | 7.316 |
| Program with 500 or fewer vouchers | 16.182*** | 2.653 | 16.299*** | 2.801 | 15.932*** | 2.556 |
| Urban PHA | 0.089 | 0.087 | 0.114 | 0.087 | 0.082 | 0.090 |
| Small area rent ratio | 8.412 | 32.897 | -1.608 | 36.095 | 22.947 | 30.716 |
| Voucher holders more than 60 miles from PHA HQ | 0.881*** | 0.068 | 0.846*** | 0.082 | 0.886*** | 0.068 |
| Billed port-in share | 0.283 | 0.252 | 0.314 | 0.266 | 0.250 | 0.254 |
| Percent of households with earned income | 0.610*** | 0.212 | 0.565** | 0.221 | 0.618*** | 0.213 |
| Time on expanding housing opportunities | 1.441** | 0.686 | 1.356*** | 0.343 | 1.148*** | 0.380 |
| Time on intake | 2.184 | 2.095 | 2.217 | 2.017 | 2.308 | 2.252 |
| Rental vacancy (ACS) | -0.105 | 0.369 | n/a | n/a | n/a | n/a |
| Residential vacancy (USPS) | n/a | n/a | -0.438 | 0.727 | n/a | n/a |
| Multifamily Vacancy (USPS) | n/a | n/a | n/a | n/a | 0.223 | 0.398 |
| R-Squared | 0.682 | n/a | 0.686 | n/a | 0.682 | n/a |

N=60 PHAs.

Notes: *** indicates significant at 1 percent level, ** at 5 percent level, and * at 10 percent level. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

The age of the housing stock in the HCV program is another variable with a strong theoretical basis for affecting per unit administrative costs. The older the housing stock, the higher the PHA's inspection costs, as more units will likely fail, requiring reinspection, and more units could have lead-based paint issues. An older housing stock could also contribute to lower lease-up rates if households have trouble finding units that will pass inspection.

Using PIC data, HUD created a dataset for the study with the median year built across all the units under lease for each PHA. This age of housing stock variable had a positive coefficient, not in the expected direction, when tested in the base model with wage index and program size, but was not statistically significant. When added to the combined cost driver model, as shown in Exhibit 6-13, the coefficient on the age of housing stock variable remained insignificant but turned negative, which is in the expected direction (a higher median year built, i.e., newer housing, is associated with lower cost). Based on the insignificance of the coefficient and the change in sign between the two models, we concluded that age of housing stock should not be included as a cost driver for consideration for the proposed fee formula.

**Exhibit 6-13. Combined Cost Driver Model Plus Age of Housing Stock Variable**

| Explanatory Variable | Coefficients | Standard Error |
|---|---|---|
| Intercept | 159.964 | 217.963 |
| Wage index | 45.812*** | 6.825 |
| Program with 500 or fewer vouchers | 15.569*** | 2.928 |
| Urban PHA | 0.090 | 0.081 |
| Small area rent ratio | 11.332 | 32.058 |
| Voucher holders more than 60 miles from PHA HQ | 0.894 | 0.075 |
| Billed port-in share | 0.353 | 0.270 |
| Percent of households with earned income | 0.625*** | 0.203 |
| Time on expanding housing opportunities | 1.316*** | 0.336 |
| Time on intake | 2.317 | 2.142 |
| Age of housing stock | -0.096 | 0.106 |
| R-Squared | 0.686 | n/a |

N=60 PHAs.

Notes: *** indicates significant at 1 percent level, ** at 5 percent level, and * at 10 percent level. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

### 6.4.5 Complexity of the HCV Program

In addition to billed port-in share, which is included in the cost driver model, the team explored four other measures of program complexity that had strong theoretical reasons for affecting per unit administrative costs: end of participation, new admissions, success rates, and moves.

#### New Admissions and End of Participation

New admissions and end of participation are related measures with a strong theoretical reason for driving per unit administrative costs. When a household leaves the program or the PHA receives a new allocation of vouchers, the PHA has to issue vouchers to new households in order to maintain its voucher utilization. Based on the amount of time that PHA's spend on intake, voucher issuance, and lease-up for households newly admitted to the program (see Section 4.2 above), as well as the time required to process exits and terminations (see Section 4.3 above), we would expect that higher rates of new admissions and higher rates of end of participation would both be associated with higher per unit costs.

We defined the new admissions rate as the number of new households admitted to the voucher program as a result of turnover (households leaving the program) or new allocations of vouchers in the year, divided by the number of vouchers under lease. We tested two new admission rate variables: the rate of new admissions in 2012 and the rate of new admissions in 2013. We included in our testing the 2012 new admissions rate because we believe it is more representative of the cost data collected than the 2013 new admissions rate. This is because many PHAs reduced their leasing substantially in 2013 in response to reduced HAP funding and reduced staffing as a result. Our study cost estimates include cost adjustments for staff reductions made in response to fee cuts and therefore likely may better approximate the level of staffing needed in 2012 rather than what was needed in 2013 when the new admissions rate was much lower.

In the base model with wage index and program size, the coefficient on the 2012 new admissions rate was positive (in the expected direction) but not statistically significant. The coefficient on the 2013 new admissions rate was negative but also not statistically significant. We retested the 2012 variable in the cost driver model, as shown in Exhibit 6-14. The coefficient remained positive and became statistically significant in the cost driver model, suggesting that the new admissions rate is a cost driver as originally expected. Based on this analysis, and the strength of the theoretical relationship between the rate of new admissions and program costs, we determined that the 2012 new admissions rate should be added to the final list of cost drivers and considered for inclusion in the proposed fee formula.

**Exhibit 6-14. Combined Cost Driver Model Plus New Admissions Variable (2012)**

| Explanatory Variable | Coefficients | Standard Error |
|---|---|---|
| Intercept | -64.348 | 26.712 |
| Wage index | 54.817*** | 7.783 |
| Program with 500 or fewer vouchers | 16.303*** | 2.860 |
| Urban PHA | 0.160*** | 0.058 |
| Small area rent ratio | 30.182 | 27.931 |
| Voucher holders more than 60 miles from PHA HQ | 0.939*** | 0.075 |
| Billed port-in share | 0.517** | 0.242 |
| Percent of households with earned income | 0.525*** | 0.171 |
| Time on expanding housing opportunities | 1.737*** | 0.424 |
| Time on intake | 0.486 | 2.067 |
| New admissions (2012) | 0.905** | 0.354 |
| R-Squared | 0.726 | n/a |

N=60 PHAs.

Notes: *** indicates significant at 1 percent level, ** at 5 percent level, and * at 10 percent level. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

We also tested two measures of end of participation: end of participations as a percentage of total vouchers under lease in 2013 and end of participations as a percentage of total vouchers under lease in 2012. Neither of these measures was statistically significant in the base model. We retested the 2012 variable in the cost driver model and in a near-final version of formula model, both on its own and with the new admissions variable, and found that it was not significant and the coefficient was negative, not in the expected direction. As a result, we concluded that the end of participation variable should not be included as a cost driver for consideration for the proposed fee formula.

### Success Rates

Admitting new households is costly for all PHAs but can be more or less costly depending on the voucher success rate—that is, the percent of households issued vouchers that actually lease-up. The voucher success rate has a strong theoretical reason for affecting costs. In order to maintain leasing, PHAs with lower success rates have to conduct more eligibility determinations and issue more vouchers than PHAs with higher success rates. We were not able to test voucher success rates as a cost driver for this study because reliable data on success rates were not available. HUD does not currently collect success rate data directly from all PHAs. The success rate can be calculated by

dividing the number of new admissions in a year by the number of vouchers issued in that year. Both new admissions and voucher issuances are captured in HUD's PIC system, but the data on voucher issuances does not appear to be reliable. For just under half of PHAs in our study sample, the PIC count of voucher issuances for 2013 was *lower* than the count of new admissions, resulting in success rates substantially in excess of 100 percent. Without reliable data on voucher issuances, we could not calculate a reliable success rate for all PHAs and test voucher success rate as a cost driver.

#### Moves

Higher rates of moves (also known as unit transfers) among a PHA's HCV participants would be expected to increase administrative costs, as there is work for the PHA associated with processing the move request and inspecting and approving the new unit. We obtained data from HUD on the total number of moves in 2013 for each of the PHAs in the study. The moves are defined using the addresses associated with the PIC transactions during the year for a given household—if there is a difference in the address from one transaction to the next it is defined as a move. Ported vouchers are excluded from this variable.

For each PHA we created a moves variable that is the number of moves divided by the number of vouchers under lease. In the base model with program size and wage index, the coefficient on the moves variable was negative (not positive as would be expected) but not statistically significant. In the cost driver model, the variable remained insignificant and maintained its negative coefficient. Given that the variable was not significant and the coefficient was not in the expected direction (one would expect a higher move rate to be associated with higher costs), we concluded that the move rate variable should not be included as a cost driver for consideration for the proposed fee formula

## 6.5 Conclusions from Cost Driver Analysis

The analysis of what drives per unit administrative costs is complicated because of the very large number of potential cost drivers, the wide variation in per unit costs across our study sites, the variation among the study sites in terms of PHA and program characteristics, and the small study sample relative to the analytic questions being posed. Based on the analysis we were able to conduct with the cost estimates produced for the 60 study PHAs and the data collected through the study on the characteristics of the PHAs, the markets they serve, and their program participants, we identified seven final cost drivers. Together, these seven cost drivers explain 63 percent of the observed variation in administrative cost per voucher.

### 6.5.1 Final Cost Drivers

Exhibit 6-15 presents the seven final cost drivers. The four strongest cost drivers were wage index, program with 500 or fewer vouchers, the percent of HCV participants living more than 60 miles from the PHA's headquarters, and percent of households with income from wages. Each of these cost drivers had a strong theoretical relationship to HCV administrative costs and was statistically significant, with coefficients in the expected direction, across many if not all of the regression models tested. In addition, the magnitudes of coefficients on the variables were reasonable and consistent with the findings of the time and cost study..

**Exhibit 6-15. Final Cost Drivers**

| Explanatory Variable | Relationship to per Unit Costs | Strong Theoretical Reason for Affecting Costs | Coefficient Sign in the Expected Direction | Significant in Most Regression Models |
|---|---|---|---|---|
| **Strongest Cost Drivers:** | | | | |
| Wage index | Higher local wages ➔ higher per unit costs | ✓ | ✓ | ✓ |
| Program with 500 or fewer vouchers | 500 or fewer vouchers ➔ higher per unit costs | ✓ | ✓ | ✓ |
| 60 miles[a] | A higher share of households living more than 60 miles from the PHA's headquarters ➔ higher per unit costs | ✓ | ✓ | ✓ |
| Percent of households with earned income[b] | A higher share of wage-earning households ➔ higher per unit costs | ✓ | ✓ | ✓ |
| **Additional Cost Drivers for Consideration in Fee Formula Model** | | | | |
| New admissions rate | Higher rate of new admissions ➔ higher per unit costs | ✓ | ✓ | |
| Small area rent ratio | A higher share of the HCV participants living in relatively high-rent areas ➔ higher per unit costs | ✓ | ✓ | |
| Health insurance cost index | Higher local health insurance costs ➔ higher per unit costs | ✓ | ✓ | |

[a] The share of households living more than 50 miles from the PHA's headquarters is also a significant cost driver but is highly correlated with the 60-mile variable.

[b] The share of family, large family, and disabled households are also significant cost drivers but are highly correlated with the percent of households with earned income variable.

The study team also concluded that three other variables should be considered for the proposed fee formula—new admissions, small area rent ratio, and health insurance cost index (Exhibit 6-16). These variables had a strong theoretical relationship to HCV administrative costs but were not consistently statistically significant in the regression models tested. The team concluded that it was worth considering these variables for the proposed fee formula because they capture important dimensions of PHA costs not addressed by the other four variables. The rate of new admissions, for example, has a very strong theoretical rationale for being a cost driver that is supported by the study's findings on the time that PHAs spend on intake. The small area rent ratio variable captures the local housing market conditions that PHAs are working under that we could not address through other variables such as vacancy rates, which produced counter-intuitive results in our modeling. Finally, the health insurance cost index offers a way of capturing the regional variation that we know exists in local benefits costs, which are an important component of PHA labor costs. The ECEC benefits index and the health insurance cost index worked similarly well in our cost driver models, but the health insurance cost index has the advantage of allowing for greater local variation, as it is measured at the state level rather than the census division level.

### 6.5.2 Variables Excluded from Final Set of Cost Drivers

Three variables that were statistically significant in one or more versions of the models but not included in the final set of cost drivers in Exhibit 6-16 are urban PHA, time on expanding housing opportunities, and billed port-in share.

#### Urban PHA

The urban PHA variable (the percentage of the overall population in the PHA's jurisdiction living in urban areas) was statistically significant only in the cost driver model that included new admissions (see Exhibit 6-15). In addition, the fact that the percentage of the HCV population living in urban areas (the urban HCV variable) was negatively associated with cost raised questions about what aspects of HCV administrative costs the urban PHA variable was picking up (see discussion in Section 6.4.3 above).

#### Expanding Housing Opportunities

We concluded that time on expanding housing opportunities was not a reliable cost driver for several reasons. First, we observed very little time spent on expanding housing opportunities in the time study. Among the 43 PHAs serving metropolitan jurisdictions to which the variable applies, only 23 recorded time on expanding housing opportunities during the eight-week RMS period. Among those PHAs that recorded any time on expanding housing opportunities, the median time spent on expanding housing opportunities during the eight-week period was 48 minutes, and the average time was 228 minutes, including one PHA that recorded nearly 30 hours of time on expanding housing opportunities. For 21 of the 23 PHAs, the time spent on expanding housing opportunities represents less than one percent of the overall time spent on the HCV program during the eight-week period, and for the other two PHAs it represents one percent of the overall time spent on the HCV program. The small amount of time recorded for expanding housing opportunities likely reflects the severe funding constraints that PHAs were operating under during the data collection period. The PHAs in the study reported that they did not have the resources to invest substantial staff time in expanding housing opportunities even though they valued these activities.

While the cost driver analysis found that the time spent on Expanding Housing Opportunities was a significant cost driver with a very large coefficient, it does not make sense that it is, in reality, a significant cost driver since it accounts for less than one percent of PHAs' time on the HCV program. The coefficient is 1.298 for the combined cost driver model shown in Exhibit 6-8. A coefficient of 1.298 suggests that for every additional minute spent on expanding housing opportunities, per unit administrative costs for the whole program increase by approximately $1.30 per unit month. This does not make sense, given the small amount of time spent on expanding housing opportunities. Thus, it is likely that the expanding housing opportunities variable is picking up some other factor that is not being captured by any of the other variables in the model. Given the inconsistency with the time study findings, we do not consider time spent on expanding housing opportunities to be a reliable cost driver.

Another consideration is that the study did not collect data on *outcomes* related to expanding housing opportunities—that is, whether those PHAs that recorded more time on expanding housing opportunities activities during the RMS period actually had better outcomes than other PHAs, such as more HCV households living in opportunity neighborhoods. The small area rent ratio variable, which captures the extent to which HCV households live in relatively expensive areas, may be a better

measure of PHA outcomes regarding the locational distribution of HCV participants and the costs associated with helping participants to lease up in such areas.

#### Billed Port-In Share

We concluded that billed port-in share is not a reliable cost driver for reasons similar to those that led us to our conclusion on expanding housing opportunities. Unlike expanding housing opportunities, billed port-in share was not consistently significant across the regression models tested, but it was significant in models that included the new admissions rate (see Exhibit 6-15). The problem with the variable is that the magnitude of its coefficient in the regression models is very large—0.517 in the model in which it is statistically significant. A coefficient of 0.517 suggests that for every percentage point increase in billed port-ins as a share of total vouchers under lease, per unit costs increase by $0.52 cents per unit month, or $6.24 per year. This means that, if a PHA's cost is $70.00 per unit month, and the PHA's billed port-ins as a percent of total vouchers under lease increases from 2 percent to 3 percent, the new predicted cost would be $76.24, a 9 percent increase.

The large coefficient on the billed port-in share is not consistent with the findings of the time study, which found that on average, work on port-ins represented about 2 percent of the total frontline time spent on the HCV program. Total frontline staff time on the HCV program averaged 13.8 hours or 828 minutes per voucher per year (Exhibit 4-4), while frontline staff time on port-ins averaged 13 minutes per voucher per year (Exhibit 4-6). The study PHAs spent, on average, about two more hours per year working with port-in households than non-ported households. However, for 50 of the 60 study sites, billed port-ins were less than five percent of the vouchers under lease, including 13 PHAs with no billed port-ins.

### 6.5.3 Transitioning from the Cost Driver Analysis to the Proposed Fee Formula

The cost driver analysis presented in this chapter provides the empirical basis for the proposed fee formula discussed in Chapter 7. The proposed fee formula is based on the seven of the final cost driver variables identified in Exhibit 6-16 but includes modifications to the model's implementation to avoid creating unintended incentives for PHAs and to ensure that the level of funding for PHAs is as predictable as possible from year to year.

# 7. Administrative Fee Formula Options

One of the most important outcomes of this study is the development of a proposed formula for allocating HCV administrative fees. The team used the following criteria to guide the formula development work:

- The formula should be consistent with the findings of the time measurement, cost study, and cost driver analysis.
- The elements that comprise the formula and how they affect administrative costs should have a sound theoretical basis.
- The formula should be based on data that are available for all PHAs through HUD's data systems or publicly available datasets.
- The formula should be understandable to a wide range of readers and stakeholders.
- The final implemented formula should be predictable from year to year to allow for PHA planning.
- The final implemented formula should consider a phase-in plan or provisions for protecting PHAs against changes from their current level of funding that could potentially jeopardize high-performing and efficient administration of the program.

Based on these criteria and careful analysis of the study's time and cost findings, the team developed the proposed fee formula that is explained in detail in this chapter. The chapter begins by discussing the cost basis and the voucher count basis for the formula. We then discuss the components of the proposed formula, how well the proposed formula predicts costs for the 60 study sites, and how the proposed formula would be implemented. The chapter then provides an estimate for the total administrative cost of the HCV program using the proposed formula and analyzes the impact of the proposed formula on PHAs of different sizes and in different parts of the country. The chapter ends with a discussion of how the new formula might be phased in and options for updating the formula over time.

## 7.1 Description of Proposed Fee Formula

This section provides a detailed description of the proposed fee formula: the cost basis for the formula, the voucher count that will be used to reimburse PHAs, and the components of the formula. The proposed formula is different from the existing fee formula in that each PHA's fee is determined by a combination of seven variables instead of by the FMR adjusted for inflation. The proposed formula also eliminates billing for the administration of ported vouchers and provides the PHA its full fee for port-in vouchers administered on another PHA's behalf and 20 percent of its fee for port-out vouchers administered by another PHA.

### 7.1.1 Cost Basis for Proposed Fee Formula

The proposed fee formula calculates, on an annual basis, the administrative fee that each PHA receives per unit month leased. The formula takes as its starting point the **average cost per unit month leased** calculated by the study based on the 60 PHAs. As discussed in Chapter 3, this cost per unit month leased is defined as follows:

**Total HCV Administrative Costs**

**÷**

**Unit months leased (including special vouchers) + Unit months leased for billed port-ins –**

**Unit months leased for billed port-outs**

The cost per voucher thus represents the administrative costs that a PHA incurs for all the vouchers that it administers—including the port-in vouchers that it administers on behalf of other PHAs but excluding the port-out vouchers that other PHAs administer on its behalf.

Although the cost is calculated as a cost per voucher under lease, including port-ins and excluding port-outs, the estimate of total HCV administrative cost includes costs associated with vouchers that do not ultimately lease-up and with vouchers that port-out and end up getting absorbed by another PHA. Among the costs included in the total administrative cost are waiting list and eligibility activities and housing search costs associated with households that are unsuccessful in leasing their vouchers. Also included are the costs associated with processing port-outs. Exhibit 7-1 shows the frontline labor (wages and benefits), frontline non-labor, and overhead costs associated with HCV administrative activities and included in the main fee formula calculation.

**Exhibit 7-1. Summary of Activities and Costs Included in Administrative Cost per Unit Month Leased**

| Cost Category | Costs and Activities Included |
|---|---|
| Frontline labor | • Waiting list activities<br>• Intake, eligibility, and lease-up<br>• Ongoing occupancy<br>• Inspections<br>• Supportive services<br>• Monitoring and supervisory activities<br>• Portability processing<br>• Customer service<br>• Community and owner relations<br>• Staff meetings<br>• Training |
| Frontline non-labor | • Building costs (rent or mortgage, utilities, maintenance, security)<br>• Computer and telecommunications costs<br>• Office supplies, postage, travel, and miscellaneous costs<br>• Audit, legal, and other services and fees<br>• Memberships and training costs<br>• Administrative contracts (e.g., inspections contracts) and other types of contracts<br>• Insurance<br>• Vehicles and mileage reimbursement<br>• Capital outlays (depreciation costs)<br>• Costs for services provided by or rendered to other entities |
| Overhead labor and non-labor | • PHA overhead functions (e.g., upper management, IT, legal, accounting) that indirectly support the HCV program. |

### Costs Associated with Portability

In the course of developing and testing the proposed fee formula, the study team determined that compensation for the costs associated with billing PHAs for port-out vouchers that are not absorbed should be provided as a supplement to the formula-generated fee. Under the proposed formula, as discussed in the next section, PHAs earn full administrative fees for their own non-ported vouchers under lease and for any port-in vouchers they administer on behalf of other PHAs (billed port-ins). They earn an additional 20 percent of their own administrative fee amount for any vouchers that port-out and are administered by other PHAs under a billing arrangement.

The fee formula generates a fee for each PHA based on the cost of administering its own vouchers and port-in vouchers on behalf of other PHAs. For the purposes of creating the formula, we excluded from each PHA's base all costs associated with processing billed port-out vouchers, because these costs are covered through the supplemental 20 percent fee on billed port-outs.[67]

[67] Based on the time data for the study, we estimated that PHAs spent an average of 23.6 minutes per billed port out voucher during the eight-week RMS period on billing and other activities related to port-out vouchers being administered by another PHA (see discussion in Section 4.3.3). To exclude costs associated with ongoing billed port-outs from the cost estimates, we calculated the time that each PHA spent on billed

The first row of Exhibit 7-2 shows the distribution of cost per voucher with all costs included, which was used for the cost and cost driver analyses in Chapters 5 and 6. The second row of Exhibit 7-2 shows the distribution of cost per voucher excluding costs associated with ongoing billing for port-outs excluded. The regression model on which the fee formula is based uses the cost per voucher excluding port-out billing costs as the independent variable.

**Exhibit 7-2. Cost per Voucher Under Lease per Month (CY 2013), All Costs and All Costs Except Port-Out Billing Costs**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. | 95% CI |
|---|---|---|---|---|---|---|---|
| All costs | $42.06 | $58.04 | $64.84 | $70.03 | $83.85 | $108.87 | $65.11-$74.95 |
| All costs except port-out billing costs | $42.04 | $57.87 | $64.56 | $69.68 | $83.51 | $108.64 | $64.80-$74.57 |

N=60 PHAs. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

Source: Cost data collection.

### 7.1.2 Voucher Count Basis for Proposed Fee Formula

As discussed above, the formula is based on a cost per unit month leased, including port-in vouchers billed and excluding port-out vouchers billed. Thus, the proposed fee formula would apply to that same voucher count: non-ported vouchers under lease + port-in vouchers billed - port-out vouchers billed. This is different from the existing administrative fee, which is applied to non-ported vouchers under lease + port-out vouchers billed and not to port-in vouchers billed. Under the existing fee formula, a PHA that administers port-in vouchers on behalf of another PHA receives 80 percent of the issuing PHA's fee. Likewise, the issuing PHA retains 20 percent of its fee for vouchers that port out of its jurisdiction and are administered (but not absorbed) by other PHAs.

Under the proposed fee formula, the PHA would receive 100 percent of its administrative fee for the port-in vouchers that it administers on behalf of another PHA for as long as it administers those vouchers. The PHA would also receive 100 percent of its administrative fee for its own (non-ported) vouchers under lease. The PHA would not receive any fee through the formula for vouchers that port out of its jurisdiction and are administered (but not absorbed) by another PHA. However, the PHA would receive a supplemental fee equal to 20 percent of its fee for those billed port-outs (see description of port-out fees in Section 7.3.5). Exhibit 7-3 shows how the existing fee formula and the proposed fee formula treat different types of vouchers. The shaded rows highlight where the proposed formula differs from the existing formula.

port-outs and translated this into a fully loaded cost (direct labor plus non-labor plus overhead) following our standard methodology, then subtracted the cost from the total program cost. Total program cost still includes costs associated with initial port-out processing—that is, setting up the port-out and assisting the household before the voucher starts being administered by the receiving PHA.

**Exhibit 7-3. Key Differences in Voucher Count Basis Between Existing Formula and Proposed Administrative Fee Formula**

| Type of Voucher | Existing Formula | Proposed Formula |
|---|---|---|
| PHA's own vouchers under lease within the PHA's own jurisdiction (non-ported vouchers under lease) | • Included in the base for calculating the PHA's administrative fee revenue.<br>• PHA receives 100% of the fee. | • Same as existing formula. |
| Port-in vouchers that the PHA absorbs | • Once absorbed, these vouchers are included in the base for calculating the receiving PHA's administrative fee revenue.<br>• Once absorbed, the PHA receives 100% of the fee. | • Same as existing formula. |
| Port-in vouchers that the PHA administers on behalf of another PHA (billed port-in vouchers) | • The receiving PHA receives 80% of the administrative fee at the issuing PHA's fee rate. | • The receiving PHA receives 100% of the administrative fee at the receiving PHA's fee rate. |
| Port-out vouchers that get absorbed by the receiving PHA | • The issuing PHA earns no fee revenue on these vouchers once they are absorbed.<br>• Once absorbed, these vouchers are included in the base for calculating the receiving PHA's administrative fee revenue. | • Same as existing formula. |
| Port-out vouchers that are administered (but not absorbed) by the receiving PHA | • Included in the base for calculating the issuing PHA's administrative fee revenue.<br>• Issuing PHA retains 20 percent of the fee and sends 80 percent of its fee to the receiving PHA. | • Excluded from the base for calculating the issuing PHA's administrative fee revenue.<br>• Included in the base for calculating the receiving PHA's administrative fee revenue.<br>• The issuing PHA receives a supplemental fee per billed port-out that is equal to 20 percent of its administrative fee. |

### 7.1.3 Overview of the Fee Formula Model

The proposed administrative fee formula is based on a regression model with the following seven variables:

- **Program size:** the number of vouchers under lease, including port-ins and excluding port-outs. The formula has three size categories: 250 vouchers or fewer under lease, 251 to 749 vouchers under lease, and 750 vouchers or more under lease
- **Wage index:** the statewide average metropolitan or non-metropolitan wage rate for local government workers in the PHA's state, compared to the national average wage rate for local government workers[68]
- **Health insurance cost index:** the cost of health insurance in the PHA's state compared to the national average cost of health insurance
- **Earned income share:** the percentage of the HCV households served by the PHA that have any income from earnings
- **New admissions rate:** the percentage of total households served that are new admissions to the PHA's HCV program ad
- **Small area rent ratio:** a measure of how the average rents in the zip codes where a PHA's voucher participants live compare to the average rents for the overall area
- **60 miles:** the percentage of HCV households served by the PHA that live more than 60 miles away from the PHA's headquarters.

Each of these seven variables has a theoretical and an empirical basis for affecting administrative costs. The process for identifying the cost drivers that should be included in the proposed fee formula is described in detail in Chapter 6. Exhibit 7-4 summarizes the seven variables and the rationale for their inclusion.

[68] If the PHA's headquarters is located in a metropolitan county, the PHA is assigned the average local government wage for the metropolitan counties in the PHA's state. If the PHA's headquarters is in a non-metropolitan county, the PHA is assigned the average local government wage for the non-metropolitan counties in the PHA's state.

**Exhibit 7-4. Summary of Fee Formula Variables**

| Variable Name | Explanation | Data Source[a] | Relationship to Administrative Costs | Supporting Evidence |
|---|---|---|---|---|
| Program size | The formula has three size categories—250 or fewer vouchers under lease, 251 to 749 vouchers under lease, and 750 or more vouchers under lease. | Average vouchers under lease from HUD VMS data (total unit months leased + port ins - port outs, divided by 12). | Large programs have lower per voucher administrative costs since for many tasks, such as waiting list management, the marginal cost of doing the task for one extra voucher is small. | ❖ Significant in cost driver model.<br>❖ Correlation between program size and time per voucher. |
| Wage index | The ratio of the local wages for local government employees to the national average. | Index created from the BLS QCEW, Annual Wage Data on Local Government Employees, and HUD geocoded data for county in which PHA main office is located. | The wage rates paid to HCV staff are based in part on the prevailing wage in the area where the PHA is located. PHAs operating in markets with higher than average prevailing wages will have higher administrative costs. | ❖ Significant in cost driver model.<br>❖ Strong correlation between wage index and wages in study sites. |
| Health insurance cost index | The ratio of the average health insurance cost for employers in the state in which the PHA is located to the national average health insurance cost. | Index created from the HHS Medical Expenditure Panel Survey. | Benefits costs are a substantial component of labor costs for the HCV program. The benefits costs facing a PHA are related to the costs of health insurance in the state where the PHA is located. | ❖ Positive coefficient in cost driver model, though not statistically significant. |
| Percent of households with earned income | The percent of the PHA's voucher households with income from wages. | HUD PIC count of the number of households, served during the year, that have any wage income, divided by total number of vouchers under lease. | Income certification and recertification is more complex for households with income from wages, increasing administrative costs. Analysis of PIC data shows that PHAs conduct more interim recertifications for family households than for elderly or disabled households. There is substantial overlap between households with earned income and family households. | ❖ Significant in cost driver model.<br>❖ Time study found that PHAs spent twice as long on recertifications for family households compared to elderly and disabled households. |

| Variable Name | Explanation | Data Source[a] | Relationship to Administrative Costs | Supporting Evidence |
|---|---|---|---|---|
| New admissions rate | The percent of total households served that are new admissions to the PHA's HCV program | HUD PIC count of households admitted to the program during the year divided by total number of vouchers under lease (2012 data). | The intake and lease-up work associated with admitting new households to the program increases administrative costs. | ❖ Time study found that activities related to bringing vouchers under lease is the second most time consuming aspect of program administration after ongoing occupancy activities. |
| Small area rent ratio | A measure of how the average rents in the area where a PHA's voucher participants live compare to the average rents for the overall area[b] | HUD PIC data on HCV participant addresses geocoded to small area FMR data. Excludes billed port-ins and port-outs. | PHAs that have a higher share of program participants living in relatively high cost areas may have higher costs associated with serving those participants. | ❖ Significant in cost driver model. |
| 60 miles | Percent of voucher holders living more than 60 miles from PHA headquarters | HUD PIC data on HCV and PHA headquarters addresses. Excludes billed port-ins and port-outs. | PHAs that serve large geographic areas have higher costs because inspectors have to cover larger distances and/or the PHA has to establish branch offices. | ❖ Significant in cost driver model. |

[a] Unless otherwise noted, data are from 2013.

[b] For PHAs in metropolitan counties, the small area rent ratio is calculated as the median gross rent for the zip codes where voucher holders live, weighted by the share of voucher holders in each zip code, divided by the median gross rent for the metropolitan area. For PHAs in non-metropolitan counties, the small area rent ratio is calculated as the unadjusted two-bedroom FMR for the non-metropolitan counties where the PHA operates divided by the published FMR.

The proposed fee formula is based on a regression model that shows how the seven variables affect per unit HCV administrative costs. The regression model is defined as

$$CPVM_i = \alpha + \beta_1 * Size_i + \beta_2 * WageIndex_i + \beta_3 * HealthIndex_i + \beta_4 * EarnedIncome_i + \beta_5 * NewAdmissions_i + \beta_6 * SmallAreaRent_i + \beta_7 * 60Miles_i + \varepsilon_i$$

Where:

$CPVM_i$ = Administrative costs per voucher unit month for $PHA_i$;

$\alpha$ = Intercept for the regression model.

$\beta_1$ = Coefficient on the program size variable (Size).

$\beta_2$ = Coefficient on the wage index variable (WageIndex).

$\beta_3$ = Coefficient on the health insurance cost index variable (HealthIndex).

$\beta_4$ = Coefficient on the percent of households with earned income variable (EarnedIncome).

$\beta_5$ = Coefficient on the new admissions rate variable (NewAdmissions).

$\beta_6$ = Coefficient on the small area rent ratio variable (SmallAreaRent).

$\beta_7$ = Coefficient on the 60 miles variable (60Miles).

$\varepsilon$ = The unexplained residual (or error term).

The model is an ordinary least squares (OLS) regression, which is a statistical technique that attempts to find the linear fit that best approximates the data. OLS regressions have a dependent variable—the variable the model is trying to explain—and independent or explanatory variables.

The dependent variable in the regression model is administrative cost per UML. The independent variables are the seven variables shown in Exhibit 7-4 and described in more detail below.

Exhibit 7-5 presents the specifications of the regression model. As shown in the first row, the intercept for the model is -117.45, which means that each PHA starts out with approximately a negative $117.45 fee per UML. (This does not make a lot of intuitive sense but is part of the regression model. It means that if all the other variables were zero, the predicted cost per UML would be -$117.45. However, that would not happen in practice, because several of the variables could never be zero.)

Each variable in the model has a positive coefficient. The coefficients show how the fee per unit month leased would increase with an increase in the value of the variable relative to the average for that variable observed across the study sites. Further interpretation of the coefficients for each variable is provided below in the discussion of each variable.

The standard error on the coefficient indicates the precision of the coefficient estimate. The smaller the standard error, the more precise the estimate. The confidence that the coefficient estimate is statistically different from zero is indicated by the p-value, which is derived from the standard error and the size of the estimate. The p-value is the probability that the regression estimate from the sample would be that size if there were no relationship between the dependent variable (the costs per voucher month) and the explanatory variable (cost driver). The lower the p-value, the more confident

we are that the sample is capturing a true relationship (i.e., a relationship that would exist if we had data on the entire population). P-values of less than 0.10 are considered statistically significant and are marked by a single asterisk indicating statistical significance at the 10 percent level. Coefficient estimates with even smaller p-values are marked by two asterisks if significant at the 5 percent level (p-value less than .05) and three asterisks if significant at the 1 percent level (p-value less than .01). With higher p-values we have less statistical confidence in estimated relationship to costs but (as described below) there may be valid reasons to retain the variable in the regression model.

The last column of Exhibit 7-5 shows how the fee per unit month leased changes with a one-standard-deviation change in the explanatory variable. This calculation is the coefficient estimate multiplied by the standard deviation of the variable (a measure of how spread out the value of this variable is across PHAs). The larger the coefficient and the larger the standard deviation, the larger the effect that input variable has on differentiating fees across PHAs. The results show that the wage index has the largest effect on differentiating costs and thus fees across PHAs: a one-standard-deviation difference in the wage index results in a $10 per unit change in the fee. The other two variables with the largest effect on the fee are the percent of households with earned income and a program size—a one-standard-deviation difference in these variables changes the fee per unit by $7.27 and $6.61.

The R-squared for the model is 0.65, which means that the model explains 65 percent of the observed variation in administrative costs per UML across the 60 sites.[69] This is a higher R-squared than we expected given the wide variety of factors that could potentially affect HCV administrative costs, even though it does leave 35 percent of the observed variation in costs unexplained.

[69] The R-squared on the proposed formula model (0.65) is higher than the R-squared for the cost driver model discussed in Chapter 6 (0.63) because the proposed formula model defines the program size variable differently, as explained further in Section 7.1.4.

**Exhibit 7-5. Proposed Fee Formula Model**

| Variable | Coefficient Estimate | Standard Error on Coefficient Estimate | p-value | Range of Values | Unit of Measurement | Standard Deviation of Variable | Relative Impact of Formula Variables[a] |
|---|---|---|---|---|---|---|---|
| Intercept | -117.45 | 39.62 | 0.0044*** | | $ per UML | | |
| Program size | 15.82 | 4.13 | 0.0003*** | 0 to 1 | For PHAs with 250 vouchers or fewer, value is 1. For PHAs with 251 to 749 vouchers, value is [1-(number of units under lease-250)/500]. For PHAs with 750 vouchers or more, value is 0. | 0.42 | 6.61 |
| Wage index | 51.51 | 11.66 | <.0001*** | 0.63 to 1.31 | Ratio of the state metropolitan or non-metropolitan average wage rate to national average wage rate | 0.19 | 10.00 |
| Health insurance cost index | 27.06 | 18.91 | 0.1577 | 0.86 to 1.18 | Ratio of local health insurance cost to national average health insurance cost | 0.08 | 2.21 |
| Percent of households with earned income | 0.93 | 0.21 | <.0001*** | 15.58 to 56.11 | Percent (households with wage income/total households served) | 7.83 | 7.27 |
| New admissions rate | 0.53 | 0.38 | 0.1693 | 1.67 to 26.92 | Percent (new admissions/total households served) | 6.54 | 3.45 |
| Small area rent ratio | 65.09 | 37.65 | 0.0891* | 0.93 to 1.14 | Ratio of small area rent level to metro or state average rent level | 0.04 | 2.54 |
| 60 miles | 1.02 | 0.08 | <.0001*** | 0 to 48.85 | Percent of voucher holders that live more than 60 miles away from the PHA HQ | 5.23 | 5.32 |
| **R-squared** | **0.65** | | | | | | |

N=60 PHAs.

[a] Effect of one standard deviation change in formula variable on estimated costs per unit month. For example, if the wage index increases by one standard deviation (0.19), costs per unit month will increase by $10.00.

Notes: *** indicates significant at 1 percent level, ** at 5 percent level, and * at 10 percent level. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

### 7.1.4 Fee Formula Variables

**Program Size**

The study identified HCV program size as a significant driver of administrative costs, with per unit costs decreasing as the number of vouchers under lease increases. As discussed in the cost driver analysis in Chapter 6, the program size that marks the point where per unit administrative costs begin to decrease significantly is 500 vouchers under lease. In other words, our cost regression models consistently found that programs with more than 500 vouchers under lease had significantly lower per unit costs than programs with 500 vouchers or fewer.

The findings of the cost driver analysis are consistent with the theory that there are economies of scale in the HCV program, which means that the marginal cost of serving one additional household decreases with the number of households served. The findings of the cost driver analysis are also consistent with the time measurement study, where we found a weak negative correlation between PHA staff time per voucher and voucher program size, meaning that PHA staff spent somewhat less time per voucher on frontline activities in larger programs compared to smaller programs. That the correlation between frontline staff time and program size was weak, albeit in the expected direction, while program size registered strongly in the cost driver analysis, suggests that the economies of scale come primarily from overhead costs and non-labor cost such as office space and equipment, rather than from frontline labor costs.

If we were to define the program size coefficient in the fee formula model as it was done for the cost driver model in Chapter 6—that is, as a binary variable where PHAs with 500 vouchers or fewer are assigned a value of 1 and PHAs with more than 500 vouchers are assigned a value of 0—the resulting formula would produce a cliff effect, meaning a sudden drop-off in per unit fees for PHAs with more than 500 vouchers. The cliff effect occurs because the program size variable as defined in the cost driver model is a simple on/off variable that is "on" for PHAs with 500 or fewer vouchers and "off" for PHAs with 501 or more vouchers. For example, a PHA with 499 vouchers would receive approximately $12.38 more per voucher month than an otherwise similar PHA with 501 vouchers. Having a cliff such as this one does not make sense for a formula and would provide an unproductive incentive for PHAs with only a few more than 500 vouchers under lease to reduce the number of vouchers under lease to below 500. Moreover, even if no PHA sought to reduce its voucher total to increase its fees, the cliff effect would make it appear that PHAs of similar sizes were being treated unfairly.

To reduce the cliff effect, the fee formula model defines program size differently, gradually reducing the amount of fee added for different voucher program sizes rather than sharply reducing the fee when the voucher program size reaches 501. The formula's program size coefficient is defined as follows:

- PHAs with 250 vouchers or fewer are assigned a value of 1 and received the full $15.82 in additional fee, which is the value of the coefficient.
- PHAs with 251 vouchers to 749 vouchers receive additional fee that is equal to: $15.82 (the size coefficient) x (1 – [(number of units under lease – 250) / 500]).
- PHAs with 750 vouchers or more under lease are assigned a value of 0 and receive no additional fee.

Put differently, as program size increases from 250 to 750 vouchers, the percentage of the fee added to compensate for the extra costs of administering a small program decreases from 100 percent at 250 vouchers to 0 percent at 750 vouchers. With this formula, a program with 400 vouchers would receive 70 percent of the fee associated with having a program size of less than 500 vouchers, and a program with 600 vouchers would receive 30 percent of the fee associated with having a program size of less than 500 vouchers.

