

# Improvements to Medicare Disproportionate Share Hospital (DSH) Payments

*Benchmarking S-10 Data Using IRS Form 990 Data and  
Worksheet S-10 Trend Analyses*

*HHSM-500-2011-00014I; Task Order: HHSM-500-TO001*

Dobson | DaVanzo



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# *Executive Summary*

Section 3133 of the Affordable Care Act prescribed that Medicare disproportionate share hospital (DSH) payments be allocated to each qualifying hospital based, in part, on its share of uncompensated care costs relative to the pool of uncompensated care costs for all subsection (d) hospitals receiving payments under subsection (d)(5)(F). The most comprehensive national source for hospital uncompensated care costs is Worksheet S-10 from the Medicare hospital cost report. The Worksheet S-10 is relatively new and hospitals have limited experience in completing the form. Additionally, as there have been no audits of the data submitted within the Worksheet S-10, policymakers have little experience with the quality of the data it produces.

Through public comment and stakeholder discussion groups, many stakeholders expressed concern about the quality and consistency of the data submitted by hospitals through Worksheet S-10. Given these concerns, the Centers for Medicare & Medicaid Services (CMS) defined a proxy for a hospital's uncompensated care cost (UCC) for the purposes of calculating DSH payments until the Worksheet S-10 data can be more carefully considered and determined to be valid. This proxy was defined as the sum of a hospital's Medicare Supplemental Security Income (SSI) days and Medicaid days.

Research was undertaken to assess the accuracy of the Worksheet S-10 data by benchmarking these data in two different ways. First, the Worksheet S-10 data was benchmarked to data on uncompensated care costs reported to the IRS on Form 990 by not-for-profit hospitals. Hospitals are required to submit audited financial statements as an attachment to the IRS 990,<sup>1</sup> and these forms are reviewed by the IRS for inconsistencies between the hospital's financial statements and IRS 990.<sup>2</sup> Because the data submitted through Form 990 are reviewed and come from an external source, they represent a suitable standard of comparison. Last year, we conducted an analysis of 2010 Worksheet S-10 data and IRS 990 data. That analysis has been updated to include data for 2011 and 2012. Second, the Worksheet S-10 data was benchmarked to itself over time in a trend analysis. The purpose of this analysis was to determine how the

<sup>1</sup> U.S. Department of Treasury, Internal Review Service, Instructions for Schedule H (Form 990). (Washington D.C.: 2015). <https://www.irs.gov/pub/irs-pdf/i990sh.pdf>

<sup>2</sup> U.S. Department of Treasury, Internal Review Service, Charity and Nonprofit Audits: Selecting Organizations for Review. <https://www.irs.gov/Charities-&-Non-Profits/Exempt-Organizations-Audits-Selecting-Organizations-for-Review>

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data (and resulting Factor 3s) relate to each other across years (2011 through 2013). The intent is to determine if the Worksheet S-10 uncompensated care data are becoming more stable over time. For both analyses, we calculated Factor 3s for the hospitals in the sample and used the Factor 3s as the basis for comparison. A hospital's Factor 3 is equal to its uncompensated care cost divided by total uncompensated care costs for all hospitals in the sample. We review the methodology and results of these analyses below.

### Benchmarking to IRS 990 Data

**METHODOLOGY:** Using IRS 990 data for tax year 2010, 2011 and 2012 (latest available years) as a benchmark, key variables derived from S-10 and Form 990 data, such as charity care and bad debt, were compared. The analysis was completed using data from hospitals that had completed both Worksheet S-10 and Form IRS 990s across all study years, yielding a sample of 788 not-for-profit hospitals (representing 668 unique Taxpayer Identification Numbers). Factor 3s were calculated for the matched hospitals using charity care and bad debt. Since Factor 3 is the key variable used to determine the Medicare DSH payment amount for each hospital, we compared the Factor 3 distributions calculated using data from IRS Form 990 and Worksheet S-10.

#### KEY FINDINGS:

- Factor 3s derived using the IRS Form 990 and Worksheet S-10 data are highly correlated. In addition, the correlation coefficient between Factor 3s calculated from the IRS 990 and S-10 has increased over time, from 0.71 in 2010 to 0.80 in 2012, suggesting some convergence in the data sources over time.
- Although the Factor 3s are highly correlated, charity care, bad debt, and Factors 3s differ between the two data sources. In 2012, the average (absolute) difference in Factor 3s was 58 percent.
- We might not ever expect the IRS 990 and S-10 absolute values to be exactly the same because of potential differences in definitions and reporting. Thus, it is unclear what level of convergence is necessary to validate the accuracy of the S-10 while using the IRS 990 as a benchmark, nor is it clear which measure is the “gold standard.”

### Worksheet S-10 Trend Analysis

**METHODOLOGY:** For FY 2017 DSH eligible hospitals (n=2,436), Worksheet S-10 data were analyzed across 2011, 2012, and 2013 cost reports to determine the consistency in the resulting Factor 3s across time and uncompensated care definition. Uncompensated care was defined as charity care, charity care + bad debt, and charity care + bad debt + unreimbursed costs. A “double trim” methodology was performed on the ratio of cost to charges (RCCs) to control for outliers.<sup>3</sup> For each of the definitions of uncompensated care, the analysis compared the distribution of hospital-specific Factor 3s by percentile and compared that distribution to that of the current proxy methodology.

<sup>3</sup> The “double trim” methodology first replaced hospitals' RCCs over 5.0 with the overall statewide average, then replaced any hospitals' RCC that was greater than 3 standard deviations of the natural logarithm of the RCC for all hospitals with the statewide average. S-10 values are then recalculated using the revised RCCs.

## *Executive Summary*

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### **KEY FINDINGS:**

- Across years (2011 through 2013) the Worksheet S-10 has a relatively consistent distribution of Factor 3s by percentile.
- The distribution is very top-heavy, in that 50 percent of Factor 3s are contained within the top 10<sup>th</sup> percentile of hospitals, ranked by hospital-specific Factor 3 value.
- The distribution of Factor 3s by percentile based on the Worksheet S-10 data contains more extreme outliers and is more skewed (top-heavy) than the distribution of Factor 3s based on the current proxy. However, many of the hospitals within the top percentile Factor 3s based on Worksheet S-10 data are very large public hospitals, which by definition, treat large numbers of charity care patients. The top percentile Factor 3s based on current proxy data are more broadly distributed across community hospitals, as Factor 3 is determined by the number of Medicaid and SSI days.
- As a result, distributing Medicare uncompensated care payments based on Worksheet S-10 data would produce significant redistribution of payments across hospital types, which could be mitigated with a phase-in.

# Introduction

Section 3133 of the Affordable Care Act prescribed that Medicare disproportionate share hospital (DSH) payments be allocated to each qualifying hospital based, in part, on its share of uncompensated care costs relative to the pool of uncompensated care costs for all subsection (d) hospitals receiving payments under subsection (d)(5)(F). One national source for hospital uncompensated care costs is Worksheet S-10 from the Medicare hospital cost report. Hospitals, hospital associations, and other stakeholders have expressed concerns about the quality and consistency of the data submitted by hospitals through Worksheet S-10. In light of these concerns, the Centers for Medicare & Medicaid Services (CMS), in the FY 2014 Inpatient Prospective Payment System (IPPS) Final Rule, defined a proxy for a hospital's amount of uncompensated care cost (UCC), for the purposes of calculating DSH payments, as the sum of a hospital's Medicare Supplemental Security Income (SSI) days and Medicaid days. A hospital's share of UCC relative to the total UCC across all hospitals is referred to as their Factor 3. This methodology for determining Medicare DSH payments has been maintained for FYs 2015 and 2016.

CMS commissioned the Dobson | DaVanzo Team—Dobson DaVanzo & Associates and KNG Health Consulting—to conduct two benchmarking analyses. First, the Dobson | DaVanzo team was commissioned to expand its initial assessment of the accuracy of the S-10 data against existing and validated data on uncompensated care costs reported to the IRS on Form 990 by not-for-profit hospitals. This analysis has been updated to now include 2010, 2011, and 2012 data. Because the data submitted through Form 990 are reviewed by hospital auditors and come from an external source, they are a suitable standard for comparison. The benchmarking of existing S-10 data against the Form 990 data over time could be used to provide a baseline to assess changes in the quality of future S-10 data submitted by hospitals, after implementation of improvements to the S-10. In this report, we present results from the benchmarking of uncompensated care estimates derived from data from Worksheet S-10 to data from IRS Form 990s. Furthermore, Factor 3s were calculated for each source and compared across datasets to determine the extent to which the data differences would produce a different distribution of Medicare DSH payments.

Second, the Dobson | DaVanzo team was commissioned to analyze the Worksheet S-10 data over time to investigate how the data reported from hospitals and the resulting Factor 3s based on the reported data change over time. This analysis could help determine if S-10 is consistently reported over time and could possibly provide some input on if and how seemingly “outlier” values reported in one year appear across

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time as well. Additionally, this analysis could determine the types of hospitals that are most likely to report outlier UCC values. While no assessment can be made if the accuracy of the reporting has improved over time, consistent reporting trends could provide CMS with input regarding the stability of the reporting over the first three years the Worksheet S-10 has been used.



# Benchmarking of IRS 990 Data

This chapter presents a benchmark analysis of the Worksheet S-10 data of the Medicare Cost Report by comparing it to the data reported in the IRS Form 990. A crosswalk was used to match hospitals' CMS provider number (CCN) and IRS tax ID number (TIN), which allowed hospitals' S-10 and IRS 990 data to be directly compared with precision. The analysis compares S-10 and IRS 990 data for 2010, 2011, and 2012 in order to understand how these datasets are converging or diverging over time, and if the datasets diverge, which variables related to uncompensated care, if any, drive these differences. Analyses are conducted with only hospitals expected to be DSH-eligible for FY 2017.<sup>4</sup>

## Methodology

### CONSTRUCTION AND DEFINITION OF KEY ANALYTIC VARIABLES

Three key analytic variables were constructed from the IRS 990 and Worksheet S-10. The description of each key variable is provided below, followed by a summary in Exhibit 1.1.

**CHARITY CARE.** IRS Form 990 defines “financial assistance” as free or discounted health services provided to persons who meet the organization's criteria for financial assistance and are unable to pay for all or a portion services received. Financial assistance does not include bad debt, shortfalls of Medicaid, Medicare, and other means-tested government programs, and other unreimbursed costs. IRS Form 990 uses “financial assistance” and “charity care” interchangeably. There are no notable differences found between the definitions of “charity care” in the S-10 data and “financial assistance” in IRS Form 990. Therefore, we assumed the cost of financial assistance in IRS Form 990 is comparable to the cost of charity care in the S-10 data. Negative values were recoded into zeroes to avoid the possibility of negative Factor 3s.

**BAD DEBT.** We note that the Worksheet S-10 definition of uncompensated care costs (UCC) excludes the cost of Medicare bad debt expenses. However, the IRS Form 990 does not break out information regarding a hospital's Medicare and non-Medicare bad debt expenses. In order to increase comparability between the S-10 and IRS 990, the analysis includes both Medicare and non-Medicare bad debt. We compared the cost of total bad debt expense (Line 2 Part III) in IRS Form 990 and the “cost of bad debt

<sup>4</sup> Note that DSH eligibility in this chapter, “Benchmarking of IRS 990 Data,” is based on list of hospitals identified as DSH eligible as of March 16, 2016, without all IPPS policy exclusions applied (e.g., removal of sole community and Maryland hospitals). This list of hospitals differs from the final list of DSH eligible hospitals as identified in the FY 2017 Notice of Proposed Rulemaking.

## Benchmarking of IRS 990 Data

expense for the entire facility” from S-10 (calculated as bad debt charges (Line 26) times cost to charge ratio (Line 1). Negative values were recoded into zeroes to avoid the possibility of negative Factor 3s.

**UNCOMPENSATED CARE COSTS.** By summing charity care and bad debt, we generated an estimate of UCC for each data source.

**FACTOR 3.** Each hospital’s UCC divided by the total amount of UCC of all hospitals in the sample equals the hospital’s Factor 3, the proportion of all UCC covered by the hospital.

**Exhibit 1.1: Key Variables in the IRS 990 and Worksheet S-10 data**

Category	IRS 990	Worksheet S-10
Charity care	Cost of financial assistance (Line 7a Part I)	Cost of charity care (Line 23)
Bad debt	Bad debt expense at cost (Line 2 Part III)	Cost of total bad debt expense= Total bad debt charge for the entire facility (Line 26) * Cost to charge ratio (Line 1)
Uncompensated care costs (UCC)	Cost of financial assistance (Line 7a Part 1) + Bad debt expense at cost (Line 2 Part III)	Cost of charity care (Line 23) + Cost of total bad debt expense (Line 26 * Line 1)
Factor 3	UCC (Line 7a Part 1 + Line 2 Part III) / Total UCC in sample	UCC (Line 23 + Line 26*Line 1) / Total UCC in sample

### MATCHING THE S-10 WORKSHEET TO THE IRS FORM 990

A crosswalk was used to identify hospitals based on their CCNs and TINs. It should be noted that there is not always a 1:1 correspondence between CCNs and TINs. Some hospital organizations contain multiple hospitals with different CCNs, but share one single IRS TIN. For this reason, charity care, bad debt, and uncompensated care costs from the S-10 Worksheet were summed for each TIN. Factor 3s for both IRS 990 and S-10 were also constructed at the TIN level. The IRS 990 data were then matched with the S-10 data by TIN.