We tested five alternative ranges over which to spread the additional fee: 100 to 900 vouchers, 150 to 180 vouchers, 200 to 800 vouchers, 300 to 700 vouchers, and 350 to 650 vouchers. These alternatives performed very similarly to the 250 to 750 range selected for the formula. The R-squared for the models that used 100 to 900 vouchers, 150 to 180 vouchers, and 200 to 800 vouchers was 0.64. For the other size ranges, including 250 to 750, the R-squared was 0.65. Across the different size ranges, the cliff effect—that is, the reduction in fee for a PHA at the top of the size range—was very small, ranging from $0.023 per UML for the model using the 100 to 900 voucher size to $0.051 per UML for the model using the 350 to 650 size range. The 250 to 750 size range used in the proposed fee formula model had the smallest cliff effect among the options that produced the higher R-squared.

### Wage Index

The wage index is a geographic index of local government wages constructed from data collected through the Bureau of Labor Statistics Quarterly Census of Employment and Wages. The index captures how local government wages vary by local market.

Each PHA is assigned a wage index value based on the state in which the PHA is located and whether the PHA's headquarters are in a county that is designated metropolitan by the 2010 Census. For PHAs in metropolitan areas, the wage index is the average local government wage rate for metropolitan areas in the state in which the PHA is located divided by the national average local government wage rate. For PHAs in non-metropolitan areas, the wage index is the average local government wage rate for non-metropolitan areas in the state in which the PHA is located divided by the national average local government wage rate.[70]

Our analysis of cost drivers showed that the wage index is a statistically significant and positive driver of per unit administrative costs. This means that PHAs with higher local wages relative to the national average have higher per unit administrative costs, and PHAs with lower local wages relative to the national average have lower per unit administrative costs. This is consistent with the theory that PHA staff are paid at different wage rates based on the prevailing wage in the part of the country in which the PHA is located, which means that PHAs operating in markets with higher than average prevailing wages will have higher administrative costs.

In the proposed fee formula model, the coefficient on the wage index variable is 51.51, meaning that for every increase or decrease in the wage index by 0.1, the PHA's fee increases or decreases by $5.15 per unit month leased. The value for the wage index variable ranged from 0.63 to 1.31 in the study sample.

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[70] As discussed in Chapter 6 (Section 6.2.1), QCEW data on local government wages rates at the MSA and county level are either not consistently available or subject to more volatility, so we were not able to create a more localized wage index.

### Health Insurance Cost Index

The health insurance cost index is a geographic index of local health insurance costs constructed from data collected through the Department of Health and Human Services (HHS) Medical Expenditure Panel Survey. The health insurance cost index measures the relative cost of health insurance at the state level. Each PHA is assigned a health insurance cost index value based on the state in which it is located. The index is a proxy for how the cost of benefits—of which medical insurance is a key component—would vary across PHAs depending on their location.[71]

The analysis of cost drivers showed that the health insurance cost index was a statistically significant and positive driver of per unit administrative costs when program size and local wage rates are controlled for. When included in the formula model with more explanatory variables, the coefficient on the health insurance index is no longer statistically significant but remains positive, indicating that PHAs with high health insurance costs relative to the national average likely have higher per unit administrative costs. This is consistent with the theory that the cost of the benefits that PHAs pay on employees' behalf reflects to some extent the costs of health insurance in the region.

In the proposed fee formula model, the coefficient on the health insurance cost index variable is 27.06, meaning that for every increase or decrease in the wage index by 0.1, the PHA's fee increases or decreases by $2.71 per unit month leased. The value for the health insurance cost index variable ranged from 0.86 to 1.18 in the study sample.

### Percent of Households with Earned Income

This variable is defined as the share (percentage) of the PHA's voucher households with income from wages, where the PHA's voucher households are defined as vouchers under lease plus port-in vouchers administered by the PHA minus port-out vouchers administered by other PHAs. The cost driver analysis in Chapter 6 found that the share of an agency's households with earned income is significantly and positively associated with administrative costs. In other words, per unit administrative costs increase as the share of households with earned income increases. This is likely due to the extra work required to verify wage income as compared to income from public benefits.

The share of family households, hard-to-house families (those with three or more minors), and large families (six or more members) were also significantly and positively associated with per unit administrative costs when included on their own in the initial cost driver model.[72] However, as discussed in Chapter 6, the household variables were highly correlated. The majority of family households have earned income, so there is substantial overlap between family households and households with earned income. Because of this overlap, when we put the family size and earned income variables together in the fee formula model, family size was no longer significant.

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[71] See Chapter 6 for further discussion of the health insurance cost index and alternatives for measuring geographic variation in benefits costs.

[72] The share of households headed by a non-elderly disabled person and the share of households with one or more disabled members were significantly and *negatively* associated with per unit administrative costs when included on their own in the initial cost driver model. In other words, the study found that the higher the share of households with a non-elderly disabled head or disabled members, the lower the per unit administrative cost for the agency, despite the work involved in calculating medical and disability deductions for these households.

In addition to the extra work required to verify wage income, another reason that the percent of wage earning households is a cost driver is that family households (highly-correlated with wage earning households), are substantially more likely to receive interim reexaminations than non-family households (see discussion in Chapter 4, Section 4.7). Interim recertifications represent extra work for the PHA, adding to administrative costs.

In the proposed fee formula model, the coefficient on the earned income variable is 0.93, meaning that for every percentage point increase or decrease (e.g., from 15.58 to 16.58 percent), the PHA's fee increases or decreases by $0.93 per unit month leased. The value for the earned income variable ranged from 15.58 to 56.11 in the study sample.

### New Admissions Rate

Every time a household loses or relinquishes its voucher or the PHA receives a new voucher allocation, the PHA has to undertake a number of activities to bring the voucher under lease with a new household. These activities include processing program applicants, issuing vouchers to eligible households, and assisting with the housing search process, and (for those households that are successful in finding housing) conducting inspections and entering into a HAP contract. The time data suggests that these activities are very time consuming on a per voucher issued basis.

We tested two measures of new admissions in the cost driver analysis: the rate of new admissions in 2012 and the rate of new admissions in 2013, where the rate of new admissions is defined as the number of new households admitted to the voucher program divided by the number of vouchers under lease (i.e., non-ported vouchers under lease plus port-ins). Households admitted to the program include those leasing vouchers that have turned over during the course of the year as well as those leasing vouchers that the PHA might have received in a new allocation or as a result of an absorbed port-in. Thus, the new admissions variable measures the overall level of turnover in the program, whether from turnover of existing vouchers or from new voucher allocations.

The cost driver analysis did not find that the new admissions rate was significantly associated with costs, and the coefficient is not significant in the proposed fee formula model. However, the team determined that the rate of new admissions has such a strong theoretical reason for affecting costs that it should be included as a component of the fee formula, even with less certainty about the size of the coefficient.

For the proposed formula, we used new admissions from 2012. We determined that the 2012 new admissions rate was more representative of the cost data collected than the 2013 new admissions rate because many PHAs reduced their leasing substantially in 2013 in response to reduced HAP funding, and they reduced staffing as a result. Our study cost estimates included cost adjustments for those staff reductions to approximate the level of staffing needed in 2012.

In the proposed fee formula model, the coefficient on the turnover variable is 0.53, meaning that for every percentage point increase or decrease (e.g., from 9.4 to 10.4 percent), the PHA's fee increases or decreases by $0.53 per unit month leased. The value for the turnover variable ranged from 1.67 to 26.92 in the study sample.

### Small Area Rent Ratio

The small area rent ratio describes the extent to which HCV participants are located in neighborhoods that are harder, or easier, to serve at payment standards set within the basic range of the official FMR.

For PHAs in metropolitan counties, the small area rent ratio is calculated as the median gross rent for the zip codes where voucher holders live, weighted by the share of voucher holders in each zip code, divided by the median gross rent for the metropolitan area. In metropolitan areas, where the small area rent ratio is the ratio of zip code median rent to metropolitan median rent, areas with a small area rent ratio larger than one are expected to have fewer units available below the metropolitan FMR than the 40 percent implied by the metropolitan FMR being set at the 40$^{th}$ percentile rent of the metropolitan area. PHAs with more of their voucher holders leasing up in zip codes with small area rent ratios larger than one have fewer units to choose from at a given payment standard than in zip codes with small area rent ratios smaller than one.

More voucher holders in zip codes with small area rent ratios larger than one increases costs as owners willing to accept vouchers are harder to find, more units available at or below the payment standard may fail inspection (as they are concentrated in the low end of the neighborhood rent distribution), and new voucher holders may need more guidance in finding suitable housing in unfamiliar neighborhoods. Conversely, more voucher holders in zip codes with small area rent ratios smaller than one decrease costs in that owners willing to accept vouchers will be easier to find, fewer units available at or below a given payment standard will fail inspection (as the selection includes a larger portion of the neighborhood rent distribution), and these neighborhoods are likely more familiar to new voucher holders.

For PHAs in non-metropolitan areas, data on gross rents by zip code are not available. For PHAs in non-metropolitan counties, the small area rent ratio is calculated as the unadjusted two-bedroom FMR for the non-metropolitan counties where the PHA operates divided by the published FMR. The small area rent ratio is usually equal to one as HUD does not measure any variation in rents within these non-metropolitan counties. However, there are counties where the FMR is set at the state minimum rather than the (lower) 40$^{th}$ percentile rent in the county. In these counties, the small area rent ratio is less than one, and PHAs operating in these jurisdictions should have lower costs in placing tenants for the reasons stated above.

As expected, the cost driver analysis found that the small area rent ratio is significantly and positively associated with administrative costs. In other words, per unit administrative costs increase as the small area rent ratio increases (i.e., the average rent in the areas where voucher holders live is higher than the metropolitan or non-metropolitan average).

In the proposed fee formula model, the coefficient on the small area rent ratio is 65.09, meaning that for every increase or decrease in the ratio by 0.1 (e.g., from 0.93 to 1.03), the PHA's fee increases or decreases by $6.51 per unit month leased. The value for the small area rent ratio variable ranged from 0.93 to 1.14 in the study sample.

### 60 Miles

The 60 miles variable is a measure of the size of the PHA's jurisdiction. The variable is defined as the percentage of voucher households under lease that live more than 60 miles from the PHA's headquarters. It is calculated by geocoding the addresses of individual voucher holders and the address of the PHA's headquarters and calculating the distance between each voucher holder and the PHA headquarters. Billed port-in and port-out households are excluded from the calculation.

As shown in Exhibit 7-6, 86 percent of PHAs have no voucher households living more than 60 miles from the PHA's headquarters, so this variable mainly affects a minority of PHAs with very large

jurisdictions and statewide PHAs. The cost driver analysis found that the percent of households living more than 60 miles from the PHA's headquarters is significantly and positively associated with administrative costs. In other words, administrative costs increase with the share of households living more than 60 miles from the PHA headquarters. The logic is that in larger PHAs inspectors have to drive long distances to conduct unit inspections or the PHA may have to devote resources to operating satellite offices.

**Exhibit 7-6. Percent of HCV Households Living More than 60 Miles From the PHA's Headquarters, All PHAs, CY 2013**

| | Percent of PHAs |
|---|---|
| No households living more than 60 miles from PHA HQ | 86% |
| 1% to 9% living more than 60 miles from PHA HQ | 12% |
| 10% to 29% living more than 60 miles from PHA HQ | 1% |
| 30% to 49% living more than 60 miles from PHA HQ | 1% |
| 50% or more living more than 60 miles from PHA HQ | 0% |
| **Total** | **100%** |

N=2,257 PHAs.

Source: Address data for HCV participants and PHA headquarters from HUD's PIC.

In the proposed fee formula model, the coefficient on the 60 miles variable is 1.02, meaning that for every percentage point increase or decrease (e.g., from 1 percent to 2 percent), the PHA's fee increases or decreases by $1.02 per unit month leased. The value for the 60 miles variable ranged from 0 to 48.9 in the study sample.

### 7.1.5 Treatment of Administrative Fee Reserves

The costs included in the proposed fee formula include annual capital outlays, based on a 10-year average of capital outlays for each PHA. Saving for periodic capital outlays is one of the reasons that PHAs, when possible, maintain administrative fee reserves. To that extent, the formula includes some funds for PHA reserves. There are, however, other reasons that PHAs set aside a portion of their administrative fees in reserve rather than spending all that they receive. For example, a PHA might choose to set aside a portion of its fees to cover unexpected increases in costs—such as an increase in the monthly cost of office space or unexpected insurance premium payments.

The proposed fee formula includes costs for capital outlays and other costs funded with fee reserves during the data collection period but not for other reserves that a PHA might determine that it needs to maintain operations in the face of unexpected costs or an interruption in the flow of income (for example, if there is a delay in receiving administrative fee funding from HUD). However, it is the study team's expectation that under the new fee system, as under the existing structure, PHAs will set their program budgets so that they are able to hold some administrative fee funding in reserve.

### 7.1.6 Comparison of the Proposed Fee Formula to the Existing Fee Formula

Exhibit 7-7 compares the components of the proposed fee formula to those of the existing fee formula. As the exhibit shows, the seven variables in the proposed fee formula cover a much broader range of cost drivers than the variables included in the existing fee formula. The existing fee formula

is based on each PHA's Fair Market Rent in 1993 or 1994, multiplied by an inflation rate calculated based on the difference between the local wage rate for local government workers in 1993 and in the year for which the fee is being calculated. In other words, the existing fee formula assumes that the local FMR is a good proxy for what it costs to administer the HCV program.

We ran a number of correlation analyses to determine which of the significant cost drivers identified through the study were also correlated with the 1993 FMR. We found a strong correlation between the 1993 FMR and three cost drivers: local wage rates (wage index variable), local health insurance costs (health insurance cost index variable), and the rate of new admissions.

Based on the results of these correlation analyses, one could argue that the existing formula indirectly captures some of the cost drivers in the proposed formula. However, the existing formula does not take into account other important cost drivers such as the size of the PHA's jurisdiction (the 60-mile variable) and the percent of households served with earned income. Moreover, the FMR is negatively correlated with the new admissions rate, suggesting that PHAs in higher FMR areas have fewer new admissions. Using only the FMR as the existing fee formula means that PHAs with lower FMRs receive lower fees while processing more new admissions, which adds cost. For these reasons, the proposed formula improves upon the existing formula in capturing the diverse factors that drive HCV administrative costs.

**Exhibit 7-7. Comparison of Components of Proposed Fee Formula and Existing Fee Formula**

| Existing Formula | Proposed Formula |
|---|---|
| • **1993 or 1994 FMR, adjusted for inflation:** indirect relationship to PHA office or building costs and possible correlation with labor and other cost factors that affect administrative costs. | • **Program size:** Large programs have lower per voucher administrative costs since for many tasks, such as waiting list management, the marginal cost of doing the task for one extra voucher is small.<br>• **Wage index:** The wage rates paid to HCV staff are based in part on the prevailing wage in the area where the PHA is located.<br>• **Health insurance cost index:** Benefits costs are a substantial component of labor costs for the HCV program. PHAs' benefits costs are related to the local cost of health insurance in the state where the PHA is located.<br>• **Percent of households with earned income:** Income certification and recertification is more complex for households with income from wages, increasing administrative costs.<br>• **New admissions rate:** The intake and lease up work associated with admitting new households to the program increases administrative costs.<br>• **Small area rent ratio:** PHAs that have a higher share of program participants living in relatively high cost areas may have higher costs associated with serving those participants.<br>• **60 miles:** PHAs that serve large geographic areas have higher costs because inspectors have to cover larger distances and/or the PHA has to establish branch offices. |

## 7.2 How Well Does the Proposed Formula Model Predict Actual Costs

There are several ways to assess how well the model works in predicting costs and therefore in setting fees. One way is to look at the R-squared value—that is, how much of the observed variation in administrative cost per voucher the formula explains. The R-squared for the proposed formula model is 0.65, meaning that the model explains 65 percent of the observed variation in cost.

Another way to assess the model is to analyze how well it predicts costs for the 60 study sites. For each PHA in the sample, we can compare actual administrative cost per UML (as measured by our study) with the administrative cost per UML that is predicted by the proposed formula.

Exhibit 7-8 compares the formula-predicted costs to actual costs by PHA, and Exhibit 7-9 compares the formula-predicted costs to actual costs by voucher. The exhibits are based on the 60 PHAs in the study, weighted to represent the sampling universe of high-performing PHAs.

The distribution of PHAs in Exhibit 7-8 suggests that, for 53 percent of the PHAs represented by the study sample, the proposed formula model predicts costs that are within 10 percent (plus or minus) of the actual costs measured through the study. The remaining PHAs are evenly split between those for which the formula predicts costs that are more than 10 percent higher than the costs measured through the study (24 percent) and PHAs for which the formula predicts costs that are more than 10 percent lower than the costs measured through the study (23 percent).

**Exhibit 7-8. Comparison of Model-Predicted Costs to Actual Costs, PHA Level**

| | Percent of PHAs |
|---|---|
| Predicted costs are more than 30% higher than actual costs | 9.7% |
| Predicted costs are 20% to 30% higher than actual costs[a] | 6.5% |
| Predicted costs are 10% to 20% higher than actual costs | 7.8% |
| Predicted costs are 5% to 10% higher than actual costs | 7.2% |
| Predicted costs are 1% to 5% higher than actual costs | 14.1% |
| Predicted costs are within 1% of actual costs than actual costs | 2.8% |
| Predicted costs are 1% to 5% lower than actual costs | 23.6% |
| Predicted costs are 5% to 10% lower than actual costs | 5.0% |
| Predicted costs are 10% to 20% lower than actual costs | 17.8% |
| Predicted costs are 20% to 30% lower than actual costs | 5.5% |
| Predicted costs are more than 30% lower than actual costs | 0.0% |
| ***Summary Statistics*** | |
| Predicted costs within 20% of actual costs | 78.3% |
| Predicted costs within 10% of actual costs | 52.7% |
| Predicted costs within 5% of actual costs | 40.5% |

N=923 high-performing PHAs represented by the 60 PHAs in the study. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

[a] Intervals are calculated as “more than 20% but less than or equal to 30%.”

The picture is similar when we look at the distribution by vouchers (Exhibit 7-9). The proposed formula model predicts costs that are within 10 percent (plus or minus) of the actual costs measured through the study for 50 percent of the vouchers administered by the PHAs represented by the study sample. The proposed formula predicts costs that are more than 10 percent higher than the costs measured through the study for 24 percent of vouchers under lease and predicts costs that are more than 10 percent lower than the costs measured through the study for 26 percent of the vouchers under lease.

**Exhibit 7-9. Comparison of Model-Predicted Costs to Actual Costs, Voucher Level**

| | Percent of Vouchers |
|---|---|
| Predicted costs are more than 30% higher than actual costs | 4.1% |
| Predicted costs are 20% to 30% higher than actual costs[a] | 7.1% |
| Predicted costs are 10% to 20% higher than actual costs | 13.2% |
| Predicted costs are 5% to 10% higher than actual costs | 3.2% |
| Predicted costs are 1% to 5% higher than actual costs | 17.8% |
| Predicted costs are within 1% of actual costs than actual costs | 8.4% |
| Predicted costs are 1% to 5% lower than actual costs | 19.1% |
| Predicted costs are 5% to 10% lower than actual costs | 1.2% |
| Predicted costs are 10% to 20% lower than actual costs | 6.3% |
| Predicted costs are 20% to 30% lower than actual costs | 19.5% |
| Predicted costs are more than 30% lower than actual costs | 0.0% |
| ***Summary Statistics*** | |
| Predicted costs within 20% of actual costs | 69.3% |
| Predicted costs within 10% of actual costs | 49.8% |
| Predicted costs within 5% of actual costs | 45.3% |

N=1,328,288 vouchers administered by the 923 high-performing PHAs represented by the 60 PHAs in the study. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

[a] Intervals are calculated as “more than 20% but less than or equal to 30%.”

Exhibits 7-10 and 7-11 compare the formula-predicted costs to actual costs for different size HCV programs. Exhibit 7-10 makes the comparison at the PHA level and Exhibit 7-11 makes the comparison at the voucher level.

Both exhibits show that the formula varies in how well it predicts costs by program size. The formula predicts costs most accurately for the 5,250 to 9,999 voucher category. In this category, predicted costs are within 10 percent of actual costs for 66 percent of PHAs and within 5 percent of actual costs for 66 percent of PHAs. Similarly, predicted costs are within 10 percent of actual costs for 73 percent of the vouchers in this size category and within 5 percent of actual costs for 73 percent of the vouchers in this size category.

The PHAs with more than 10,000 vouchers had a wide variance in costs. The study sample included five PHAs with more than 10,000 vouchers. The variation in per unit costs among these five PHAs was wide: three of the five were at the upper end of the cost distribution, one was in the middle of the cost distribution, and one was at the lower end of the cost distribution. This variation made it more difficult to fit the regression model to these extra-large PHAs.

Some of the variation observed among the extra-large PHAs is captured by the model, resulting in the extra-large PHAs in high cost areas having some of the highest predicted costs of any of the study PHAs. However, some of the variability is still unexplained, as can be seen in the comparison of actual to predicted costs in Exhibits 7-10 and 7-11. For PHAs with more than 10,000 vouchers, the formula predicts costs that are within 5 percent of actual costs for 18 percent of PHAs and for 19 percent of vouchers, but the remaining large PHAs are split between those for which the model over-predicts and those for which the model under-predicts. For 42 percent of the largest PHAs (27 percent of the vouchers in this size category), predicted costs are more than 10 percent higher than actual costs. For 40 percent of these PHAs (54 percent of the vouchers in this size category), predicted costs are more than 10 percent lower than actual costs.

During the formula development phase, the study team tested a wide variety of variables and combinations of variables to improve the model's ability to predict costs for this PHA category. Of all the options considered, the current proposed formula did the best job at minimizing both the over-predicted costs and under-predicted costs. However, the study team acknowledges that the model may be missing some dimension of cost variation among the largest PHAs.

Exhibits 7-12 and 7-13 compare the costs predicted by the formula to actual costs for the four census regions in which the PHAs in the sample are located. Exhibit 7-12 makes the comparison at the PHA level and Exhibit 7-13 makes the comparison at the voucher level. These exhibits suggest that the formula model is most likely to predict costs that are within 10 percent of actual costs for PHAs located in the Northeast and the West. The model is most likely to predict costs that are within 5 percent of actual costs for PHAs located in the Midwest and the West. The model is most likely to predict costs that are more than 10 percent higher than actual costs for PHAs in the Midwest. The model is most likely to predict costs that are more than 10 percent lower than actual costs for PHAs in the South and in the West.

In implementing the new fee formula, HUD could consider further adjustments for PHAs that would experience gains or losses relative to their current level of funding that HUD determines could jeopardize the PHAs' ability to operate high-performing and efficient programs. Potential adjustments are discussed further in Section 7.6 below.

**Exhibit 7-10. Comparison of Model-Predicted Costs to Actual Costs by PHA Size, PHA Level**

| | Percent of PHAs | | | | | |
|---|---|---|---|---|---|---|
| **Percent of PHAs with:** | **<250** | **250-499** | **500-1,249** | **1,250-5,249** | **5,250-9,999** | **10,000+** |
| Predicted costs are more than 30% higher than actual costs | 23% | 13% | 0% | 2% | 17% | 0% |
| Predicted costs are 20% to 30% higher than actual costs[a] | 0% | 0% | 13% | 16% | 17% | 0% |
| Predicted costs are 10% to 20% higher than actual costs | 0% | 9% | 0% | 19% | 0% | 42% |
| Predicted costs are 5% to 10% higher than actual costs | 31% | 0% | 3% | 6% | 0% | 0% |
| Predicted costs are 1% to 5% higher than actual costs | 0% | 12% | 14% | 28% | 46% | 0% |
| Predicted costs are within 1% of actual costs than actual costs | 0% | 0% | 0% | 15% | 0% | 0% |
| Predicted costs are 1% to 5% lower than actual costs | 17% | 26% | 37% | 11% | 20% | 18% |
| Predicted costs are 5% to 10% lower than actual costs | 10% | 7% | 4% | 0% | 0% | 0% |
| Predicted costs are 10% to 20% lower than actual costs | 19% | 25% | 21% | 4% | 0% | 0% |
| Predicted costs are 20% to 30% lower than actual costs | 0% | 7% | 8% | 0% | 0% | 40% |
| Predicted costs are more than 30% lower than actual costs | 0% | 0% | 0% | 0% | 0% | 0% |
| ***Summary Statistics*** | | | | | | |
| Predicted costs within 20% of actual costs | 77% | 79% | 79% | 82% | 66% | 60% |
| Predicted costs within 10% of actual costs | 58% | 45% | 57% | 59% | 66% | 18% |
| Predicted costs within 5% of actual costs | 17% | 38% | 50% | 53% | 66% | 18% |
| **Number of PHAs represented by study sample[b]** | **163** | **327** | **207** | **175** | **27** | **23** |

N=923 high-performing PHAs represented by the 60 PHAs in the study. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

[a] Intervals are calculated as "more than 20% but less than or equal to 30%."

[b] The weighted counts of PHAs and vouchers by program size are not exact because they reflect the sampling weights developed over three rounds of sampling conducted between 2010 and 2012. The sampling weights also reflect adjustments for non-response bias as described in Appendix B.

**Exhibit 7-11. Comparison of Model-Predicted Costs to Actual Costs by PHA Size, Voucher Level**

| | Percent of Vouchers | | | | | |
|---|---|---|---|---|---|---|
| **Percent of Vouchers with:** | **<250** | **250-499** | **500-1,249** | **1,250-5,249** | **5,250-9,999** | **10,000+** |
| Predicted costs are more than 30% higher than actual costs | 14% | 14% | 0% | 2% | 14% | 0% |
| Predicted costs are 20% to 30% higher than actual costs[a] | 0% | 0% | 13% | 12% | 14% | 0% |
| Predicted costs are 10% to 20% higher than actual costs | 0% | 8% | 0% | 11% | 0% | 27% |
| Predicted costs are 5% to 10% higher than actual costs | 38% | 0% | 2% | 7% | 0% | 0% |
| Predicted costs are 1% to 5% higher than actual costs | 0% | 12% | 16% | 23% | 55% | 0% |
| Predicted costs are within 1% of actual costs than actual costs | 0% | 0% | 0% | 28% | 0% | 0% |
| Predicted costs are 1% to 5% lower than actual costs | 20% | 27% | 38% | 11% | 18% | 19% |
| Predicted costs are 5% to 10% lower than actual costs | 12% | 7% | 3% | 0% | 0% | 0% |
| Predicted costs are 10% to 20% lower than actual costs | 15% | 26% | 20% | 5% | 0% | 0% |
| Predicted costs are 20% to 30% lower than actual costs | 0% | 6% | 8% | 0% | 0% | 54% |
| Predicted costs are more than 30% lower than actual costs | 0% | 0% | 0% | 0% | 0% | 0% |
| ***Summary Statistics*** | | | | | | |
| Predicted costs within 20% of actual costs | 86% | 80% | 78% | 86% | 73% | 46% |
| Predicted costs within 10% of actual costs | 70% | 46% | 59% | 70% | 73% | 19% |
| Predicted costs within 5% of actual costs | 20% | 39% | 53% | 63% | 73% | 19% |
| **Number of vouchers represented by study sample[b]** | **31,395** | **114,408** | **150,381** | **398,682** | **192,261** | **441,162** |

N=1,328,288 vouchers administered by the 923 high-performing PHAs represented by the 60 PHAs in the study. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

[a] Intervals are calculated as “more than 20% but less than or equal to 30%.”

[b] The weighted counts of PHAs and vouchers by program size are not exact because they reflect the sampling weights developed over three rounds of sampling conducted between 2010 and 2012. The sampling weights also reflect adjustments for non-response bias as described in Appendix B.

**Exhibit 7-12. Comparison of Model-Predicted Costs to Actual Costs by Census Region, PHA Level**

| | Percent of PHAs | | | |
|---|---|---|---|---|
| **Percent of PHAs with:** | **Midwest** | **Northeast** | **South** | **West** |
| Predicted costs are more than 30% higher than actual costs | 18% | 0% | 16% | 2% |
| Predicted costs are 20% to 30% higher than actual costs[a] | 4% | 8% | 9% | 6% |
| Predicted costs are 10% to 20% higher than actual costs | 16% | 16% | 0% | 2% |
| Predicted costs are 5% to 10% higher than actual costs | 2% | 27% | 4% | 0% |
| Predicted costs are 1% to 5% higher than actual costs | 11% | 21% | 9% | 17% |
| Predicted costs are within 1% of actual costs than actual costs | 7% | 0% | 0% | 4% |
| Predicted costs are 1% to 5% lower than actual costs | 25% | 15% | 26% | 26% |
| Predicted costs are 5% to 10% lower than actual costs | 0% | 4% | 3% | 13% |
| Predicted costs are 10% to 20% lower than actual costs | 17% | 9% | 28% | 14% |
| Predicted costs are 20% to 30% lower than actual costs | 0% | 0% | 5% | 16% |
| Predicted costs are more than 30% lower than actual costs | 0% | 0% | 0% | 0% |
| ***Summary Statistics*** | | | | |
| Predicted costs within 20% of actual costs | 78% | 92% | 70% | 77% |
| Predicted costs within 10% of actual costs | 45% | 67% | 42% | 60% |
| Predicted costs within 5% of actual costs | 43% | 36% | 36% | 47% |
| **Number of PHAs represented by study sample[b]** | **234** | **185** | **260** | **244** |

N=923 high-performing PHAs represented by the 60 PHAs in the study. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

[a] Intervals are calculated as "more than 20% but less than or equal to 30%."

[b] The weighted counts of PHAs and vouchers by region are not exact because they reflect the sampling weights developed over three rounds of sampling conducted between 2010 and 2012. The sampling weights also reflect adjustments for non-response bias as described in Appendix B.

### 7-13. Comparison of Model-Predicted Costs to Actual Costs by Census Region, Voucher Level

| | Percent of Vouchers | | | |
|---|---|---|---|---|
| **Percent of Vouchers With:** | **Midwest** | **Northeast** | **South** | **West** |
| Predicted costs are more than 30% higher than actual costs | 2% | 0% | 7% | 5% |
| Predicted costs are 20% to 30% higher than actual costs[a] | 10% | 5% | 8% | 5% |
| Predicted costs are 10% to 20% higher than actual costs | 32% | 6% | 0% | 13% |
| Predicted costs are 5% to 10% higher than actual costs | 1% | 8% | 9% | 0% |
| Predicted costs are 1% to 5% higher than actual costs | 6% | 10% | 44% | 11% |
| Predicted costs are within 1% of actual costs than actual costs | 25% | 0% | 0% | 6% |
| Predicted costs are 1% to 5% lower than actual costs | 18% | 59% | 22% | 7% |
| Predicted costs are 5% to 10% lower than actual costs | 0% | 2% | 1% | 2% |
| Predicted costs are 10% to 20% lower than actual costs | 6% | 10% | 5% | 6% |
| Predicted costs are 20% to 30% lower than actual costs | 0% | 0% | 3% | 45% |
| Predicted costs are more than 30% lower than actual costs | 0% | 0% | 0% | 0% |
| ***Summary Statistics*** | | | | |
| Predicted costs within 20% of actual costs | 88% | 95% | 82% | 45% |
| Predicted costs within 10% of actual costs | 51% | 79% | 76% | 26% |
| Predicted costs within 5% of actual costs | 50% | 69% | 66% | 25% |
| **Number of PHAs represented by study sample[b]** | **305,340** | **151,153** | **319,606** | **552,189** |

N=923 high-performing PHAs represented by the 60 PHAs in the study. Observations were weighted to represent universe of high-performing PHAs from which the sample was selected.

[a] Intervals are calculated as “more than 20% but less than or equal to 30%.”

[b] The weighted counts of PHAs and vouchers by region are not exact because they reflect the sampling weights developed over three rounds of sampling conducted between 2010 and 2012. The sampling weights also reflect adjustments for non-response bias as described in Appendix B.

## 7.3 Calculating Fees Using the Proposed Formula

This section describes the steps involved in calculating the fees that PHAs will receive using the proposed formula. There are several steps in the calculation, and each is described below. (Options for phasing in the new fee rates are discussed in Section 7.6.) Calculating administrative fees using the proposed formula involves the following steps:

1. Assemble the data for the formula variables.
2. Calculate the fee per UML for each PHA.
3. Apply the annual inflation factor.
4. Calculate the supplemental fee for billed port-outs.

### 7.3.1 Assemble the Data for the Proposed Formula Variables

Under the proposed fee formula, a new fee rate would be calculated for each PHA each year using the most recent data available for the seven formula variables: program size, wage index, health insurance cost index, percent of households with earned income, turnover rate (new admissions), small area rent ratio, and percent of households living more than 60 miles from the PHA headquarters. The PHA-level data would be updated each year, and the fee rate would be based on the previous year's data or the past three years of data as discussed below.

#### Data Sources

The data for the seven variables in the fee formula come from different sources. As shown in Exhibit 7-14, five of the seven variables come from HUD administrative data, either the Voucher Management System (VMS), for voucher counts, or the PIH Information Center (PIC), for PHA and participant characteristics. The other two variables are from publicly available datasets assembled by the Bureau of Labor statistics (for the wage index) or Department of Health and Human Services (health insurance cost index).

The PIC data are updated on a continuous basis as PHAs enter data into the system and can easily be aggregated for one or more calendar years. The QCEW data for the wage index are released on a quarterly basis and can be aggregated to an annual average and the HHS Medical Expenditure Panel Survey (MEPS) data for the health insurance cost index are released annually.

**Exhibit 7-14. Sources for Proposed Fee Formula Variables**

| Variable Name | Data Source(s) |
|---|---|
| Program size | • HUD VMS |
| Wage index | • BLS Quarterly Census of Employment and Wages, Annual Wage Data on Local Government Employees (http://www.bls.gov/news.release/ecec.nr0.htm)<br>• HUD PIC (for geocoded addresses of PHA headquarters) |
| Health insurance cost index | • HHS Medical Expenditure Panel Survey (http://meps.ahrq.gov/mepsweb/)<br>• HUD PIC (for geocoded addresses of PHA headquarters) |
| Percent of households with earned income | • HUD PIC |
| New admissions rate | • HUD PIC |
| Small area rent ratio | • HUD PIC |
| Percent of households more than 60 miles from PHA HQ | • HUD PIC |

### Data Volatility

An important issue to consider with a formula based on inputs that are updated annually is the year-to-year volatility in the data. Inputs that are highly volatile from year to year could result in annual swings in the fee rate amount that are difficult for PHAs to predict and plan for and could make program administration more difficult. The study team analyzed the volatility in the six formula variables (excluding program size) based on five years of data (2009–2013).

Exhibit 7-15 shows the average percentage point or percent change in each variable from the previous year. Exhibit 7-16 shows the percentage of PHAs that experienced a change of at least 10 percent (plus or minus) from the previous year. The exhibits show that three of the formula variables—health insurance cost index, percent of households with earned income, and new admissions—are substantially more volatile than the other variables. For these three variables, the average change from the previous year is three percent or more, compared to less than one percent for the other four variables.

**Exhibit 7-15. Average Percent or Percentage Point Change in Variable Value From Previous Year**

| Variable | 2010 | 2011 | 2012 | 2013 | Type of Change |
|---|---|---|---|---|---|
| Wage index | 0.9% | 0.9% | 0.6% | 0.7% | Percent |
| Health insurance cost index | 5.3% | 5.2% | 5.4% | 5.2% | Percent |
| Percent of households with earned income | 3.1 | 3.0 | 3.2 | 3.2 | Percentage point |
| Percent of households that are new admissions | 6.5 | 6.2 | 5.9 | 5.8 | Percentage point |
| Small area rent ratio | 0.2% | 0.9% | 0.7% | 0.9% | Percent |
| Percent of households more than 60 miles from PHA HQ | 0.1 | 0.1 | 0.1 | 0.1 | Percentage point |

**Exhibit 7-16. Percent of PHAs With At Least 10 Percent or Percentage Point Change in Variable Value from Previous Year**

| Variable | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| Wage index | 0% | 0% | 0% | 0% |
| Health insurance cost index | 20% | 14% | 18% | 6% |
| Percent of households with earned income | 4% | 4% | 5% | 5% |
| New admissions rate | 21% | 19% | 18% | 18% |
| Small area rent ratio | 0% | 2% | 1% | 2% |
| Percent of households more than 60 miles from PHA HQ | 0% | 0% | 0% | 0% |

To minimize volatility in the formula inputs, the study team recommends that HUD use three-year averages for the three variables that are most volatile—health insurance cost index, percent of households with earned income, and new admissions rate. The three-year average is the average of the latest year available plus the previous two years. For example, the three-year average for 2013 is the average of the variable values for 2013, 2012, and 2011.

Using a three-year average reduces year-to-year volatility substantially. As shown in Exhibit 7-17, using a three-year average, the health insurance cost index changes by an average of about 2 percent per year, compared to 5 percent using a single year of data (see Exhibit 7-15). Moreover, no PHAs experienced a change in the health insurance cost index of more than 10 percent from the previous year, compared to 6 to 20 percent when using a single year of data.

**Exhibit 7-17. Volatility of Health Insurance Cost Index, Percent of Households With Earned Income and Turnover When Calculated as a Three-Year Average**

| Indicator | Variable | 2011[a] | 2012[b] | 2013[c] |
|---|---|---|---|---|
| Average percent change in variable value from previous three-year average | Health insurance cost index | 1.9% | 2.4% | 2.2% |
| | Percent of households with earned income | 1.7% | 1.5% | 1.4% |
| | New admissions rate | 2.1% | 2.0% | 2.0% |
| Percent of PHAs with a change of 10% of more in variable value from previous three-year average | Health insurance cost index | 0.0% | 0.0% | 0.0% |
| | Percent of households with earned income | 0.2% | 0.2% | 0.2% |
| | New admissions rate | 0.6% | 0.9% | 0.6% |

[a] Average of data from 2009, 2010, and 2011.

[b] Average of data from 2010, 2011, and 2012.

[c] Average of data from 2011, 2012, and 2013.

Exhibit 7-18 summarizes the recommended timeframe for each variable in the proposed formula. Reducing year to year volatility is important for making fees more predictable for PHAs. It also protects PHAs against declines in fees that may be due to temporary changes in the program inputs, such as a short-term moratorium on new admissions. However, using a three-year average for some variables means that the fee formula will be slower to respond to sustained changes in program conditions that may affect costs. For example, if the percent of households with earned income increases dramatically one year and that increase is sustained, it will take a few years for the formula to catch up to the cost of that change.

An alternative to using three-year averages would be not to update the inputs to the formula each year, but instead do so every two or three years. The study team does not recommend that approach because it could result in very large fee changes (up or down) for a PHA whose inputs have changed in the intervening years, which could affect program operations. Instead, the study team recommends that HUD monitor the volatility in the formula inputs over time, after the formula is implemented, so that the formula always uses the most recent data available on the cost drivers while avoiding excessive year-to-year swings in fees. If HUD determines that the level of volatility in the input variables changes over time, adjustments should be made to the use of annual versus three year average values.

**Exhibit 7-18. Recommended Time Frame for Each Variable in Proposed Fee Formula**

| Variable | 1 yr. | 3 yrs. | Explanation |
|---|---|---|---|
| Program size | ✓ | | Variable value for **previous calendar year** or for most recent 12-month period available at time of formula calculation. |
| Wage Index | ✓ | | |
| Percent of households more than 60 miles from PHA HQ | ✓ | | |
| Small area rent ratio | ✓ | | |
| Health insurance cost index | | ✓ | Average variable value for **previous three calendar years** or most recent three years' worth of data available at time of formula calculation. |
| Percent of households with earned income | | ✓ | |
| New admissions rate | | ✓ | |

### Data Completeness

In addition to volatility, the data have varying levels of completeness. The formula requires each PHA to have a value for each of the seven variables, so missing data need to be addressed. Exhibit 7-19 shows the extent of missing data for each variable.

There are no missing data for the program size and wage index variables. For the health insurance cost index, data are available for all 50 states but are missing for the 80 PHAs in the U.S. Territories. For the purposes of the calculations in this report, we assigned to these 80 PHAs the average value of the health insurance cost index for PHAs located in the Pacific region of the United States. When implementing the formula, HUD may choose to take a different approach to assigning health index cost values to the PHAs in the U.S. Territories.

For the other four variables in the formula—percent of households with earned income, new admissions rate, small area rent ratio, and percent of households living more than 60 miles from the PHA's headquarters—we chose to assign each PHA with missing data the average value for that variable across the universe of all PHAs with non-missing data. We chose this approach for the purposes of the calculations in this report, but other approaches are possible. For example, HUD might choose to tailor the approach to missing data to the particular variable and use an average from a subset of PHAs rather than a national average. For example, for PHAs missing the percent of households living more than 60 miles away from the PHA's headquarters, HUD may choose to use the average among PHAs in the same census region and with the same jurisdiction type (metropolitan or non-metropolitan). The same approach might work for the percent of households with earned income and small area rent ratio, but probably would not make sense for the new admissions rate.