### DATA SELECTION AND SAMPLE CHARACTERISTICS

In order to be included in the sample, hospitals needed to have both S-10 and IRS 990 data for each of the years in the analysis (2010, 2011, and 2012), the hospitals’ S-10 and IRS 990 data had to cover the same full-year reporting period, and the hospitals had to be expected to receive DSH payments in FY 2017.<sup>5</sup> In order to maintain consistency between S-10 and IRS 990 data, DSH eligibility was defined at the TIN level. A TIN was considered “DSH-eligible” if any of the CCNs belonging to the TIN were expected to receive DSH payments in FY 2017. S-10 data were summed for all CCNs belonging to DSH-eligible TINs, even if an individual CCN was not expected to receive DSH payments. There were 788 hospitals with unique CCNs that met all criteria. Because some hospital organizations have multiple hospitals but share a single IRS TIN, the hospitals in our sample comprise 668 unique IRS TIN numbers, which in some cases represent multiple CCNs. In the Results section, hospitals are reported at the TIN level,

<sup>5</sup> Based on list of hospitals expected to receive DSH payments in FY 2017 as of March 16, 2016, prior to select exclusions.

## Benchmarking of IRS 990 Data

meaning the sample size is 668. Exhibits 1.2 through 1.7 below present the distribution of hospitals (unique CCNs) in the sample and for all hospitals in the FY 2016 Impact File expected to receive DSH payments in FY 2017.

**Exhibit 1.2: Hospital Characteristics in the Sample and in the FY 2016 CMS Impact File**

	DSH Hospitals In the Sample (Percentage)	DSH Hospitals In the FY 2016 Impact File (Percentage)
<b>All Hospitals</b>	788 (100%)	2,794 (100%)

Source: Dobson | DaVanzo Team analysis of FY 2016 IPPS final rule correction notice impact file.

Note: The number of hospitals reported in Exhibits 1.2 - 1.7 refer to unique CCNs in the sample. The Results section reports data on individual TINs. Because some TINs include multiple CCNs, the sample size in the Results section is smaller than reported here.

**Exhibit 1.3: Hospital Characteristics in the Sample and in the FY 2016 CMS Impact File by Geographic Location**

Geographic Location	DSH Hospitals In the Sample (Percentage)	DSH Hospitals In the FY 2016 Impact File (Percentage)
Urban Hospitals	72.3%	72.4%
Large Urban Areas	34.4%	38.8%
Other Urban Areas	38.0%	33.6%
Rural Hospitals	26.7%	27.6%
Unknown	1.0%	0.0%

Source: Dobson | DaVanzo Team analysis of FY 2016 IPPS final rule correction notice impact file.

Note: The number of hospitals reported in Exhibits 1.2 - 1.7 refer to unique CCNs in the sample. The Results section reports data on individual TINs. Because some TINs include multiple CCNs, the sample size in the Results section is smaller than reported here.

**Exhibit 1.4: Hospital Characteristics in the Sample and in the FY 2016 CMS Impact File by Bed Size**

Bed Size	DSH Hospitals In the Sample (Percentage)	DSH Hospitals In the FY 2016 Impact File (Percentage)
0 to 99 Beds	27.5%	32.8%
100 to 249 Beds	37.1%	38.6%
250 to 499 Beds	25.0%	21.2%
500 to 749 Beds	6.6%	5.2%
750 or More Beds	2.8%	2.2%
Unknown	1.0%	0.0%

Source: Dobson | DaVanzo Team analysis of FY 2016 IPPS final rule correction notice impact file.

Note: The number of hospitals reported in Exhibits 1.2 - 1.7 refer to unique CCNs in the sample. The Results section reports data on individual TINs. Because some TINs include multiple CCNs, the sample size in the Results section is smaller than reported here.

## Benchmarking of IRS 990 Data

**Exhibit 1.5: Hospital Characteristics in the Sample and in the FY 2016 CMS Impact File by Region**

Region	DSH Hospitals In the Sample (Percentage)	DSH Hospitals In the FY 2016 Impact File (Percentage)
East North Central	16.6%	15.3%
East South Central	9.1%	10.2%
Middle Atlantic	8.1%	10.2%
Mountain	6.2%	6.9%
New England	8.5%	3.9%
Pacific	10.4%	12.5%
Puerto Rico	0.1%	1.5%
South Atlantic	22.2%	17.8%
West North Central	7.7%	7.2%
West South Central	9.9%	14.6%
Unknown	1.0%	0.0%

Source: Dobson | DaVanzo Team analysis of FY 2016 IPPS final rule correction notice impact file.

Note: The number of hospitals reported in Exhibits 1.2 - 1.7 refer to unique CCNs in the sample. The Results section reports data on individual TINs. Because some TINs include multiple CCNs, the sample size in the Results section is smaller than reported here.

**Exhibit 1.6: Hospital Characteristics in the Sample and in the FY 2016 CMS Impact File by Teaching Status**

Teaching Status	DSH Hospitals In the Sample (Percentage)	DSH Hospitals In the FY 2016 Impact File (Percentage)
Nonteaching	60.9%	66.4%
Fewer than 100 residents	30.6%	25.0%
100 or more residents	7.5%	8.6%
Unknown	1.0%	0.0%

Source: Dobson | DaVanzo Team analysis of FY 2016 IPPS final rule correction notice impact file.

Note: The number of hospitals reported in Exhibits 1.2 - 1.7 refer to unique CCNs in the sample. The Results section reports data on individual TINs. Because some TINs include multiple CCNs, the sample size in the Results section is smaller than reported here.

## Benchmarking of IRS 990 Data

**Exhibit 1.7: State Distribution of Hospitals in the Sample and in the FY 2016 Impact File**

State	DSH Hospitals In the Sample (Percentage)	DSH Hospitals In the FY 2016 Impact File (Percentage)
<b>All Hospitals</b>	788 (100%)	2,794 (100%)
Alabama	1.0%	2.8%
Alaska	0.3%	0.3%
Arizona	1.8%	1.8%
Arkansas	1.7%	1.4%
California	8.5%	9.0%
Colorado	2.2%	1.4%
Connecticut	2.7%	0.9%
Delaware	0.6%	0.2%
District of Columbia	0.4%	0.2%
Florida	3.6%	4.8%
Georgia	4.8%	3.3%
Hawaii	0.4%	0.4%
Idaho	0.5%	0.4%
Illinois	5.3%	3.9%
Indiana	1.9%	2.6%
Iowa	1.5%	1.1%
Kansas	0.8%	1.1%
Kentucky	3.9%	2.3%
Louisiana	1.8%	2.6%
Maine	0.8%	0.6%
Maryland	4.3%	1.4%
Massachusetts	3.2%	1.8%
Michigan	4.8%	3.1%
Minnesota	1.3%	1.7%
Mississippi	1.7%	2.1%
Missouri	2.0%	2.0%
Montana	0.4%	0.4%
Nebraska	1.0%	0.6%
Nevada	0.5%	0.6%
New Hampshire	0.4%	0.2%
New Jersey	0.3%	1.5%
New Mexico	0.6%	1.2%
New York	0.0%	4.8%
North Carolina	3.2%	2.8%
North Dakota	0.3%	0.3%
Ohio	2.2%	4.0%
Oklahoma	1.4%	2.6%
Oregon	0.9%	1.1%
Pennsylvania	8.0%	3.8%
Puerto Rico	0.1%	1.5%
Rhode Island	0.8%	0.3%

## Benchmarking of IRS 990 Data

State	DSH Hospitals In the Sample	DSH Hospitals In the FY 2016
South Carolina	1.8%	1.7%
South Dakota	0.9%	0.5%
Tennessee	2.7%	3.0%
Texas	5.2%	8.0%
Utah	0.1%	1.0%
Vermont	0.8%	0.2%
Virginia	2.7%	2.3%
Washington	0.5%	1.7%
West Virginia	1.3%	1.0%
Wisconsin	2.5%	1.7%
Wyoming	0.1%	0.3%

Source: Dobson | DaVanzo Team analysis of FY 2016 IPPS final rule correction notice impact file.

Note: The number of hospitals reported in Exhibits 1.2 - 1.7 refer to unique CCNs in the sample. The Results section reports data on individual TINs. Because some TINs include multiple CCNs, the sample size in the Results section is smaller than reported here.

### Results

In this section we present a number of analyses exploring the relationship between the S-10 and 990 data over time. First, we attempt to understand which factors, if any, are driving the variation between S-10 and IRS 990 by presenting ratios of the individual variables of interest (charity care, bad debt, UCC, and Factor 3) in 2010, 2011, and 2012. It should be noted that the data were not trimmed to remove outliers, so all hospitals that met the inclusion criteria are included in the results below. Second, we paid special attention to differences in Factor 3 across the two datasets, presenting the absolute percent differences in Factor 3 between these two datasets by quartile as well as graphing S-10 and IRS 990 Factor 3s for each year. Finally, we turn to understanding convergence of S-10 and IRS 990 Factor 3 over time. We present correlation coefficients between S-10 and 990 Factor 3 for 2010-2012 and graph Factor 3s for all years on the same axes.

### DRIVERS OF THE VARIATION

Exhibit 1.8 shows how well the charity care, bad debt, uncompensated care costs, and Factor 3 values overlap between the S-10 and IRS 990 across years. We calculated a ratio for each key variable by using the value for the variable from the S-10 data divided by the value for the corresponding variable in the IRS 990 data.<sup>6</sup> In each case, the IRS 990 variable is the denominator. The results are presented as ratios, where a ratio of 1.0 is a complete match. The results show that charity care, bad debt, and uncompensated care do not match well between S-10 and 990. While the first three variables do not correspond to one another on a 1:1 basis, it does appear that the Factor 3 corresponds better on average, but, even for Factor 3, the interquartile range is still broad.

<sup>6</sup> In the 990 analysis detailed in the previous report (2014), outliers based on uncompensated care ratios were trimmed from the data. Outliers are not trimmed in order to provide a more holistic picture of how the S-10 and IRS 990 values correspond to one another.

## Benchmarking of IRS 990 Data

**Exhibit 1.8: Percentiles and Means of Ratios of Key Variables in IRS 990 and Worksheet S-10 (2010-2012)**

	Percentile based on Ratio Values (S-10 divided by IRS 990)								
Key Variables	1%	10%	25%	50%	75%	90%	99%	Mean	***
2010									
Charity care	0.0	0.2	0.5	0.8	1.0	1.3	4.6	1.0	668
Bad debt	0.0	0.0	0.4	0.9	1.0	1.1	2.7	0.8	668
Uncompensated care costs*	0.0	0.2	0.5	0.8	1.0	1.2	2.1	0.8	668
Factor 3 (UCC/Total UCC)	0.0	0.3	0.7	1.1	1.3	1.6	2.9	1.1	666
2011									
Charity care	0.0	0.3	0.5	0.8	1.0	1.2	4.3	0.8	668
Bad debt	0.0	0.2	0.3	0.6	0.9	1.0	2.2	0.6	668
Uncompensated care costs*	0.0	0.3	0.4	0.6	0.9	1.0	1.6	0.6	668
Factor 3 (UCC/Total UCC)	0.0	0.5	0.7	1.1	1.5	1.7	2.7	1.1	666
2012									
Charity care	0.0	0.3	0.5	0.8	1.0	1.2	4.3	0.9	668
Bad debt	0.0	0.2	0.3	0.4	0.9	1.0	2.2	0.7	668
Uncompensated care costs*	0.0	0.3	0.4	0.6	0.9	1.0	1.6	0.6	668
Factor 3 (UCC/Total UCC)	0.0	0.5	0.7	1.1	1.5	1.7	2.7	1.1	667

Source: Dobson | DaVanzo Team analysis of FY 2010-2013 S-10 Worksheet and 2010-2012 IRS Form 990

\*Uncompensated care costs = charity care + bad debt

\*\* Two hospitals in the 2010 and 2011 IRS 990 have an IRS Factor 3 of 0.0. One hospital in the 2012 IRS 990 has an IRS 990 Factor 3 of 0.0. These IRS 990 Factor 3s of zero produce an undefined value for the ratio (S-10 divided by IRS 990); therefore, they are excluded from the Factor 3 analysis

### COMPARISON OF FACTOR 3

Exhibit 1.9 demonstrates how much Factor 3 differs between S-10 and IRS 990 in 2010-2012. Because percent differences tend to be higher with lower Factor 3 values (i.e. Factor 3 of 0.001 compared to 0.002 is a 100% increase), we present the results by quartile of S-10 Factor 3s. The tables present the *distribution* of the percent differences in the Factor 3s. In 2012 for example, among hospitals in the fourth quartile (25 percent of hospitals with the highest Factor 3s based on S-10 data), the differences between IRS 990 Factor 3 and S-10 Factor 3 range from 1 percent (1<sup>st</sup> percentile) to 697 percent (99<sup>th</sup> percentile). For over 50 percent of the hospitals in 2010-2012, the S-10 and IRS 990 Factor 3s vary by 27 percent or more.