**Exhibit 7-19. Missing Data for Formula Variables, 2013**

| Variable | Percent of PHAs with Missing Data | Number of PHAs with Missing Data | Range in Values for Non-Missing Data | Mean Value for Non-Missing Data | Value Used for Missing Cases |
|---|---|---|---|---|---|
| Program size | 0.0% | 0 | 0 – 1[a] | 0.66 | n/a |
| Wage index[b] | 0.0% | 0 | 0.63 – 1.96 | 0.94 | n/a |
| Health insurance cost index | 3.5% | 80 | 0.81 – 1.18 | 1.01 | 1.03[c] |
| Percent of households with earned income | 0.8% | 18 | 0% – 100% | 33.63% | 33.63% |
| New admissions rate | 0.9% | 20 | 0% – 60% | 9.34% | 9.34% |
| Small area rent ratio | 0.3% | 7 | 0.60 – 1.42 | 0.98 | 0.98 |
| Percent of households more than 60 miles from PHA HQ | 6.3% | 142 | 0% – 100% | 1.32% | 1.32% |

[a] The values for the program size variable are not the number of vouchers under lease. Instead, for PHAs with 250 vouchers or fewer, the value is 1. For PHAs with 251 to 749 vouchers, the value is between 0 and 1, calculated as [1-(number of units under lease-250)/500]. For PHAs with 750 vouchers or more, the value is 0.

[b] Consistent with HUD's current methodology for calculating change in wages in the U.S. Territories, we calculate the wage index for Puerto Rico using the data reported through the island government for the "Public Administration" industry. For the Virgin Islands we used the statewide local government wage data from the BLS. For Guam and the other Pacific Islands, we use the national average non-metro wages for local government employees.

[c] This variable is only missing for PHAs located in the U.S. Territories. For these PHAs, we use the average health insurance index value for PHAs in the Pacific region.

N=2,257 non-MTW PHAs.

### Limiting the Values of the Data Inputs

Each variable in the proposed formula has a range of possible values. The regression model for the formula was based on both the per-unit costs estimated for the 60 PHAs in the study and the values for the input variables observed across those PHAs. In most cases, the 60 PHAs in the study are very close to the universe of all PHAs in the mean and median values observed for the formula variables (see Exhibit 7-20). However, some PHAs have variable values that are outside the range of values observed for the 60 sample sites.

Since the formula model is based on a sample with input values within a certain range, the estimates do not necessarily apply to extreme values outside the range tested. In order to eliminate the extreme values where the costs and the inputs are not likely to have the same relationship as found in the model, we recommend restricting the variable values to that same range for all PHAs when applying the fee formula, but recognize that HUD may take a different approach in implementing the formula.

For this analysis in this report, we use the minimum and maximum values observed for the 60 PHAs in lieu of the actual values for those PHAs in the broader universe that have actual values outside this range. For example, the minimum value for the health insurance cost index is 0.86. If a PHA has a health insurance cost index value below 0.86, that value would be replaced by 0.86 for the purposes of calculating the PHA's fee per UML. As another example, the maximum value for the formula for the percent of households with earned income is 56.11 percent. Even if a PHA's share of households

with earned income is higher than 56.11 percent, the PHA's value for this variable would be 56.11 for the fee per UML.

**Exhibit 7-20. Variable Values for Study Sample and All PHAs**

| Variable Values for Study Sample | N | Min. | Median | Mean | Max. |
|---|---|---|---|---|---|
| Program size[a] | 60 | 0.00 | 0.32 | 0.39 | 1.00 |
| Wage Index | 60 | 0.63 | 0.99 | 0.99 | 1.31 |
| Health insurance cost index | 60 | 0.86 | 1.02 | 1.01 | 1.18 |
| Percent of households with earned income | 60 | 15.58% | 32.30% | 32.61% | 56.11% |
| New admissions rate | 60 | 1.67% | 7.87% | 9.38% | 26.92% |
| Small area rent ratio | 60 | 0.93 | 1.00 | 1.00 | 1.14 |
| Percent of households more than 60 miles from PHA HQ | 60 | 0.00% | 0.00% | 0.62% | 48.85% |
| **Variable Values for All PHAs** | **N** | **Min.** | **Median** | **Mean** | **Max.** |
| Program size[a] | 2,257 | 0.00 | 1.00 | 0.66 | 1.00 |
| Wage Index | 2,257 | 0.63 | 0.92 | 0.94 | 1.96 |
| Health insurance cost index | 2,257 | 0.81 | 1.00 | 1.01 | 1.18 |
| Percent of households with earned income | 2,257 | 0.00% | 33.46% | 33.63% | 100.00% |
| New admissions rate | 2,257 | 0.00% | 8.08% | 9.34% | 60.00% |
| Small area rent ratio | 2,257 | 0.60 | 1.00 | 0.98 | 1.42 |
| Percent of households more than 60 miles from PHA HQ | 2,257 | 0.00% | 0.00% | 1.32% | 100.00% |

[a] The values for the program size variable are not the number of vouchers under lease. Instead, for PHAs with 250 vouchers or fewer, the value is 1. For PHAs with 251 to 749 vouchers, the value is between 0 and 1, calculated as [1-(number of units under lease-250)/500]. For PHAs with 750 vouchers or more, the value is 0.

### 7.3.2 Calculate the Fee per UML for Each PHA

Having assembled all of the data for the formula inputs, the next step is to calculate a fee per unit month leased. Exhibit 7-21 shows the formula calculation in detail, using the regression coefficients and adjustment for program size described in Section 7.2 above.

**Exhibit 7-21. Fee Formula Calculation**

| Variable | Applies to | Time Frame and Limitations | Calculation |
|---|---|---|---|
| Intercept | All PHAs | n/a | - $117.45 |
| Wage index | All PHAs | Most recent year | + $51.51 x wage index |
| Health insurance cost index | All PHAs | Average for previous three years | + $27.06 x health insurance cost index |
| Program size 1 | PHAs with 250 or fewer vouchers leased[a] | Most recent year | + $15.82 |
| Program size 2 | PHAs with 251 to 749 vouchers leased[a] | Most recent year | + $15.82 x (1 – [(number of units under lease – 250) / 500]) |
| Program size 3 | PHAs with 750 or more vouchers leased[a] | Most recent year | + $0 |
| Percent of households with earned income | All PHAs | Average for previous three years | + $0.93 x % of households with earned income |
| New admissions | All PHAs | Average for previous three years | + $0.53 x % of households that are new admissions |
| Small area rent ratio | All PHAs | Most recent year | + $65.09 x small area rent ratio |
| Percent of households more than 60 miles from PHA HQ | All PHAs | Most recent year | + $1.02 x % of households living more than 60 miles from PHA headquarters |
| **Fee** | **Per UML** | | **= $** |

[a] Includes port-in vouchers and excludes port-out vouchers.

The study found that across the 60 PHAs, the average administrative cost per voucher, for calendar year 2013, ranged from $42.06 per UML to $108.87 per UML. Within this range, the average cost per UML was $70.03 and the median cost was $64.84. Within the sample, the PHA with the lowest average cost had below average values for four of the formula variables: wage index, percent of households with earned income, new admissions rate, and percent of households living more than 60 miles from the PHA's headquarters. A straight application of the proposed formula as shown in Exhibit 7-21 would result in predicted fees that fall below the lowest observed cost of $42 per UML for 27 PHAs located outside the U.S. Territories (47 PHAs overall). Because $42 per UML is the lowest cost the study observed under which a PHA with very low cost drivers could operate a high-performing and efficient program, the study recommends that the formula would establish a floor of $42 per UML. However, all of the other PHAs in the study had costs that exceeded this minimum threshold and the formula is designed to capture those actual costs.

In testing the proposed fee formula, the study team found that for 61 of the 80 PHAs located in the U.S. Territories, the proposed fee formula would produce fees that are well below the fees that these PHAs would receive under the existing fee formula, suggesting that the formula may not predict costs well for these PHAs.[73] One issue is that the MEPS health insurance cost data are not collected for the U.S. Territories, so the formula uses the average for the U.S. Pacific region for the PHAs in the U.S. Territories. Another issue is that building and other non-labor costs may be substantially more costly

[73] PHAs with HCV programs are located in the following U.S. Territories: Commonwealth of Puerto Rico (77 PHAs), Guam (1 PHA), the U.S. Virgin Islands (1 PHA), and the Northern Mariana Islands (1 PHA).

in the U.S. Territories than in the rest of the United States. For example, analysis of GSA data on costs for office space leased by the federal government shows that office rents in the U.S. Territories are about 150 to 180 percent of the national average.[74]

Given these issues, and pending further consideration from HUD, the study team recommends a floor of $54 per UML for the PHAs in the U.S. Territories. $54 is the lowest prorated fee per UML received by the territorial PHAs for the July 1, 2013 through June 30, 2014 timeframe ($51.55) increased by four percent, which is the difference between the cost per UML and fee per UML for the lowest cost PHA in the study sample.[75]

In the fee formula calculations produced for this report, 27 PHAs outside the U.S. Territories receive the formula's floor fee of $42 and 61 PHAs in the U.S. Territories receive the formula's floor fee of $54.

### 7.3.3 Apply the Annual Inflation Factor

After the new fee rate is calculated, an inflation factor would be applied to the fee rate to account for costs that have gone up since 2013 (the year for which the study estimated costs). We propose that the inflation factor be a blended rate that takes into account three types of costs: wages, benefits, and non-labor costs. The blended rate would be a weighted average of three inflation rates, an inflation rate for wages, an inflation rate for benefits, and an inflation rate for non-labor costs. For the blended rate, we need to:

1. Identify data sources for the inflation rates for each of the three cost types.
2. Determine the appropriate weight to assign to each inflation rate.

#### Data Sources for Inflation Rates

To measure wage inflation, we recommend that HUD use the national average wage for local government workers from the BLS QCEW. The BLS QCEW is the same source used for the wage index variable in the proposed formula. The inflation rate would be calculated as the percent change in the national average wage for local government workers for the most recent year for which the data are available and the national average wage for local government workers in the study's base year of 2013.

To measure inflation in benefits costs, we recommend that HUD use the national average cost of health insurance for private sector employers from the HHS MEPS. The HHS MEPS is the same source used for the health insurance cost variable in the proposed formula. The inflation rate would be calculated as the percent change in the national average health insurance cost for the most recent year for which the data are available and the national average health insurance cost in the study's base year of 2013.

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74 June 2013 GSA inventory, accessed at http://www.gsa.gov/portal/content/101840.

75 Other ways of calculating a floor for the U.S. Territories also lead to $54 per UML. For example, $42 is at the 25th percentile of the fees received by the non-territorial PHAs in the July 1, 2013 through June 30, 2014 time period. Among the territorial PHAs, the 25th percentile fee received is $53.59. The 25th percentile fee among high-performing territorial PHAs is $53.85.

To measure inflation in non-labor costs, we recommend that HUD use the BLS Consumer Price Index (CPI). The CPI measures change over time in the prices paid by urban consumers for a market basket of consumer goods and services.[76] The most comprehensive CPI is the All Items Consumer Price Index for All Urban Consumers (CPI-U). The CPI-U's market basket of goods and services includes most of the items purchased for routine operations by PHAs.[77] The inflation rate for non-labor costs would be calculated as the change in the national CPI-U between the most recently published CPI-U and the CPI-U from the study's base year of 2013.

An alternative to the CPI is the Producer Price Index (PPI), which measures change over time in the selling prices received by domestic producers of goods and services. We think the CPI is more appropriate to use as an inflation factor for the administrative fee formula because it is the most widely used measure of price change (according to the BLS) and because it measures inflation as experienced by consumers in their day-to-day living expenses, which approximates the price conditions facing PHAs. By contrast, the PPI is less widely used and puts more weight on the cost of inputs.[78]

Exhibit 7-22 summarizes the proposed data sources for the three inflation rates.

**Exhibit 7-22. Data Sources for Inflation Rates**

| Cost Type | Source for Calculating Inflation Rate |
|---|---|
| Labor costs – wages | BLS QCEW national average wage for local government workers |
| Labor costs – benefits | HHS MEPS national average cost of health insurance for private sector employers |
| Non-labor costs | BLS national CPI-U |

### Weight to Apply to Each Inflation Rate

Having identified data sources for the three inflation rates, we need to determine how to combine the rates into a single combined inflation rate to apply to the fees calculated through the formula. The combined rate should be a weighted average of the inflation rates for wages, benefits, and non-labor costs based on the share of HCV administrative costs that each represents.

From the study, we calculated that on average, direct labor costs (wages plus benefits) represented 70 percent of total direct costs and direct non-labor costs represented 30 percent of total direct costs.[79] Based on this, we assume a 70/30 breakdown of total administrative costs between labor and non-labor.

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[76] The most comprehensive CPI is the All Items Consumer Price Index for All Urban Consumers (CPI-U).

[77] For a list of non-labor cost items for the HCV program, see Appendix C, Exhibit C-3.

[78] See http://stats.bls.gov/cpi/cpifaq.htm#Question_12: "The CPI is generally the best measure for adjusting payments to consumers when the intent is to allow consumers to purchase at today's prices, a market basket of goods and services equivalent to one that they could purchase in an earlier period."

[79] As shown in Exhibit 5-2, direct labor costs are 57 percent (on average) of total administrative costs, direct non-labor costs are 24 percent, and overhead costs are 19 percent. We did not separate labor and non-labor costs for overhead but our overhead estimate includes both.

For the breakdown between wage and benefit costs within labor costs, we had to look outside the study because several study PHAs provided total personnel costs for each employee rather than separating out wages and benefits. The BLS ECEC provides quarterly data on the benefits costs as a percent of total employer costs for local and state government employers. In June 2014, benefits were 36.0 percent of total employer costs for local and state government employers. Assuming 36 percent for benefits cost, the weights for the three inflation rates would be 0.45, 0.25, and 0.30, as shown in Exhibit 7-23.[80]

**Exhibit 7-23. Proposed Weights for Wage, Benefit, and Non-Labor Inflation Rates**

| Inflation Type | Weight | Explanation |
|---|---|---|
| Labor costs – wages | 0.45 | Labor costs are 70% of total costs and wages are 64% of labor costs, so wages are 45% of total costs. |
| Labor costs – benefits | 0.25 | Labor costs are 70% of total costs and benefits are 36% of labor costs, so benefits are 25% of total costs. |
| Non-labor costs | 0.30 | Non-labor costs are 30% of total costs. |

### Calculating the Blended Inflation Rate

Using the weights, the blended inflation rate would be calculated as follows:

Blended Inflation rate =

(0.45 * percent change in BLS QCEW national average wage for local government workers from base year of 2013) +

(0.25 * percent change in HHS MEPS national average total benefits cost for state and local government workers from base year of 2013) +

(0.3 * change in BLS national CPI-U from base year of 2013)

The blended inflation rate would be converted to an inflation factor that would be multiplied against the fee calculated for that year for all PHAs. For example, if the inflation rate from the base year 2013 is 2.7 percent, the inflation factor would be 1.027 and the fees calculated from the formula would be multiplied by 1.27 to account for inflation.

Thus, the fee that each PHA would earn per UML would be the per voucher fee rate calculated by the formula multiplied by the blended inflation rate for years after 2013. As described in Section 7.1.2 above, this fee per UML would apply to the PHA's vouchers under lease, including port-in vouchers administered by the PHA on behalf of other PHAs but excluding port-out vouchers administered by other PHAs on the PHA's behalf. The inflated fee would also be used to calculate the supplemental fee for port-out vouchers that are administered by another PHA under a billing arrangement, as described in the next section.

[80] Over time, HUD could track benefits costs as a percentage of total employer costs using the ECEC data and adjust the weights accordingly.

### 7.3.4 Supplemental Fees for Port-Out Vouchers

Under the proposed formula calculation shown in Exhibit 7-21, a PHA earns fees on the vouchers that it administers—including port-ins administered on behalf of another PHA—but does not earn fees on vouchers that port-out of its jurisdiction and are administered by another PHA (i.e., billed port-outs).

We know from the time study that managing port-outs that are administered by another PHA takes time. The issuing PHA needs to pay the HAP for households that port out and are not absorbed, and staff time is needed to monitor and reconcile this billing and to work with the receiving PHA.

Using the time data collected, we developed a regression model to estimate the time that PHAs spend on the ongoing work required for billed port-outs versus the time spent on initially processing each port-out transaction (see discussion in Section 4.3.3 above). Based on this modeling, we estimate that, on average, each billed port-out voucher takes about 24 minutes of time over an eight-week period, or about 156 minutes of time over the course of the year. In other words, on average, PHAs spent just over 2.5 hours per year for every port-out voucher billed each year. The average time spent on all frontline voucher activities was 13.8 hours (828 minutes) per voucher under lease per year. Thus, the frontline time spent on port-out billing equates to about 19 percent of the time spent administering non-port-out vouchers (156 / 828 = 0.19).

Based on these findings, HUD's current practice of allowing PHAs to retain 20 percent of their administrative fee for vouchers that port-out and are not absorbed is reasonable. The study team recommends that in addition to reimbursing PHAs for their vouchers under lease (including port-ins) via the proposed fee calculation, HUD should pay PHAs a supplemental fee equal to 20 percent of their fee for every billed port-out.

The supplemental fee would be calculated based on 20 percent of the issuing PHA's fee per UML, and the issuing PHA would earn this fee for every month the port-out voucher is administered (but not absorbed) by another PHA. The receiving PHA that administers the voucher as a port-in would earn 100 percent of its own fee for the voucher through the regular fee calculation. Thus, under the proposed formula there would be no billing for administrative fees for ported vouchers.

Exhibit 7-24 shows how the supplemental fee would work for two hypothetical PHAs with approximately 1,000 vouchers under lease (12,000 UMLs) and different fee rates—$70 per UML for PHA 1 and $55 per UML for PHA 2. For each PHA, we show two different port-out scenarios—600 months of billed port-outs over the course of the year (approximately 50 port-out households or a 5 percent port-out share) and 240 months of billed port-outs (approximately 20 port-out households or a 2 percent port-out share).

**Exhibit 7-24. Examples of Base Fees and Supplemental Port-Out Fees Earned by Hypothetical PHAs**

| Variable | PHA 1 (5% port-out share) | PHA 1 (2% port-out share) | PHA 2 (5% port-out share) | PHA 2 (2% port-out share) |
|---|---|---|---|---|
| Number of UMLs (including port-ins, excluding port-outs) | 12,000 | 12,000 | 12,000 | 12,000 |
| Fee per UML (based on proposed fee formula) | $70.00 | $70.00 | $55.00 | $55.00 |
| Fee earned in a year from proposed fee formula | $840,000 | $840,000 | $660,000 | $660,000 |
| Number of billed port-out months | 600 | 240 | 600 | 240 |
| Supplemental fee earned per port-out month | $14.00 | $14.00 | $11.00 | $11.00 |
| Supplemental fee earned for port-outs in a year | $8,400 | $3,360 | $6,600 | $2,640 |
| **Total Fee Earned in a Year** | **$848,400** | **$843,360** | **$666,600** | **$662,640** |

## 7.4 Total HCV Administrative Costs

By applying the fee formula described in the previous section to all PHAs with HCV programs, we can estimate total administrative fees for the HCV program under the proposed formula and compare that to the total administrative fees under the existing formula.

The method for estimating the total fees for the program under the proposed formula is to calculate the fee per unit month leased (including port-ins and excluding port-outs) for each PHA following the steps described in sections 7.3.1 through 7.3.3 above, then multiply that fee by the number of vouchers under lease (including port-ins and excluding port-outs).[81] Then, we calculate the supplemental fee per billed port-out for each PHA (20 percent of the PHA's fee per UML) and multiply the fee by the PHA's number of billed port-outs. This creates a total fee for each PHA (fees on regular vouchers and port-ins plus supplemental fees for port-outs), which we sum across all PHAs to arrive at an estimate of the total administrative fees for all PHAs subject to the administrative fee formula.

MTW PHAs are currently compensated for administrative costs of the HCV program using a different funding structure. Thus, we use the proposed fee formula to estimate administrative fees for non-MTW PHAs only. To estimate total administrative fee costs for the HCV program, HUD has provided an estimate of administrative fees for MTW PHAs based on HUD's current approach to funding these agencies.

[81] In calculating per unit fees and total administrative costs for this report, we have not applied an inflation factor to our formula, which is based on cost estimates for the 2013 calendar year. This is because we are estimating program costs using the fee formula for 2013 and comparing them to fees that would have been received under the existing fee formula between July 1, 2013, and June 30, 2014. Data are not yet available to inflate the formula-predicted fees for the January 1, 2014–June 30, 2014 time period, but we expect the change would be minimal.

Exhibit 7-25 shows the total study-predicted fees (based on the proposed formula) for the **July 1, 2013 through June 30, 2014 time period.** For this time period, study-predicted administrative fees for the 2,257 non-MTW PHAs, with 1.87 million vouchers under lease, total $1.567 billion. HUD-estimated administrative fees for the 39 MTW PHAs total $268 million. Summing the two components together, the total study-predicted fees are $1.835 billion.

The $1.835 billion in fees is the funding that would have been required to fund the high-performing and efficient administration of the HCV program during the July 1, 2013 through June 30, 2014 time period. The fees calculated through the proposed formula do not reflect any stop loss or phase-in provisions or other adjustments that HUD might apply when implementing the formula. To calculate program fees for later time periods, HUD would need to update the formula inputs, apply an inflation rate to the resulting per voucher fee, and multiply the per voucher fee by projected voucher counts for each PHA. These prospective calculations are beyond the scope of this study.

**Exhibit 7-25. Estimated HCV Program Administrative Fees With Proposed Fee Formula Compared to Actual Fees Paid, July 1, 2013–June 30, 2014**

| | |
|---|---|
| **Study-Predicted Administrative Fees** | |
| Total study-predicted administrative fees, non-MTW PHAs | $1,567,166,735 |
| HCV administrative fees for MTW PHAs | $267,844,437 |
| **Total** | **$1,835,011,172** |
| **Administrative Fees Under Existing Formula, With Proration** | |
| HCV administrative fees under existing formula, non-MTW PHAs | $1,237,646,734 |
| HCV administrative fees for MTW PHAs | $223,228,057 |
| **Total** | **$1,460,874,791** |
| **Administrative Fees Under Existing Formula, No Proration** | |
| HCV administrative fees under existing formula, non-MTW PHAs | $1,654,842,459 |
| HCV administrative fees for MTW PHAs | $267,844,437 |
| **Total** | **$1,922,686,896** |
| **Study-Predicted Fees as a Percent of Existing Formula Fees for Non-MTW PHAs** | |
| Study-predicted administrative fees/administrative fees under existing formula, with proration, for non-MTW PHAs | 127% |
| Study-predicted administrative fees/administrative fees under existing formula, no proration, for non-MTW PHAs | 95% |

N=2,257 non-MTW PHAs and 39 MTW PHAs. Both the non-MTW and MTW voucher totals include five-year mainstream vouchers as well as the other voucher types.

Source: Study formula calculations and data on vouchers leased, port-ins and port-outs, and associated fees for the July 1, 2013–June 30, 2014 time period provided by HUD.

The $1.835 billion in study-predicted fees can be compared to the fees that HUD actually paid during the July 1, 2013, to June 30, 2014, time period based on the existing administrative fee formula, the proration rates in effect during that time period, and the same numbers of vouchers under lease. With proration, the administrative fees that HUD paid during this period to all PHAs (including MTW PHAs) totaled $1.461 billion. If there had been no proration (that is, if PHAs had been funded at 100

percent of the existing fee formula rates), the total administrative fees under the existing formula for this time period (including MTW PHAs) would have been $1.923 billion.

As shown in the last two rows of Exhibit 7-25, the study's predicted administrative fees for July 1, 2013, through June 30, 2014, for non-MTW PHAs are equal to 127 percent of HUD's administrative fee cost under the existing formula with proration ($1.567 / $1.238 = 1.27). The study's predicted administrative fees for non-MTW PHAs are equal to 95 percent of HUD's administrative fees under the existing formula with no proration ($1.567 / $1.655 = 0.95).

## 7.5 Impact of Proposed Fee Formula on PHAs

Any new fee formula will change how fees are allocated. Thus, PHAs will earn higher or lower fees under the new proposed formula than they do under HUD's existing fee formula. This section provides information on the differences between study-proposed fees and fees based on the existing fee formula for all PHAs and for specific categories of PHAs.

The exhibits in this section show the fees predicted from the proposed formula model compared to the fees received by PHAs between July 1, 2013, and June 30, 2014, based on the existing fee formula, under different levels of funding. The exhibits are based on the 2,257 non-MTW PHAs with vouchers under lease between July 1, 2013, and June 30, 2014. MTW PHAs are not included in these analyses.

Exhibit 7-26 shows how the study-predicted fees—that is, the fees that PHAs would have received if the proposed fee formula was in place in the July 1, 2013–June 30, 2014 time period—compared to fees under the existing formula under two proration scenarios. The two proration scenarios for comparisons with the existing fee formula are 75 percent proration, which is the average proration in effect during the July 1, 2013–June 30, 2014 time period, and 95 percent proration, which is the appropriate funding level based on the proposed fee formula.

In Exhibit 7-26 and subsequent tables showing the impact of the proposed fee formula, we assume that the proposed fee formula will be funded at $1.567 billion for non-MTW PHAs (see Exhibit 7-25 above). The comparisons to the current existing formula at 75 percent proration assume a total funding level of $1.238 billion for non-MTW PHAs under the existing formula. The comparisons to the existing formula at 95 percent proration assume a total funding level of $1.572 billion for non-MTW PHAs under the under the existing formula.

The top panel of Exhibit 7-26 shows the percentage of PHAs that would receive higher or lower fees using the proposed fee formula compared to the existing fee formula. Compared to the existing fee formula at 75 percent proration, 92 percent of PHAs would receive more funding under the proposed fee formula than under the existing fee formula, and 8 percent of PHAs would receive less funding under the proposed fee formula than under the existing fee formula. Compared to the existing fee formula at 95 percent proration, 63 percent of PHAs would receive more funding under the proposed fee formula than under the existing fee formula, and 37 percent of PHAs would receive less funding under the proposed fee formula than under the existing fee formula.

The bottom panel of Exhibit 7-26 presents the same information in terms of vouchers. Compared to the existing fee formula at 75 percent proration, 89 percent of vouchers would receive more funding under the proposed fee formula than under the existing fee formula, and 11 percent of vouchers would receive less funding under the proposed fee formula than under the existing fee formula. Compared to

the existing fee formula at 95 percent proration, 48 percent of vouchers would receive more funding under the proposed fee formula than under the existing fee formula, and 52 percent of vouchers would receive less funding under the proposed fee formula than under the existing fee formula.

**Exhibit 7-26. Basic Comparison of Study-Predicted Fees and Fees Based on the Existing Fee Formula, July 1, 2013–June 30, 2014, Non-MTW PHAs**

| | Existing Fee Formula with: | |
|---|---|---|
| | 75% Proration | 95% Proration |
| Percent of PHAs for which predicted fees are higher | 92% | 63% |
| Percent of PHAs for which predicted fees are lower | 8% | 37% |
| Percent of vouchers for which predicted fees are higher | 89% | 48% |
| Percent of vouchers for which predicted fees are lower | 11% | 52% |

N=2,257 PHAs, 1,870,285 vouchers under lease.

Source: Study formula calculations and data on vouchers leased, port-ins and port-outs, and associated fees for the July 1, 2013–June 30, 2014 time period provided by HUD.

Exhibit 7-27 shows a more detailed comparison of study-predicted fees to fees based on the existing fee formula for July 1, 2013, through June 30, 2014 at 75 percent proration. The top half of the exhibit shows the "gainer" PHAs—that is, PHAs that would experience an increase in fee funding under the proposed formula. The bottom half of the exhibit shows the "decliner" PHAs—that is, PHAs that would experience a decrease in fee funding under the proposed formula.

Consistent with Exhibit 7-26, Exhibit 7-27 shows that 92 percent of PHAs would experience an increase in fees relative to the existing formula at 75 percent proration. For approximately 59 percent of PHAs, study-predicted fees are more than 30 percent higher. For another 12 percent of PHAs, study-predicted fees are 20 to 30 percent higher. Overall, 81 percent of PHAs would experience an increase in fees of more than 10 percent under the proposed formula compared to the existing formula at 75 percent proration. At the other end of the spectrum, about 3 percent of PHAs would experience an decrease in fees of more than 10 percent under the proposed formula compared to the existing formula at 75 percent proration.

Overall, 63 percent of PHAs would experience an increase in fees relative to the existing formula at 95 percent proration. For 21 percent of PHAs, study-predicted fees are more than 30 percent higher. For another 11 percent of PHAs, study-predicted fees are 20 to 30 percent higher. Overall, about 47 percent of PHAs would experience an increase in fees of more than 10 percent under the proposed formula compared to the existing formula at 95 percent proration. At the other end of the spectrum, about 22 percent of PHAs would experience an decrease in fees of more than 10 percent under the proposed formula compared to the existing formula at 95 percent proration. This includes about 13 percent of PHAs that would experience a decrease in fees of 10 to 20 percent, just under 8 percent of PHAs that would experience a decrease in fees of 20 to 30 percent, and just under 2 percent of PHAs that would experience a decrease in fees of more than 30 percent.

**Exhibit 7-27. Detailed Comparison of Study Predicted Fees and Fees Based on the Existing Formula for July 1, 2013 – June 30, 2014, PHA Level**

| | | Compared to Existing Fee Formula at 75% Proration | | Compared to Existing Fee Formula at 95% Proration | |
|---|---|---|---|---|---|
| | **Percent of PHAs With:** | **Number of PHAs** | **Percent of PHAs** | **Number of PHAs** | **Percent of PHAs** |
| **"Gainer" PHAs** | Predicted fees more than 30% higher than existing fees | 1,338 | 59.3% | 473 | 21.0% |
| | Predicted fees 20% to 30% higher than existing fees[a] | 274 | 12.1% | 250 | 11.1% |
| | Predicted fees 10% to 20% higher than existing fees | 224 | 9.9% | 332 | 14.7% |
| | Predicted fees 5% to 10% higher than existing fees | 113 | 5.0% | 188 | 8.3% |
| | Predicted fees 0% to 5% higher than existing fees | 126 | 5.6% | 179 | 7.9% |
| | **Total "gainer" PHAs** | **2,075** | **92.0%** | **1,422** | **63.0%** |
| **"Decliner" PHAs** | Predicted fees 0% to 5% lower than existing fees | 65 | 2.9% | 172 | 7.6% |
| | Predicted fees 5% to 10% lower than existing fees | 51 | 2.3% | 158 | 7.0% |
| | Predicted fees 10% to 20% lower than existing fees | 46 | 2.0% | 295 | 13.1% |
| | Predicted fees 20% to 30% lower than existing fees | 16 | 0.7% | 174 | 7.7% |
| | Predicted fees more than 30% lower than existing fees | 3 | 0.1% | 35 | 1.6% |
| | **Total "decliner" PHAs** | **181** | **8.0%** | **834** | **37.0%** |
| **All PHAs** | | **2,256** | **100%** | **2,256** | **100%** |

N=2,256 non-MTW PHAs in this exhibit and going forward. One PHA is not included in this exhibit and further analysis because during the July 1, 2013–June 30, 2014 time frame its billed port-outs exceeded its number of vouchers under lease. As a result, the voucher count used for calculating the base fee for this PHA was less than zero. This PHA would, however, get a port-out billing supplement fee, which is included in the overall program cost.

[a] Intervals are calculated as "more than 20% but less than or equal to 30%."

Source: Study formula calculations and data on vouchers leased, port-ins and port-outs, and associated fees for the July 1, 2013–June 30, 2014 time period provided by HUD.

Exhibit 7-28 provides similar information at the voucher level. The exhibit shows that approximately 38 percent of vouchers would have study-predicted fees more than 30 percent higher than existing fees at 75 percent proration, 19 percent of vouchers would have study-predicted fees 20 to 30 percent higher, and 15 percent of PHAs would have study-predicted fees 10 to 20 percent higher. Overall, approximately 11 percent of vouchers would experience a decrease in fees relative to the existing formula at 75 percent proration. About seven percent of vouchers would experience a decrease of 10 percent or less, three percent would experience a decrease of 10 to 20 percent, and one percent would experience a decrease of more than 20 percent.

Compared to existing fees at 95 percent proration, about 12 percent of vouchers would have study-predicted fees more than 30 percent higher than under the existing formula, 5 percent of vouchers would have fees 20 to 30 percent higher, and 10 percent of PHAs would have fees 10 to 20 percent higher. Among the decliners, about 19 percent of vouchers would experience a decrease of 10 percent or less, about 21 percent would experience a decrease of 10 to 20 percent, and about 12 percent would experience a decrease of more than 20 percent.

**Exhibit 7-27. Detailed Comparison of Study Predicted Fees and Fees Based on the Existing Formula for July 1, 2013 – June 30, 2014, Voucher Level**

| | | Compared to Existing Fee Formula at 75% Proration | | Compared to Existing Fee Formula at 95% Proration | |
|---|---|---|---|---|---|
| | **Percent of Vouchers With:** | **Number of Vouchers** | **Percent of Vouchers** | **Number of Vouchers** | **Percent of Vouchers** |
| **"Gainer" Vouchers** | Predicted fees more than 30% higher than existing fees | 714,655 | 38.2% | 221,668 | 11.9% |
| | Predicted fees 20% to 30% higher than existing fees[a] | 353,093 | 18.9% | 93,248 | 5.0% |
| | Predicted fees 10% to 20% higher than existing fees | 281,574 | 15.1% | 192,711 | 10.3% |
| | Predicted fees 5% to 10% higher than existing fees | 122,563 | 6.6% | 126,603 | 6.8% |
| | Predicted fees 0% to 5% higher than existing fees | 193,967 | 10.4% | 262,310 | 14.0% |
| | **Total "gainer" vouchers** | **1,665,852** | **89.1%** | **896,540** | **47.9%** |
| **"Decliner" Vouchers** | Predicted fees 0% to 5% lower than existing fees | 67,302 | 3.6% | 154,036 | 8.2% |
| | Predicted fees 5% to 10% lower than existing fees | 68,102 | 3.6% | 195,094 | 10.4% |
| | Predicted fees 10% to 20% lower than existing fees | 49,663 | 2.7% | 389,314 | 20.8% |
| | Predicted fees 20% to 30% lower than existing fees | 13,686 | 0.7% | 181,621 | 9.7% |
| | Predicted fees more than 30% lower than existing fees | 5,680 | 0.3% | 53,680 | 2.9% |
| | **Total "decliner" vouchers** | **204,433** | **10.9%** | **973,745** | **52.1%** |
| **All Vouchers** | | **1,870,285** | **100%** | **1,870,285** | **100%** |

N=1,870,285 vouchers under lease.

[a] Intervals are calculated as "more than 20% but less than or equal to 30%."

Source: Study formula calculations and data on vouchers leased, port-ins and port-outs, and associated fees for the July 1, 2013–June 30, 2014 time period provided by HUD.

In analyzing the impact of the proposed fee formula on PHAs and vouchers, it is important to consider the impact on programs of different sizes and in different parts of the country. Exhibits 7-29 and 7-30 show how predicted fees compare to existing fees—under 75 percent and 95 percent proration—across six program size categories. Exhibit 7-29 shows the PHA level comparison, and Exhibit 7-30 shows the voucher level comparison.

Exhibit 7-29 shows that a majority of PHAs of all sizes would gain in funding under the proposed fee formula relative to the existing fee formula at 75 percent proration. Across the six size categories, 86 to 96 percent of PHAs would receive more funding under the proposed fee formula than under the existing formula at 75 percent proration. Compared to the existing formula at 95 percent proration, 35 to 75 percent of PHAs would receive more funding. Below we provide further discussion of the level of impact by program size.

### *Fewer than 500 Vouchers*

PHAs with fewer than 500 vouchers receive additional fee from the formula's program size variable. These PHAs benefit the most from the proposed fee formula relative to the existing fee formula. Among PHAs with fewer than 500 vouchers, 94 to 96 percent would receive higher fees under the proposed formula compared to the existing formula at 75 percent proration. Only 4 to 6 percent of these PHAs would experience a decrease in fees relative to the existing formula at 75 percent proration, and in most cases the decrease would be 10 percent or less.

Compared to the existing formula at 95 percent proration, 71 to 75 percent of PHAs with fewer than 500 vouchers would experience a gain overall, and 51 to 59 percent would experience a gain of more than 10 percent under the proposed formula. Twenty-five to 29 percent would experience a decline, including 14 to 15 percent that would experience a decline of more than 10 percent.

### *500 to 1,249 Vouchers*

Among PHAs with 500 vouchers to 1,249 vouchers, 86 percent would experience an increase in fees under the proposed formula compared to the existing formula at 75 percent proration and 14 percent would experience a decrease. Among PHAs in this size category, 69 percent would receive more than 10 percent higher fees under the proposed formula compared to the existing formula at 75 percent proration, and 5 percent would receive more than 10 percent lower fees.

Compared to the existing formula at 95 percent proration, 41 percent of PHAs with more than 500 to 1,249 vouchers would experience a gain and 59 percent would experience a decline. About 27 percent of PHAs in this size category would receive more than 10 percent higher fees and 38 percent would receive more than 10 percent lower fees.

### *1,250 to 5,249 Vouchers*

Among PHAs with 1,250 to 5,249 vouchers, 86 percent would experience an increase in fees under the proposed formula compared to the existing formula at 75 percent proration and 14 percent would experience a decrease. Among PHAs in this size category, 68 percent would receive more than 10 percent higher fees under the proposed formula compared to the existing formula at 75 percent proration, and 4 percent would receive more than 10 percent lower fees.

Compared to the existing formula at 95 percent proration, 38 percent of PHAs with 1,250 to 5,249 vouchers would experience a gain and 62 percent would experience a decline. About 23 percent of

PHAs in this size category would receive more than 10 percent higher fees and 40 percent would receive more than 10 percent lower fees.

### *5,250 to 9,999 Vouchers*

Eighty-six percent of PHAs with 5,250 to 9,999 vouchers would experience an increase in fees under the proposed formula compared to the existing formula at 75 percent proration and 14 percent would experience a decrease. Among PHAs in this size category, 71 percent would receive more than 10 percent higher fees under the proposed formula compared to the existing formula at 75 percent proration, and 3 percent would receive more than 10 percent lower fees.

Compared to the existing formula at 95 percent proration, 49 percent of PHAs with 5,250 to 9,999 vouchers would experience a gain and 51 percent would experience a decline. About 23 percent of PHAs in this size category would receive more than 10 percent higher fees and about 34 percent would receive more than 10 percent lower fees.

### *10,000 Vouchers or More*

Ninety percent of PHAs with 10,000 vouchers or more would receive higher fees under the proposed formula than under the existing formula at 75 percent proration, and about 60 percent would receive more than 10 percent higher fees. Ten percent of PHAs with 10,000 vouchers or more would experience a decrease in fees relative to the existing formula at 75 percent proration, including 5 percent of these PHAs that would experience a decrease of more than 10 percent. The share of PHAs experiencing a more than 10 percent decline is similar for PHAs in the 500 to 1,249 size category (5 percent) and for PHAs in the 1,250 to 5,249 size category (4 percent).

Compared to the existing formula at 95 percent proration, 35 percent of PHAs with 10,000 vouchers or more would experience an increase in fees, with about 20 percent of PHAs gaining more than 10 percent. Sixty-five percent of PHAs would experience a decrease in fees, including 40 percent that would experience a decrease of more than 10 percent. Again, the share of PHAs experiencing a more than 10 percent decline is similar for PHAs in the 500 to 1,249 size category (38 percent) and for PHAs in the 1,250 to 5,249 size category (40 percent).

Exhibit 7-30 shows the same comparisons on a voucher basis. The patterns are the same—the smallest PHAs are the largest relative gainers under the proposed fee formula—but the differences are smaller.

**Exhibit 7-29. Study-Predicted Fees Compared to Fees Based on the Existing Formula, by HCV Program Size, July 1, 2013–June 30, 2014, Non-MTW PHAs, PHA Level**

| | Compared to Existing Fee Formula at 75% Proration | | | | | | Compared to Existing Fee Formula at 95% Proration | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent of PHAs With:** | <250 | 250-499 | 500-1,249 | 1,250-5,249 | 5,250-9,999 | 10,000+ | <250 | 250-499 | 500-1,249 | 1,250-5,249 | 5,250-9,999 | 10,000+ |
| Predicted fees more than 30% higher | 71% | 67% | 37% | 35% | 40% | 25% | 31% | 18% | 7% | 5% | 11% | 15% |
| Predicted fees 20% to 30% higher[a] | 10% | 12% | 17% | 14% | 17% | 20% | 13% | 14% | 9% | 5% | 3% | 0% |
| Predicted fees 10% to 20% higher | 6% | 10% | 15% | 19% | 14% | 15% | 15% | 19% | 11% | 13% | 9% | 5% |
| Predicted fees 5% to 10% higher | 3% | 4% | 8% | 10% | 3% | 10% | 8% | 10% | 7% | 8% | 9% | 5% |
| Predicted fees up to 5% higher | 4% | 3% | 9% | 8% | 11% | 20% | 7% | 10% | 8% | 9% | 17% | 10% |
| **Total "gainer" PHAs** | **94%** | **96%** | **86%** | **86%** | **86%** | **90%** | **75%** | **71%** | **41%** | **38%** | **49%** | **35%** |
| Predicted fees up to 5% lower | 2% | 2% | 5% | 6% | 6% | 0% | 6% | 7% | 11% | 9% | 9% | 10% |
| Predicted fees 5% to 10% lower | 2% | 1% | 2% | 3% | 6% | 5% | 5% | 7% | 9% | 13% | 9% | 15% |
| Predicted fees 10% to 20% lower | 2% | 1% | 3% | 3% | 3% | 5% | 8% | 10% | 23% | 24% | 14% | 30% |
| Predicted fees 20% to 30% lower | 0% | 0% | 2% | 1% | 0% | 0% | 7% | 3% | 11% | 12% | 20% | 5% |
| Predicted fees more than 30% lower | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 4% | 4% | 0% | 5% |
| **Total "decliner" PHAs** | **6%** | **4%** | **14%** | **14%** | **14%** | **10%** | **25%** | **29%** | **59%** | **62%** | **51%** | **65%** |
| **Number of PHAs** | **1,142** | **391** | **405** | **263** | **35** | **20** | **1,142** | **391** | **405** | **263** | **35** | **20** |

N=2,256 non-MTW PHAs.