Exhibits 1.10 through 1.12 present the S-10 and IRS 990 Factor 3 values for each hospital in 2010, 2011, and 2012. Hospitals are arranged along the x-axis by their S-10 Factor 3, with hospitals with the highest S-10 Factor 3s at the right end of the axis. The S-10 and IRS 990 Factor 3 values are shown along the y-axis. The smooth red line represents the S-10 Factor 3, and the navy dotted line is the hospital's IRS 990 Factor 3. The closer the navy dotted line is to the red line, the closer the S-10 Factor 3 is to the IRS 990 Factor 3. Although there is some variation, it does appear that the S-10 and IRS 990 Factor 3s adopt similar trends.

## Benchmarking of IRS 990 Data

**Exhibit 1.9: Distribution of Absolute Percent Change of Factor 3 in IRS 990 and S-10 Data by Quartile (2010-2012)**

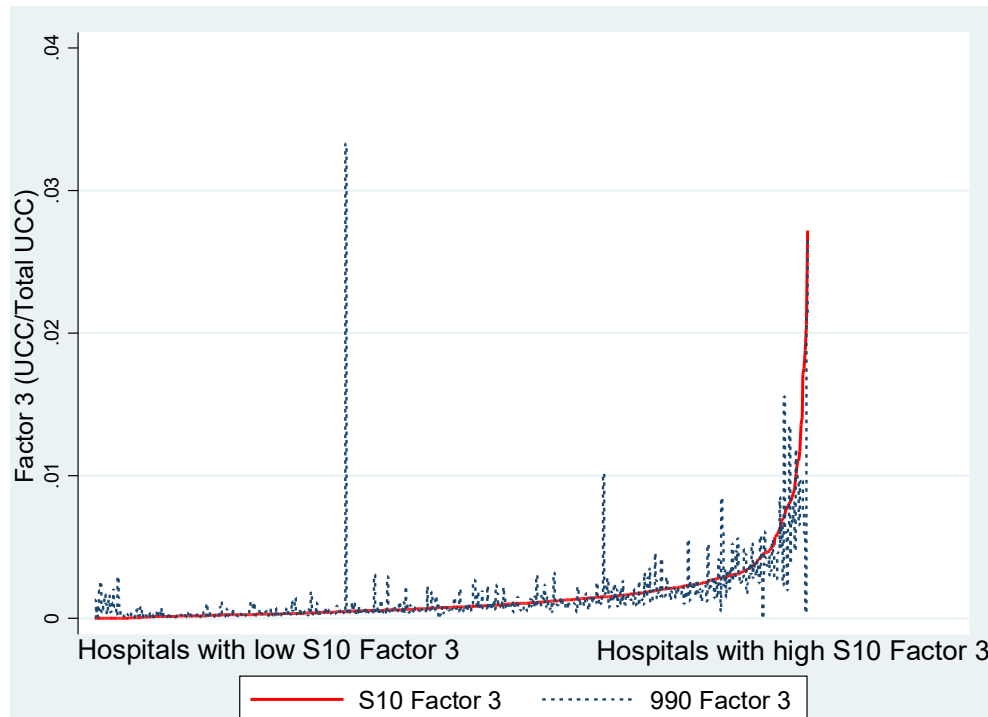
	Percentile based on Absolute Percent Difference* Between IRS 990 and Worksheet S-10								
Quartile**	1%	10%	25%	50%	75%	90%	99%	Mean	#
2010									
First Quartile	1%	8%	20%	43%	81%	100%	100%	50%	167
Second Quartile	0%	5%	13%	28%	46%	71%	147%	34%	166
Third Quartile	1%	9%	18%	30%	45%	69%	183%	36%	167
Fourth Quartile	1%	5%	13%	27%	49%	91%	447%	71%	166
2011									
First Quartile	1%	10%	22%	38%	62%	94%	100%	44%	167
Second Quartile	1%	8%	23%	41%	57%	78%	163%	46%	166
Third Quartile	2%	9%	23%	38%	53%	73%	224%	44%	167
Fourth Quartile	0%	8%	20%	37%	62%	78%	277%	47%	166
2012									
First Quartile	0%	8%	21%	40%	68%	97%	134%	47%	167
Second Quartile	0%	10%	19%	34%	56%	77%	207%	42%	166
Third Quartile	1%	7%	22%	36%	60%	82%	119%	42%	167
Fourth Quartile	1%	7%	23%	34%	58%	84%	697%	58%	167

Source: Dobson | DaVanzo Team analysis of FY 2010-2013 S-10 Worksheet and 2010-2012 IRS Form 990

\*Absolute percent differences calculated as (IRS 990 Factor 3 – S-10 Factor 3) / IRS 990 Factor 3

\*\*Quartiles refer to S-10 Factor 3 values. First quartile = hospitals with lowest 25% of S-10 Factor 3 values

**Exhibit 1.10: S-10 and IRS 990 Factor 3 Values in 2010**

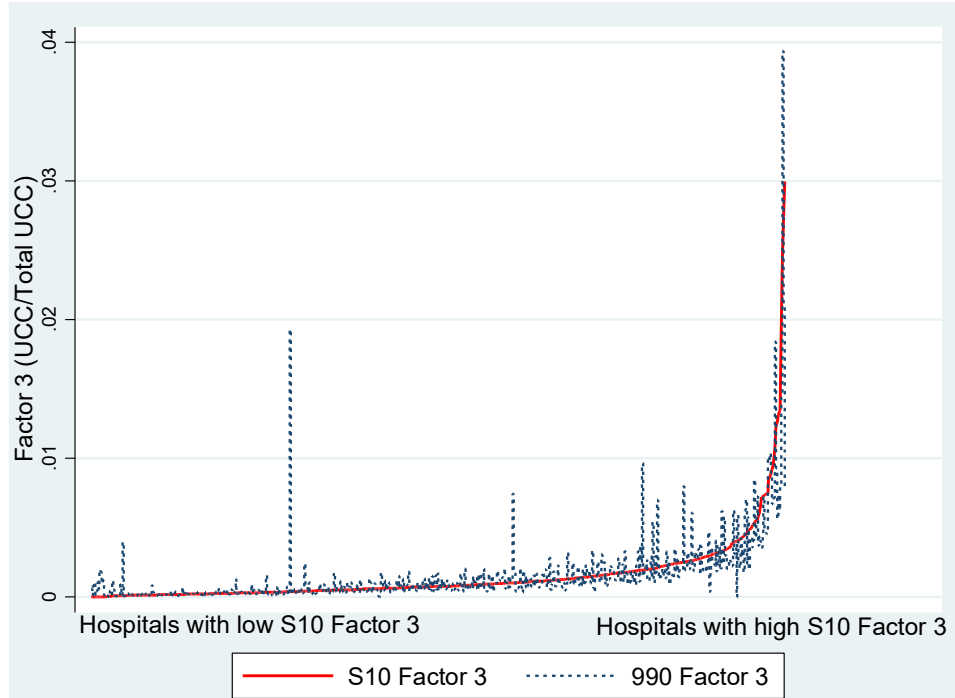


Source: Dobson | DaVanzo Team analysis of FY 2010-2011 S-10 Worksheet and 2010 IRS Form 990



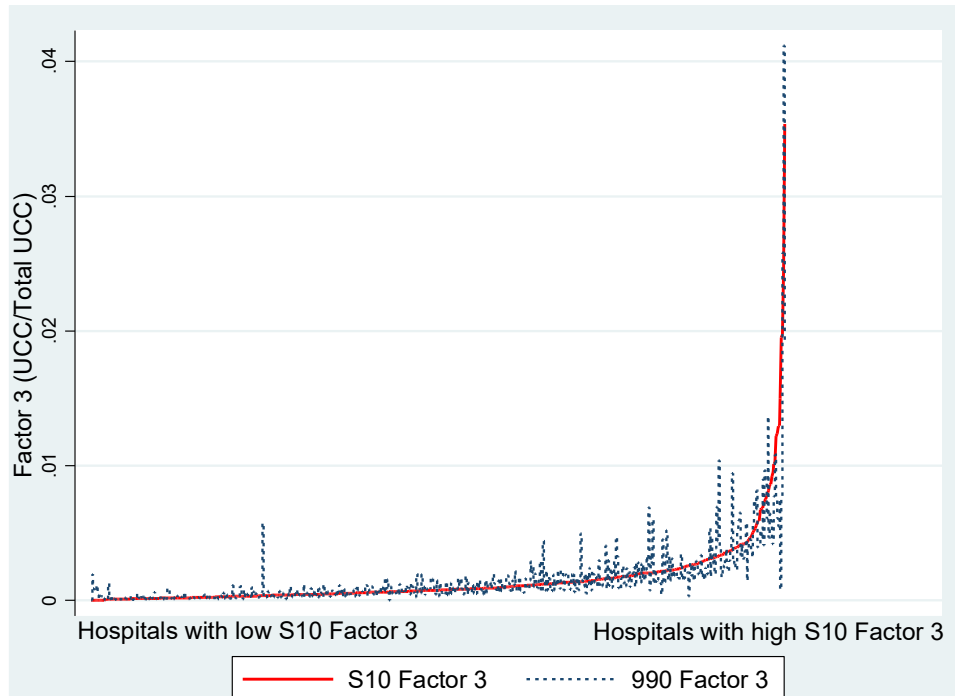
## Benchmarking of IRS 990 Data

**Exhibit 1.11: S-10 and IRS 990 Factor 3 Values in 2011**



Source: Dobson | DaVanzo Team analysis of FY 2011-2012 S-10 Worksheet and 2011 IRS Form 990

**Exhibit 1.12: S-10 and IRS 990 Factor 3 Values in 2012**



Source: Dobson | DaVanzo Team analysis of FY 2012-2013 S-10 Worksheet and 2012 IRS Form 990

## Benchmarking of IRS 990 Data

### CONVERGENCE OVER TIME

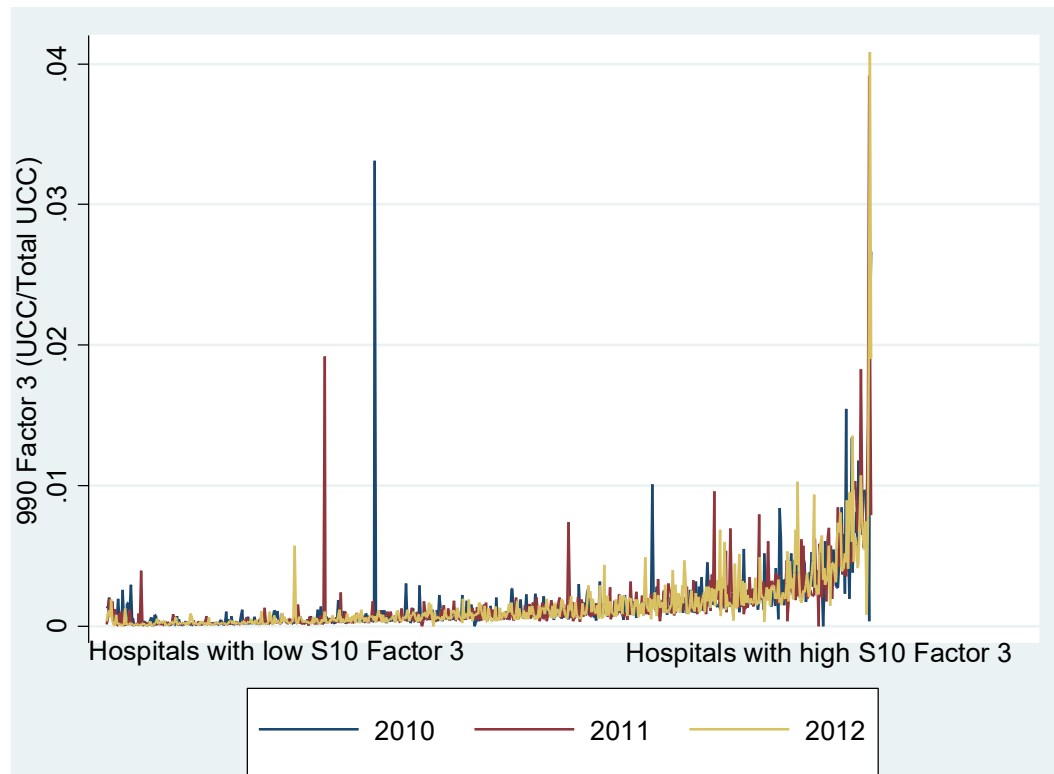
Exhibit 1.13 below demonstrates how strongly the S-10 and IRS 990 Factor 3 values correlate with one another in 2010, 2011, 2012, and across all three years. The values do appear to exhibit some convergence over time. In Exhibit 1.14, we compare the IRS 990 Factor 3s in 2010, 2011, and 2012 on the same axes. The hospitals are sorted by S-10 Factor 3, with hospitals with the largest S-10 Factor 3s at the right end of the axis. The smoother the line, the closer the IRS 990 Factor 3 is to its S-10 equivalent (see Exhibit 1.10-1.12 for reference). The large outliers toward the middle of the chart (indicated by the spikes) are for 2010 and 2011. There is no comparable outlier for 2012. Towards the left end of the chart, the yellow 2012 IRS 990 values appear to be closer to their S-10 values (the line is smoother). The variation at the right end of the chart seems to be similar across all years.