[a] Intervals are calculated as "more than 20% but less than or equal to 30%."

Source: Study formula calculations and data on vouchers leased, port-ins and port outs, and associated fees for the July 1, 2013–June 30, 2014 time period provided by HUD.

**Exhibit 7-30. Study-Predicted Fees Compared to Fees Based on the Existing Formula, by HCV Program Size, July 1, 2013–June 30, 2014, Non-MTW PHAs, Voucher Level**

| | Compared to Existing Fee Formula at 75% Proration | | | | | | Compared to Existing Fee Formula at 95% Proration | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent of Vouchers With:** | <250 | 250-499 | 500-1,249 | 1,250-5,249 | 5,250-9,999 | 10,000+ | <250 | 250-499 | 500-1,249 | 1,250-5,249 | 5,250-9,999 | 10,000+ |
| Predicted fees more than 30% higher | 73% | 65% | 36% | 35% | 41% | 25% | 29% | 17% | 7% | 5% | 11% | 18% |
| Predicted fees 20% to 30% higher[a] | 9% | 12% | 17% | 13% | 17% | 34% | 14% | 13% | 9% | 4% | 3% | 0% |
| Predicted fees 10% to 20% higher | 5% | 10% | 15% | 23% | 14% | 9% | 18% | 19% | 11% | 13% | 8% | 3% |
| Predicted fees 5% to 10% higher | 3% | 5% | 9% | 8% | 2% | 6% | 9% | 10% | 6% | 7% | 10% | 4% |
| Predicted fees up to 5% higher | 4% | 4% | 9% | 9% | 11% | 17% | 6% | 10% | 8% | 9% | 18% | 27% |
| **Total "gainer" vouchers** | **95%** | **96%** | **86%** | **87%** | **86%** | **92%** | **76%** | **69%** | **40%** | **38%** | **50%** | **52%** |
| Predicted fees up to 5% lower | 2% | 2% | 6% | 5% | 6% | 0% | 6% | 7% | 11% | 8% | 8% | 8% |
| Predicted fees 5% to 10% lower | 2% | 1% | 3% | 3% | 5% | 5% | 4% | 7% | 10% | 14% | 9% | 9% |
| Predicted fees 10% to 20% lower | 1% | 1% | 4% | 3% | 2% | 3% | 7% | 12% | 23% | 25% | 13% | 24% |
| Predicted fees 20% to 30% lower | 0% | 0% | 2% | 1% | 0% | 0% | 6% | 3% | 11% | 11% | 20% | 5% |
| Predicted fees more than 30% lower | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 1% | 4% | 4% | 0% | 3% |
| **Total "decliner" vouchers** | **5%** | **4%** | **14%** | **13%** | **14%** | **8%** | **24%** | **31%** | **60%** | **62%** | **50%** | **48%** |
| **Number of Vouchers** | 123,619 | 142,775 | 318,987 | 600,290 | 233,716 | 450,898 | 123,619 | 142,775 | 318,987 | 600,290 | 233,716 | 450,898 |

N=1,870,285 vouchers under lease.

[a] Intervals are calculated as "more than 20% but less than or equal to 30%."

Source: Study formula calculations and data on vouchers leased, port-ins and port-outs, and associated fees for the July 1, 2013–June 30, 2014 time period provided by HUD.

Exhibits 7-31 and 7-32 show how predicted fees compare to existing fees—under 75 percent and 95 percent proration—across the five census regions and the U.S. Territories. Exhibit 7-31 shows the PHA level comparison and Exhibit 7-32 shows the voucher level comparison.

Exhibit 7-31 shows that a majority of PHAs in all regions except the U.S. Territories would gain substantially in funding relative to the existing fee formula at 75 percent proration. PHAs in the Midwest, South, and Northeast are the most likely to experience a gains. In these regions, 91 to 99 percent of PHAs would experience a gain of any level relative to the existing formula at 75 percent proration, and 80 to 95 percent would experience a gain of more than 10 percent. Gains are more modest for PHAs in the West and in the U.S. Territories. In the West, 79 percent of PHAs would experience a gain overall and 58 percent would experience a gain of more than 10 percent. In the U.S. Territories, only 53 percent of PHAs would experience a gain overall relative to the existing formula at 75 percent proration and only 14 percent of PHAs would gain by more than 10 percent. However, no PHA in the U.S. Territories would experience a decline of more than 10 percent relative to the existing formula at 75 percent proration. In the other regions, a small share of PHAs would experience a decline of more than 10 percent: 8 percent of PHAs in the West, 5 percent of PHAs in the Northeast, 1 percent of PHAs in the South, and 0 percent of PHAs in the Midwest.

If we compare the proposed fee formula to the existing formula at 95 percent proration, the pattern by region is similar, with PHAs in the Midwest, South, and Northeast most likely to experience gains in funding, and PHAs in the West and the U.S. Territories least likely to experience gains in funding and most likely to experience losses of more than 10 percent.

Exhibit 7-32 shows the same comparisons on a voucher basis. The pattern is similar—vouchers in the Midwest, Northeast, and South fair best, while those in the West and the U.S. Territories are the least likely to show relative gains in funding and the most likely to show relative declines when compared to existing fees at 95 percent proration.

The patterns observed in the comparison of the proposed fee formula to the existing fee formula by region reflect in part the patterns of the existing fee formula, which awards higher fees (on average) to PHAs in the Northeast and West based on differences in the 1993 FMR that carry through the current application of the formula. Exhibit 7-33 shows the average 1993 FMR for each of the five regions as well as the average non-prorated fee per UML for the 2013–2014 timeframe. FMRs and fees are highest in the Northeast and West, and fees (but not FMRs) are also relatively high in the U.S. Territories.

**Exhibit 7-31. Study-Predicted Fees Compared to Fees Based on the Existing Formula, by Region, July 1, 2013–June 30, 2014, Non-MTW PHAs, PHA Level**

| | Compared to Existing Fee Formula at 75% Proration | | | | | Compared to Existing Fee Formula at 95% Proration | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Percent of PHAs With:** | Midwest | Northeast | South | West | Territories | Midwest | Northeast | South | West | Territories |
| Predicted fees more than 30% higher | 79% | 53% | 64% | 31% | 4% | 39% | 16% | 17% | 9% | 0% |
| Predicted fees 20% to 30% higher[a] | 10% | 14% | 13% | 12% | 5% | 13% | 10% | 13% | 4% | 0% |
| Predicted fees 10% to 20% higher | 6% | 13% | 10% | 15% | 5% | 16% | 14% | 17% | 9% | 3% |
| Predicted fees 5% to 10% higher | 2% | 6% | 4% | 12% | 5% | 8% | 8% | 11% | 5% | 1% |
| Predicted fees up to 5% higher | 2% | 5% | 5% | 8% | 34% | 7% | 8% | 10% | 6% | 0% |
| **Total "gainer" PHAs** | **99%** | **91%** | **96%** | **79%** | **53%** | **83%** | **57%** | **68%** | **33%** | **4%** |
| Predicted fees 1% to 5% lower | 1% | 3% | 2% | 7% | 19% | 6% | 9% | 8% | 8% | 4% |
| Predicted fees 5% to 10% lower | 0% | 1% | 1% | 6% | 29% | 5% | 10% | 6% | 10% | 1% |
| Predicted fees 10% to 20% lower | 0% | 4% | 1% | 6% | 0% | 5% | 16% | 12% | 27% | 16% |
| Predicted fees 20% to 30% lower | 0% | 1% | 0% | 2% | 0% | 1% | 6% | 4% | 16% | 75% |
| Predicted fees more than 30% lower | 0% | 0% | 0% | 0% | 0% | 0% | 3% | 1% | 5% | 0% |
| **Total "decliner" PHAs** | **1%** | **9%** | **4%** | **21%** | **48%** | **17%** | **43%** | **32%** | **67%** | **96%** |
| **Number of PHAs** | **590** | **556** | **778** | **252** | **80** | **590** | **556** | **778** | **252** | **80** |

N=2,256 non-MTW PHAs.

[a] Intervals are calculated as "more than 20% but less than or equal to 30%."

Source: Study formula calculations and data on vouchers leased, port-ins and port-outs, and associated fees for the July 1, 2013–June 30, 2014 time period provided by HUD.

**Exhibit 7-32. Study-Predicted Fees Compared to Fees Based on the Existing Formula, by Region, July 1, 2013–June 30, 2014, Non-MTW PHAs, Percent of Vouchers**

| | Compared to Existing Fee Formula at 75% Proration | | | | | Compared to Existing Fee Formula at 95% Proration | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Percent of Vouchers With:** | Midwest | Northeast | South | West | Territories | Midwest | Northeast | South | West | Territories |
| Predicted fees more than 30% higher | 65% | 35% | 43% | 14% | 5% | 21% | 16% | 9% | 4% | 0% |
| Predicted fees 20% to 30% higher[a] | 18% | 39% | 13% | 7% | 1% | 8% | 4% | 7% | 1% | 0% |
| Predicted fees 10% to 20% higher | 13% | 9% | 20% | 19% | 1% | 23% | 8% | 8% | 5% | 4% |
| Predicted fees 5% to 10% higher | 2% | 4% | 7% | 13% | 5% | 9% | 3% | 11% | 4% | 1% |
| Predicted fees up to 5% higher | 1% | 6% | 9% | 23% | 46% | 11% | 32% | 11% | 3% | 0% |
| **Total "gainer" vouchers** | **99%** | **93%** | **91%** | **75%** | **58%** | **71%** | **64%** | **46%** | **16%** | **5%** |
| Predicted fees 1% to 5% lower | 1% | 3% | 2% | 8% | 22% | 12% | 10% | 9% | 3% | 1% |
| Predicted fees 5% to 10% lower | 0% | 0% | 2% | 12% | 20% | 9% | 6% | 12% | 15% | 0% |
| Predicted fees 10% to 20% lower | 0% | 2% | 4% | 3% | 0% | 7% | 13% | 22% | 40% | 10% |
| Predicted fees 20% to 30% lower | 0% | 1% | 0% | 2% | 0% | 1% | 5% | 6% | 22% | 84% |
| Predicted fees more than 30% lower | 0% | 0% | 1% | 0% | 0% | 0% | 3% | 4% | 3% | 0% |
| **Total "decliner" vouchers** | **1%** | **7%** | **9%** | **25%** | **42%** | **29%** | **36%** | **54%** | **84%** | **95%** |
| Number of Vouchers | 352,981 | 458,800 | 622,505 | 403,606 | 32,393 | 352,981 | 458,800 | 622,505 | 403,606 | 32,393 |

N=1,870,285 vouchers under lease.

[a] Intervals are calculated as "more than 20% but less than or equal to 30%."

Source: Study formula calculations and data on vouchers leased, port-ins and port-outs, and associated fees for the July 1, 2013–June 30, 2014 time period provided by HUD.

**Exhibit 7-33. 1993 FMR and 2013 Column A Fee Rate by Region**

| | Average 1993 Two-Bedroom FMR | Average 2013 Column A Fee Rate |
|---|---|---|
| Midwest | $408 | $57.95 |
| Northeast | $600 | $85.46 |
| South | $391 | $61.77 |
| West | $537 | $74.91 |
| U.S. Territories | $393 | $78.02 |

Source: 1993 HUD FMRs (http://www.huduser.org/portal/datasets/fmr.html) and 2013 A rate (http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/programs/hcv).

## 7.6 Phasing in the New Formula

In implementing a new fee formula, HUD should consider a transition or phase-in plan to allow PHAs time to adjust to the new fees. This is particularly important for PHAs facing a decrease in funding under the new formula. As shown in Exhibit 7-34, 92 percent of PHAs would experience an increase in fees under the proposed formula compared to what they received under the existing formula with 75 percent proration, and 8 percent of PHAs would experience a decrease.[82]

**Exhibit 7-34. Fee Funding Under Proposed Formula Compared to Fee Funding Under Existing Formula at 75 Percent Proration, July 1, 2013–June 30, 2014**

| | | Number of PHAs | Percent of PHAs |
|---|---|---|---|
| **"Gainer" PHAs** | Predicted fees more than 10% higher than existing fees | 1,836 | 81% |
| | Predicted fees 5% to 10% higher than existing fees[a] | 113 | 5% |
| | Predicted fees 0% to 5% higher than existing fees | 126 | 6% |
| | **Total "gainer" PHAs** | **2,075** | **92%** |
| **"Decliner" PHAs** | Predicted fees more than 10% lower than existing fees | 65 | 3% |
| | Predicted fees 5% to 10% lower than existing fees | 51 | 2% |
| | Predicted fees 0% to 5% lower than existing fees | 65 | 3% |
| | **Total "decliner" PHAs** | **181** | **8%** |
| **All PHAs** | | **2,256** | **100%** |

[a] Intervals are calculated as "more than 5% but less than or equal to 10%."

Source: Study formula calculations and data on vouchers leased, port-ins and port-outs, and associated fees for the July 1, 2013–June 30, 2014 time period provided by HUD.

[82] The figures in Exhibit 7-33 are consistent with those in Exhibit 7-27 but show different break points.

A transition or phase-in plan could be implemented in many ways. The goal of the plan would be to minimize disruption to program administration for those PHAs that would experience a decrease in fees under the new formula.

A simple phase-in approach would be to distribute the loss in fees gradually over a number of years, so that the PHA does not experience a decrease in fees above a certain percentage in any given year. For example, HUD could phase-in fees for decliner PHAs over five years. Under this scenario, each decliner PHA would have PHA would have its fees reduced by one-fifth of the difference between its existing fees and the formula-calculated fees each year for the first five years of implementation. In the fifth year of formula implementation would receive the fee amount calculated by the new fee formula with no adjustments.

Two important considerations for any phase-in approach are the length of the phase in (the number of years over which the gains or declines are spread) and which PHAs should be included. In terms of the length of the phase-in, the longer the phase-in period, the less change the PHA would experience in a given year. With a three-year phase-in plan, for example, the PHA would be receiving the new fee as predicted by the formula by the third year of implementation, compared to by the fifth year for a five-year plan.

In terms of which PHAs are included in the phase-in plan, HUD could choose to apply a phase-in approach to all decliner PHAs, to a subset of decliner PHAs (such as PHAs experiencing a decrease above a certain percentage), or to gainer as well as decliner PHAs.

The length of the phase-in and which PHAs are included have budgetary implications. The longer the phase-in for decliner PHAs, the higher the cost of the program in a given year, as decliner PHAs will only gradually arrive at their final (lower) fee amount. By contrast, the longer the phase-in for gainer PHAs, the lower the cost of the program, as gainer PHAs will only gradually reach their final (higher) fee amount. The most costly option would be no phase-in or a short phase-in for gainers, coupled with a long phase-in for decliners. Gainer PHAs would likely advocate for the shortest phase-in possible. However, it may be necessary for HUD to phase in gains in order to be able to pay for a phase-in period for decliners that is sufficiently long to allow those PHAs to adjust to their reduced funding.

In addition to or in lieu of a phase-in plan, HUD might consider provisions to protect individual PHAs from changes from their current level of funding if HUD determines that those changes could jeopardize high-performing and efficient administration of the program. The formula model is not able to predict costs perfectly for all PHAs and adjustments may be needed at the time of formula implementation for PHAs whose costs are not well represented. One approach would be to limit the extent of individual PHA gains or losses from the funding received in the year before formula implementation, making sure that such “floors” or “ceilings” on the formula do not inhibit the ability of the fees to respond to the cost drivers identified through the study. Another approach would be to make further adjustments to the formula model to mitigate excessive gains or losses without tying the new fees to current funding levels.

## 7.7 Formula Updates and Future Modifications

The formula proposed in this chapter is rooted in the time data collection and cost driver analysis completed for the study. It is based on the study findings with respect to cost drivers and careful analysis and testing of the formula’s impact on PHAs.

While the study team has no additional recommendations on the formula other than what has been discussed thus far, we recognize and expect that HUD will further analyze and consider the proposed formula and may recommend modifications to the implementation approach. We also expect that HUD may consider modifications to the formula or supplemental fees to support PHAs in addressing program priorities, strategic goals, and policy objectives at both the local and the national level.

At the conclusion of this study, HUD will have the tools to modify the formula or develop supplemental fees. There are many program priorities, strategic goals, and policy objectives that HUD could potentially incentivize through administrative fee funding. The findings from this study suggest four areas for further analysis and consideration: special voucher programs, homeless households, performance incentives, and expanding housing opportunities.

### 7.7.1 Special Voucher Programs

The first area for consideration is whether supplemental one-time fees may be warranted to support the administration of ***special voucher programs***. Our study did not find that administration of any of the special voucher programs was significant as a cost driver. However, the analysis of time data suggests that administering project-based vouchers, HUD-VASH vouchers, and homeownership vouchers can be more time consuming (and thus more costly) under certain circumstances.

#### Project-Based Vouchers

Twenty-seven PHAs in the study had project-based vouchers under lease and recorded time spent on project-based vouchers during the RMS period. One of these PHAs was in the process of developing and issuing an RFP for project-based vouchers during the RMS data collection period. This PHA was very different from the others in the amount of time spent on project-based vouchers during the RMS period. This PHA had only one project-based voucher under lease at the time of data collection but recorded 52 hours of work over the eight-week data collection period related to developing the RFP. By contrast, the other PHAs in the study recorded an average of 1.5 hours per project-based voucher during their eight-weeks of data collection, about the same time as was spent on regular vouchers.

The 52 hours spent on the RFP were almost exclusively the work of the PHA's HCV Director and represented about 16 percent of the time she spent on the HCV program during this period. For this particular staff person, the 52 hours of work translates to approximately $4,000 in salary and benefits or $7,000 if we add an average share of non-labor and overhead costs to the salary and benefits cost (in 2013 dollars).[83]

Although this estimate is based on just one PHA, HUD could gather additional data by asking PHAs to record (or estimate) the time they spend on developing and issuing RFPs for new project-based vouchers and for the personnel costs of the staff doing the work. This would allow HUD to develop a more robust estimate for the additional cost involved in project-basing vouchers that could become the basis for a one-time fee.

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[83] To arrive at these estimates we calculated the labor cost based on the staff person's annual salary and benefits multiplied by the percentage of time spent on the PBV work. We then divided the labor cost estimate by the PHA's wage index to bring the cost to a national average wage level. To calculate the non-labor and overhead costs associated with that labor, we applied the average ratio of non-labor and overhead costs to labor costs of 0.57 observed across the study sites.

### HUD-VASH Vouchers

We developed time estimates for 21 PHAs in the study that administered HUD-VASH vouchers. Similar to the case with project-based vouchers, two of the 21 PHAs recorded very large amounts of time spent on HUD-VASH during the RMS data collection period, with very few HUD-VASH vouchers under lease. One of the PHAs recorded 420 hours spent on HUD-VASH during the two-month period (about 52 hours per week), with only one VASH voucher under lease. The other PHA recorded 216 hours spent on HUD-VASH during the two month period (about 27 hours per week), with only three VASH vouchers under lease. These two PHAs were in the process of developing new HUD-VASH programs and logged a very large amount of time under monitoring and supervisory activities and for supportive services, which includes developing partnerships and providing service referrals for clients.

In the case of these two PHAs, the upfront work was done by a combination of the HCV Director and line staff. For these two PHAs, we estimate the cost of the work, in 2013 dollars, to be approximately $1,300 to $2,300 in salary and benefits, or approximately $2,300 to $4,000 if we add an average share of non-labor and overhead costs to the salary and benefits cost.[84] As with project-based vouchers, HUD could gather additional information from PHAs with new HUD-VASH programs on the time spent setting up the programs and develop a more robust estimate for the upfront costs of the program.

The study results were not conclusive regarding time spent on the HUD-VASH program once established (see Chapter 4, Section 4.6). In view of the policy objective of the HUD-VASH program and the importance of encouraging PHAs to apply for and administer HUD-VASH, we recommend that HUD undertake further research into the type and amount of work required for the ongoing administration of the HUD-VASH program and how the work may differ from that required for the regular HCV program. HUD would need to collect information from PHAs on the additional time or activities required for HUD-VASH on an ongoing basis and use the cost estimates developed through the study to estimate the corresponding additional costs. The information on the additional time or activities required could be collected via interviews with a diverse sample of PHAs or a time measurement approach whereby PHA staff track their work with a sample of HUD-VASH recipients. If the information suggested that PHA staff spend an additional 30 minutes per annual recertification for HUD-VASH participants, HUD could use the estimated time and cost per annual recertification to estimate the cost of the additional 30 minutes.

### Homeownership Vouchers

The study found that PHAs spend substantially more time per voucher on homeownership vouchers than on regular vouchers. On average, excluding time spent on inspections, the 27 PHAs spent 22.3 hours per voucher per year for homeownership vouchers, compared to 13.6 hours per voucher per year for regular vouchers. However, there was substantial variation across the 27 PHAs in the time spent per voucher on homeownership vouchers and thus a wide confidence interval around the average—6.2 hours to 38.1 hours. The main driver of the higher average time per voucher was the large amount of time spent on supportive services for homeownership vouchers. This includes all the

[84] We used the same method to develop these estimates as was described in the previous footnote for project-based vouchers.

work related to counseling families about homeownership and supporting them through the home-buying process.

The time data collected for the study suggests that PHAs spend, on average, an additional 8.7 hours per voucher per year on homeownership vouchers compared to regular vouchers. HUD currently incentivizes the homeownership program by paying PHA's $500 for establishing a new homeownership program and $200 for each homeownership closing. None of the PHAs in the study were establishing new homeownership programs, so the study has no information to offer on program start-up costs. However, the extra 8.7 hours per voucher per year provides an estimate of the extra staff time associated with bringing a homeownership voucher under lease and maintaining that voucher. We used the cost data collected through the study to estimate the cost of 8.7 hours of staff time for those staff that perform homeownership functions. In 2013 dollars, we estimated the average cost of the 8.7 hours of staff time to be approximately $300 in labor costs and approximately $525 with the addition of non-labor and overhead costs.[85]

These estimates suggest that HUD's current fee of $200 per closing may be low if the intention is to compensate PHAs fully for the additional time spent with homeownership households. However, it is important to acknowledge that the study did not find that administering the voucher homeownership program was a significant cost driver. This is likely because most of the higher costs for the program are incurred when establishing the program and when assisting households to become homeowners. Once a homeownership voucher is leased up, it is not necessarily more costly on an ongoing basis. It is also important to recognize the PHAs in the study varied widely in the time spent on the homeownership program. Thus, HUD should consider conducting further research to corroborate the findings on average time per homeownership voucher before considering adjustments to the formula.

### 7.7.2 Homeless Households

The time study was not conclusive about the time spent serving households that are homeless at admission compared to serving other households type, and the cost driver analysis did not find the share of homeless households served to be a significant cost driver. However, several PHAs in the study noted that serving formerly homeless households is more time consuming, and it is possible that our study did not pick up all the time spent on these households. As discussed in Section 7.4 above, homeless households are a small percentage of households served for most PHAs: thus work with homeless households is a relatively rare event for most PHAs.[86] The sample size for the homeless households estimate is also small (12 PHAs), because most PHAs did not record any time spent working with homeless households. In reporting their time through RMS, PHA staff may not always have been aware of when they were working with a formerly homeless client. This could have

[85] For each PHA that recorded time on homeownership vouchers, we calculated the time that each staff person worked on the program. We then calculated an hourly labor cost for each staff controlling for local wage differences by dividing each staff's hourly salary and benefits cost by the wage index applicable to the PHA. Next, we calculated an average hourly labor cost across the staff weighted by the percentage of time each staff spent on the program. We multiplied the average hourly labor cost by 8.7 to arrive at the $300 estimate and divided $300 by 0.57 to add non-labor and overhead costs.

[86] The percent of voucher households identified in the PIC data as homeless at admission ranges from 0 to 19 percent across the 60 study sites, with an average of 2 percent. Time spent on homeless households accounted for only 3 percent of the total data points collected by household type.

affected the amount of time reported by staff as well the number of PHAs that recorded any time spent with homeless households.

If HUD is interested in providing further incentives to PHAs to serve homeless households, additional research could be undertaken to determine which elements of the program (if any) take more time for these households on a per household basis and whether certain aspects of program administration, such as interim recertifications, are performed more frequently for homeless households than other household types. With more information on the extra time spent or additional activities conducted for homeless households, HUD could use the cost data from the study to produce estimates of additional costs that could be compensated outside the fee formula.

### 7.7.3 PHA Performance Incentives

In addition to supplemental fees to incentivize serving particular voucher or household types, HUD could also consider additional fees or fee adjustments for PHAs that score highly on program performance measures or that achieve positive outcomes related to expanding housing opportunities. HUD is currently in the midst of an effort to revise SEMAP; until this is done there is not an agreed upon way to measure program performance that could be reflected in a new fee formula. However, HUD may wish to consider a variety of different approaches in the future that would encourage and compensate PHAs based on performance measures in addition to simply addressing program costs.

### 7.7.4 Expanding Housing Opportunities

With respect to expanding housing opportunities, the proposed fee formula currently provides extra funds for PHAs whose households lease in relatively high cost parts of the jurisdiction through the small area rent ratio variable. Under the proposed formula, a PHA has the potential to increase its fee per unit month by up to $14 by increasing its small area rent ratio—that is, the share of households that relatively high-rent areas.[87] Expanding housing opportunities is one way for a PHA to increase its small area rent ratio, as these efforts facilitate lease up in higher-income parts of the jurisdiction.

Beyond the small area rent ratio, further efforts to incentivize expanding housing opportunities in a fee formula model would first require that HUD develop a measure of PHA effectiveness in expanding housing opportunities that is available for all PHAs (such as the percent of households living in opportunity neighborhoods, however defined). HUD could then model the costs associated with higher and lower levels of effectiveness. Alternatively, HUD could research the costs of local mobility programs or other expanding housing opportunities efforts around the country known to have achieved good results and use those costs as the basis for developing a fee adjustment.

[87] Under the proposed formula, each PHA receives $66.83 times its small area rent ratio. The small area rent ratio values can range from 0.93 to 1.14. Thus, all things being equal, a PHA whose small area rent ratio increases from 0.93 to 1.14 would receive a $14 increase in administrative fee per unit month.

# 8. Small Program Costs

Alongside estimating the cost of operating a high-performing and efficient voucher program and developing a new fee formula to fund program administration, a third goal for the study was to investigate the feasibility of operating a small HCV program relying on administrative fees alone. The study's research question was: "Is there a minimum size below which an HCV program cannot successfully operate on administrative fees alone?"

To answer this question, the study team conducted telephone interviews with and reviewed cost data from 130 PHAs with high-performing HCV programs ranging in size from 20 to 244 vouchers under lease.[88] The data collection conducted for these PHAs was less in-depth than that conducted for the time measurement sample of 60 PHAs. The main purpose was not to measure costs precisely but rather to analyze how costs vary with program size for programs with fewer than 250 vouchers, and particularly for programs with 100 or fewer vouchers, since this size group was not included in the time measurement study.

The interviews, completed with 130 PHAs, and the accompanying cost data collection yielded estimates of HCV program costs that added costs incurred by the HCV program but not formally charged to the program and reported on the Financial Data Schedule (FDS) of HUD's FASS-PH, as well as subtracting any costs that might have been charged to the HCV program but incurred by other programs. In addition to the overall cost estimates, the team collected information on the types of costs not reflected in the FDS and on the share of HCV program costs covered by administrative fees. The telephone interviews also provided qualitative information about the challenges that small programs face in operating the HCV program in the current fee environment and cost-cutting measures they have taken in response to administrative fee cuts.

In addition to analyzing the interview data for 130 small HCV programs, we also analyzed financial data available from HUD's FDS for all small HCV programs to provide a broader perspective on the feasibility of running the HCV program on administrative fees alone. The broader FDS analysis is presented first, followed by the analysis of HCV program costs from the 130 interview sites, and finishing with analysis of qualitative findings from the interviews.

## 8.1 Analysis of HUD Administrative Data on HCV Costs by Program Size

This section presents an analysis of the HCV program balance sheet and income statement data that PHAs submit to HUD's FASS-PH. The purpose of the analysis is to compare administrative costs and financial health for HCV programs of different sizes and to look for differences between small and large programs, with particular focus on programs with fewer than 250 vouchers. The FASS data is available for a very large share of the universe of PHAs and allows for "apples to apples" comparisons across PHAs in different HCV program size categories.

Exhibit 8-1 shows three measures of HCV program financial health for just over 2,000 PHAs across different HCV program size categories. The three measures are unrestricted net assets (administrative

[88] When port-in vouchers are included in the calculation of total vouchers under lease, two PHAs in the sample have more than 250 vouchers under lease. We have included these PHAs in the analyses except where noted.

fee equity), administrative fee equity per unit month leased, and months of expendable administrative fee equity. The exhibit shows that the amount of total administrative fee equity has generally decreased over the past five years for the PHAs with 5,249 or fewer vouchers and increased for larger PHAs. There is not a clear pattern among the smaller HCV programs. PHAs with 50 to 99 vouchers experienced the greatest percentage decreases in administrative fee equity, but some of the larger size categories (250 to 499 and 500 to 1,249) also experienced substantial decreases.

The total administrative fee equity amount is dependent on the number of vouchers that the PHA administers and, therefore, is larger for PHAs with larger HCV programs in both FY 2009 and FY 2013. In contrast, looking at administrative fee equity per unit month leased, smaller HCV programs appear somewhat better off than larger programs. The median administrative fee equity per unit month leased for PHAs with fewer than 250 vouchers ranged from $21 to $30 in 2013, compared to $11 to $24 for PHAs with 250 vouchers or more. Among PHAs with fewer than 250 vouchers, however, there are no clear patterns. PHAs with fewer than 50 vouchers have the highest administrative fee equity per month ($30), but the other three categories are quite similar.

The third measure of financial health shown in Exhibit 8-1 is a program's months of administrative fee equity. This measure represents the amount of time that a PHA would be able to operate its HCV program on fee reserves alone, in the event that future funding were to be cut off. The data suggest that the smaller the HCV program, the longer it can operate without relying on additional funding. Without HUD's funding, PHAs with fewer than 250 vouchers would still be able to administer their current vouchers for five to seven months before running out of their unrestricted resources. PHAs with larger number of vouchers would be out of funds in two to five months.

**Exhibit 8-1. HCV Program Administrative Fee Equity Analysis, 2009–2013**

| | | 1. Unrestricted Net Assets (Administrative Fee Equity) | | | 2. Administrative Fee Equity per Unit Month Leased | | | 3. Months of Expendable Administrative Fee Equity | | |
|---|---|---|---|---|---|---|---|---|---|---|
| HCV Program Size (Vouchers Leased) | # of PHAs | FY 2009—Median | FY 2013—Median | Percent Change in Median Since FY2009 | FY 2009—Median | FY 2013—Median | Percent Change in Median Since FY2009 | FY 2009—Median | FY 2013—Median | Percent Change in Median Since FY2009 |
| 10,000+ | 16 | $1,603,535 | $1,708,099 | 6.5% | $7 | $11 | 62.1% | 2.5 | 2.1 | -14.3% |
| 5,250 to 9,999 | 28 | $1,036,544 | $1,181,473 | 14.0% | $12 | $14 | | 2.9 | 2.5 | -14.8% |
| 1,250 to 5,249 | 251 | $528,020 | $463,676 | -12.2% | $21 | $21 | 1.3% | 4.6 | 4.4 | -2.6% |
| 500 to 1,249 | 366 | $254,034 | $197,849 | -22.1% | $28 | $24 | -14.7% | 5.5 | 4.9 | -10.0% |
| 250 to 499 | 372 | $121,712 | $92,391 | -24.1% | $27 | $21 | -23.3% | 5.7 | 5 | -12.8% |
| 150 to 249 | 300 | $62,002 | $53,539 | -13.6% | $28 | $23 | -19.1% | 5.4 | 5.6 | 3.6% |
| 100 to 149 | 201 | $37,788 | $38,793 | 2.7% | $27 | $26 | -5.6% | 6.7 | 5.7 | -15.1% |
| 50 to 99 | 269 | $30,245 | $20,437 | -32.4% | $33 | $23 | -29.1% | 8 | 5.7 | -28.2% |
| 1 to 49 | 205 | $11,590 | $10,046 | -13.3% | $32 | $30 | -6.1% | 7.8 | 6.6 | -15.0% |
| **Overall** | **2,008** | **$78,095** | **$61,804** | **-20.9%** | **$27** | **$23** | **-16.6%** | **5.8** | **5.2** | **-10.7%** |

11.5%

N=2,008 PHAs. Excludes PHAs that did not have complete FASS data for FY 2009–FY 2013 and PHAs participating in the Moving to Work (MTW) demonstration.

Source: Analysis of data reported to HUD's FASS-PH.

Exhibit 8-2 shows the median administrative cost per voucher leased per month by HCV program size category, both in raw numbers and adjusted for differences in local labor costs using the labor cost index derived from the QCEW and used in the regression analysis discussed in Chapter 6. Once differences in local labor costs are taken into account, smaller HCV programs appear to have higher per voucher administrative costs (as reported to HUD's FASS-PH) than larger programs. PHAs with fewer than 50 vouchers appear to have substantially higher per voucher costs ($74 per month) compared to the average across all program sizes ($60 per month).

The last column of Exhibit 8-2 shows the average percentage of total HCV administrative costs covered by HCV administrative fee revenue in FY 2013. These data show that administrative costs exceed administrative fee revenues for all size categories, but there is not a strong pattern by HCV program size.

**Exhibit 8-2. HCV Administrative Costs From FASS-PH and Percent of Administrative Costs Covered by Administrative Fees, FY 2013**

| HCV Program Size (Number of Vouchers) | N | Weighted Average Cost/Voucher/ Month (unadjusted) | Weighted Average Cost/Voucher/ Month (QCEW adjusted) | Weighted Average Percent of Admin Costs Covered by Fee Revenue |
|---|---|---|---|---|
| 10,000+ | 16 | $66 | $55 | 97% |
| 5,250 to 9,999 | 26 | $61 | $53 | 95% |
| 1,250 to 5,249 | 233 | $60 | $60 | 96% |
| 500 to 1,249 | 355 | $62 | $63 | 95% |
| 250 to 499 | 342 | $64 | $68 | 93% |
| 150 to 249 | 273 | $61 | $65 | 97% |
| 100 to 149 | 180 | $62 | $70 | 94% |
| 50 to 99 | 235 | $60 | $68 | 96% |
| 1 to 49 | 177 | $63 | $74 | 93% |
| **Overall** | **1,837** | **$62** | **$60** | **96%** |

N=1,837 PHAs. Excludes PHAs that did not have complete FASS data for FY 2009–FY 2013, PHAs participating in the Moving to Work (MTW) demonstration, and PHAs for which local labor costs could not be determined using the QCEW.

Source: Analysis of data reported to HUD's FASS-PH.

## 8.2 Analysis of Small Program Interview Data

As is the case with the large HCV programs, administrative costs in the small programs do not exactly equal the costs reported to the FASS-PH. This discrepancy could be the result of voucher program costs being charged to other programs, other program costs being charged to the HCV program, and costs for goods and services that were provided free of charge to the PHA by other entities not being charged to any program. In order to estimate the full costs of operating the HCV program, we conducted interviews with a sample of 130 PHAs to collect information on the types of costs not reflected in the HUD-FASS and on the share of HCV program costs covered by administrative fees.

### 8.2.1 How the Data Collected Through the Interviews Differs from the FDS

The PHA interviews and review of HUD-FASS data with program staff revealed that for the vast majority of small PHAs, administrative costs did not equal the reported FASS costs. Through our survey we found that 123 of 130 responding PHAs required an upward adjustment to the HUD-FASS numbers because of costs incurred by the HCV program but not fully charged to the HCV program. Three PHAs required downward adjustments because of costs charged to the HCV program but incurred partially by other programs. Exhibit 8-3 shows the types of upward cost adjustments made.

**Exhibit 8-3. Frequency of Upward Cost Adjustments, by Adjustment Type, for HCV Costs Not Reflected on the HUD-FASS**

| Type of Cost Adjustment | Number of PHAs | Percent of PHAs |
|---|---|---|
| Office space and building costs | 96 | 74% |
| Personnel costs | 80 | 62% |
| IT and telecommunications costs | 57 | 44% |
| Postage costs | 52 | 40% |
| Insurance costs | 48 | 37% |
| Costs related to criminal background checks | 35 | 27% |
| Costs related to updating the utility allowance schedule | 20 | 15% |
| Costs related to HQS inspections | 15 | 12% |
| Costs related to rent reasonableness determinations | 10 | 8% |
| Cost-cutting measures | 6 | 5% |
| Other miscellaneous costs | 21 | 16% |

N=123 PHAs. Percentages do not sum to 100 because PHAs may have multiple adjustments.

Source: Small program interviews.

The most common type of adjustment was for office space and building costs (excluding insurance), followed by personnel costs (frontline and overhead staff) and IT and telecommunications costs. Overall, the upward adjustments represented an average of 25 percent of the cost estimate (the median is 22 percent). As shown in Exhibit 8-4, upward adjustments accounted for a larger fraction of total costs among smaller PHAs. This is because many of the very small programs do not pay for office space. To estimate the full cost of running the program, imputed costs were added based on some assumptions about the square footage needed for the program and local rental costs. Some of the small PHAs are located in very high-cost areas—for example, Long Island, NY—resulting in high imputed rents. The methodology for estimating office space costs and other adjustments is discussed in Exhibit C-6 of Appendix C.

**Exhibit 8-4. Mean and Median Cost Adjustment as a Percentage of Total HCV Program Cost by HCV Program Size**

| Vouchers Under Lease | Mean | Median |
|---|---|---|
| 0-49 | 42% | 41% |
| 50-99 | 30% | 28% |
| 100-149 | 21% | 17% |
| 150-199 | 17% | 16% |
| 200-249 | 16% | 9% |
| **All size categories** | **25%** | **22%** |

N=130 PHAs.

Source: Small program interviews.

### 8.2.2 Costs per Voucher and Variation by Program Size

Exhibit 8-5 shows the estimated cost per voucher leased per month by program size. All numbers are presented in 2013 dollars. The exhibit shows a pattern of costs per unit decreasing steadily as the number of vouchers under lease increases.

**Exhibit 8-5. Cost per Voucher Leased per Month by HCV Program Size**

| Vouchers Under Lease | Mean | Median | 25th Percentile | 75th Percentile |
|---|---|---|---|---|
| 0-49 | $105 | $95 | $80 | $128 |
| 50-99 | $79 | $74 | $57 | $88 |
| 100-149 | $72 | $63 | $52 | $75 |
| 150-199 | $64 | $60 | $51 | $70 |
| 200-249 | $60 | $59 | $49 | $64 |
| **All size categories** | **$76** | **$68** | **$57** | **$85** |

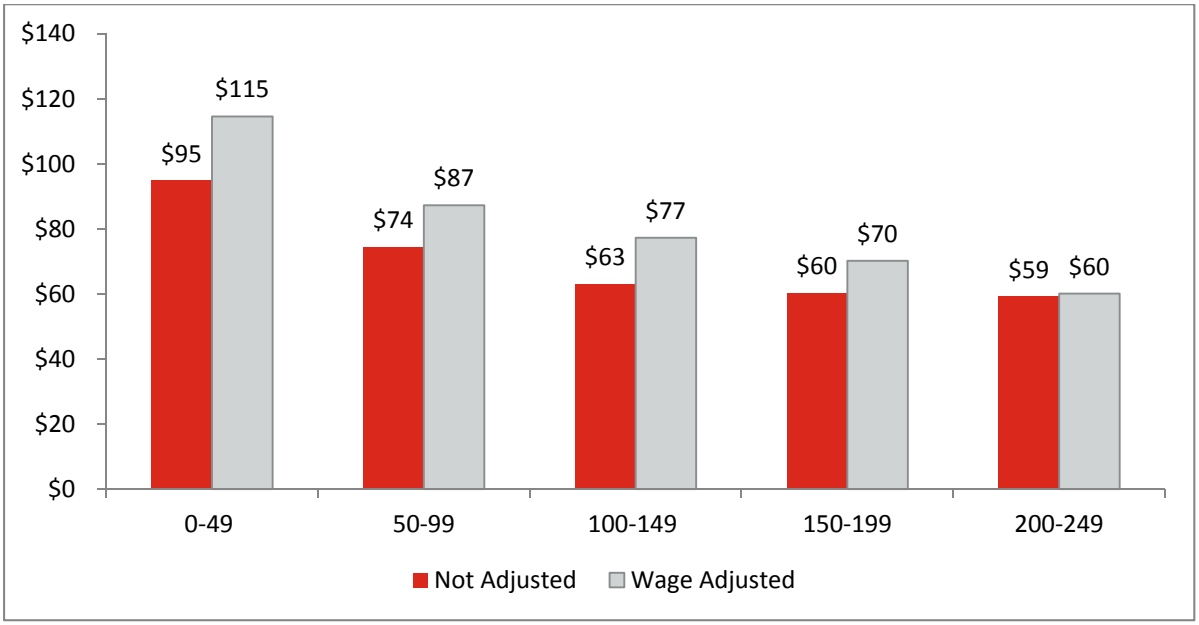
N=130 PHAs.

Source: Small program interviews.

Exhibit 8-6 presents the same information graphically. In addition to showing the median cost per voucher leased per month, the exhibit also shows the costs adjusted by the local labor index derived from the QCEW and using the same methodology described in Chapter 3, Section 3.2.5. The labor-adjusted costs help to assess whether the differences in observed costs by program size category are attributable to local wage differences or actual differences in the use of resources to operate the program. The adjustment increases the cost for all categories of small PHAs (because most small PHAs are located in areas with labor costs that are below the national average), but the costs are increased the most in the smallest categories. Comparing the unadjusted numbers, costs per unit per month in the smallest PHAs are 60 percent higher than in the largest PHAs (95/59 = 1.60). Comparing adjusted numbers, costs per unit month in the smallest PHAs are 91 percent higher than in the largest PHAs (115/60=1.91).

As noted above, office costs are frequently imputed, because many small programs do not pay rent for their office space. Exhibit 8-7 shows the distribution of labor costs by program size and confirms that labor costs per voucher decrease as program size increases.

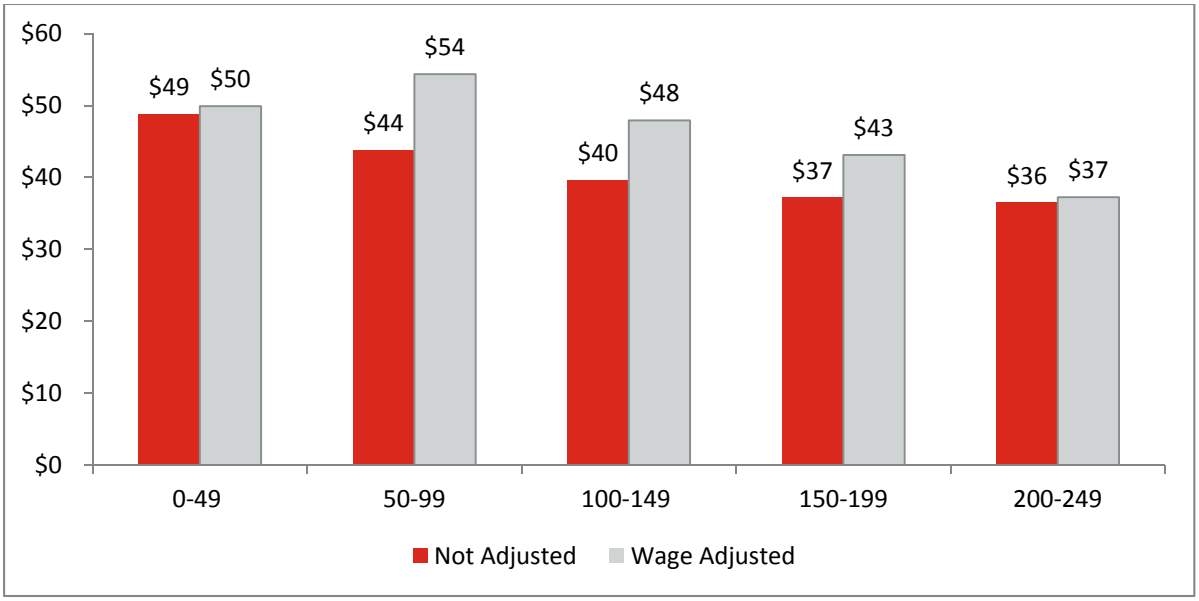
**Exhibit 8-6. Median Total Cost per UML by HCV Program Size**




N=130 PHAs.

Source: Small program interviews.

**Exhibit 8-7. Median Labor Cost per Voucher Leased per Month by HCV Program Size**

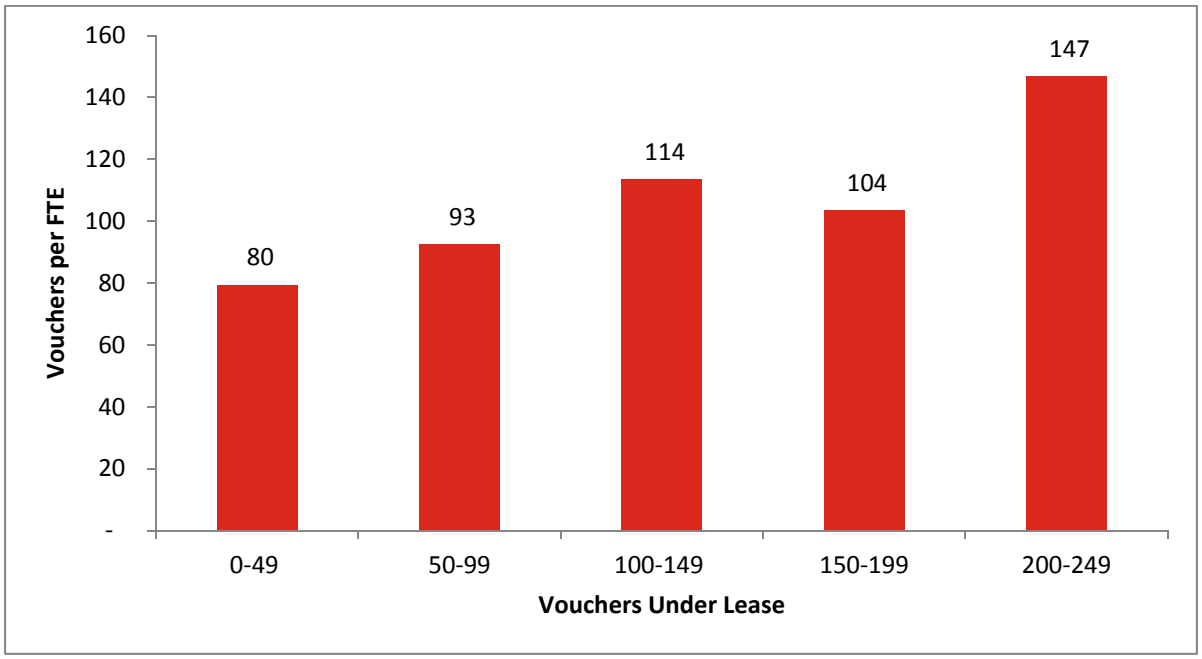



N=130 PHAs.

Source: Small program interviews.

The higher labor cost per voucher for the small programs is driven by higher staff-to-voucher ratios, rather than by higher labor costs. As shown in Exhibit 8-8, the smallest programs have fewer vouchers per FTE. In other words, each staff person works on more voucher cases in larger programs.

**Exhibit 8-8. Median Number of Vouchers Leased per Full-Time Equivalent Staff by HCV Program Size**




N=124 PHAs (excludes six HCV programs that are jointly managed with other programs or contract out the work in some way that makes FTEs unavailable).

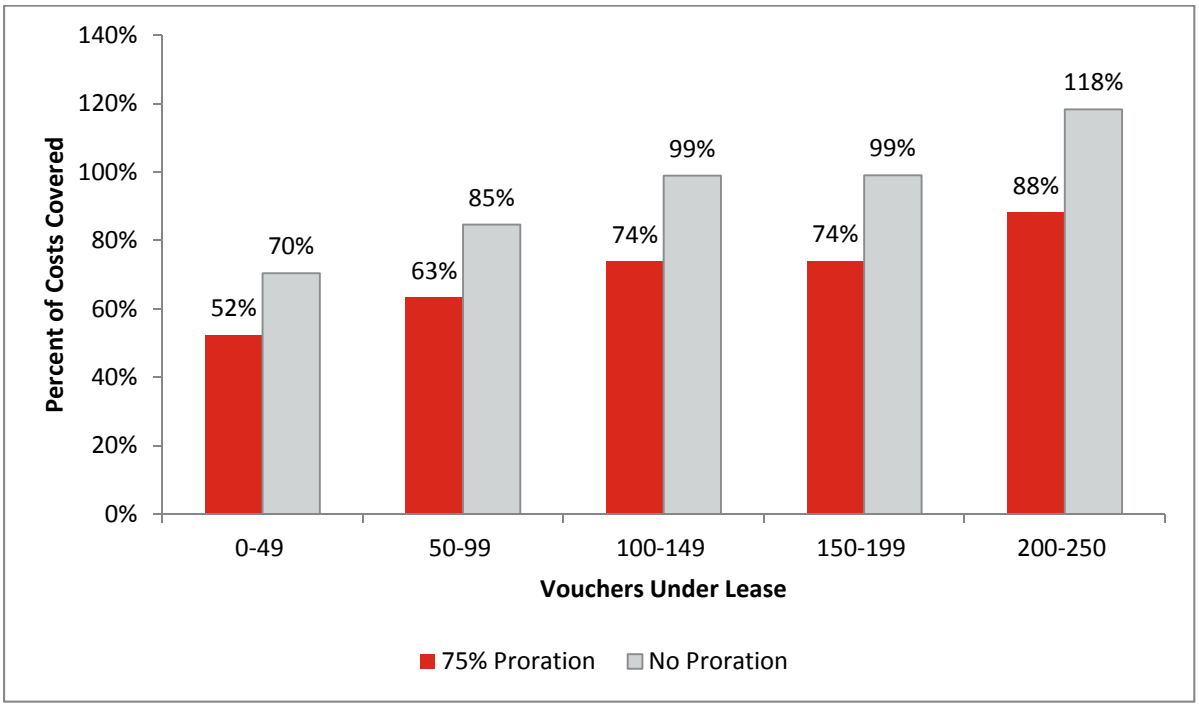
Note: FTE was calculated by dividing the total weekly hours worked on the HCV program across PHA staff by 40.

Source: Small program interviews.

Exhibit 8-9 shows, for different program size categories, the average percent of costs covered by the administrative fees received during the July 1, 2013 and June 30, 2014 time period. The average fee proration during this time period, which includes two different years, was 75 percent. The red (dark) columns in the exhibit show the average percent of PHA costs covered by prorated fees—that is, the fees actually received by these PHAs between July 1, 2013 and June 30, 2014. The grey (light) columns show the average percent of PHAs costs that would have been covered had PHAs received their full fees with no proration.

Exhibit 8-9 shows that the smallest PHAs were least likely to have their costs covered by fees. Among PHAs with less than 50 vouchers, the average PHA had 52 percent of its costs covered by the prorated administrative fees and would have had only 70 percent of its costs covered had there been no proration.

**Exhibit 8-9. Average Percent of Costs Covered by Administrative Fees, July 1, 2013 – June 30, 2014**




N=130 PHAs.

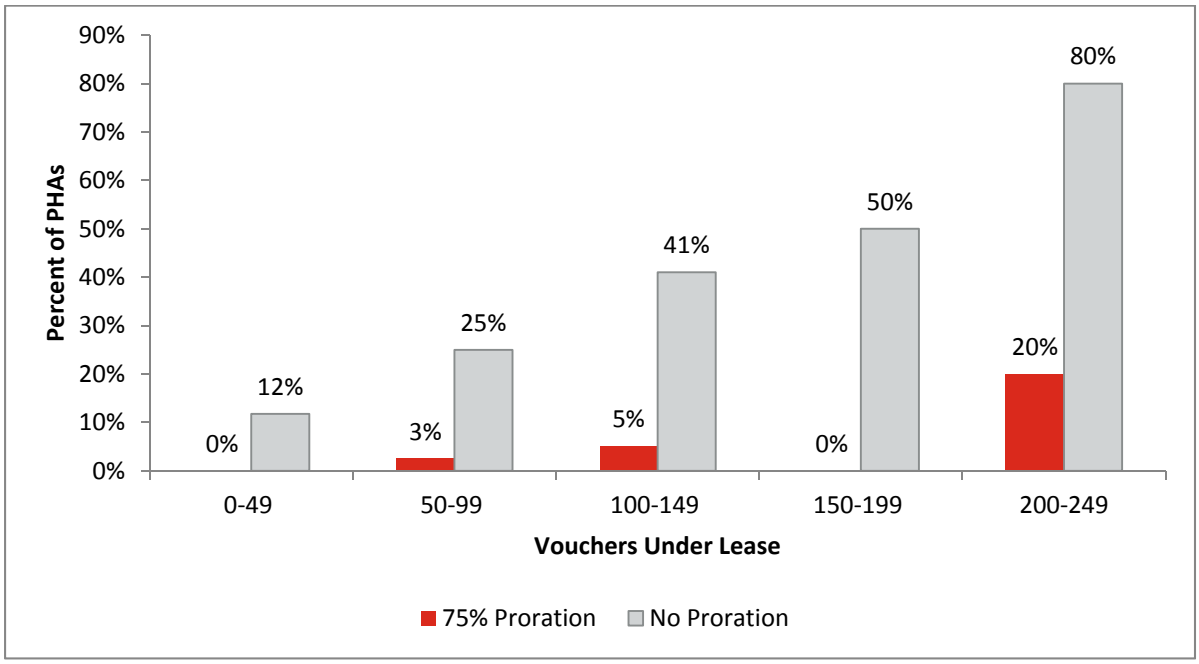
Source: Cost data obtained from small program interviews. Data on fees for the July 1, 2013 - June 30, 2014 time period provided by HUD.

Exhibit 8-10 provides an alternative presentation of these data. In Exhibit 8-10, the columns represent the percent of PHAs with costs less than or equal to the fees received. The red (dark) columns show the percent of PHAs whose costs were less than or equal to the fees received with 75 percent proration. The grey (light) columns show the percent of PHAs whose costs were less than or equal to the fees they would have received during this time period had there been no proration.

Overall, only 5 of the 130 PHAs had costs that were less than or equal to the prorated fees received. The largest PHAs—those in the 200 to 249 voucher size category—were much more likely than smaller PHAs to have their costs covered. The majority of PHAs with fewer than 200 vouchers appear to be underfunded even without proration.

All of the preceding analyses of the small program cost data were aimed at answering the question: Is there a minimum size below which an HCV program cannot successfully operate on administrative fees alone? The analyses suggest that per unit costs increase as program size decreases and that most small programs do not operate on administrative fees alone. However, there does not appear to be a clear line of demarcation suggesting that programs below a certain size are not feasible. This can also be seen in a straight plot of administrative costs per unit per month relative to program size (Exhibit 8-11). The plots show that smaller programs cost more to administer per unit compared with larger ones, but there is no clear point at which the cost structure changes based on program size.

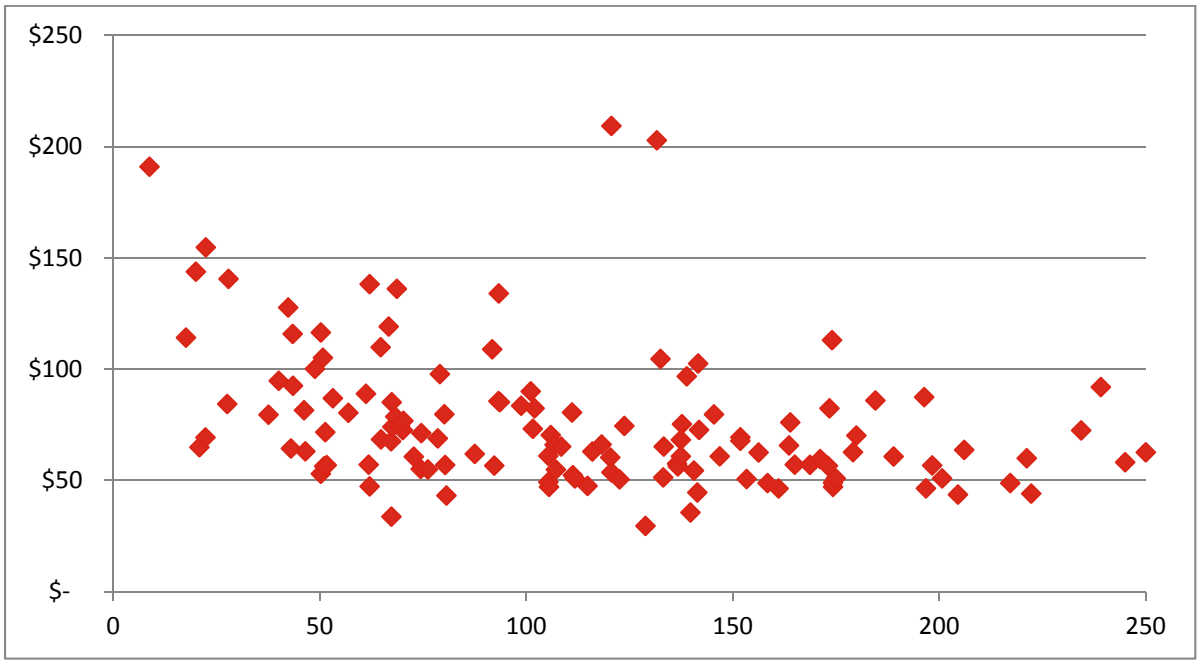
**Exhibit 8-10. Percent of PHAs with Costs Less Than or Equal To Their Administrative Fees, July 1, 2013 – June 30, 2014**




N=130 PHAs.

Source: Cost data obtained from small program interviews. Data on fees for the July 1, 2013 - June 30, 2014 time period provided by HUD.

**Exhibit 8-11. Cost Per Month per Voucher Under Lease, CY 2013**




N=128 PHAs (excludes the two PHAs with more than 250 vouchers under lease, including port-ins).

Source: Small program interviews.

## 8.3 Qualitative Findings From Small Program Interviews

The small program interviews also collected qualitative information on the challenges that PHAs faced in operating small HCV programs and on PHA responses to recent cuts in administrative fees. The PHA staff interviewed described a wide range of challenges in administering their programs, but the most frequently cited challenge was insufficient funding.

Nearly half of the PHAs interviewed identified funding issues as the biggest challenge for their HCV programs, either insufficient administrative funding, insufficient HAP funding, or a combination of the two. One in four PHAs mentioned insufficient administrative funding specifically as one of the biggest challenges. Although many housing authorities reported that an HCV program with a small number of vouchers could be sustainable if funded at 100 percent of the current administrative fee rate, a substantial number questioned whether it was truly possible even at 100 percent of that rate given what they perceived as growing reporting requirements and insufficient HAP funding.

Aside from basic funding challenges, other common challenges from the PHA's perspective were HUD reporting requirements (20 percent), portability processing (13 percent), and unpredictable HAP funding (12 percent). Staff from several housing authorities commented that it was impossible to budget appropriately, given that they are not informed of how much HAP funding they will receive until they have already started using the year's funding. In conjunction with PHA concerns about reporting requirements and HUD regulations, many housing authority staff reported they felt that regulations, in addition to being too numerous for a small housing authority to comply with, changed too quickly and that HUD did not provide sufficient training for PHA staff to keep up with them. Several PHAs said that paying for financial audits and fee accountants was burdensome for smaller programs, as fixed costs represented a larger share of their administrative costs than larger programs.

About two-thirds of the PHA staff interviewed said they faced substantial local challenges. The most common local challenge was a large geographic footprint, which PHA's reported added to staff time spent on HQS inspections. Several staff also mentioned that voucher portability was a challenge. For port-outs, the concern was typically that the small housing authority is in a lower cost area, and households porting out to large cities or other high-cost areas can result in HAP expenses double or triple what they pay locally. For port-ins, the concern was that the housing authority could not afford to absorb the household into its program and that the partial administrative fee received did not cover the administrative costs associated with these households. As a point of contrast, however, several PHAs receiving port-ins from PHAs receiving much higher administrative fees said they earned more fees on these households than they did for their own participants.

Staff at just over half the PHAs interviewed reported that they had either taken cost-cutting actions in response to reduced administrative fee funding in 2013 or planned to take cost-cutting actions in the near future.[89] The three most common measures were shifting costs to other programs (18 percent of PHAs interviewed), reducing staff hours or eliminating staff positions (16 percent), and increasing efficiency in administrative procedures (11 percent).

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[89] The interview questions were: "Has the PHA taken any cost-cutting actions in 2013 in response to the proration to the HCV administrative fee?" and "In addition to what we have discussed, has the PHA carried out or does the PHA plan to carry any other cost-saving actions in the HCV program?"

Shifting costs to other programs meant allocating more staff time to the other programs, charging the HCV program less for office supplies, or charging the PHA less for overhead costs. These actions reduced the share of PHA costs borne by the HCV program but did not reduce the costs incurred by the program. Smaller HCV programs are typically run by only one or two people, making it nearly impossible to reduce staff positions or hours. Nevertheless, more than 20 PHAs interviewed reported that they had either cut staff hours or cut staff positions entirely in 2013.

In some cases, sacrifices made by PHA staff were substantial. One executive director could no longer afford to pay for a janitor and so cleaned the office herself. Another said that he personally paid for the gas he used when conducting inspections. A few PHAs had shifted to four-day weeks to save on utilities, and staff at another PHA used personal leave time on a weekly basis to save on labor costs for the HCV program.

Staff at these PHAs reported that they had made these sacrifices in order to keep the program going and to maintain a local presence in their communities. Several of the PHAs interviewed said that consolidation or regionalization of the HCV program would have a negative effect on customer service and program quality. In rural areas in particular, traveling to the PHA can be a big burden for clients, and one that would increase if smaller PHAs were absorbed into larger ones. The PHAs interviewed said that working remotely with clients was not a good alternative because many clients were not computer literate. PHA staff also thought they were better able to detect fraud (such as under-reporting income) when they met with people face to face.

From the interviews and cost analysis for PHAs with fewer than 250 vouchers, we can conclude that per unit costs increase as program size decreases and that most smaller programs do not operate on administrative fees alone, especially at 75 percent proration. At the same time, the study did not find a particular program size below which the program could not be operated on administrative fees alone. In the funding environment of 2013-2014, most small programs, and many larger programs, had costs that exceeded their fees, requiring them to draw on agency reserves or have some of their costs by other entities, programs, funding sources, or in-kind donations.[90] The funding shortfall was most acute, on average, for the smallest programs (those with fewer than 100 vouchers), but there was not a clear line of demarcation suggesting that programs below a certain size are not feasible.

[90] As a point of comparison, about half of the 60 PHAs in the time measurement study received in-kind donations to cover costs incurred by the HCV program (examples include pro-bono legal assistance and maintenance of the PHA's offices done by the county government). We found examples of in-kind donations among PHAs of all sizes, not just those with fewer than 250 or 500 vouchers.

# 9. FSS Costs

## 9.1 Introduction and Key Findings

The Family Self-Sufficiency (FSS) program was created in 1990. As of 2013, approximately 700 PHAs operated FSS programs nationwide, with about 56,000 HCV households and about 12,000 public housing households participating. The FSS program has three main components—an escrow account, case management, and referral to supportive services. The FSS escrow account is an interest-bearing account managed by the PHA on the participant's behalf that is credited by the PHA with funds based on the amount of additional rent paid as the participant's earned income increases. Upon successful completion of the program, the participant receives the accrued FSS escrow funds plus interest.

Each year, HUD makes funding available to PHAs through a competitive grant process to pay for one or more FSS coordinator positions. The FSS coordinator is responsible for building partnerships with employers and service providers to help participants obtain jobs and services, developing FSS participant contracts, providing ongoing case management, and ensuring that FSS escrow accounts are established and properly maintained for eligible families.[91] The number of positions funded depends on the number of FSS households served, according to a formula that requires 15 families to support one part-time position, 25 families to support one full-time position, and an additional 50 families to support each additional position beyond the first full-time position (75 families for two full-time positions, 125 families for three full-time positions, and so on). This ratio has been applied separately to the PHA's public housing FSS families and HCV FSS families, but starting in FY15 the ratio will be applied jointly to all PHA FSS families, both HCV FSS families and public housing FSS families, due to the combination of the programs under the FY14 Appropriations Act.

FSS coordinator funds are not intended to be used for routine HCV program functions. However, the 2104 Notice of Fund Availability (NOFA) states that "coordinators are permitted to perform some functions, such as annual reexaminations for FSS participants, if it enhances the effectiveness of the FSS program." This provides latitude for FSS coordinators to provide some regular HCV functions, such as annual recertifications for their FSS participants, as some programs find it more expeditious to keep some HCV functions "in-house" with the FSS program.

The study was designed to collect information on the costs of FSS activities separate from the routine HCV functions. The study collected reliable information on FSS time and cost for 34 PHAs.[92] The 34 FSS programs ranged in size from just over 20 to more than 500 enrolled households, with a median size of 42 FSS households. The 36 PHAs in the study were not selected based on any characteristics or on the high performance of their FSS programs, and the sample data were not weighted to be

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[91] 2014 FSS NOFA (FR-5800-N-08). Available at http://portal.hud.gov/hudportal/documents/huddoc?id=2014fssnofa.pdf (accessed August 18, 2014).

[92] Six other PHAs in the sample offered FSS programming but were not included in the analysis. At four of these PHAs, the data collected during the two-month RMS period was not a fair representation of FSS activity because FSS staffing was in transition. At one PHA, the FSS coordinator was on maternity leave during the entire study period. At the final PHA, the FSS program is contracted out.

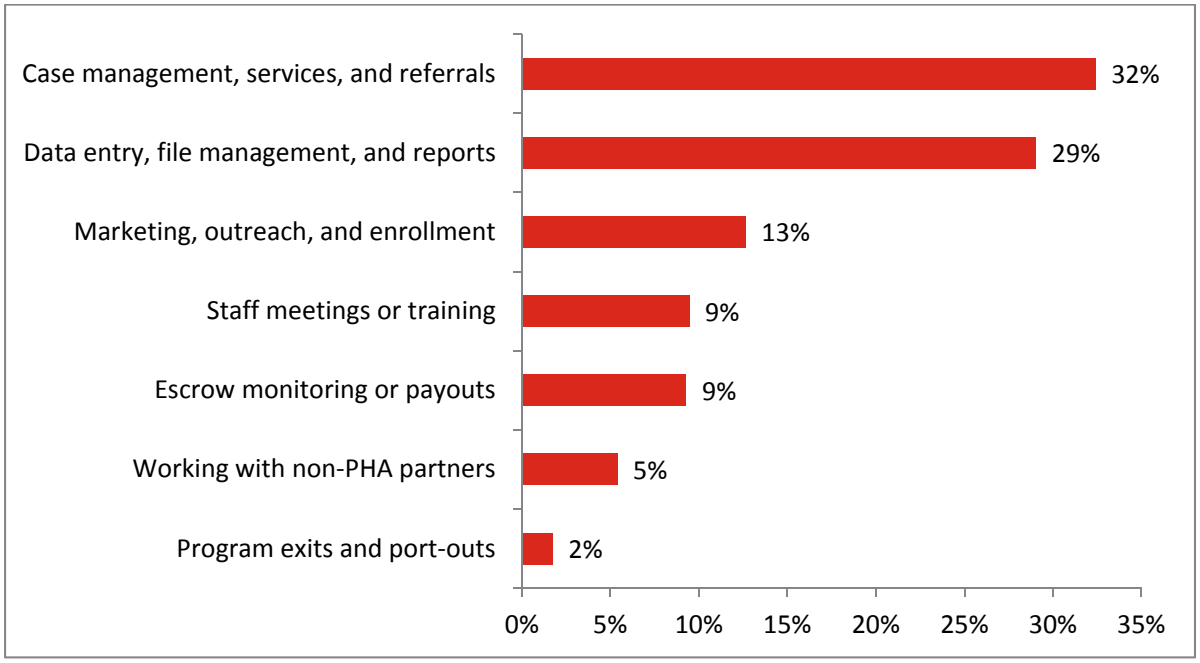
representative of the FSS program as a whole. (Rather, the PHAs were selected based on the high performance of their HCV programs and weighted to be representative of the universe of HCV high performers.) Given that the sample of FSS programs may not be representative, the findings on FSS should be considered exploratory rather than definitive.

The study found that most PHAs spent between 7 and 20 hours per FSS household per year performing FSS-specific functions. The average was approximately 16 hours per household per year. The average total cost for FSS-specific activities, in 2013, was $1,145 per FSS household per year. This includes frontline labor costs as well as frontline non-labor costs and overhead costs that support the FSS program. On average, the average cost for the frontline labor component of the program was $640 per FSS household per year.

## 9.2 Findings on Time per FSS Household

We captured FSS time in seven categories. For details on what is included in the categories, see Exhibit C-1 in Appendix C. Exhibit 9-1 shows the average distribution of time spent by the seven FSS categories. FSS coordinators spend about one-third of their time on case management related activities, such as providing direct case management to FSS participants, establishing individual service plans and goals, providing in-house supportive services, and referring participants to outside resources for services. Just under one-third of their time is spent on data entry, file management, and reports that support the entire FSS program. Because we conducted RMS at different points over a year-and-a-half period, we observed some PHAs at a time of intensive FSS reporting (e.g., developing year-end reports) and others when they were between reporting cycles.

**Exhibit 9-1. Average Distribution of FSS Time by FSS Activity**




N=34 PHAs.
Source: RMS time measurement.

After case management and data entry and reporting, the next most common FSS activity was marketing, outreach, and enrollment (13 percent of time). The other activities captured— escrow monitoring and payouts, staff meetings and training, working with outside partners, and program exits or port-outs—each took less than 10 percent of staff time.

Exhibit 9-2 shows the study's estimates of time spent per FSS household per year on FSS-specific activities. These estimates are based on the work observed during the two-month RMS data collection period. On average, PHAs in the study spent about 16 hours of working time per year per FSS household. However, we observed a very wide range of time per FSS household—from a low of 5 hours per household per year to a high of 56 hours per household per year.

**Exhibit 9-2. Hours on FSS Activities per Year per FSS Household**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. |
|---|---|---|---|---|---|---|
| Total hours per year per FSS household | 4.6 | 7.0 | 12.0 | 15.9 | 20.8 | 55.8 |

N=34 PHAs.

Source: Annualized RMS data for time data; PHA-reported FSS household counts.

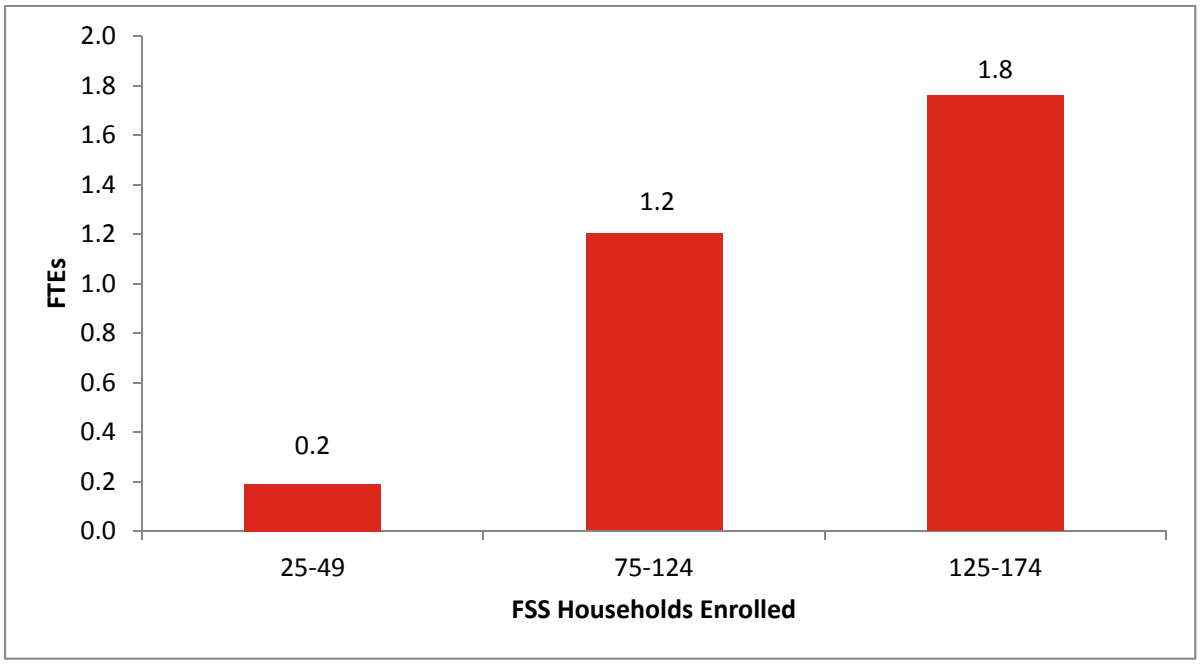
The range of time spent per FSS household highlights the challenges of measuring time over a relatively short period (in this case, two months) for small programs that may not have much activity at all times of the year. About one-third of the PHAs in the study had fewer than 30 FSS households at the time of data collection, and some were observed at points in the year that were not busy times for their FSS programs. By contrast, other PHAs were observed at times of intensive FSS work, such as during preparation of the annual FSS report. This contributes to the wide range in time per household observed during the RMS period and reflected in the annualized estimates presented in Exhibit 9-2. Given this variability, it is prudent to focus on the averages.

We translated the hours of work spent on FSS activities into FTEs by dividing the total hours spent on FSS per year by 1,702, which is the study's estimate of the mean number of working hours per year for the study sample.[93] Exhibit 9-3 shows median FTEs by FSS program size for the three size categories for which we have sufficient observations, 25 to 49 FSS households, 75 to 124 households, and 125 to 174 households.[94] These increments reflect the FSS program's methodology for determining how many FTEs to fund.

[93] This is consistent with national estimates for worker productivity. According to data compiled by the Federal Reserve Bank of St. Louis, Americans worked an average of 1,704 hours per year in 2011 (www.research.stlouisfed.org).

[94] Our study sample does not include any FSS programs with more than 50 but less than 76 households.

**Exhibit 9-3. Median FTEs Spent on FSS Activities by FSS Program Size for Select PHAs**




N=34 PHAs.

Source: Annualized RMS data for time data; PHA-reported FSS household counts..

Exhibit 9-3 shows a clear pattern of more FTEs for larger FSS programs, but the numbers of FTEs are fewer than would be expected from the FSS funding formula. The funding guidelines for the FSS program are that programs with 25 to 74 FSS households are eligible for one FTE, programs with 75 to 124 households are eligible for two FTEs, and programs with 125 to 174 households are eligible for three FTEs.

One reason for the lower FTEs in our analysis is that the time spent on FSS represents only those FSS activities that are performed for FSS participants—in other words, the work done for FSS households over and above the routine HCV program functions.

FSS coordinators are permitted to work on routine HCV functions for FSS participants if performing these functions enhances the effectiveness of the FSS program. The time data collected from PHA staff who work on FSS confirm that FSS coordinators do spend part of their time on these routine functions.

Exhibit 9-4 presents data compiled from RMS on the percentage of staff time spent on FSS activities, routine HCV functions, and other programs. The data presented come from the RMS data collection and reflect all the work conducted by the subset of PHA staff whose responsibilities include work on the FSS program. We used the staff rosters provided by each study site to identify the staff at each site whose work responsibilities include FSS. The staff included in the analysis for Exhibit 9-4 include but are not limited to the FSS coordinator and staff whose positions are funded through the FSS grant. Also included are staff who are funded through the HCV administrative fee but whose responsibilities include FSS work. At some PHAs, the staff that work on FSS are all fully dedicated to FSS. At other PHAs FSS funding is split among several staff who work part time on FSS and part time on the HCV program or on other programs. The data in Exhibit 9-4 include staff who are funded

through the HCV administrative fee but whose responsibilities include FSS work, as well as staff who are funded through the FSS grant.[95]

Exhibit 9-4 shows that among the PHA staff with some responsibility for FSS work, the percent of time spent on FSS-specific activities ranged from 7 percent to 100 percent, with an average of 41 percent.[96] The percent of time spent on routine HCV functions ranged from 0 percent to 92 percent, with an average of 46 percent. The percent of time spent on other programs—mainly state and local programs which at some study sites included work for other PHAs—ranged from 0 percent to 54 percent, with an average of 13 percent.

**Exhibit 9-4. Percent of Time Spent on FSS Activities, Routine HCV Functions, and Other Programs, Among PHA Staff With Some Responsibility for FSS Work**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. |
|---|---|---|---|---|---|---|
| FSS activities | 7% | 13% | 31% | 41% | 62% | 100% |
| Routine HCV functions | 0% | 26% | 47% | 46% | 70% | 92% |
| Other programs | 0% | 0% | 4% | 13% | 24% | 54% |

N=34 PHAs.

Source: RMS time data.

Note: The data shown in Exhibit 9-4 are based on the time recorded by all PHA staff with responsibility for the FSS program, not just fully dedicated FSS staff or FSS coordinators funded through the grant.

Some PHAs in the study may have been asking FSS staff to do more routine HCV functions because of reduced administrative fee funding at the time of data collection. If we had measured time spent on the FSS program when the HCV administrative fee was fully funded, we might have observed a higher share of time, on average, spent on FSS activities relative to routine HCV functions. However, many FSS staff work part time on the program either because the FSS program is small or because the PHA allocates FSS work across multiple staff members. Therefore, we would not expect to see staff dedicating 100 percent of their time to FSS activities under any funding scenario.

When staff with FSS responsibilities worked on routine HCV functions, they mainly worked on ongoing occupancy work, such as conducting annual and interim recertifications for FSS households. Most of the time that FSS staff spent on routine HCV functions was spent on ongoing occupancy activities (Exhibit 9-5). At the average PHA, staff with FSS responsibilities spent (on average) 30 percent of their time on ongoing occupancy work and less than 10 percent of their time on other HCV activities such as intake, eligibility, and lease-up (7 percent) and supportive services (3 percent). This distribution of work is consistent with FSS staff frequently having a regular caseload of FSS clients

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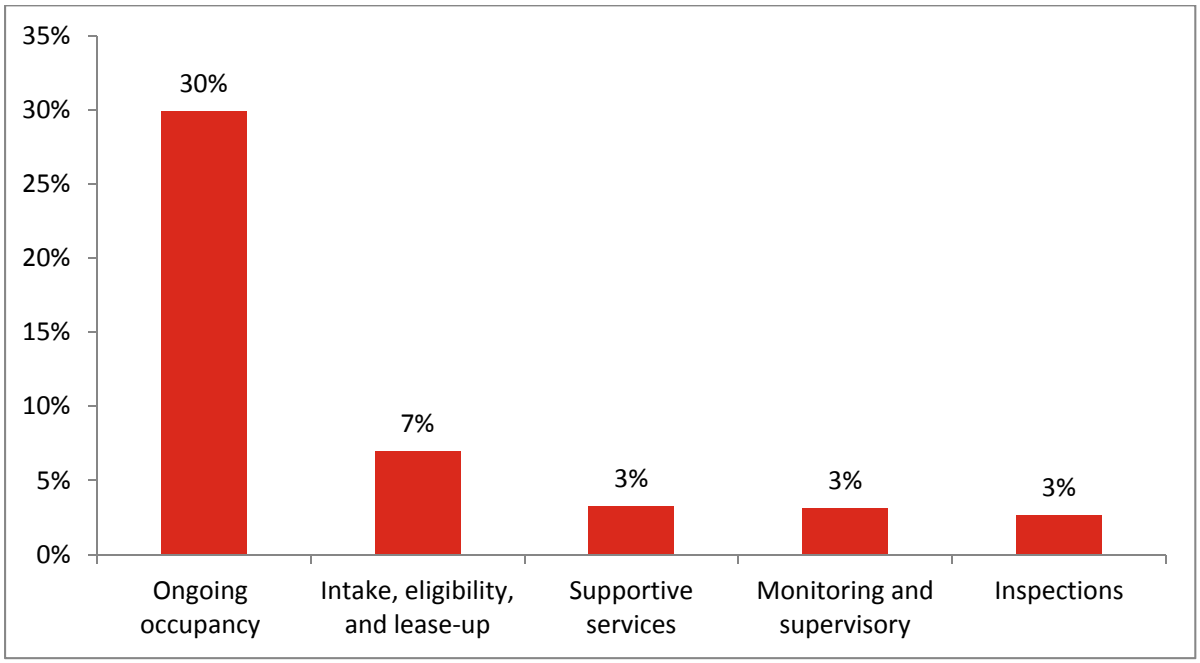
[95] This study focused on calculating total FSS costs, not on how those costs were funded. Among the staff who reported spending time on FSS, we do not know which staff had all or part of their salaries paid through the FSS coordinator grant that their agencies received.