**Exhibit 1.13: Correlation Coefficients between IRS 990 and S-10 Factor 3**

Year	Correlation Coefficient
2010	0.7146
2011	0.7694
2012	0.7971
Overall	0.7614

Source: Dobson | DaVanzo Team analysis of FY 2010-2013 S-10 Worksheet and 2010-2012 IRS Form 990

**Exhibit 1.14: IRS 990 Factor 3s Sorted by S-10 Factor 3s (2010-2012)**



Source: Dobson | DaVanzo Team analysis of FY 2010-2013 S-10 Worksheet and 2010-2012 IRS Form 990

# *Trend Analysis of Worksheet S-10 Data*

In addition to benchmarking the IRS 990 data to the Worksheet S-10 data over time, the project team conducted a separate analysis to determine the extent to which Worksheet S-10 data (specifically the select definitions that comprised Factor 3) are consistent over time. The goal of the analysis was to determine if outliers identified within select years of S-10 data were truly anomalous, perhaps representing a learning curve in hospitals' reporting their uncompensated care costs in a new format, or whether the reporting of hospitals' uncompensated care was consistent and represented a true distribution of uncompensated care across DSH eligible hospitals.

## **Methodology**

The Worksheet S-10 trend analysis compared the hospital-specific Factor 3 values (referred to as "Factor 3s") across three years of hospital data. Only hospitals eligible for Medicare DSH payments based on the FY 2017 Notice of Proposed Rulemaking (NPRM) were included in the analysis. Hospitals were not required to have completed cost reports for each of the fiscal years; therefore, it is not a consistent sample across years. This is consistent with the FY 2017 NPRM methodology for calculating Factor 3. Furthermore, all short and long cost reports from reporting years 2011, 2012, and 2013 were included in the analysis, even if the resulting fiscal year period exceeded 365 days. Consistent with the FY17 NPRM DSH eligibility list, 2,436 hospitals were included in the analysis.

Factor 3s were calculated from the Worksheet S-10 for each hospital using three different definitions of uncompensated care:

1. Charity Care:
  - Ratio of Cost to Charges \* [(Charity Care Charges) – (Payments Received for Charity Care)]
  - (Line 1) \* (Line 20, Column 3) – (Line 22, Column 3)
2. Charity Care + Non-Medicare Bad Debt:
  - [(Ratio of Cost to Charges \* Charity Care) – (Payments Received for Charity Care)] + [(Ratio of Cost to Charges) \* (Non-Medicare and Non-Reimbursable Bad Debt Expense)]
  - [(Line 1) \* (Line 20, Column 3) – (Line 22, Column 3)] + [(Line 1) \* (Line 28)]
3. Charity Care + Non-Medicare Bad Debt + Unreimbursed Costs:
  - Ratio of Cost to Charges \* [(Charity Care Charges) + (Non-Medicare and Non-Reimbursable Bad Debt Expense) + (Medicaid Charges) + (Stand-alone SCHIP Charges) + (Charges for Patients Covered under State or Local Indigent Care Program)] – [(Payments Received for Charity Care) +

## *Trend Analysis of Worksheet S-10 Data*

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$$\begin{aligned}
 & (\text{Net Revenue from Medicaid}) + (\text{DSH or Supplemental Payments}) + (\text{Net revenue from stand-alone SCHIP}) + (\text{Net revenue from state or local indigent care program}) \\
 - & (\text{Line 1}) * [(\text{Line 20, Column 3}) + (\text{Line 28}) + (\text{Line 6}) + (\text{Line 10}) + (\text{Line 14})] - [(\text{Line 22}) + (\text{Line 2}) \\
 & + (\text{Line 5}) + (\text{Line 9}) + (\text{Line 13})]
 \end{aligned}$$

For each definition of uncompensated care, the charges reported in the Worksheet S-10 were converted to provider costs using the ratio of cost to charges (RCC). As available, Worksheet S-10, Line 1 was used as the RCC. In the event this variable was missing, the RCC was assigned a value of zero. In effect, this produces an uncompensated care cost – and resulting Factor 3 – of zero for the given year.

Consistent with the methodology used for the FY 2017 NPRM, we employed a double-trim methodology to each year of Medicare Cost Reports separately to ensure that the RCCs were reasonable. The steps for this double-trim approach are outlined below:

### First RCC Trim

- Step 1: Prior to calculating the state-wide average, remove all hospitals with a RCC reported on the S-10 (Line 1) of greater than the national geometric mean (“ceiling”), using FY2013 RCC “ceiling” of 1.146
- Step 2: Determine State Average RCC Using S-10 (Line 1) for all remaining hospitals within each state (including non-DSH eligible hospitals, and hospitals with non-missing RCC only)
- Step 3: Calculate the average RCC (not weighted by hospital size) for each state using the S-10 value (Line 1)
- Step 4: First RCC Trim – Assign the statewide average RCC to all hospitals with an RCC greater than the national geometric mean

### Second RCC Trim

- Step 5: Take the natural logarithm of the RCC for all hospitals (including those with replaced RCCs, and non-DSH eligible hospitals)
- Step 6: Calculate the average (geometric mean) and the standard deviation of the log values across all hospitals
- Step 7: Second RCC Trim – Assign the statewide average RCC to each DSH-eligible hospitals with a RCC greater than 3.0 standard deviations above the national geometric mean, and exclude all other non-DSH eligible hospitals from further analysis

## **Results**

In this section, we present the results of our analysis. We first show the distribution of Factor 3 across various uncompensated care definitions over time (2011-2013), and then show how it compares to a distribution where the proxy method is applied to the FY 2017 DSH-eligible hospital list as proposed in the NPRM. Next, we show how Factor 3s vary by hospital over time, with additional detail provided for 20 hospitals with the highest Factor 3 in any given year. This helps to understand both the consistency in Worksheet S-10 reporting over time and the significance of outlier hospitals.