[96] The staff person who spent 7 percent of her time on FSS activities during the RMS period was the FSS coordinator for a very small FSS program (fewer than 50 participants) and worked part time on the FSS program. The two months of RMS data collection coincided with a period in which there was not much FSS activity. This contrasts with other PHA staff that participated in RMS data collection during busy times for the FSS program, such as when annual reports were due.

for whom they perform routine HCV activities as well as providing FSS services. In some cases, staff who worked on the FSS program (but may not have had their salaries paid through the FSS grant) spent time on other aspects of the program, such as intake and inspections, but this was not as common.

**Exhibit 9-5. Average Distribution of Time Spent by FSS Staff on Routine HCV Activities**




N=34 PHAs.

Source: RMS time data.

## 9.3 Findings on Cost per FSS Household

Exhibit 9-6 presents the FSS cost (*not including routine HCV functions for FSS households*) per FSS household served. The exhibit shows three components of FSS cost—frontline labor, frontline non-labor, and overhead. HUD's FSS coordinator grant program is designed to fund the FSS coordinator position (thus, the frontline labor component), not the non-labor and overhead costs associated with the FSS program. However, all PHA staff, including those who work on FSS, incur a share of non-labor costs (e.g., building costs, office supplies) and overhead costs (e.g., costs associated with accounting and financial reporting to HUD on the FSS grant), so we have included these costs in our calculations.

As shown in Exhibit 9-6, the average annual cost of providing FSS-specific services to an FSS household is $1,145 ($1,056 median). Considering only frontline labor cost (salary and benefits for the staff who work on FSS), the average cost is $640 per household per year. There is much variation in cost per household, as can be seen from comparing the 25th and 75th percentiles, but this is to be expected given the variation in FSS workflows over the course of the year and the fact that many of the FSS programs in our study are very small in terms of number of households. Thus, it is prudent to focus on the averages.

**Exhibit 9-6. FSS Cost per Year per Household Served, CY 2013**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. |
|---|---|---|---|---|---|---|
| Frontline labor | $159 | $307 | $472 | $641 | $895 | $2,041 |
| Frontline non-labor | $45 | $91 | $185 | $291 | $300 | $1,245 |
| Overhead | $20 | $83 | $153 | $213 | $264 | $1,253 |
| **Total** | **$252** | **$567** | **$1,056** | **$1,145** | **$1,295** | **$3,244** |

N=34 PHAs.

Source: Cost data collection.

Drawing on the time data presented above, Exhibit 9-7 shows the average cost for different components of the FSS program—both labor cost only and total cost. The total cost represents the complete cost of the program to the agency—the salary and benefits of the staff who work on FSS plus the share of the agency's non-labor and overhead costs that the FSS program uses. The most time-consuming component of the program—case management related activities—cost $208 per household in frontline labor and about $401 including non-labor and overhead costs. The next most time-consuming component—activities related to data entry, file management, and reporting—cost $169 per household in frontline labor and about $294 including non-labor and overhead costs. The other program components cost less than $100 per household in frontline labor.

**Exhibit 9-7. FSS Cost per Year per Household Served for Program Components, CY 2013**

| | Direct Labor Cost | Total Cost |
|---|---|---|
| Case management | $208 | $401 |
| Data entry and reports | $169 | $294 |
| Marketing and enrollment | $81 | $139 |
| Escrow monitoring or payouts | $75 | $117 |
| Staff meetings or training | $62 | $111 |
| Working with non-PHA partners | $34 | $57 |
| Program exits and port-outs | $12 | $24 |
| **Total–All FSS Activities** | **$640** | **$1,144** |

N=34 PHAs.

Source: Cost data collection.

While comparing these cost numbers to the FSS coordinator funding received by the PHAs in the study would obviously be desirable, it is a difficult comparison to make. Our study captured the costs associated with the specific FSS activities—services only provided to FSS households—and did not capture separately the costs associated with performing routine HCV functions for FSS households. Also, the study focused on costs and not sources of funding, so we do not know which of the staff who reported spending time on FSS had all or part of their salaries paid through FSS funding.

Exhibit 9-8 offers different ways to think about the comparison of FSS costs as measured by the study to the FSS coordinator funding received by the PHAs in the study. The first row of Exhibit 9-8 shows total FSS costs (i.e., labor, non-labor, and overhead costs for the FSS-specific activities) as a

percentage of the FSS grant amount. For the average PHA, total FSS cost equals 86 percent of the grant.

The second row of the exhibit shows just the FSS frontline labor cost as a percentage of the FSS grant amount. In this case, average PHA frontline labor costs associated with FSS-specific activities represent 50 percent of the total grant amount.

Ignoring the routine work that is done on behalf of FSS households gives the impression that PHAs may be receiving more funding than they need for their FSS programs. However, this is the wrong conclusion to draw. As discussed above, performing routine HCV functions on behalf of FSS households is permissible under the terms of the grant if this work enhances the effectiveness of the FSS program. Thus, comparing only the cost of the FSS-specific activities to the grant amount is misleading.

The third row of Exhibit 9-8 supplements the FSS frontline labor cost with the estimated labor cost associated with performing routine HCV functions. For each PHA, we calculated the frontline labor cost per HCV household for HCV functions and multiplied it by the number of FSS households to arrive at an estimate of the cost of administering the HCV program for the FSS households served by the PHA. This is an imperfect measure, as not all FSS staff conduct routine functions for FSS households, but it provides an upper bound on the total labor cost that could be incurred by the program. For the average PHA, the cost of providing FSS-specific services and routine HCV functions for FSS participants equals 108 percent of the grant amount. For most PHAs, the frontline labor cost of the FSS program is somewhere between the cost for the FSS-specific activities and the cost for FSS-specific activities plus routine HCV program functions for all FSS households.

**Exhibit 9-8. Comparison of FSS Costs to FSS Grants**

| | Min. | 25th PCTL | Median | Mean | 75th PCTL | Max. |
|---|---|---|---|---|---|---|
| Ratio of total FSS costs to grant amount | 19% | 46% | 69% | 86% | 104% | 301% |
| Ratio of FSS labor cost to grant amount | 7% | 27% | 39% | 50% | 64% | 157% |
| Ratio of FSS labor cost plus share of routine HCV labor cost to grant amount | 37% | 69% | 105% | 108% | 132% | 277% |

N=34 PHAs.

Source: Cost data collection; FSS grant amounts provided by HUD (contract grant amount).

## 9.4 Implications for FSS Program Funding

This study estimates the time spent on the HCV FSS program and the cost of that program. We found that half of the 34 FSS programs in the study spent between 7 and 20 hours per FSS household per year performing FSS-specific functions. Twenty-five percent of the study programs spent fewer than seven hours per household, and 25 percent spent more than 20 hours per household. The average was 16 hours per household per year. The average cost of the program was about $1,145 per household per year, including frontline labor costs as well as associated non-labor and overhead costs. On average, the frontline labor component of the program cost about $640 per household per year.

The findings of this chapter raise some questions about FSS program funding. We found that labor costs for FSS activities typically were substantially less than the amount of the grant, but labor costs plus associated non-labor and overhead costs were close to the funded amount on average. This suggests that HUD might consider whether to continue to fund only the frontline labor portion of FSS costs or to expand the grant to fund the frontline labor plus a share of the non-labor and overhead costs associated with that frontline labor.

Another question raised by the findings on staff time spent on FSS is whether the FSS grant program should explicitly recognize the differences in how labor is organized at different PHAs—for example, requiring PHAs to include in their applications whether the staff performing FSS functions will only work on those activities or will also have a caseload of FSS clients for whom they conduct routine HCV functions. HUD could choose to fund only the FSS-specific functions or to fund the FSS-specific functions plus routine functions for FSS participants, as is currently permitted. Alternatively, HUD could fund the program based on the number of households being served and the average cost of serving those households and allow PHAs to use those funds as administrative fee funds are permitted to be used. In this scenario, HUD would use FSS outcomes—such as the number of households with escrow accounts, the size of the escrow accounts, and the percent of the households exiting the program—to determine whether the funding is being put to good use.

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# Appendix A. Criteria for Site Selection

The study team conducted site visits to the 60 PHAs in the time measurement study to confirm that their HCV programs were high performing and efficient. Data collected through the site visits were used to rate the HCV programs on the 14 indicators and performance criteria shown below:

1. **The PHA maintains an accurate, complete, and up-to-date waiting list.**
    a. Applicants are ordered on the waiting list in accordance with the PHA's selection policies.
    b. The list includes information on local preferences (if used).
    c. Application dates are consistent with staff descriptions about the length of time applicants are on the list.
    d. The PHA updates the waiting list regularly.
    e. The frequency of updates is consistent with how quickly the PHA is running through its waiting list, the number of families that need to be considered to result in a positive eligibility determination, and the length of the waiting list.

2. **The PHA has effective processes for managing portability.**
    a. The PHA has processing logs or a similar system for tracking incoming portability and outgoing portability.
    b. The PHA adheres to program timelines when receiving port-ins. The initial billing submissions are completed and mailed by the receiving PHA within 10 working days of the HAP contract execution but no later than 60 days following the expiration date of the family voucher issued by the initial PHA.

3. **The PHA conducts HQS inspections in a timely manner, provides adequate notification to owners, and takes appropriate action for failed or late inspections.**
    a. For units that fail inspection, the PHA has a process for informing the owner and tenant of the failure and the time within which repairs are required.
    b. The PHA has an effective method of tracking when abatements should be placed and lifted.
    c. The PHA has a certification protocol if it does not require reinspections.

4. **The PHA processes RFTAs within reasonable timeframes.**
    a. The PHA has a process for tracking and monitoring the length of time between RFTA receipt and first inspection.
    b. The time frame between RFTA receipt and first inspection is within 15 business days, OR if the time frame exceeds 15 business days, PHA staff provide valid reasons why.

5. **The PHA makes efforts to expand housing opportunities for HCV tenants. (Applies to PHAs that operate in metropolitan areas.)**
    a. The PHA has a written policy in its administrative plan that includes actions the PHA will take to encourage participation by owners of units located outside areas of poverty or minority concentration, and which clearly delineates areas in its jurisdiction that the PHA considers areas of poverty or minority concentration.

b. PHA documentation shows that the PHA has taken actions indicated in its written policy to encourage participation by owners of units located outside areas of poverty or minority concentration.
c. The PHA has prepared maps that show various areas with housing opportunities outside areas of poverty or minority concentration both within its jurisdiction and neighboring its jurisdiction; it has assembled information about the characteristics of those areas, which may include information about job opportunities, schools, transportation, and other services in these areas; and it can demonstrate that it uses the maps and area characteristics information when briefing rental voucher holders about the full range of areas where they may look for housing.
d. The PHA's information packet for rental voucher holders contains either a list of owners who are willing to lease (or properties available for lease) under the rental voucher program or a current list of other organizations that will help families find units, and the PHA can demonstrate that the list(s) includes properties or organizations that operate outside areas of poverty or minority concentration.
e. The PHA's information packet includes an explanation of how portability works and includes a list of portability contact persons for neighboring housing agencies, with the name, address, and telephone number of each, for use by families who move under portability.
f. PHA documentation shows that the PHA has analyzed whether rental voucher holders have experienced difficulties in finding housing outside areas of poverty or minority concentration and, if such difficulties have been found, PHA documentation shows that the PHA has analyzed whether it is appropriate to seek approval of exception payment standard amounts in any part of its jurisdiction and has sought HUD approval of exception payment standard amounts when necessary.

**6. The PHA follows a strong rent reasonableness policy.**

a. The PHA has a clear written rent reasonableness policy. The policy takes into account factors that the PHA determines impact cost, such as: location, size, type, quality and age, amenities, housing services and maintenance, and utilities provided by the owner under the lease.
b. The policy compares contract unit rent to similar unassisted rents and contract unit rent to similar units on the premises.
c. The PHA has a rent database or other system to collect information on comparable units.
d. The database is updated regularly.
e. The PHA does rent reasonableness analysis before entering into a HAP contract and before an increase in rent.
f. Rent reasonableness decisions are documented in the client file.

**7. The PHA correctly calculates the total tenant payment, family share, and HAP.**

a. Number of files missing required EIV documentation.
b. Number of files missing one or more verification documents (other than EIV).
c. Number of files where one or more of the inputs to household annual income calculations are incorrect.
d. Number of files not using the correct payment standard.
e. Number of files not using the correct utility allowance.

f. Number of files not using the correct voucher size.
g. Number of New Admission files for which the HAP Contract was signed more than 60 days after effective date.
h. Number of Annual Reexamination files not completed by the reexamination effective date.
i. Number of files with other errors in total tenant payment, family share, or HAP calculations not captured in a-h.

**8. The PHA monitors utilization and success rates.**

a. The PHA monitors budget and unit utilization.
b. The PHA uses HUD Projection spreadsheet for tracking utilization or an alternative tool or system.
c. The PHA takes actions based on the findings from the utilization tool.
d. The PHA monitors leasing success rates.
e. The PHA takes action if leasing success rates are low.

**9. The PHA demonstrates sound financial management practices.**

a. The PHS's leasing and funding are within budget (or eligible resources).
b. There are no findings on the most recent independent audit related to internal controls or financial practices.
c. The PHA practices provide sufficient oversight of manual HAP adjustments and payments.
d. The PHA has a conflict of interest policy.
e. The PHA has a code of conduct.

**10. The PHA has effective communication with tenants and landlords.**

a. The PHA has customer service protocols and standards for answering or returning calls from tenants and landlords.

**11. The PHA provides training for staff and management.**

a. The PHA requires initial training of technical staff (housing specialists and inspectors) and regular follow-up training on program regulations.
b. The PHA has an effective method for communicating program changes to all technical staff.
c. The PHA has written standards of performance and expectations and a means to evaluate staff performance.

**12. Tenant files, whether paper or electronic, are well organized and contain adequate documentation.**

a. The PHA has a written file protocol.
b. File review shows the protocols are followed and/or that files are well organized.
c. PHA has checklists for identifying what is in the file and what is missing.

**13. The PHA has an informed HCV program director.**

**a.** The HCV director demonstrates detailed knowledge of the HCV program, its status, and current issues.

**14. The PHA has rigorous program monitoring, reporting, and QC protocols.**

a. Quality control/review activities are performed on key transactions and activities on a regular basis.
b. The PHA monitors key reports provided through PIC and EIV, including deceased individuals, multiple subsidy, new hires, income discrepancy, identity verification, and immigration reports. Discrepancies are resolved in a timely manner.
c. The PHA has protocols for detecting and preventing fraud, mismanagement, waste and abuse of program funds.
d. The PHA has a written zero income policy.

# Appendix B. Weighting and Sample Characteristics

This appendix describes the development of sampling weights for the 60 study sites participating in the time measurement component of the HCV Administrative Fee Study. It also provides tables describing the characteristics of the final study sample compared to the universe of SEMAP high performers and compared to all HCV programs at the time the sample was selected.

## Weighting Methodology

Sampling weights are used because the sample was not a simple random sample. Given that very large PHAs were selected with higher probabilities than medium-sized PHAs, it is necessary to use sampling weights to allow the practices at medium-sized PHAs to have their proper influence on statistics such as average cost per voucher. Weights also incorporate adjustments for non-response where substitution was not possible.

For this study, the target population of interest is the universe of high-performing HCV programs with more than 100 vouchers. Even though the new fee formula will apply to HCV programs of all sizes, the sample for the cost study was restricted to SEMAP high performers and programs with over 100 vouchers.

We developed the sampling weights for the study in a three-step process:

- Step 1: **Develop base weights** that reflect differential probabilities of selection.
- Step 2: **Adjust for non-response** using information on the current administrative fee rate of responding and non-responding PHAs.
- Step 3: **Develop raked weights** that build on the non-response adjusted weights and further adjust for potential non-response bias on dimensions other than administrative fee rate.

The raked weights are the final sampling weights to be used in the study. Each step in the weighting process is described below.

### Creating Base Weights (Step 1)

Developing base weights involves adjusting for the probability of selection. We need to adjust for the probability of selection because we sampled the study sites to achieve a distribution by program size that over-represented agencies with the largest programs. This approach was chosen because although the largest programs represent a small share of total PHAs, they represent a much bigger share of the vouchers under lease. The first step in adjusting for the probability of selection was to calculate the sampling probabilities. After that, we developed base weights.

#### Calculating Sampling Probabilities

The 60 PHAs for the full study were sampled in three rounds. In each round, a set of primary picks was selected by sampling strata based on the size of the voucher program. Additional backups were selected for replacement if a primary pick refused to participate in the study or was dropped from the

sample because it did not pass the initial HUD suitability screen.[97] Backups were designed to match the size, state, and program type of the primary picks.[98]

In the sequential three-round sampling procedure, overall probability of selection is given by:

$$P = P_1 + (1 - P_1)P_2 + (1 - P_1 - (1 - P_1)P_2)P_3$$

Where,

$P_1$ is the probability of selection during the first round of sampling,

P2 is the probability of selection during the second round of sampling, and

P3 is the probability of selection during the third round of sampling.

The sampling probability for the first round of sampling is calculated as the number of primary sample selections divided by the number of possible selections in each first round stratum. During the second and third rounds, backups from previous rounds that were contacted to participate or that did not pass the HUD suitability screen were counted in the denominator, as these PHAs would have been in the later sampling frames during later rounds had they not been needed to replace primary PHAs that dropped out:

$$P_1 = \frac{S_1}{F_1}$$

$$P_2 = \frac{S_2}{F_2 + B_1}$$

$$P_3 = \frac{S_3}{F_3 + B_1 + B_2}$$

Where,

$S_1$, $S_2$, and $S_3$ represent the number of primary picks selected during each sampling round in each stratum, regardless of their participation in the final study.

F1, F2, and F3 represent the number of PHAs eligible for selection during each round of sampling in each stratum. F2 and F3 include unused backups from earlier rounds.

B1 and B2 represent the number of backup PHAs that were recruited, refused to participate, were found ineligible, or rejected by a HUD field office that would otherwise have been eligible for sampling in subsequent rounds had they not been selected in earlier rounds.

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97 After each initial sample was selected, HUD headquarters and field staff reviewed the sample to identify any PHAs that would not be suitable for the study based on performance issues known to HUD. PHAs determined not to be suitable were removed from the sample.

98 If no backups were available by PHA size, state, and program type, we matched on size and state. If still no match was found, then the next backup was selected based on PHA size, census division, and program type. Again, if no backup was found, then a match was attempted on just PHA size and census division. Census division was replaced with census region in the final two attempts. Where there was no replacement within the same size category, the next closest size category was chosen and the replacement methodology was attempted again.

In the first round of sampling conducted in late 2010, 60 PHAs were selected from a sampling frame of 877 multi-year SEMAP high performers. Exhibit B-1 shows the probability of selection. For each PHA, two additional backups were also selected.

**Exhibit B-1. Round 1 Sample Probabilities by Stratum**

| Sampling Stratum | Sampling Frame A | Primary Selections B | Probability of Selection B/A |
|---|---|---|---|
| 1–49 vouchers | 41 | 5 | 12.2% |
| 50–249 vouchers | 280 | 13 | 4.6% |
| 250–499 vouchers | 174 | 12 | 6.9% |
| 500–1,249 vouchers | 225 | 12 | 5.3% |
| 1,250–9,999 vouchers | 151 | 12 | 7.9% |
| 10,000 or more vouchers | 6 | 6 | 100.0% |
| **Total** | **877** | **60** | **6.8%** |

A new sampling frame was selected for the second round of sampling, which took place in April 2012. More recently available SEMAP data were used to update the list of SEMAP high performers. Also, PHAs with fewer than 101 vouchers and PHAs that had previously been rejected by HUD field offices were excluded from the frame. In response to comments from the Expert and Industry Technical Review Group, one sampling stratum from the first round (1,250–9999 vouchers) was further split into two strata (1,250–5,249 and 5,250–9,999 vouchers). In the second round, we selected 35 primary picks from a sampling frame of 1,112 PHAs. Additional backups were also picked. Exhibit B-2 shows the probability of selection for Round 2.

**Exhibit B-2. Round 2 Sampling Probabilities by Stratum**

| Sampling Stratum | Sampling Frame A | First Round Backups B | Primary Selections C | Probability of Selection C/(A+B) |
|---|---|---|---|---|
| 101–249 vouchers | 281 | 6 | 1 | 0.3% |
| 250–499 vouchers | 282 | 9 | 14 | 4.8% |
| 500–1,249 vouchers | 336 | 7 | 9 | 2.6% |
| 1,250–5,249 vouchers | 188 | 12 | 2 | 1.0% |
| 5,250–9,999 vouchers | 23 | 0 | 7 | 30.4% |
| 10,000 or more vouchers | 2 | 1 | 2 | 66.7% |
| **Total** | **1,112** | **35** | **35** | **3.1%** |

The study experienced a high rate of refusals in the second round and needed to pick another round of PHAs. The sampling frame for the third round was the same as that for the second round. This round of sampling took place in September 2012. An additional 20 PHAs were picked in Round 3, each with two additional backups when available. Exhibit B-3 shows the probability of selection for Round 3.

**Exhibit B-3. Round 3 Sampling Probabilities by Stratum**

| Sampling Stratum | Sampling Frame A | First Round Backups B | Second Round Backups C | Primary Selections D | Probability of Selection C/(A+B+C) |
|---|---|---|---|---|---|
| 101–249 vouchers | 281 | 6 | 0 | 1 | 0.3% |
| 250–499 vouchers | 262 | 9 | 10 | 10 | 3.6% |
| 500–1,249 vouchers | 319 | 7 | 8 | 3 | 0.9% |
| 1,250–5,249 vouchers | 183 | 12 | 3 | 1 | 0.5% |
| 5,250–9,999 vouchers | 9 | 0 | 6 | 5 | 33.3% |
| 10,000 or more vouchers | 0 | n/a | n/a | n/a | n/a |
| **Total** | **1,054** | **34** | **27** | **20** | **1.8%** |

### Developing Base Weights

After determining overall sampling probabilities, each primary selection was assigned a base weight of the inverse of the probability of selection:

$$W = \frac{1}{P}$$

Where,

W is the base weight and P is the probability of selection.

### Adjusting for Non-Response Bias (Step 2)

After developing the base weights for all sampled PHAs, we then adjusted the base weights for non-response bias. We used the PHA's administrative fee rate as the defining variable in adjusting for non-response bias because the existing fee rate is a major driver of administrative cost. After dropping nine primary selections with voucher programs of 100 or fewer vouchers, we were working with 106 PHAs (out of 115 primary selections or their backups).[99] We split the 106 PHAs into two non-response cells based on their average 2012 administrative fee rate.[100] The first cell comprised PHAs with administrative fees in calendar year 2012 of $65 or less per unit month. The second cell comprised PHAs with administrative fees of more than $65 per unit month. Within each cell, a non-response adjustment factor was calculated as:

$$R_1 = \frac{\sum_S W + \sum_I W + \sum_R W + \sum_E W + \sum_N W}{\sum_S W + \sum_I W + \sum_R W}$$

[99] 115 PHAs = 60 PHAs (Round 1) + 35 PHAs (Round 2) + 15 PHAs (Round 3).

[100] Weighted average of the 2012 A/B rate depending on the number of vouchers under lease.

Where,

R1 is the non-response adjustment factor.

W is the base weight.

∑SW is the sum of base weights associated with recruited PHAs.[101]

∑IW is the sum of base weights associated with ineligible PHAs.

∑RW is the sum of base weights associated with PHAs that refused to participate after the eligibility determination.

∑EW is the sum of base weights associated with nonresponsive PHAs for which no cooperative and eligible replacement PHA was found.

∑NW is the sum of base weights associated with primary selections that were never contacted because they were not needed or did not meet HUD's suitability screen.

The non-response adjustment factors for each non-response cell are given in Exhibit B-4.

**Exhibit B-4. Non-Response Adjustment Factors by Non-Response Cell**

| Average 2012 Administrative Fee Rate | Number of Sampled PHAs | Non-Response Adjustment Factor |
|---|---|---|
| $65 or less per voucher-month | 56 | 1.2131 |
| More than $65 per voucher-month | 50 | 1.6240 |

### Non-Response Adjustment for Ineligible PHAs

Non-response adjusted weights for the 24 ineligible PHAs[102] were calculated as:

$$W_{adj} = R_1 * W$$

Where,

$W_{adj}$ is the non-response adjusted weight.

### Non-Response Adjustment for Recruited PHAs

Non-response adjusted weights were calculated for the 60 PHAs in the final sample and 4 PHAs that refused after being selected for the full study in the same manner as they were for the 24 ineligible

[101] The study team conducted reconnaissance site visits to all sampled PHAs that passed HUD's initial suitability screen and agreed to participate in the study. PHAs that met the performance and efficiency standards were then invited to participate in the time measurement study. The 60 PHAs that completed the time measurement and cost data collection are referred to as *recruited agencies*. The PHAs that did not pass the site visit are referred to as *ineligible agencies*.

[102] The 24 ineligible PHAs excludes those PHAs where the primary or backup PHA was too small to be part of the study or did not meet the initial telephone screening that was implemented in Round 3 to ensure that site visits were not conducted to PHAs that were unlikely to meet the study's performance criteria.

PHAs. Within each non-response cell, a "second phase" non-response adjustment factor was calculated as:

$$R_2 = \frac{\sum_S W_{adj} + \sum_R W_{adj}}{\sum_S W_{adj}}$$

Where,

R2 is the second-phase non-response adjustment factor.

∑SWadj is the sum of non-response adjusted weights associated with recruited PHAs.

∑RWadj is the sum of non-response adjusted weights associated with nonresponsive PHAs that refused to participate post eligibility determination.

The second phase non-response adjustment factors for each cell are given in Exhibit B-5.

**Exhibit B-5. Second Phase Non-Response Adjustment Factors by Non-Response Cell**

| Average 2012 Administrative Fee Rate | Number of Sampled PHAs | Non-Response Adjustment Factor |
|---|---|---|
| $65 or less per voucher-month | 56 | 1.0000 |
| More than $65 per voucher-month | 50 | 1.0552 |

Non-response adjusted weights for the 60 recruited PHAs were calculated as:

$$W_{adj2} = R_2 * W_{adj}$$

Where,

Wadj2 is the second phase non-response adjustment weight. This is the pre-raked sampling weight for the 60 PHAs.

### Developing the Raked Weights (Step 3)

In addition to adjusting for non-response bias on the dimension of administrative fee rate, we used a technique called raking (also known as sample-balancing) to adjust for potential non-response bias along other dimensions and to better match the characteristics of the screened PHAs to the high-performing universe.

After applying the non-response adjusted weights defined above (Wadj2), we found differences persisted between the screened sample and the high-performing universe on program type, percentage elderly served, and percentage disabled served. Each of these differences could affect costs although they may or may not be included in the study's regression analysis or recommended fee formula. We determined that raking would be an appropriate approach to adjust for these remaining differences. Adjusting for the differences is necessary in the event that one of the variables is believed to be an important cost driver but cannot be included in the regression.

Raking is an iterative process that uses the sample design weight as the starting weight and tries to make the weighted sample as close to the sampling universe as possible along a set of specified dimensions. The iterations continue until a convergence criterion set by the user is achieved (Abt

Associates 2014; Battaglia et al. n.d.). It is possible to rake on any number of characteristics as long as there are sufficient observations in each cell.

Raking is usually conducted one variable at a time, applying a proportional adjustment to the weights of the cases that belong to the same category of the control variable. The initial design weights in the raking process are often equal to the inverse of the selection probabilities and may have undergone some adjustments for non-response, as is the case with the non-response adjusted weights for this study. Raking further adjusts the data so that its marginal totals match control totals on a specified set of variables. The term raking suggests an analogy with the process of smoothing the soil in a garden plot by alternately working it back and forth with a rake in perpendicular movements. In a simple two-variable example, the marginal totals in various categories for the two control variables are known from the entire population, but the joint distribution of the two variables is known only from a sample. In the cross-classification of the sample, arranged in rows and columns, one might begin with the rows, taking each row in turn and multiplying each entry in the row by the ratio of the population total to the weighted sample total for that category, so that the row totals of the adjusted data agree with the population totals for that variable.

The weighted column totals of the adjusted data, however, may not yet agree with the population totals for the column variable. Thus, the next step, taking each column in turn, multiplies each entry in the column by the ratio of the population total to the current total for that category. Now the weighted column totals of the adjusted data agree with the population totals for that variable, but the new weighted row totals may no longer match the corresponding population totals. This process continues, alternating between the rows and the columns, and close agreement on both rows and columns is usually achieved after a small number of iterations. The result is a tabulation for the population that reflects the relation of the two control variables in the sample.

Raking can also adjust a set of data to control totals on three or more variables. We chose to rake on six characteristics: HCV program size, program type (HCV only programs vs. combined HCV and public housing), elderly households served as a percentage of total households served, average administrative fee, 3+ bedroom units as a percentage of total units subsidized, and disabled households served as a percentage of total households served. Not all of these characteristics showed significant differences between the sample and the universe when the initial non-response adjustment weights were applied, but we wanted to make sure that the final weighted sample (after raking) continued to reflect the universe in each of these areas.

We used the IHB SAS raking macro (Izrael, Battaglia, and Frankel 2009) to conduct the raking to control totals for this study. Through the raking process, we adjusted the non-response adjusted weights of the PHAs in the sample until the marginal totals of the adjusted weights on these six characteristics agreed with the corresponding totals for the high performing universe. We were able to achieve convergence within five raking iterations at which point the weighted distribution of the control variables differed from the distribution of these control variables in the high-performing universe by less than a 0.1. The raking macro incorporates weight trimming procedures into the iterative raking process, allowing us to achieve convergence while controlling the highest and lowest weight values.

## Study Sample Characteristics

Exhibit B-6 presents select characteristics of the 60 study sites compared to the sampling universe of SEMAP designated high-performing HCV programs with more than 100 vouchers. Exhibit B-7 presents select characteristics of the 60 study sites compared to all HCV programs with more than 100 vouchers. In both exhibits, the data for the 60 study sites are weighted using the methodology described above.

**Exhibit B-6. Comparison of Weighted Characteristics of 60 Study Sites to All SEMAP-Designated High-Performing HCV Programs With More Than 100 Vouchers**

| | Recruited Programs (Weighted) (N=60) | All High-Performing Programs with >100 Vouchers (N=1,258)[a] | p-Value[b] |
|---|---|---|---|
| **Agency Characteristics** | | | |
| Programming Offered | | | 0.710 |
| Combined HCV and Public Housing | 70.4% | 67.7% | |
| HCV Only | 29.6% | 32.3% | |
| Offers Family Self-Sufficiency (FSS) Programming | | | 0.369 |
| Yes | 67.9% | 60.8% | |
| No | 32.1% | 39.2% | |
| HCV Program Size (based on vouchers allocated) | | | 0.231 |
| 101–249 vouchers | 12.0% | 26.0% | |
| 250–499 vouchers | 33.3% | 24.8% | |
| 500–1,249 vouchers | 30.6% | 28.8% | |
| 1,250–5,249 vouchers | 18.2% | 17.6% | |
| 5,250–9,999 vouchers | 4.1% | 2.0% | |
| 10,000 or more vouchers | 1.8% | 0.8% | |
| Voucher Turnover Rate[c] | | | 0.418 |
| 5% or Less | 22.8% | 31.1% | |
| 5.01–10% | 26.3% | 30.5% | |
| 10.01–15% | 25.2% | 20.9% | |
| 15.01% or More | 25.7% | 17.4% | |
| HCV 2012 Program Utilization[d] | | | 0.420 |
| In “optimal” utilization zone | 77.7% | 71.4% | |
| Not in “optimal” utilization zone | 22.3% | 28.6% | |
| Average CY12 Administrative Fee (per Voucher per Month)[e] | | | 0.647 |
| $56 or Less | 24.4% | 30.7% | |
| $57–$65 | 29.0% | 28.8% | |
| More than $65 | 46.7% | 40.5% | |

| | Recruited Programs (Weighted) (N=60) | All High-Performing Programs with >100 Vouchers (N=1,258)[a] | p-Value[b] |
|---|---|---|---|
| **Agency Environment: Geography and Distance** | | | |
| Geographic Region | | | 0.310 |
| New England | 13.0% | 10.7% | |
| Mid-Atlantic | 7.0% | 15.8% | |
| East North Central | 12.2% | 14.4% | |
| West North Central | 13.2% | 11.4% | |
| South Atlantic | 15.2% | 15.7% | |
| East South Central | 1.4% | 6.9% | |
| West South Central | 11.5% | 11.2% | |
| Mountain | 7.2% | 5.4% | |
| Pacific | 19.2% | 8.5% | |
| Type of Area Served[f] | | | 0.516 |
| Central city | 14.2% | 14.7% | |
| Central city and outlying metropolitan area | 31.0% | 22.8% | |
| Non-central city metropolitan area (suburbs) | 15.3% | 27.0% | |
| Rural area | 33.3% | 31.3% | |
| Other | 6.2% | 4.1% | |
| Median PHA–Unit Distance | | | 0.250 |
| Less than 1 mile | 8.7% | 16.9% | |
| 1–2 miles (average) | 29.8% | 28.2% | |
| >2–5 miles (average) | 22.1% | 28.9% | |
| >5–10 miles (average) | 21.8% | 12.7% | |
| More than 10 miles (average) | 17.6% | 13.2% | |
| State Has Laws Barring Source-of-Income Discrimination That Protect Section 8 Tenants[g] | | | 0.048** |
| Yes | 5.8% | 14.4% | |
| No | 94.2% | 85.6% | |
| **Agency Environment: Local Housing Conditions[h]** | | | |
| Average 2012 2-Bedroom FMR >$750 | | | 0.580 |
| $750 or less | 50.6% | 55.1% | |
| $751 of more | 49.4% | 44.9% | |
| Average Contract Rent | | | 0.697 |
| $750 or less | 74.8% | 77.3% | |
| $751 of more | 25.2% | 22.7% | |
| Average House Price[i] | | | 0.121 |
| $150,000 or less | 37.4% | 49.8% | |
| $150,001 or more | 62.6% | 50.2% | |
| Rental Vacancy Rate | | | 0.066* |
| 10% or less | 76.6% | 63.2% | |
| More than 10% | 23.4% | 36.8% | |

## APPENDIX B: WEIGHTING AND SAMPLE CHARACTERISTICS

| | Recruited Programs (Weighted) (N=60) | All High-Performing Programs with >100 Vouchers (N=1,258)[a] | p-Value[b] |
|---|---|---|---|
| Owner Occupancy Rate | | | 0.725 |
| 60% or less | 43.8% | 46.7% | |
| More than 60% | 56.2% | 53.3% | |
| Median Year Built | | | 0.882 |
| 1939 or earlier | 0.0% | 0.4% | |
| 1940–1949 | 8.1% | 12.1% | |
| 1950–1959 | 16.3% | 18.3% | |
| 1960–1969 | 28.7% | 24.9% | |
| 1970–1979 | 35.8% | 32.1% | |
| 1980–present | 11.1% | 12.2% | |
| Single Family Detached Units as Percent of Total Units | | | 0.552 |
| 60% or less | 52.1% | 47.2% | |
| More than 60% | 47.9% | 52.8% | |
| Multifamily Units as Percent of Total Units | | | 0.963 |
| 30% or less | 56.0% | 56.4% | |
| More than 30% | 44.0% | 43.6% | |
| **HCV Participant Experience** | | | |
| Average Number of Months on Wait List | | | 0.270 |
| 9 months or less | 58.9% | 50.1% | |
| More than 9 months | 41.1% | 49.9% | |
| Average Number of Months Since Move-In | | | 0.537 |
| 65 months or less | 49.1% | 44.1% | |
| More than 65 months | 50.9% | 55.9% | |
| Average Total Tenant Payment | | | 0.380 |
| $300 or less | 39.8% | 47.0% | |
| More than $300 | 60.2% | 53.0% | |
| 3+ Bedroom Units as Percent of Total Units Subsidized | | | 0.755 |
| 30% or less | 47.9% | 45.4% | |
| More than 30% | 52.1% | 54.6% | |
| Overhoused Households as Percent of Total Households Served[j] | | | 0.815 |
| 20% or less | 56.3% | 58.2% | |
| More than 20% | 43.7% | 41.8% | |
| Average Household Served Annual Income | | | 0.546 |
| $12,000 or less | 52.6% | 57.5% | |
| More than $12,000 | 47.4% | 42.5% | |
| Reported Households Earning Most Income From Wages as Percent of All Reported Households | | | 0.521 |
| 25% or less | 55.7% | 61.0% | |
| More than 25% | 44.3% | 39.0% | |

| | Recruited Programs (Weighted) (N=60) | All High-Performing Programs with >100 Vouchers (N=1,258)[a] | p-Value[b] |
|---|---|---|---|
| Reported Households Earning Most Income From Welfare as Percent of All Reported Households | | | 0.791 |
| 10% or less | 56.6% | 58.7% | |
| More than 10% | 43.4% | 41.3% | |
| Minority Households as Percent of All Households Served[k] | | | 0.474 |
| 35% or less | 54.0% | 48.1% | |
| More than 35% | 46.0% | 51.9% | |
| Black/African American-Caucasian Dissimilarity Index[l] | | | 0.563 |
| 40% or less | 46.5% | 51.3% | |
| More than 40% | 53.5% | 48.7% | |
| Hispanic/Latino-Caucasian Dissimilarity Index[l] | | | 0.404 |
| 40% or less | 83.0% | 78.5% | |
| More than 40% | 17.0% | 21.5% | |
| Disabled Households Served as Percent of Total Households Served | | | 0.317 |
| 20% or less | 37.8% | 45.9% | |
| More than 20% | 62.2% | 54.1% | |
| Elderly Households as Percent of Reported Households | | | 0.876 |
| 20% or less | 60.4% | 61.5% | |
| More than 20% | 39.6% | 38.5% | |
| Limited English Proficiency Residents as Percent of Total Area Population Five Years of Age or Older | | | 0.117 |
| 10% or less | 82.7% | 74.4% | |
| More than 10% | 17.3% | 25.6% | |

Notes:

a This includes the universe of PHAs that met the SEMAP high-performing criteria and were part of the sampling frame for any of the sampling rounds. MTW PHAs are not included.

b Significance determined using a Rao-Scott chi-square test, where the null hypothesis is the distribution of sample PHAs that matches the distribution of high-performing PHAs (assumed constant).

c We are unable to test for equality of means using a T-test as the distributions of all continuous measures analyzed are highly non-normal. As such, continuous measures reported as difference in means have been transformed into discrete categorical measures so that we may use a chi-square test to test for significant differences.

d In "optimal" utilization zone means that UML/UMA is between 95 percent and 100 percent, or year-to-date HAP/year-to-date ABA is between 95 percent and 100 percent, or both UML/UMA and year-to-date HAP/year-to-date ABA are between 95 percent and 100 percent.

e HUD provides each PHA two fee rates. The A rate applies to each unit month leased up to 7,200 unit months while the B rate applies to each additional unit month leased. If a PHA leased 7,200 or fewer unit months, the average administrative fee is the A rate. If a PHA leased more than 7,200 vouchers, average administrative fee is the average of the two fee rates, weighted by the proportion of voucher-months above and below 7,200.

f "Central city": 10 percent or more of households served live in urbanized areas, while less than 10 percent live in suburban areas and less than 10 percent live in rural areas. "Central city and outlying metropolitan area": 10 percent or more of households served live in urbanized areas and 10 percent or more live in suburban areas, while less than 10 percent live in rural areas. "Non-central city metropolitan area (suburbs)": 10 percent or more of households served live in suburban areas, while less than 10 percent live in urbanized areas and less than 10 percent live in rural areas. "Rural areas only": 10 percent or more of reported households live in rural areas, while less than 10 percent live in urbanized areas and less than 10 percent live in suburban areas. "Other": PHA serves an area not described in other categories.

g According to the Poverty and Race Research Action Council, the following states have state laws barring source-of-income discrimination that include housing assistance as a source of income: Connecticut, District of Columbia, Maine, Massachusetts, New Jersey, North Dakota, Oklahoma, Utah, and Vermont. Source: http://www.prrac.org/pdf/AppendixB.pdf

h Housing conditions data and select participant characteristics data (ratios, dissimilarity indices) were aggregated to the PHA level before analysis. Sums were weighted by total households served per PHA-county/county subdivision or total households served per PHA-census tract.

i Where ACS data recording the total aggregate value of owner-occupied homes per 2000 census tract were missing, these data were approximated using the midpoints of house price ranges provided by ACS.

j Households are defined as "overhoused" when they have more available bedrooms in their unit than members.

k "Minority": any single race that is not Caucasian. Analysis excluded multiracial and "other race" households.

l Dissimilarity indices indicate the extent of spatial segregation or integration between two racial groups within a PHA's jurisdiction. Zero percent indicates complete integration. One hundred percent indicates complete segregation. The index can be interpreted as the percentage of either racial group that would need to relocate in order to attain complete racial integration across a PHA's jurisdiction.

Sources: ACS five-year Summary File (2005–2009), PIC data (as of December 2011) from HUD, HUD data on 2010 turnover rates, 2012 FMRs, median distances, FY 2012 FSS NOFA data for October 1, 2010, through September 30, 2011, utilization of funds and vouchers (as of March 2012), Census 2000 data, and SEMAP 2011 data for size of voucher program.

**Exhibit B-7. Comparison of Weighted Characteristics of 60 Study Sites to All HCV Programs With More Than 100 Vouchers**

| | Recruited Programs (Weighted) (N=60) | All HCV Programs with >100 Vouchers (N=1,782)[a] | p-Value[b] |
|---|---|---|---|
| **Agency Characteristics** | | | |
| Programming Offered | | | 0.422 |
| Combined HCV and Public Housing | 70.4% | 64.5% | |
| HCV Only | 29.6% | 35.5% | |
| Offers Family Self-Sufficiency (FSS) Programming | | | 0.137 |
| Yes | 67.9% | 55.9% | |
| No | 32.1% | 44.1% | |
| HCV Program Size (based on vouchers allocated) | | | 0.091* |
| 101–249 vouchers | 12.0% | 30.8% | |
| 250–499 vouchers | 33.3% | 24.6% | |
| 500–1,249 vouchers | 30.6% | 24.7% | |
| 1,250–5,249 vouchers | 18.2% | 16.6% | |
| 5,250–9,999 vouchers | 4.1% | 2.0% | |
| 10,000 or more vouchers | 1.8% | 1.2% | |
| Voucher Turnover Rate[c] | | | 0.430 |
| 5% or Less | 22.8% | 32.7% | |
| 5.01–10% | 26.3% | 28.8% | |
| 10.01–15% | 25.2% | 19.9% | |
| 15.01% or More | 25.7% | 18.5% | |
| HCV 2012 Program Utilization[d] | | | 0.207 |
| In “optimal” utilization zone | 77.7% | 67.6% | |
| Not in “optimal” utilization zone | 22.3% | 32.4% | |
| Average CY12 Administrative Fee (per Voucher per Month)[e] | | | 0.716 |
| $56 or Less | 24.4% | 29.9% | |
| $57–$65 | 29.0% | 28.8% | |
| More than $65 | 46.7% | 41.3% | |
| **Agency Environment: Geography and Distance** | | | |
| Geographic Region | | | 0.154 |
| New England | 13.0% | 9.8% | |
| Mid-Atlantic | 7.0% | 17.2% | |
| East North Central | 12.2% | 14.0% | |
| West North Central | 13.2% | 10.3% | |
| South Atlantic | 15.2% | 15.0% | |
| East South Central | 1.4% | 6.5% | |
| West South Central | 11.5% | 14.1% | |
| Mountain | 7.2% | 5.5% | |
| Pacific | 19.2% | 7.6% | |

| | Recruited Programs (Weighted) (N=60) | All HCV Programs with >100 Vouchers (N=1,782)[a] | p-Value[b] |
|---|---|---|---|
| Type of Area Served[f] | | | 0.457 |
| Central city | 14.2% | 13.1% | |
| Central city and outlying metropolitan area | 31.0% | 21.9% | |
| Non-central city metropolitan area (suburbs) | 15.3% | 27.9% | |
| Rural area | 33.3% | 32.7% | |
| Other | 6.2% | 4.4% | |
| Median PHA–Unit Distance | | | 0.295 |
| Less than 1 mile | 8.7% | 18.8% | |
| 1–2 miles (average) | 29.8% | 27.1% | |
| >2–5 miles (average) | 22.1% | 27.2% | |
| >5–10 miles (average) | 21.8% | 12.8% | |
| More than 10 miles (average) | 17.6% | 14.0% | |
| State Has Laws Barring Source-of-Income Discrimination that Protect Section 8 Tenants[g] | | | 0.046** |
| Yes | 5.8% | 14.5% | |
| No | 94.2% | 85.5% | |
| **Agency Environment: Local Housing Conditions[h]** | | | |
| Average 2012 2-Bedroom FMR >$750 | | | 0.542 |
| $750 or less | 50.6% | 55.5% | |
| $751 of more | 49.4% | 44.5% | |
| Average Contract Rent | | | 0.667 |
| $750 or less | 74.8% | 77.6% | |
| $751 of more | 25.2% | 22.4% | |
| Average House Price[i] | | | 0.080* |
| $150,000 or less | 37.4% | 51.4% | |
| $150,001 or more | 62.6% | 48.6% | |
| Rental Vacancy Rate | | | 0.035** |
| 10% or less | 76.6% | 61.1% | |
| More than 10% | 23.4% | 38.9% | |
| Owner Occupancy Rate | | | 0.842 |
| 60% or less | 43.8% | 45.4% | |
| More than 60% | 56.2% | 54.6% | |
| Median Year Built | | | 0.887 |
| 1939 or earlier | 0.0% | 0.5% | |
| 1940–1949 | 8.1% | 11.7% | |
| 1950–1959 | 16.3% | 18.9% | |
| 1960–1969 | 28.7% | 24.4% | |
| 1970–1979 | 35.8% | 32.6% | |
| 1980–present | 11.1% | 11.9% | |

| | Recruited Programs (Weighted) (N=60) | All HCV Programs with >100 Vouchers (N=1,782)[a] | p-Value[b] |
|---|---|---|---|
| Single Family Detached Units as Percent of Total Units | | | 0.367 |
| 60% or less | 52.1% | 44.7% | |
| More than 60% | 47.9% | 55.3% | |
| Multi-Family Units as Percent of Total Units | | | 0.745 |
| 30% or less | 56.0% | 58.6% | |
| More than 30% | 44.0% | 41.4% | |
| **HCV Participant Experience** | | | |
| Average Number of Months on Wait List | | | 0.223 |
| 9 months or less | 58.9% | 49.1% | |
| More than 9 months | 41.1% | 50.9% | |
| Average Number of Months since Move-In | | | 0.522 |
| 65 months or less | 49.1% | 43.9% | |
| More than 65 months | 50.9% | 56.1% | |
| Average Total Tenant Payment | | | 0.355 |
| $300 or less | 39.8% | 47.4% | |
| More than $300 | 60.2% | 52.6% | |
| 3+ Bedroom Units as Percent of Total Units Subsidized | | | 0.438 |
| 30% or less | 47.9% | 41.7% | |
| More than 30% | 52.1% | 58.3% | |
| Overhoused Households as Percent of Total Households Served[j] | | | 0.871 |
| 20% or less | 56.3% | 57.6% | |
| More than 20% | 43.7% | 42.4% | |
| **Average Household Served Annual Income** | | | |
| $12,000 or less | | | 0.532 |
| More than $12,000 | 52.6% | 57.7% | |
| Reported Households Earning Most Income From Wages as Percent of All Reported Households | 47.4% | 42.3% | |
| 25% or less | | | 0.898 |
| More than 25% | 55.7% | 56.8% | |
| Reported Households Earning Most Income From Welfare as Percent of All Reported Households | 44.3% | 43.2% | |
| 10% or less | | | 0.841 |
| More than 10% | 56.6% | 58.2% | |
| Minority Households as Percent of All Households Served[k] | 43.4% | 41.8% | |
| 35% or less | | | 0.175 |
| More than 35% | 54.0% | 43.0% | |
| Black/African American-Caucasian Dissimilarity Index[l] | 46.0% | 57.0% | |
| 40% or less | | | 0.416 |
| More than 40% | 46.5% | 53.2% | |

## APPENDIX B: WEIGHTING AND SAMPLE CHARACTERISTICS

| | Recruited Programs (Weighted) (N=60) | All HCV Programs with >100 Vouchers (N=1,782)[a] | p-Value[b] |
|---|---|---|---|
| Hispanic/Latino-Caucasian Dissimilarity Index[l] | 53.5% | 46.8% | |
| 40% or less | | | 0.407 |
| More than 40% | 74.9% | 78.5% | |
| Disabled Households Served as Percent of Total Households Served | 25.1% | 21.5% | |
| 20% or less | | | 0.123 |
| More than 20% | 37.8% | 50.4% | |
| Elderly Households as Percent of Reported Households | 62.2% | 49.6% | |
| 20% or less | | | 0.724 |
| More than 20% | 60.4% | 63.0% | |
| Limited English Proficiency Residents as Percent of Total Area Population Five Years of Age or Older | 39.6% | 37.0% | |
| 10% or less | | | 0.068* |
| More than 10% | 82.7% | 72.9% | |
| More than 10% | 17.3% | 27.1% | |

Notes:

a MTW PHAs are not included.

b Significance determined using a Rao-Scott chi-square test, where the null hypothesis is the distribution of sample PHAs that matches the distribution of high-performing PHAs (assumed constant).

c We are unable to test for equality of means using a T-test as the distributions of all continuous measures analyzed are highly non-normal. As such, continuous measures reported as difference in means have been transformed into discrete categorical measures so that we may use a chi-square test to test for significant differences.

d In "optimal" utilization zone means that UML/UMA is between 95 percent and 100 percent, or year-to-date HAP/year-to-date ABA is between 95 percent and 100 percent, or both UML/UMA and year-to-date HAP/year-to-date ABA are between 95 percent and 100 percent.

e HUD provides each PHA two fee rates. The A rate applies to each unit month leased up to 7,200 unit months while the B rate applies to each additional unit month leased. If a PHA leased 7,200 or fewer unit months, the average administrative fee is the A rate. If a PHA leased more than 7,200 vouchers, average administrative fee is the average of the two fee rates, weighted by the proportion of voucher-months above and below 7,200.

f "Central city": 10 percent or more of households served live in urbanized areas, while less than 10 percent live in suburban areas and less than 10 percent live in rural areas. "Central city and outlying metropolitan area": 10 percent or more of households served live in urbanized areas and 10 percent or more live in suburban areas, while less than 10 percent live in rural areas. "Non-central city metropolitan area (suburbs)": 10 percent or more of households served live in suburban areas, while less than 10 percent live in urbanized areas and less than 10 percent live in rural areas. "Rural areas only": 10 percent or more of reported households live in rural areas, while less than 10 percent live in urbanized areas and less than 10 percent live in suburban areas. "Other": PHA serves an area not described in other categories.

g According to the Poverty and Race Research Action Council, the following states have state laws barring source-of-income discrimination that include housing assistance as a source of income: Connecticut, District of Columbia, Maine, Massachusetts, New Jersey, North Dakota, Oklahoma, Utah and Vermont. Source: http://www.prrac.org/pdf/AppendixB.pdf

h Housing conditions data and select participant characteristics data (ratios, dissimilarity indices) were aggregated to the PHA level before analysis. Sums were weighted by total households served per PHA-county/county subdivision or total households served per PHA-census tract.

i Where ACS data recording the total aggregate value of owner-occupied homes per 2000 census tract were missing, these data were approximated using the midpoints of house price ranges provided by ACS.

j Households are defined as "overhoused" when they have more available bedrooms in their unit than members.

k "Minority": any single race that is not Caucasian. Analysis excluded multiracial and "other race" households.

l Dissimilarity indices indicate the extent of spatial segregation or integration between two racial groups within a PHA's jurisdiction. Zero percent indicates complete integration. One hundred percent indicates complete segregation. The index can be interpreted as the percentage of either racial group that would need to relocate in order to attain complete racial integration across a PHA's jurisdiction.

Sources: ACS five-year Summary File (2005–2009), PIC data (as of December 2011) from HUD, HUD data on 2010 turnover rates, 2012 FMRs, median distances, FY 2012 FSS NOFA data for October 1, 2010, through September 30, 2011, utilization of funds and vouchers (as of March 2012), Census 2000 data, and SEMAP 2011 data for size of voucher program.

# Appendix C. Data Collection

## Time Measurement

Staff participating in RMS data collection were provided a training booklet that defined all of the categories used on the RMS device. Exhibit C-1 summarizes the information provided in the booklet, showing definitions for all HCV areas, activities, and tasks captured by RMS.

**Exhibit C-1. Definitions of HCV Program Areas, Activities, and Tasks**

| Function | Activity | Possible Tasks Included in Sub-Activity |
|---|---|---|
| Intake and eligibility | Applicant intake | • Open, close, maintain, or purge waiting list<br>• Advertise opening or closing of waiting list<br>• Activities related to lottery process (if applicable) for adding applicants to waiting list<br>• Provide waiting list status to applicants<br>• Audit and reconcile the list from month to month<br>• Orientation for applicants<br>• Review pre-applications<br>• Select applicants off of the waiting list<br>• Receive special program applicant referrals<br>• Schedule intake appointments<br>• Prepare and send letters<br>• Make files and copies of applications |
| Intake and eligibility | Process port-ins | • Send and receive HUD 52665s<br>• Port-in billing<br>• Communicate with initial PHAs<br>• Respond to inquiries about porting |
| Intake and eligibility | Eligibility determinations | • Conduct initial and subsequent intake interviews<br>• Complete and collect documents, make copies, request additional documents<br>• Prepare tenant file and intake room<br>• Verify and calculate annual income, assets, and deductions<br>• Request and review third-party verifications<br>• Verify preferences, citizenship, and family composition<br>• Verify medical information<br>• Verify tenant in good standing (EIV former tenant search, debts owed, and terminations report)<br>• Conduct 120-day EIV review<br>• Conduct criminal background check<br>• Conduct sex offender registration check<br>• Conduct any other PHA-specific eligibility criteria check<br>• Review tenant-supplied documents relating to adjusted annual income<br>• Make phone calls, send and receive faxes |
| Intake and eligibility | Informal reviews | • Receive and review requests for informal reviews<br>• Schedule and conduct informal reviews<br>• Prepare files/documentation |
| Intake and eligibility | Denial of eligibility | • Send notifications of ineligibility to applicants<br>• Withdraw applicant from waiting list and update systems of record |

## APPENDIX C. DATA COLLECTION

| Function | Activity | Possible Tasks Included in Sub-Activity |
|---|---|---|
| Intake and eligibility | Reasonable accommodation | • Conduct any additional tasks related to intake of disabled clients<br>• Review and act on requests for reasonable accommodation<br>• Work with legal assistance, advocates, or service providers to verify need and ensure link between disability and accommodation requested<br>• Educate landlords, applicants, and participants about rights and responsibilities regarding reasonable accommodation, LEP and VAWA<br>• Conduct fraud counseling<br>• Translate documents into large print, Braille, and other formats<br>• Read materials aloud to participant as necessary<br>• Arrange for an ASL or other interpreter to be present at intake<br>• Conduct home interviews for disabled clients<br>• Identify resources for accessible or modified units<br>• Distribute materials to organizations and advocates that serve people with disabilities<br>• Work on appeal process |
| Intake and eligibility | Data entry, file management, and reports | • Work on general administrative activities, email, and phone calls related to intake and eligibility<br>• Complete, submit, and correct 50058/PIC<br>• Enter data entry into other systems of record<br>• Revise or create intake forms<br>• Filing, mailing, and data storage (including shredding files) related to current or former program applicants<br>• Translate documents into other languages<br>• Prepare reports for supervisors |
| Lease-up | Briefings (individual or group) | • Schedule briefings and send notices<br>• Prepare voucher and briefing packets<br>• Conduct briefings<br>• Update systems and files |
| Lease-up | Voucher issuance | • Issue the vouchers<br>• Send notifications to participants |
| Lease-up | Search assistance | • Provide lists of available units or landlords who accept vouchers<br>• Provide housing search assistance |
| Lease-up | Extensions, expirations, and withdrawals | • Review, approve or deny, and process housing search time extension requests<br>• Suspend search time<br>• Conduct voucher expiration activities<br>• Process voluntary withdrawal or return of voucher |
| Lease-up | RFTA processing | • Receive and log RFTAs<br>• Notify participant and owner of RFTA approval or denial<br>• Confirm owner entity<br>• Conduct other activities related to processing RFTAs |
| Lease-up | Rent reasonableness | • Research, create, and update database of comparable units<br>• Conduct comparability reviews/rent reasonableness test for initials<br>• Negotiate rent/utilities with owner/contact owner<br>• Document file and update systems |
| Lease-up | HAP contracts | • Collect lease copy and ownership documents<br>• Prepare and deliver HAP contract<br>• Meet with owner and applicant/participant to execute contract for move-ins<br>• Review and execute HAP contract<br>• Change ownership<br>• Process direct deposit information |

| Function | Activity | Possible Tasks Included in Sub-Activity |
|---|---|---|
| Lease-up | Informal reviews | • Receive and review requests for informal reviews<br>• Schedule and conduct informal reviews<br>• Prepare files/documentation |
| Lease-up | Reasonable accommodation | • Conduct additional tasks related to preparing briefing package to accommodate client disability<br>• Conduct additional activities related to RFTA processing or extension requests for disabled clients<br>• Negotiate exception rent for accessibility modifications<br>• Notify disabled clients of the results of informal reviews<br>• Review and respond to requests for reasonable accommodation requests such as larger units, additional utility costs, and exception payment standard |
| Lease-up | Data entry, file management, and reports | • Work on general administrative activities, email, and phone calls related to lease-up<br>• Complete, submit, and correct 50058/PIC<br>• Enter data into other systems of record<br>• Revise or create lease and HAP form<br>• Work on filing, mailing, and data storage<br>• Translate documents into other languages<br>• Prepare reports for supervisors |
| Ongoing occupancy | Annual recertifications | • Prepare for annual recertifications/conduct interviews<br>– Schedule, prepare for, and conduct interviews<br>– Copy and review documents<br>– Request additional documents and schedule follow-up interviews as necessary<br>– Review/prepare tenant files<br>• Verify and calculate income and review EIV<br>– Pull/review EIV and resolve discrepancies<br>– Request third-party and tenant-supplied documents<br>– Verify and calculate income, assets, deductions, and documentation<br>– Complete family composition changes and determine eligibility of new household members<br>– Calculate total tenant payment<br>– Calculate HAP<br>– Enter data and make corrections<br>• Send notices and respond to questions<br>– Send annual recertification notices of HAP changes<br>– Answer questions from tenants and owners |
| Ongoing occupancy | Interim recertifications | • Receive and process initial request for interim recertification<br>• Request follow-up information as necessary<br>• Conduct interim interviews and verify income<br>• Determine eligibility of new household members<br>• Calculate total tenant payment<br>• Calculate HAP<br>• Process vendor changes and send notifications |
| Ongoing occupancy | Moves | • Receive and process move requests<br>• Determine eligibility for move<br>• Notify participants of PHA decision<br>• Conduct move briefings<br>• NOTE: Lease- up activities including RFTA processing and HAP contracts should be recorded in the relevant lease-up category |

## APPENDIX C. DATA COLLECTION

| Function | Activity | Possible Tasks Included in Sub-Activity |
|---|---|---|
| Ongoing occupancy | Rent reasonableness | • Research, create, and update database of comparable units<br>• Receive increase requests<br>• Conduct comparability reviews/rent reasonableness tests for ongoing occupancy<br>• Negotiate rent/utilities with owner<br>• Prepare utility change contracts<br>• Document file and update system<br>• Process during interim or annual recertification |
| Ongoing occupancy | Process port-outs | • Determine participant eligibility in port-out area<br>• Provide participants with information regarding port-out areas<br>• Send HUD 52665s and supporting documents<br>• Communicate with receiving PHAs about participants and billing<br>• Update participant files |
| Ongoing occupancy | End of participation | • Prepare end of participation agreement<br>• Update file and systems |
| Ongoing occupancy | Termination and related informal hearings | • Investigate possible cases of program fraud/grounds for termination<br>• Review file and circumstances leading to decision to terminate assistance<br>• Review inspection results and payment records<br>• Send notification of pending termination and termination decision<br>• Rescind termination when appropriate<br>• Receive and review requests for informal hearings<br>• Schedule and conduct hearings<br>• Plan for and participate in court hearings<br>• Finalize termination by completing documentation<br>• Work on post-termination litigation |
| Ongoing occupancy | Other informal hearings | • Schedule and conduct informal hearings for determination of family income, total tenant payment, or utility allowances, determination of unit size, or for denial of hardship exemptions<br>• Send notification of informal hearing decision and update systems of record |
| Ongoing occupancy | Reasonable accommodation | • Work on additional preparation for annual and interim recertifications with disabled clients<br>• Work on additional activities related to processing move requests, terminations, or informal hearings for disabled clients<br>• Review and act on requests for reasonable accommodation<br>• Work with legal assistance, advocates, or service providers to verify need and ensure link between disability and accommodation requested<br>• Educate landlords, applicants, and participants about rights and responsibilities regarding reasonable accommodation, LEP, and VAWA<br>• Translate documents into large print, Braille, and other formats<br>• Read materials aloud to participant as necessary<br>• Arrange for an ASL or other interpreter to be present at annual recertifications<br>• Conduct home interviews for disabled clients<br>• Identify resources for accessible or modified units<br>• Distribute materials to organizations and advocates that serve people with disabilities |

| Function | Activity | Possible Tasks Included in Sub-Activity |
|---|---|---|
| Ongoing occupancy | Data entry, file management, and reports | • Work on general administrative activities, email, and phone calls related to ongoing occupancy<br>• Complete, submit, and correct 50058/PIC<br>• Enter data entry into other systems of record<br>• Revise or create occupancy forms<br>• Work on filing, mailing, and data storage (including shredding files) related to current or former program participants<br>• Translate documents into other languages<br>• Prepare reports for supervisors |
| Inspections | Scheduling and notifications | • Schedule (and reschedule) inspections<br>• Send notifications to tenants and landlords<br>• Respond to calls and inquiries regarding inspection date/time<br>• Schedule inspections for contractors<br>• Work with contractors to evaluate inspection results |
| Inspections | Preparing for inspection | • Work in office before daily itinerary starts:<br>– Download itinerary/schedule<br>– Plan routing<br>– Review activities needed before inspections<br>– Make phone calls |
| Inspections | Driving to/from inspection | • Driving (time to, from, and between field inspections)<br>• Buying gas |
| Inspections | Conducting inspection | • Conduct first inspection for initial/move in<br>• Conduct reinspection for initial/move in<br>• Conduct first inspection for annual<br>• Conduct reinspection for annual<br>• Conduct complaint, emergency, or other special inspection<br>• Conduct QC inspection<br>• Conduct inspection type unknown<br>• NOTE: Includes conducting the inspection as well as wait time and no-shows |
| Inspections | Post-inspection paperwork | • Work on general administrative activities, email, and phone calls related to inspections<br>• Complete HUD 52641 and other post-inspection paperwork<br>• Upload results from handheld devices<br>• Complete mileage reimbursement sheets<br>• Complete, submit, and correct 50058/PIC<br>• Enter data entry into other systems of record<br>• Revise or create inspection forms<br>• Work on filing, mailing, and data storage<br>• Translate documents into other languages<br>• Do routine evaluation of inspection results<br>• Make inspection-related telephone calls and emails |
| Inspections | HQS enforcement | • Evaluate inspection results related to possible need for HQS enforcement<br>• Place or lift unit abatements<br>• Communicate with owners and tenants<br>• Plan for and participate in court hearings with owners |

## APPENDIX C. DATA COLLECTION

| Function | Activity | Possible Tasks Included in Sub-Activity |
|---|---|---|
| Inspections | Reasonable accommodation | • Conduct specific activities related to notifying and scheduling inspections for disabled clients<br>• Conduct additional activities for inspections to ensure accessibility including scheduling inspection with an advocate or additional PHA staff<br>• Conduct additional activities for HQS enforcement for disabled clients<br>• Work with legal assistance, advocates, and service providers to verify need and ensure link between disability and accommodation requested |
| Monitoring and supervisory | Plans/policies | • Prepare annual plan<br>• Prepare HCV administrative plan<br>• Draft procedures and processes<br>• Interact with HUD Field Office<br>• Evaluate and interpret HUD regulations and guidelines<br>• Develop, review, and revise payment standards, utility allowance<br>• Write funding applications/grants<br>• Plan project-based voucher planning (writing RFP, soliciting applications, reviewing proposals, selecting partners, securing additional funding)<br>• Work on Fair Housing complaints and investigations |
| Monitoring and supervisory | Prepare, approve, and distribute HAP | • Review HAP payment register and correct discrepancies<br>• Recover overpaid HAP through repayment agreements<br>• Reimburse families when HAP payments are incorrectly set too low |
| Monitoring and supervisory | PIC and EIV | • Monitor PIC and compare to system of record or correct errors<br>• Run and monitor EIV required reports<br>• Follow-up and resolve reports of program fraud<br>• Do electronic upload of batches of 50058s |
| Monitoring and supervisory | SEMAP and file QC | • Prepare SEMAP reporting and QC of files<br>• Conduct overall QC of tenant files<br>• Work on other quality control activities |
| Monitoring and supervisory | VMS reporting and corrections | • Report, correct, and monitor VMS |
| Monitoring and supervisory | Other monitoring | • Analyze wait list to ensure population meets income targeting requirements and other PHA objectives<br>• Monitor applicant response rate<br>• Monitor housing search time and unit rental success rates<br>• Monitor utilization<br>• Review and analyze other management reports and data<br>• Monitor budget to actual costs<br>• Prepare supervisors' reports |
| Monitoring and supervisory | HCV staff supervision | • Review cases and assign work (working with direct reports on their assigned cases)<br>• Do staff evaluations<br>• Conduct meetings with staff to discuss issues and provide feedback or coaching<br>• Conduct HR activities including recruitment and interviews<br>• Resolve performance and other personnel issues<br>• Do staff training and orientation<br>• Write job descriptions<br>• Review staff timesheets |
| Monitoring and supervisory | Board support | • Conduct executive-level meetings, board meetings<br>• Prepare for board meetings<br>• Write meeting minutes |

| Function | Activity | Possible Tasks Included in Sub-Activity |
|---|---|---|
| Monitoring and supervisory | Community relations | • Work on public relations<br>• Prepare public statements regarding changes in HCV programming<br>• Conduct community meetings<br>• Troubleshoot issues with elected officials and others |
| Monitoring and supervisory | Billing and budget support | • Prepare port billing (invoicing, payment reconciliation)<br>• Review and approve invoices<br>• Review timesheets<br>• Support preparation of annual budget authority and other budgets, project HCV program expenses and HUD funding. |
| Monitoring and supervisory | Audit support | • Prepare for HUD or other reviews<br>• Pull files for auditors<br>• Participate in discussions with auditors<br>• Generate action plans for findings |
| Monitoring and supervisory | Research studies | • Conduct work related to the HCV Administrative Fee Study and other studies of the HCV program |
| Supportive services (NOT FSS) | Working with partners | • Create partnerships for referrals and services<br>• Prepare RFPs, review proposals, select partners<br>• Identify families for targeted vouchers<br>• Develop Memorandums of Understanding with partners<br>• Prepare partner reports |
| Supportive services (NOT FSS) | Marketing, outreach, and enrollment | • Conduct outreach and/or information sessions<br>• Create informational/promotional flyers and notices<br>• Recruit and meet with potential participants<br>• Complete Contract of Participation with participants |
| Supportive services (NOT FSS) | Case management, services, and referrals | • Provide direct case management to participants<br>• Establish individualized service plans/goals<br>• Provide in-house supportive services/training (e.g., financial management, employment training, housekeeping)<br>• Refer participants to partners/outside resources for supportive services<br>• Do administrative work and reporting related to case management and supportive services |
| Supportive services (NOT FSS) | Homeownership-related services and referrals | • Work on community outreach for homeownership program<br>• Identify families for targeted vouchers<br>• Develop Memorandums of Understanding with partners, partner reporting<br>• Do administrative work and reporting related to homeownership services<br>• Provide pre-purchase supportive services to prepare participant for homeownership (e.g. credit counseling, financial management, home repair)<br>• Coordinate closings and lender approval<br>• Provide post-purchase support |
| Supportive services (NOT FSS) | Expanding housing opportunities | • Develop planning and policies for housing opportunity<br>• Identify areas of high and low poverty<br>• Conduct outreach to owners outside areas of poverty<br>• Educate families on low-poverty neighborhoods<br>• Enhance housing search assistance, mobility counseling<br>• Refer residents to counseling and training |

## APPENDIX C. DATA COLLECTION

| Function | Activity | Possible Tasks Included in Sub-Activity |
|---|---|---|
| General customer service | No sub-activities | • Research/resolve/respond to non-transaction-specific complaints or inquiries from owners, tenants, applicants, and other community members<br>• Provide front desk reception<br>• NOTE: Contact with clients regarding specific HCV activities including initial, annual, and interim recertifications and inspections should be recorded with the relevant activity and not here. |
| Owner/resident relations | No sub-activities | • Conduct landlord recruitment and outreach through meetings, newsletters, direct advertising<br>• Conduct landlord orientation<br>• Work with landlord advisory groups<br>• Work with HCV resident advisory board or resident council<br>• NOTE: Contact with owners about specific clients or units, including rent reasonableness, inspections, and HAP contracts should be recorded with the relevant activity and not here. |
| Staff meetings | No sub-activities | • Participate in all HCV-related meetings |
| HCV FSS | Working with partners | • Establish FSS program coordination committee<br>• Create partnerships for referrals and services<br>• Identify families for targeted vouchers<br>• Develop Memorandums of Understanding with partners<br>• Prepare partner reports |
| HCV FSS | Marketing, outreach, and enrollment | • Develop and revise FSS Action Plan<br>• Conduct outreach and/or information sessions on FSS<br>• Create informational/promotional fliers and notices<br>• Recruit and meet with potential participants<br>• Complete Contract of Participation with participants<br>• Process incoming FSS participants porting-in |
| HCV FSS | Case management, services, and referrals | • Provide direct case management to participants<br>• Establish individualized service plans/goals<br>• Provide in-house supportive services/training (e.g., financial management, employment training, housekeeping)<br>• Refer participants to partners/outside resources for supportive services |
| HCV FSS | Escrow monitoring or payouts | • Calculate monthly FSS escrow credit and disburse interest<br>• Review and update accounts to ensure accuracy<br>• Process requests for interim and successful program completion payments and cut escrow checks<br>• Audit accuracy of escrow amount |
| HCV FSS | Program exits and port-outs | • Process voluntary and involuntary FSS program exits or port-outs<br>• Document successful program completions and other program exits<br>• Transfer escrow accounts for port-outs |
| HCV FSS | Reasonable accommodation | • Make specific efforts to partner with agencies that service people with disabilities<br>• Conduct marketing and outreach to disabled clients about FSS program (placing notices in appropriate media)<br>• Provide additional case management or supportive services for disabled clients in FSS program |
| HCV FSS | Staff meetings or training | • Participate in staff meetings or training related to FSS specifically |

| Function | Activity | Possible Tasks Included in Sub-Activity |
|---|---|---|
| HCV FSS | Data entry, file management, and reports | • Work on general administrative activities, email, and phone calls related to HCV FSS<br>• Prepare FSS reports<br>• Complete, submit, and correct 50058/PIC<br>• Enter data into other systems of record<br>• Revise or create FSS forms<br>• Work on filing, mailing, and data storage<br>• Translate documents into other languages |
| Special voucher programs | Project-based vouchers | • Work on vouchers covered by project-based AHAPs and HAPs |
| Special voucher programs | Homeownership vouchers | • Work on homeownership voucher program |
| Special voucher programs | HUD-VASH | • Work on Veterans Affairs Supportive Housing |
| Special voucher programs | Family unification program | • Work on Family Unification Program (FUP)<br>• Work on Family Unification Program Families (FUPF)<br>• Work on Family Unification Program Youth (FUPY) |
| Special voucher programs | Mainstream vouchers | • Work on mainstream vouchers for elderly and non-elderly disabled |
| Special voucher programs | Non-elderly disabled vouchers | • Work on Non-Elderly Disabled Vouchers (NED)<br>• Work on one-year mainstream (MS1) vouchers<br>• Work on Multifamily Designated (MFDES for Certain Developments–non-elderly disabled) vouchers<br>• Work on Public Housing Designated (PHDES) vouchers<br>• Work on Nursing Home Transition (NED Category II) vouchers<br>• Ensure project Access |
| Special voucher programs | Tenant protection vouchers | • Work on Public Housing Relocation/Replacement (PHRR) vouchers<br>• Work on Enhanced or Preservation vouchers<br>• Work on litigation vouchers<br>• Work on HOPE VI vouchers |
| Special voucher programs | Disaster vouchers | • Work on DHAP-Katrina vouchers<br>• Work on Katrina Temporary Housing Units<br>• Work on DHAP-Ike<br>• Work on Disaster Voucher Program<br>• Work on Temporary Housing Unit (THU) to HCV |
| Other programs | Public housing/HOPE VI | • Work for traditional public housing programs, HOPE VI Revitalization Grants, Capital Funds, Demolition/Disposition, Resident Opportunities and Self Sufficiency (ROSS), and Neighborhood Networks. |
| Other programs | Other HUD | • Work for all HUD programs other than regular HCV, special vouchers, or public housing/HOPE VI. Examples include: CDBG, HOME, SHP, HOPWA, Section 8 mod rehab and new construction, NSP, housing counseling, Shelter Plus Care, HPRP. |
| Other programs | USDA/Rural Development | • Work for any USDA or Rural Development program. |
| Other programs | Low Income Housing Tax Credit | • Work for LIHTC affordable renting housing programs. |

| Function | Activity | Possible Tasks Included in Sub-Activity |
|---|---|---|
| Other programs | Other federal, state, or local | • Work for other federal, state, or local programs, including those funded by the Department of Health and Human Services, the Department of Education, the Department of Treasury, other state or local programs. Includes work for other housing authorities, local housing agencies, or local nonprofits. Also includes property management functions for PHA-owned or managed properties. |
| Other programs | Overhead (does not apply to all staff) | • Activities related to general agency functions such as human resources, legal, finance, accounting, payroll, IT, risk management, procurement, and agency-wide quality control activities. Does not include any activities that are listed under the HCV Monitoring and Supervisory category. Does not include any activities that are specific to another program such as public housing. |

Exhibit C-2 shows the RMS time measurement survey, which shows the flow of questions that PHA participants answered via their mobile devices.

**Exhibit C-2. RMS Time Measurement Survey**

| Question on Screen | Response Categories and Screen Flow |
|---|---|
| [OPENING SCREEN] What were you primarily working on? | • Regular HCV Program → PROGRAM AREA<br>• Special Voucher Program → SPECIAL VOUCHER TYPE<br>• HCV FSS → FAMILY SELF-SUFFICIENCY (FSS)<br>• Other Program → OTHER PROGRAM<br>• In Training (HCV) → TERMINATE<br>• General email or voicemail → TERMINATE<br>• Lunch or break → LUNCH OR BREAK<br>• Not at work → TERMINATE |
| [SPECIAL VOUCHER TYPE] Which special voucher program? | • Project-Based Vouchers → PROGRAM AREA<br>• Homeownership Vouchers → PROGRAM AREA<br>• HUD-VASH → PROGRAM AREA<br>• Family Unification Program → PROGRAM AREA<br>• Mainstream Vouchers → PROGRAM AREA<br>• Non-Elderly Disabled Vouchers → PROGRAM AREA<br>• Tenant Protection or Enhanced Vouchers → PROGRAM AREA<br>• Disaster Vouchers → PROGRAM AREA |
| [OTHER PROGRAM] Which other program? | • Public housing/HOPE VI→ TERMINATE<br>• USDA/Rural Development → TERMINATE<br>• Other HUD → TERMINATE<br>• Low Income Housing Tax Credit → TERMINATE<br>• Other federal, state, or local → TERMINATE<br>• Overhead → TERMINATE |
| [LUNCH OR BREAK] Which one? | • Lunch → TERMINATE<br>• Break → TERMINATE |
| [PROGRAM AREA] Which area? | • Intake and eligibility → INTAKE AND ELIGIBILITY<br>• Lease-up → LEASE-UP<br>• Ongoing occupancy → ONGOING OCCUPANCY<br>• Inspections → INSPECTIONS<br>• Monitoring and supervisory → MONITORING AND SUPERVISORY<br>• Supportive services → SUPPORTIVE SERVICES<br>• General customer service → TERMINATE<br>• Community/owner relations → TERMINATE<br>• Staff meetings → TERMINATE |
| [INTAKE AND ELIGIBILITY] Which activity? | • Applicant intake → TERMINATE<br>• Process port-ins → HOUSEHOLD TYPE<br>• Eligibility determination → HOUSEHOLD TYPE<br>• Informal reviews → HOUSEHOLD TYPE<br>• Denial of eligibility → HOUSEHOLD TYPE<br>• Reasonable accommodation → HOUSEHOLD TYPE<br>• Data entry, file management, and reports → TERMINATE |
| [LEASE UP] Which activity? | • Briefings → TERMINATE<br>• Voucher issuance → TERMINATE<br>• Search assistance → TERMINATE<br>• Extensions, expirations, and withdrawals → TERMINATE<br>• RFTA processing → TERMINATE<br>• Rent reasonableness → TERMINATE<br>• HAP contracts → HOUSEHOLD TYPE<br>• Informal reviews → HOUSEHOLD TYPE<br>• Reasonable accommodation → HOUSEHOLD TYPE<br>• Data entry, file management, and reports → TERMINATE |

## APPENDIX C. DATA COLLECTION

| Question on Screen | Response Categories and Screen Flow |
|---|---|
| [ONGOING OCCUPANCY] Which activity? | • Annual recertifications → ANNUAL RECERTIFICATION<br>• Interim recertifications → HOUSEHOLD TYPE<br>• Moves → HOUSEHOLD TYPE<br>• Rent reasonableness → TERMINATE<br>• Process port-outs → TERMINATE<br>• End of participation → HOUSEHOLD TYPE<br>• Terminations → HOUSEHOLD TYPE<br>• Other informal hearings → HOUSEHOLD TYPE<br>• Reasonable accommodation → HOUSEHOLD TYPE<br>• Data entry, file management, and reports→ TERMINATE |
| [ANNUAL RECERTIFICATION] Which activity? | • Prepare for annual recerts/conduct interviews→ HOUSEHOLD TYPE<br>• Income verifications, calculations, EIV→ HOUSEHOLD TYPE<br>• Send notices and respond to questions→ HOUSEHOLD TYPE |
| [INSPECTIONS] Which activity? | • Scheduling and notifications → TERMINATE<br>• Preparing for inspection → TERMINATE<br>• Driving to/from inspection → TERMINATE<br>• Conducting inspection → INSPECTION TYPE<br>• Post-inspection paperwork → TERMINATE<br>• HQS enforcement → TERMINATE<br>• Reasonable accommodation → TERMINATE |
| [INSPECTION TYPE] Which inspection type? | • First inspection for initial/move in → TERMINATE<br>• Reinspection for initial/move in→ TERMINATE<br>• First inspection for annual → TERMINATE<br>• Reinspection for annual → TERMINATE<br>• Complaint, emergency, or other special inspection → TERMINATE<br>• QC inspection → TERMINATE<br>• Inspection type unknown → TERMINATE |
| [MONITORING AND SUPERVISORY] Which activity? | • Plans/policies → TERMINATE<br>• Prepare, approve, distribute HAP → TERMINATE<br>• PIC and EIV → TERMINATE<br>• SEMAP and file QC → TERMINATE<br>• VMS reporting and corrections → TERMINATE<br>• Other monitoring → TERMINATE<br>• HCV staff supervision → TERMINATE<br>• Board support → TERMINATE<br>• Community relations → TERMINATE<br>• Billing and payroll→ TERMINATE)<br>• Audit support → TERMINATE<br>• Research studies → TERMINATE |
| [SUPPORTIVE SERVICES] Which activity? | • Working with partners → TERMINATE<br>• Marketing, outreach, and enrollment → TERMINATE<br>• Case management, services, and referrals → TERMINATE<br>• Homeownership-related services and referrals → TERMINATE<br>• Expanding housing opportunities → TERMINATE |
| [HCV FSS] Which activity? | • Working with partners → TERMINATE<br>• Marketing, outreach, and enrollment → TERMINATE<br>• Case management, services, and referrals → TERMINATE<br>• Escrow monitoring or payouts → TERMINATE<br>• Program exits and port-outs→ TERMINATE<br>• Reasonable accommodation → TERMINATE<br>• Staff meetings or training → TERMINATE<br>• Data entry, file management, and reports→ TERMINATE |

| Question on Screen | Response Categories and Screen Flow |
|---|---|
| [HOUSEHOLD TYPE] Which household type(s)? | • Homeless → TERMINATE<br>• Elderly → TERMINATE<br>• Non-Elderly Disabled → TERMINATE<br>• Family with 1 to 5 members → TERMINATE<br>• Family with 6 or more members → TERMINATE<br>• Not able to specify → TERMINATE |
| [TERMINATE]. Were you working on [PROGRAM TYPE AND ACTIVITIES]? | • Yes → END OF SURVEY<br>• No → OPENING SCREEN |

## Cost Data Collection

**Exhibit C-3. Detailed Cost Data Collected**

| Type | Possible Cost Item(s) | Most Recent Completed FY | RMS FY (Projected) |
|---|---|---|---|
| Personnel Costs for all HCV Program Staff | • Base salary<br>• Overtime pay<br>• Bonus and other salary<br>• Employer-paid Social Security, Medicare, and FUTA<br>• Employer health insurance contribution<br>• Employer retirement contribution<br>• Payroll costs associated with liquidation of leave or any other severance payout for those staff that left the PHA between the end of the most recently completed FY and the RMS data collection period<br>• Post-retiree retiree benefits such as life insurance<br>• Costs associated with other post-employment benefits (OPEB)[a] | ✓ | ✓ |
| Personnel Costs for all Overhead or COCC Staff | • Base salary<br>• Overtime pay<br>• Bonus and other salary<br>• Employer-paid Social Security, Medicare, and FUTA<br>• Employer health insurance contribution<br>• Employer retirement contribution<br>• Other benefits as above | ✓ | |
| Office Space Costs | • Lease or mortgage payment<br>• Debt service payment<br>• PILOT payment<br>• Cost of additional storage | ✓ | |
| Utilities | • Water<br>• Sewer<br>• Electric<br>• Gas<br>• Garbage | ✓ | |
| Maintenance | • Building/office repairs<br>• Maintenance<br>• Grounds<br>• Janitorial<br>• Special assessments | ✓ | |

## APPENDIX C. DATA COLLECTION

| Type | Possible Cost Item(s) | Most Recent Completed FY | RMS FY (Projected) |
|---|---|---|---|
| Security | • PHA security personnel<br>• Contract security<br>• Security camera<br>• Other non-capitalized security | ✓ | |
| IT/Telephone | • Computer/server maintenance<br>• Copier maintenance/leasing<br>• Computer/server purchases (non-capitalized)<br>• Software purchases (non-capitalized)<br>• Software licensing and support<br>• Internet access<br>• Telephone/cell purchase (non-capitalized)<br>• Telephone/cell service contract | ✓ | |
| Supplies and Other Costs | • Office/computer supplies<br>• Printing/duplication<br>• Shipping/postage<br>• Advertising and marketing<br>• Publications<br>• Parking/taxi<br>• Small office equipment/furniture (non-capitalized)<br>• Sundry<br>• Travel<br>• Records storage | ✓ | |
| Service and Fees | • Auditing expense/accounting services<br>• Bank fees (includes LOC on building)<br>• Consulting and/or temporary services<br>• Contract adjustments<br>• Legal services<br>• License fees<br>• Eviction/collection fees | ✓ | |
| Memberships and Training | • Staff training<br>• Staff travel<br>• Membership dues and fees | ✓ | |

| Type | Possible Cost Item(s) | Most Recent Completed FY | RMS FY (Projected) |
|---|---|---|---|
| Administrative Contracts | • Fee accountant (not auditor) to supplement PHA accounting staff<br>• HQS inspections<br>• Criminal background checks<br>• Activities related to opening the waiting list and receiving and inputting applications<br>• Maintaining Rent Reasonable Database<br>• Developing Utility Allowance Schedule<br>• Legal counsel<br>• Transportation services<br>• HR or payroll services<br>• Preparing the PHA Plan or 5-Year Administrative Plan<br>• Preparing the 50058 Submission<br>• Printing or mailing recertification packages<br>• Printing or mailing inspection letters<br>• Translation/interpretation services<br>• Limited English proficiency (LEP)<br>• 504 compliance<br>• In kind service—inspections<br>• Off-site storage<br>• Shredding of sensitive records<br>• IT contracts (including maintenance and licensing)<br>• PIC consultant<br>• Reimbursement to other PHA programs<br>• Paint swap analysis | ✓ | |
| Maintenance Contracts | • Building maintenance<br>• Grounds keeping<br>• Printer maintenance | ✓ | |
| Tenant Services Contracts | • Family Self-Sufficiency program activities<br>• Counseling services-mentally disabled | ✓ | |
| Protective Services Contracts | • Security personnel<br>• Security alarm systems | ✓ | |
| Insurance | • Property insurance<br>• Liability insurance<br>• Worker's compensation insurance<br>• Lead based paint insurance | ✓ | |
| Vehicles | • Annual lease payments<br>• Maintenance costs<br>• Gas costs<br>• Interest costs | ✓ | |
| Capital Outlays | • Major capital outlays since 2004 (past 10 years) | ✓ | |
| Portability Fees | • Admin fees received for port-ins<br>• Admin fees paid for port-outs | ✓ | |
| Other Revenue and Services | • Additional revenue<br>• Services provided by others<br>• Services rendered to others<br>• Cos- saving measures | ✓ | |
| Overhead Costs | • Overhead costs charged to HCV program | ✓ | |

[a] The study picks up actual annual OPEB expenses, but contributions to a PHA-established reserve account for a future payment would not be included.

**Exhibit C-4. Front-line and Overhead Costs for HCV (adapted from Table 7.1 of HUD Financial Management Guide)**

| Overhead | Front-Line |
|---|---|
| • Indirect personnel costs (gross salary, federal and state payroll taxes, and all employee benefits) for permanent and part-time staff assigned to the COCC.<br>– Executive director and support staff<br>– Human resource staff<br>– Regional managers<br>– Corporate legal staff<br>– Finance, accounting and payroll staff<br>– Information technology staff including "help desk"<br>– Risk management staff<br>– Centralized procurement staff<br>– Quality control staff, including quality control inspections<br>• Purchase and maintenance of equipment, furniture, and service necessary to sustain the above activities<br>• Related office expenses to sustain the above activities | • Direct personnel costs (gross salary, federal and state payroll taxes and all employee benefits) for permanent and part-time staff, assigned directly to the HCV program. |
| • Establishment, maintenance, and control of an accounting system for accounting and supervision over the HCV program. | • Travel and training for personnel assigned directly to the HCV program. |
| • General maintenance of HCV books and records (general ledger, accounts payable, and receivable, payroll, etc.). | • Preparation, approval, and distribution of HCV program HAP disbursements. |
| • Supervision by COCC management of HCV program operations. | • Legal fees directly related to the operation and management of the HCV program including tenant and landlord enforcement actions. |
| • Procurement of supplies, equipment, and contract services for HCV program. | • Cost of obtaining and receiving background reports on tenants, verification of landlord ownership and other checks related to tenant and landlord selection and participation in the HCV program. |
| • Preparation of monitoring reports for internal staff and external reporting to HUD, other governmental agencies, and other interested parties. | • Bank charges related to the HCV program. |
| • Preparation, approval, and distribution of HCV program disbursements other than HAP. | • Telephone costs (includes basic services, directory listings, long distance charges) related to direct delivery of the HCV program. |
| • COCC staff training and ongoing certifications related to HCV Program. | • Advertising costs related specifically to the operations of the HCV program (includes advertising for applicants, landlords and employees in newspapers, newsletters, radio, cable TV, and telephone books). |
| • Travel of COCC staff for training, or supervision related to HCV program. | • Postage and delivery costs for HAP checks, disbursements, and other mailings required to support the activities of the HCV program. |
| • Attendance of COCC staff at meetings (including travel) with landlords, tenants, HUD or other interested parties regarding HCV planning, budgeting and review of general HCV program activities. | • HCV office furniture, equipment, computers and vehicles. |

| Overhead | Front-Line |
|---|---|
| • Work with auditors for audit preparation and review. | • Service agreements and warranties to support HCV office furniture, equipment, computers, and vehicles. |
| • Indirect cost allocations imposed on the HCV program by a higher level of local government. | • Insurance costs related to auto coverage for HCV vehicles and other equipment and assets of the HCV program |
| • Hiring, supervision, and termination of frontline HCV staff. | • Insurance costs for fidelity or crime and dishonesty coverage for frontline (direct cost) employees. |
| • Preparation and submission of HCV program budgets, financial reports, and year-end financial reports to HUD and other interested parties. | • Direct costs of collection activities related to fraud recovery. |
| • Monitoring and reporting on abandoned property as required by states. | • Costs of preparing and maintaining tenant and landlord files and processing tenant applications, determining eligibility, tenant rent, tenant certifications, tenant recertifications and unit inspections. |
| • Investment and reporting on HCV proceeds. | • Public relations expenses related to maintaining positive relationships between the local community, landlords and tenants. |
| • Storage of HCV records and adherence to federal and state records retention requirements. | • Professional service contracts related to direct services performed for the HCV program. |
| • Development and oversight of office furniture equipment and vehicle replacement plans. | • Board member training and related expenses up to a limited amount as provided by HUD. |
| • Insurance costs for fidelity or crime and dishonesty coverage for COCC employees. | |
| • Costs of Board member stipends and non-training travel. | |
| • Costs of Board member training that exceed HUD standards. | |

As discussed in Section 3.2.3, the study's EITRG raised the question of whether the proportion of frontline labor costs charged to the HCV program in the PHA's most recently completed fiscal year was a good representation of the PHA's labor cost split in general and therefore a good basis for allocating general overhead costs. In response to this concern, we analyzed the difference between the percent of frontline labor charged to HCV in the fiscal year used by the study and the percent of frontline labor charged to HCV in the PHA's previous fiscal year. As shown in Exhibit C-5, we found that the labor split did not change very much from year to year. Seventeen of 60 PHAs (28 percent) had no change at all, 23 PHAs (38 percent) had a higher percentage of frontline labor allocated to HCV in the study fiscal year compared to the previous fiscal year, and 20 PHAs (33 percent) had a lower percentage of frontline labor allocated to HCV in the study fiscal year compared to the previous fiscal year. The average percentage point change (increase or decrease) was 3.6 percent for the four PHAs using FY11 for their overhead costs, 0.4 percent for the 35 PHAs using FY12 for their overhead costs, and 1.6 percent for the 21 PHAs using FY13 for their overhead costs. For all but one PHA the change from the previous year was less than 5 percentage points. For the PHA with the biggest year-to year-change, the HCV program represented 15.5 percent of frontline labor cost in the fiscal year used by the study (FY11) and 10.2 percent of frontline labor costs in the previous fiscal year (FY10), a difference of 5.3 percentage points.

**Exhibit C-5. Percent of Frontline Labor Allocated to HCV, Fiscal Year Used for Overhead Calculation Compared to Previous Fiscal Year**

| | PHA FY for overhead costs: | | | |
|---|---|---|---|---|
| | 2011 | 2012 | 2013 | All Yrs. |
| Number of PHAs | 4 | 35 | 21 | 60 |
| Number of PHAs with the same percent of labor allocated to HCV in study FY compared to previous FY | 1 | 8 | 8 | 17 |
| Number of PHAs with higher percent of labor allocated to HCV in study FY compared to previous FY | 2 | 14 | 7 | 23 |
| Number of PHAs with lower percent of labor allocated to HCV in study FY compared to previous FY | 1 | 13 | 6 | 20 |
| Average percentage point change (increase or decrease) in share of labor allocated to HCV between previous FY and study FY | 3.6% | 0.4% | 1.6% | 1.0% |

Source: Analysis of direct labor costs reported in HUD's FDS FY2011, 2012, and 2013.

## Methodology for Producing Program Survey Cost Estimates

Data for the small program cost estimates were derived mainly from surveys conducted with program staff at each of the PHAs. Cost adjustments were grouped into the categories presented in Exhibit C-6. These data reflect the final understanding of the study team and PHA staff, but do not necessarily represent the final adjustments used in the analysis. In total, 134 PHAs completed surveys. Four PHAs were not used in the final sample because data from the FASS-PH were unavailable or unreliable.

**Exhibit C-6. Cost Adjustments by Type**

| Type of Cost Adjustment | Costs Included |
|---|---|
| Office space and building costs | Rent or mortgage costs<br>Building maintenance<br>Janitorial costs<br>Utilities |
| Personnel costs | Salary and benefits for frontline and overhead staff differing from FDS by more than 10% of total compensation |
| IT and telecommunications costs | Internet<br>Software purchases<br>Computer purchases<br>Computer maintenance |
| Postage, printing, and office supply costs | Printing<br>Copier maintenance<br>Phone contracts<br>Phone purchases |

| Type of Cost Adjustment | Costs Included |
|---|---|
| Insurance costs | Property<br>Liability<br>Workman's compensation<br>Lead-based paint<br>Automotive |
| Costs related to criminal background checks | Criminal background checks performed either by PHA staff or an outside contractor or government agency |
| Costs related to updating the utility allowance schedule | Costs incurred by either PHA staff or an outside contractor or government agency |
| Costs related to HQS inspections | HQS contracts or value of HQS inspections performed by partners |
| Costs related to rent reasonableness determinations | Costs incurred by either PHA staff or an outside contractor or government agency |
| Cost-cutting measures | Efforts identified by the PHA to reduce costs in 2013 |
| Other miscellaneous costs | Adjustments that did not fit with the categories listed above |

After the surveys were completed, the study team entered salary adjustments into a cost adjustment worksheet linked to FDS data. These worksheets provided PHA-level cost estimates based on both the FDS data and the adjusted data and formed the analysis data set. Staff quality-checked each adjustment worksheet following a standardized rubric. The quality check involved making sure adjustments were based on solid assumptions, were not double counted, and were plausible based on a description of the information provided by the PHA. To qualify as a plausible cost, the services had to be provided free of charge or there had to be sufficient funds from outside sources (for example another PHA program or other municipal funds) to cover the costs. The extreme values for each adjustment category were manually verified as a final check on quality.

The largest two adjustments made were consistently those accounting for staff time and the cost of office space. These two adjustments are explained in more detail below.

The adjustments for staff time were based on estimates provided by PHA staff sometimes based on an estimate (rather than timesheets), so there was some imprecision in the estimate. The survey question asked the respondent to estimate the number of hours each staff person spent on HCV and that person's total compensation. The total compensation was then compared with the total compensation listed on the FDS. The study team only kept salary adjustments that either were larger than 10 percent of the total compensation or were specifically noted as not included in the FDS.

Adjustments for office space were estimated based on the number of full time staff working on the HCV program, rounded up with a minimum of one full-time employee (FTE). Based on the GSA study of office space, the study team calculated the total office space needed per FTE as 218 rentable

square feet (RSF).[103] Additionally, 200 square feet was added to the per employee square footage estimate to account for common areas used as a waiting area or for briefings. To calculate the average yearly cost per rentable square foot of office space, the study team took the average cost of rent for all GSA buildings in the United States composed of at least 70 percent office space.[104] The national average is approximately $27 per rentable square foot. Because the estimate for the cost of office space is a national average, the value was multiplied by the local wage rate to generate a total local dollar estimate of the adjustment. In all, the calculation is:

$$\text{Cost of office space} = (218*\text{FTE}+200)*27*\text{Local Wage Index}$$

To determine unit month estimates, the study team used the number of unit months obtained from HUD's VMS, using the same methodology as was used for the time measurement and cost study. Costs generally are presented in terms of calendar year 2013 dollars. For the PHAs providing data from a different calendar year, costs were adjusted by multiplying by the QCEW inflation factor, as described in Section 3.2.5.

[103] General Services Administration. 2011. Workspace Utilization and Allocation Benchmark. Accessed at http://www.gsa.gov/graphics/ogp/Workspace_Utilization_Banchmark_July_2012.pdf.

[104] General Services Administration lease inventory data downloaded for February 2014 at http://www.gsa.gov/portal/content/101840.

# Appendix D. Additional Time Measurement Data and Discussion

## Additional Time Measurement Data

Exhibit D-1 shows the average distribution of time measured across the six core and three supporting HCV activities.

**Exhibit D-1. Average Time Spent on Core and Supporting HCV Activities, Regular and Special Vouchers, All PHAs**

| | Percent of Staff Time on Regular HCV and Special Vouchers |
|---|---|
| **Core HCV Activities:** | |
| Intake, eligibility, and lease-up | 14% |
| Ongoing occupancy | 39% |
| Inspections | 16% |
| Monitoring and supervisory | 11% |
| Supportive services (not FSS) | 1% |
| **Subtotal core HCV activities** | **81%** |
| **Supporting HCV Activities:** | |
| General customer service | 7% |
| Owner and resident relations | 1% |
| Staff training | 1% |
| Staff meetings | 2% |
| Paid lunch or break time | 3% |
| General email or voicemail | 5% |
| **Subtotal supporting HCV activities** | **19%** |
| **Total HCV Activities** | **100%** |

N=60 PHAs

Exhibit D-2 explains how time spent on the supporting activities was redistributed across the core categories for the analysis in Chapter 4.

**Exhibit D-2. Approach to Redistributing Time Spent on Supporting Activities to Core Activity Categories**

| Supporting Activity | Core Activities Supported | Redistribution Method |
|---|---|---|
| General customer service | All | For each PHA, allocate general customer service time to core activities based on the overall distribution of PHA staff time across the core activities. |
| Owner and resident relations | Lease-up, ongoing occupancy | For each PHA, allocate owner and resident relations time to lease-up and to ongoing occupancy proportional to how much PHA staff time is spent on those two activities. |
| Staff training | All | For each PHA, allocate staff training time to core activities based on the overall distribution of PHA staff time across the core activities. |
| Staff meetings | All | For each PHA, allocate staff meeting time to core activities based on the distribution of each individual's time across the core activities. |
| Paid lunch and break time | All | For each PHA, allocate paid lunch and break time to core activities based on the overall distribution of PHA staff time across the core activities. |
| **Total** | **100%** | |

## Discussion of Accuracy of Time Estimates

The study used random moment sampling (RMS) to estimate the time spent on HCV program administration and on specific tasks within HCV program administration. This appendix briefly summarizes a post-data collection simulation experiment that the study team conducted to evaluate the precision of the time estimates reported in the study. These time estimates rely on the following research assumptions:

- PHA staff answer the RMS surveys accurately and correctly assign their work at the selected time to the proper RMS activity category.
- The transaction counts (or voucher throughput) during the sampled period are known without error.
- The resulting statistics describe activity time during the RMS period only and may or may not represent typical patterns of work at the measured agency.

If the aforementioned statements are true, then a computer simulation experiment can replicate the real-world application of this study's RMS approach and illuminate possible errors in the time estimates.

## Simulation Design

The study team authored a simulation of the data collection approach to understand the repeatability of the results and estimated precision, since cost allocations and time estimates were directly involved in both the cost-driver analysis and fee formula regression modeling. The simulation was written using the R Statistical computing language and the RStudio integrated development environment (IDE).

The first step was to create a synthetic cohort for the 56 agencies in the main study[105] with similar full-time staff distributions spending the same proportions of time on HCV and non-HCV functions as the actual staff in these 56 agencies. In this case, these synthetic agencies mirrored the real agencies with synthetic staff, their associated roles, work schedules, and mix of HCV work by task, overhead, other program time, and time off. Using the actual RMS data for each sampled staff person in these 56 agencies, the observed daily patterns were applied to populate the synthetic data (e.g., lunch would occur in the middle of the day, as expected). This first component created a full dataset describing how more than 900 hypothetical PHA staff spent every working moment for 40 days, translating the proportions of time spent by task and program to simulated actual workday activities.

In step two, Abt's subcontractor RSG recreated the RMS sampling approach, matching the identical sampling design employed on the phones, but all done through code written in R. The resulting datasets were identical to the data captured on RSG's web server during RMS data collection. Finally, these datasets were passed through the same code authored by RSG to clean, manipulate, and analyze the study's real RMS data. This simulation created a new data set with new estimates of the proportion of time spent on each HCV task, overhead, other program time, and time off for each staff member.

In step three, this simulation was repeated for 10 iterations and time estimates were generated for each run.

To clarify the different dataset types and eliminate any confusion, Exhibit D-3 provides naming conventions to describe the different datasets

[105] The four pretest agencies were not included in this simulation.

**Exhibit D-3. Data Descriptions**

| Data | Notes |
|---|---|
| Real-World Actual Working Time | • This is work that real PHA staff actually performed during the study's RMS data collection period; these true values were not observed and are unknown. |
| Real-World RMS Estimates | • Created from HCV data collection using RMS estimates of proportions of time spent on each activity and total work hours; provided in report and used to seed synthetic actual working time for the simulation. |
| Synthetic Actual Working Time | • Created for this simulation to describe all working time over eight weeks for all staff at 56 agencies.<br>• Corresponds to "real-world actual working time." |
| Synthetic RMS Estimates | • Created by using the RMS method, sampling the synthetic actual working time data.<br>• Summarized and compared to synthetic actual time as a way to assess the accuracy of the real-world RMS estimates. |

## Simulation Results

### *Weighted Time Estimates for the Universe of PHAs*

Exhibit D-4 summarizes the synthetic RMS estimates when combining weighted PHA-level data to arrive at overall estimates for each activity. It is important to note that the times are not intended to match the real-world RMS estimates in the report, but they are defined at the same analysis scale. The synthetic actual time data are to be interpreted as "correct" and the estimates can then be compared to those.

In all cases, the synthetic RMS estimates are within only a few minutes of the synthetic actual working times. This means that the resulting RMS estimates are relatively stable at this scale and illustrates the high degree of precision achieved from the statistical property of convergence for large group-level statistics. More variance is to be expected in small samples and disaggregated units (person-level) compared to the strong statistical convergence for large aggregated units, as demonstrated here. For both the simulation and the real-world HCV study, the collective benefit of measuring over 500,000 RMS observations for nearly 1,000 staff across 60 different housing authorities has been leveraged. In both cases, there is a large volume of data, which has resulted in precise estimates.

**Exhibit D-4. Results of 10 Simulations (in minutes per voucher per year)**

| ACTIVITY | SYNTHETIC ACTUAL WORKING TIME | SYNTHETIC RMS ESTIMATES FROM SIMULATION TRIALS (T0-T9) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | T0 | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 |
| **Intake and Eligibility** | | | | | | | | | | | |
| Applicant Intake | 22.33 | 22.90 | 23.03 | 21.80 | 22.13 | 24.07 | 22.47 | 21.15 | 22.06 | 21.41 | 21.79 |
| Process Port-Ins | 5.69 | 6.16 | 5.15 | 5.87 | 5.28 | 5.66 | 5.46 | 6.28 | 5.50 | 6.06 | 5.97 |
| Eligibility Determinations | 11.16 | 11.25 | 10.78 | 10.92 | 11.71 | 10.70 | 11.48 | 10.98 | 11.32 | 11.14 | 11.35 |
| Informal Reviews | 2.10 | 2.40 | 2.21 | 2.39 | 2.44 | 2.26 | 2.16 | 2.38 | 2.07 | 2.30 | 1.80 |
| Denial of Eligibility | 1.61 | 1.80 | 1.76 | 2.13 | 1.51 | 1.49 | 1.83 | 1.54 | 1.70 | 1.75 | 1.59 |
| Reasonable Accommodation | 0.29 | 0.34 | 0.37 | 0.22 | 0.27 | 0.31 | 0.35 | 0.32 | 0.32 | 0.27 | 0.30 |
| Data Entry, File Management, and Reports | 15.03 | 14.99 | 14.82 | 15.22 | 14.97 | 15.00 | 14.98 | 15.56 | 15.01 | 15.41 | 15.24 |
| **Lease-Up** | | | | | | | | | | | |
| Briefings | 5.10 | 4.59 | 5.35 | 5.12 | 5.38 | 4.90 | 5.03 | 4.67 | 5.23 | 5.35 | 4.89 |
| Voucher Issuances | 2.83 | 2.88 | 2.96 | 2.83 | 2.52 | 2.87 | 3.00 | 2.47 | 2.88 | 2.73 | 2.47 |
| Search Assistance | 0.74 | 0.59 | 0.71 | 0.75 | 0.69 | 0.68 | 0.73 | 0.73 | 0.67 | 0.73 | 0.69 |
| Extensions, Expirations, and Withdrawals | 0.62 | 0.81 | 0.58 | 0.57 | 0.75 | 0.62 | 0.50 | 0.59 | 0.80 | 0.60 | 0.58 |
| RFTA Processing | 4.98 | 4.72 | 4.43 | 5.18 | 4.96 | 5.18 | 4.68 | 5.36 | 5.37 | 4.76 | 4.94 |
| Rent Reasonableness | 1.10 | 1.10 | 1.22 | 1.38 | 1.09 | 1.09 | 1.03 | 1.11 | 1.04 | 0.94 | 1.09 |
| HAP Contracts | 6.75 | 6.76 | 6.88 | 6.50 | 7.42 | 6.66 | 7.02 | 6.80 | 6.56 | 6.51 | 6.89 |
| Informal Reviews | 0.20 | 0.15 | 0.33 | 0.18 | 0.20 | 0.09 | 0.24 | 0.19 | 0.27 | 0.33 | 0.17 |
| Reasonable Accommodation | 0.15 | 0.09 | 0.10 | 0.09 | 0.13 | 0.08 | 0.17 | 0.12 | 0.12 | 0.19 | 0.17 |
| Data Entry, File Management, Reports | 3.46 | 3.38 | 3.37 | 3.51 | 3.24 | 3.54 | 3.68 | 3.60 | 3.74 | 3.44 | 3.62 |

## APPENDIX D. ADDITIONAL TIME MEASUREMENT DATA

| ACTIVITY | SYNTHETIC ACTUAL WORKING TIME | SYNTHETIC RMS ESTIMATES FROM SIMULATION TRIALS (T0-T9) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | T0 | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 |
| **Ongoing Occupancy** | | | | | | | | | | | |
| Prepare for/Conduct Annual Recerts. | 36.41 | 36.28 | 36.06 | 35.78 | 35.79 | 35.77 | 36.81 | 36.10 | 36.37 | 36.53 | 35.37 |
| Income Verifications, Calculations, EIV | 51.62 | 50.49 | 51.51 | 49.61 | 50.36 | 51.59 | 51.35 | 51.92 | 51.26 | 50.80 | 49.43 |
| Sending Notices and Responding to Qs | 18.46 | 17.66 | 18.74 | 18.21 | 18.33 | 17.20 | 18.85 | 18.41 | 18.57 | 18.03 | 17.75 |
| Interim Recerts. | 47.56 | 46.87 | 48.25 | 48.45 | 46.17 | 48.55 | 46.25 | 47.45 | 45.97 | 46.45 | 46.71 |
| Moves | 16.48 | 16.09 | 16.08 | 16.37 | 16.83 | 15.79 | 16.83 | 16.32 | 15.16 | 15.87 | 16.54 |
| Rent Reasonableness | 4.99 | 5.16 | 4.93 | 4.83 | 4.98 | 4.81 | 4.76 | 4.87 | 4.62 | 4.78 | 4.62 |
| Process Port-Outs | 5.49 | 5.58 | 6.24 | 5.74 | 5.86 | 5.22 | 5.73 | 5.17 | 5.50 | 5.56 | 5.15 |
| End of Participation | 3.91 | 3.90 | 4.04 | 3.87 | 4.22 | 4.19 | 3.69 | 3.49 | 3.69 | 4.19 | 3.91 |
| Terminations | 9.68 | 9.22 | 10.04 | 9.12 | 10.52 | 9.33 | 9.68 | 9.79 | 9.60 | 9.26 | 9.59 |
| Other Informal Hearings | 3.17 | 3.31 | 2.91 | 3.15 | 2.97 | 2.87 | 3.17 | 3.62 | 2.36 | 3.28 | 3.52 |
| Reasonable Accommodation | 1.49 | 1.57 | 1.62 | 1.59 | 1.78 | 1.36 | 1.49 | 1.53 | 1.24 | 1.79 | 1.48 |
| Data Entry, File Management, and Reports | 46.98 | 46.39 | 45.73 | 47.74 | 46.08 | 46.73 | 45.69 | 45.82 | 46.44 | 47.06 | 47.76 |
| **Inspections** | | | | | | | | | | | |
| Scheduling and Notifications | 13.00 | 12.26 | 12.34 | 12.95 | 13.24 | 13.34 | 12.43 | 12.84 | 12.76 | 13.77 | 13.27 |
| Preparing for Inspection | 6.44 | 6.43 | 6.35 | 6.01 | 6.39 | 6.53 | 6.67 | 6.62 | 6.34 | 7.13 | 6.50 |
| Driving To/From Inspection | 18.74 | 18.62 | 18.86 | 18.64 | 17.86 | 17.59 | 19.36 | 18.97 | 18.17 | 18.50 | 18.48 |
| First Inspection for Initial/Move-In | 4.26 | 4.37 | 4.08 | 4.20 | 4.33 | 4.54 | 4.26 | 4.25 | 4.04 | 4.28 | 4.08 |
| Reinspection for Initial/Move-In | 1.41 | 1.43 | 1.45 | 1.40 | 1.43 | 1.24 | 1.38 | 1.36 | 1.43 | 1.24 | 1.48 |
| First Inspection for Annual | 11.05 | 10.81 | 11.32 | 11.32 | 10.91 | 11.48 | 10.64 | 10.98 | 11.04 | 10.56 | 11.64 |
| Reinspection for Annual | 3.96 | 4.18 | 4.15 | 3.97 | 3.90 | 3.99 | 4.49 | 3.64 | 3.79 | 4.01 | 3.85 |
| Complaint, Emergency, or other Sp. Insp. | 0.70 | 0.70 | 0.53 | 0.74 | 0.72 | 0.77 | 0.60 | 0.66 | 0.78 | 0.70 | 0.78 |

| ACTIVITY | SYNTHETIC ACTUAL WORKING TIME | SYNTHETIC RMS ESTIMATES FROM SIMULATION TRIALS (T0-T9) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | T0 | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 |
| QC Inspection | 0.46 | 0.31 | 0.29 | 0.60 | 0.52 | 0.44 | 0.33 | 0.66 | 0.63 | 0.43 | 0.37 |
| Inspection Type Unknown | 0.13 | 0.10 | 0.15 | 0.12 | 0.15 | 0.18 | 0.08 | 0.13 | 0.13 | 0.13 | 0.14 |
| Post-Inspection Paperwork | 18.53 | 17.55 | 19.08 | 18.08 | 19.32 | 18.20 | 18.42 | 18.87 | 18.59 | 18.17 | 17.70 |
| HQS Enforcement | 2.84 | 3.15 | 3.09 | 2.79 | 2.79 | 3.29 | 3.32 | 2.90 | 2.99 | 2.50 | 2.85 |
| Reasonable Accommodation | 0.68 | 0.85 | 0.78 | 0.64 | 0.60 | 0.56 | 0.54 | 0.63 | 0.90 | 0.63 | 0.70 |
| **Monitoring and Supervisory** | | | | | | | | | | | |
| Plans/Policies | 6.39 | 6.35 | 6.51 | 6.22 | 6.53 | 5.83 | 6.64 | 6.55 | 6.26 | 6.55 | 5.72 |
| Prepare, Approve, and Distribute HAP | 10.86 | 10.51 | 10.71 | 10.55 | 10.67 | 10.78 | 11.24 | 10.92 | 9.86 | 11.09 | 11.40 |
| PIC and EIV | 5.96 | 6.26 | 5.91 | 5.63 | 6.08 | 6.55 | 6.36 | 6.18 | 5.95 | 5.43 | 6.67 |
| SEMAP and File QC | 3.44 | 3.39 | 3.45 | 3.31 | 3.23 | 3.26 | 3.54 | 3.59 | 3.54 | 3.35 | 3.43 |
| VMS Reporting and Corrections | 3.51 | 3.51 | 3.64 | 4.03 | 3.42 | 3.59 | 3.19 | 4.08 | 3.35 | 3.84 | 3.31 |
| Other Monitoring | 8.70 | 8.08 | 8.18 | 8.47 | 8.33 | 8.48 | 8.62 | 8.26 | 8.41 | 7.91 | 8.72 |
| HCV Staff Supervision | 6.41 | 6.65 | 5.75 | 6.58 | 6.36 | 6.61 | 6.72 | 6.15 | 6.31 | 6.24 | 6.55 |
| Board Support | 3.58 | 3.30 | 3.91 | 3.99 | 3.44 | 3.27 | 3.54 | 3.95 | 3.29 | 3.87 | 2.90 |
| Community Relations | 3.62 | 3.61 | 3.89 | 3.48 | 3.31 | 3.33 | 3.84 | 3.61 | 3.19 | 3.32 | 3.49 |
| Billing and Budget Support | 8.13 | 8.80 | 8.04 | 7.98 | 8.67 | 8.08 | 8.41 | 7.26 | 8.19 | 7.50 | 7.61 |
| Audit Support | 4.78 | 4.51 | 4.47 | 4.75 | 4.04 | 4.58 | 4.79 | 4.79 | 4.23 | 4.29 | 4.77 |
| Research Studies | 4.81 | 4.62 | 4.68 | 4.46 | 5.11 | 4.86 | 4.97 | 5.29 | 4.49 | 5.29 | 4.30 |

## APPENDIX D. ADDITIONAL TIME MEASUREMENT DATA

| ACTIVITY | SYNTHETIC ACTUAL WORKING TIME | SYNTHETIC RMS ESTIMATES FROM SIMULATION TRIALS (T0-T9) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | T0 | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 |
| **Supportive Services** | | | | | | | | | | | |
| Working with Non-PHA Partners | 2.96 | 3.00 | 3.08 | 3.18 | 2.78 | 3.02 | 2.90 | 2.54 | 3.02 | 2.94 | 3.05 |
| Marketing, Outreach, and Enrollment | 1.46 | 1.02 | 1.45 | 1.53 | 1.17 | 1.51 | 1.57 | 1.27 | 1.66 | 1.75 | 1.42 |
| Case Management, Services, and Referrals | 3.09 | 3.31 | 3.07 | 2.94 | 3.17 | 3.61 | 3.28 | 2.92 | 3.41 | 3.37 | 3.15 |
| Homeownership-Related Services | 1.28 | 1.34 | 1.60 | 1.02 | 1.45 | 1.30 | 1.28 | 1.08 | 1.23 | 1.22 | 1.17 |
| Expanding Housing Opportunities | 0.54 | 0.45 | 0.39 | 0.51 | 0.47 | 0.50 | 0.57 | 0.50 | 0.60 | 0.45 | 0.60 |
| General Customer Service | 43.76 | 42.98 | 45.16 | 44.43 | 41.87 | 43.50 | 42.69 | 43.44 | 43.42 | 42.23 | 43.94 |
| Owner/Resident Relations | 6.57 | 6.50 | 6.52 | 6.18 | 6.94 | 6.34 | 5.84 | 6.37 | 5.80 | 6.63 | 6.57 |
| Staff Meetings | 11.46 | 11.88 | 11.23 | 11.52 | 11.40 | 11.21 | 11.34 | 10.92 | 11.88 | 11.97 | 11.34 |

### *Simulating and Evaluating the PHA-Level Estimates*

Since PHA-level estimates were used extensively in the regression modeling, RSG also completed PHA-level simulations using the identical approach described previously. Since the PHAs measured with RMS ranged in size from 4 to more than 60 sampled frontline HCV staff, the simulation reflected the same variation in program size. As noted previously, the real-world RMS data were used to inform the synthetic activity structures, variations, and temporal patterns. The simulation trials were drawn using the computer-based RMS method, and resulting PHA estimates were computed. Since a large volume of data resulted from the PHA-level simulation, only two activities were summarized:

- Ongoing occupancy > Income Verifications, Calculations, EIV
- Ongoing Occupancy > Reasonable accommodation

As shown in Exhibit D-4, income verification is common, taking more than 50 minutes per voucher in the synthetic PHA population.[106] Conversely, reasonable accommodation is a rare activity occurring for only 1.5 minutes per voucher in the synthetic PHA population. These two extremes provide useful case studies for how the RMS approach behaves for both rare and common activities. The patterns would be similar for any mix of other activities occurring with similar frequencies. The differences, or errors, between the synthetic actual working time and the synthetic RMS estimated times were compared for each PHA. Due to sampling error, the errors can be either positive or negative for a given simulation run.

Exhibit D-5 substantiates two findings:

1. Smaller agencies have more sampling variation than large agencies.
2. Common activities (e.g., income verifications) are subject to more sampling variation than rare activities (e.g., reasonable accommodation).

In the interest of expediency, only small agencies (those plotted on the left side of the x-axis) are discussed, since precision of estimates always improves as the program size increases. For income verification, most small agency estimates were within five minutes per voucher. Several trial runs resulted in errors between 5 and 15 minutes above or below the synthetic actual times.

For reasonable accommodation, the estimates have a smaller sampling error. In this case, the synthetic RMS estimates were within two or three minutes of the synthetic actual times, and for the largest programs these errors are negligible. There is a common misperception that rare events are harder to estimate than common events, but this is generally not the case. A common activity is sampled frequently, but it is also missed frequently since there is so much of it happening. This means that any given sample has an increased probability of having more error for a common activity. Conversely, a rare activity is sampled infrequently, but the sample is also missing less often for the opposite reason, which results in smaller errors.

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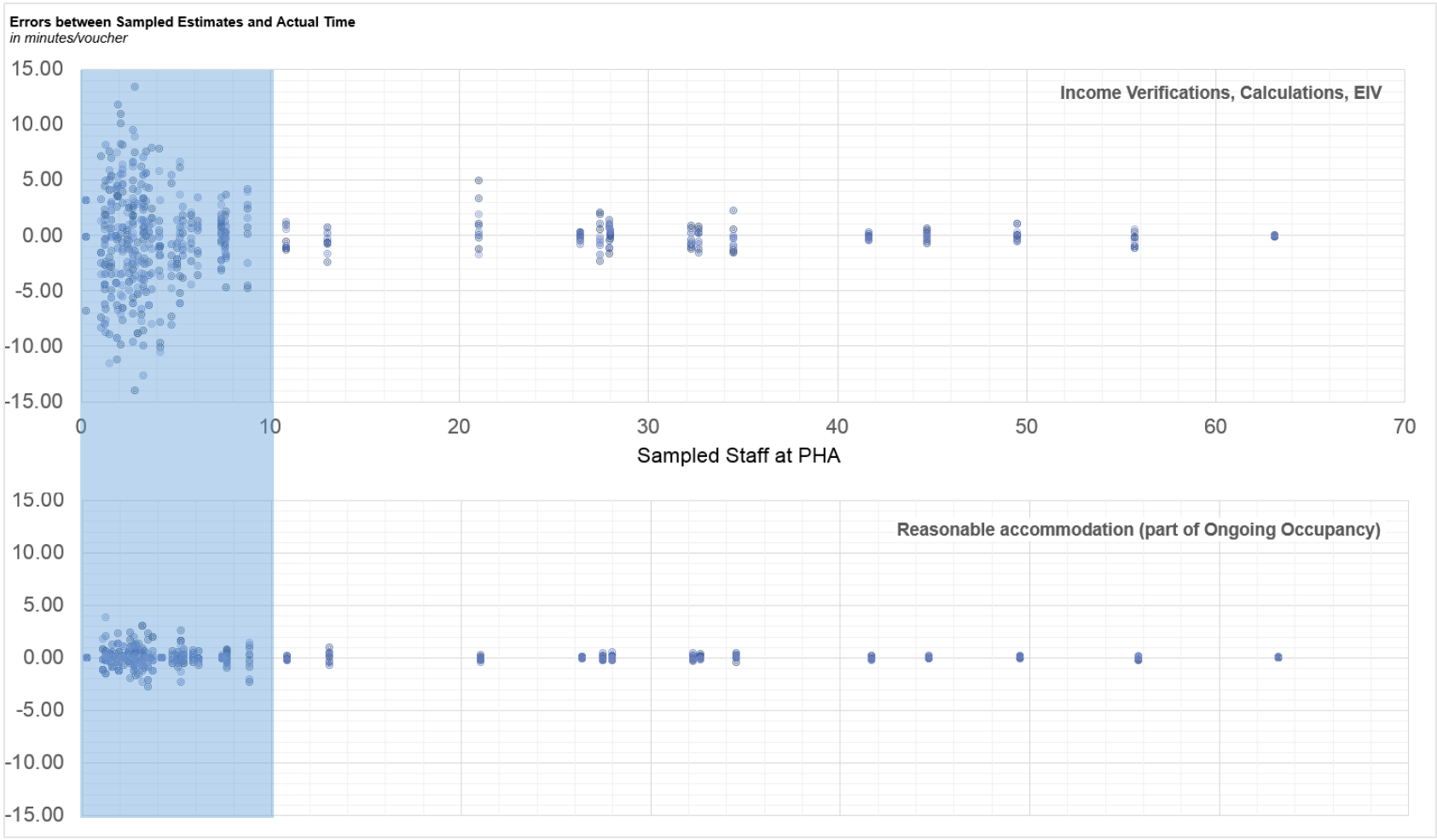
[106] Income verification is a sub-activity within annual recertifications. We do not present time estimates in Chapter 4 on income verifications within annual recertifications; we only show estimates for the annual recertifications category as a whole.

**Exhibit D-5. Estimated Errors from RMS Sampling Across 10 Simulations (in minutes per voucher per year)**



The opposite finding, where rare activities have more uncertainty than common activities, is occasionally concluded because the errors can be summarized using "relative" methods, such as computing the ratio of the error to the actual time (percent relative error). This statistic can be interesting, but it is not particularly useful when evaluating the extent to which RMS estimates may be flawed for any given activity. Further, when using estimates in economic work that include labor cost assignments, the actual errors are far more valuable since they can be directly applied when considering the financial impact of the sampling errors.

The precision of the estimates across the varying PHA program sizes (approximated here by PHA staff counts) also suggests the data feeding the regression models should be of suitable quality for those analytical purposes. It is important to note that the majority of activities are less common than income verification, which results in tighter errors in the corresponding RMS estimates. We specifically chose income verification since it should represent a worst-case scenario.

### Conclusion

Although only two activities are presented above, the simulation results were consistent across all activities and program sizes. Small programs and common events will always have more sampling variation using RMS. While simulations provide everything an analyst needs to approximate general error patterns, there is no way to know if the estimates from real-world RMS data collection were high or low for any given activity. However, this simulation provides a useful framework for quantifying the accuracy of the estimates and suggests that the HCV study likely achieved very precise time estimates for the overall HCV program.