## *Trend Analysis of Worksheet S-10 Data*

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### **DISTRIBUTION OF FACTOR 3 OVER TIME FOR VARIOUS DEFINITIONS OF UNCOMPENSATED CARE**

Using the three definitions of uncompensated care, we compare the distribution of Factor 3s over time by percentile of hospital (see Exhibit 2.1). Since the percentile range for hospitals is determined by the hospital-specific Factor 3 within each definition, a given hospital does not necessarily maintain its hospital percentile across definitions of uncompensated care.

Across all years and Factor 3 definitions, the Worksheet S-10 data produce a skewed distribution of Factor 3s. The top 10 percent of hospitals (90<sup>th</sup> to 100<sup>th</sup> percentile) consistently comprise at least 50 percent of Factor 3s, while the top 0.5 percent of hospitals consistently comprise approximately 10 percent or more of Factor 3. The charity care definition of uncompensated care produces the most top-heavy distribution, while the charity care + bad debt + unreimbursed costs definition produces the least skewed distribution. Across all definitions, about 10 percent or fewer of Factor 3s are allocated to the bottom 50<sup>th</sup> percentile of hospitals.

For example, within the charity care definition of uncompensated care, about 60 percent (between 58 percent and 60 percent, by year) of Factor 3s are contained within the top 10<sup>th</sup> percentile of hospitals, while about 50 percent of Factor 3s are contained within the top 10<sup>th</sup> percentile for both the charity care + bad debt and charity care + bad debt + unreimbursed cost definitions. Among the top 0.5<sup>th</sup> percentile (13 hospitals), the charity care definition contains the greatest concentration of Factor 3s, with about 15 percent of Factor 3s allocated to these hospitals across years, compared to about 10-12 percent of Factor 3s allocated to the top 13 hospitals for the other two definitions.

For all three definitions of uncompensated care, the share of Factor 3s allocated to the top 10<sup>th</sup> percentile of hospitals remained relatively consistent over time. Among the charity care and charity care + bad debt definitions, the share of Factor 3s allocated to the top 10<sup>th</sup> percentile of hospitals is slightly reduced each year between 2011 and 2013. For the charity care + bad debt + unreimbursed costs definition, this proportion slightly increased each year. However, none of these proportions changed enough to suggest substantial payment redistributions across years.

## Trend Analysis of Worksheet S-10 Data

**Exhibit 2.1: Factor 3 Distribution by Uncompensated Care Definition and by Percentile Range, across Years;  
Percentile based on Hospital-specific Factor 3**

Uncompensated Care Definition	Percentile Range of Hospitals	Number of Hospitals	Portion of Factor 3			Cumulative Portion of Factor 3		
			2011	2012	2013	2011	2012	2013
Charity Care	0 - 5	121	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	5 - 10	122	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	10 - 25	366	0.36%	0.44%	0.49%	0.36%	0.44%	0.50%
	25 - 50	609	4.13%	4.21%	4.43%	4.50%	4.65%	4.92%
	50 - 75	609	14.02%	14.40%	14.94%	18.51%	19.05%	19.87%
	75 - 90	365	21.10%	21.28%	22.37%	39.62%	40.33%	42.24%
	90 - 95	122	14.28%	14.38%	14.34%	53.90%	54.71%	56.58%
	95 - 99	97	24.51%	24.24%	22.83%	78.41%	78.95%	79.41%
	99 - 99.5	12	6.07%	5.97%	5.59%	84.48%	84.92%	85.00%
	99.5 - 100	13	15.52%	15.08%	15.00%	100.00%	100.00%	100.00%
Charity Care + Non-Medicare Bad Debt	0 - 5	121	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	5 - 10	122	0.06%	0.18%	0.21%	0.06%	0.18%	0.21%
	10 - 25	366	1.65%	1.86%	1.94%	1.71%	2.04%	2.15%
	25 - 50	609	7.46%	7.63%	8.05%	9.17%	9.68%	10.20%
	50 - 75	609	17.23%	17.43%	17.95%	26.40%	27.11%	28.15%
	75 - 90	365	21.80%	21.93%	22.61%	48.21%	49.04%	50.76%
	90 - 95	122	13.44%	13.50%	13.52%	61.65%	62.54%	64.27%
	95 - 99	97	21.22%	20.96%	20.24%	82.87%	83.50%	84.51%
	99 - 99.5	12	4.81%	4.55%	4.49%	87.68%	88.05%	89.00%
	99.5 - 100	13	12.33%	11.95%	11.00%	100.00%	100.00%	100.00%
Charity Care + Non-Medicare Bad Debt + Unreimbursed	0 - 5	121	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	5 - 10	122	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	10 - 25	366	0.49%	0.88%	0.78%	0.49%	0.88%	0.78%
	25 - 50	609	6.96%	7.28%	7.14%	7.45%	8.17%	7.92%
	50 - 75	609	19.21%	19.31%	18.50%	26.66%	27.48%	26.42%
	75 - 90	365	24.50%	23.51%	23.28%	51.15%	50.98%	49.70%
	90 - 95	122	13.95%	14.56%	13.53%	65.10%	65.55%	63.23%
	95 - 99	97	19.95%	19.50%	17.93%	85.05%	85.04%	81.16%
	99 - 99.5	12	4.47%	4.60%	3.95%	89.52%	89.64%	85.11%
	99.5 - 100	13	10.48%	10.36%	14.89%	100.00%	100.00%	100.00%

Source: Dobson | DaVanzo Team analysis of Worksheet S-10 data, 2011 through 2013. Note, totals may not sum due to rounding.

For the purpose of comparison, we present the distribution of Factor 3s when applying the proxy methodology (current law for FY 2016) to the FY 2017 DSH eligible hospitals. This comparison allows us to identify the extent to which Medicare DSH payments would be redistributed if Worksheet S-10 were used to calculate Factor 3 instead of the current methodology. Inputs for determining Factor 3 for FY 2017 Medicare DSH payments are based on FY 2011 and 2012 Medicare Cost Reports, depending on what is most recently available for each DSH-eligible hospital. Exhibits 2.1 and 2.2 therefore used relatively

## Trend Analysis of Worksheet S-10 Data

comparable Medicare Cost Reports (2011 and 2012), albeit the Worksheet source (Worksheet S-2/3 vs. S-10) and configuration of Factor 3 differed significantly.

Exhibit 2.2 presents the distribution by percentile range, which is determined by the hospital-specific Factor 3. Note that the Factor 3 level within the percentile range does not align across Exhibits 2.1 and 2.2. That is, the 75<sup>th</sup> - 90<sup>th</sup> percentile range for the charity care + bad debt definition in 2012 has an upper bound Factor 3 of 0.09 percent in Exhibit 2.1, compared to a Factor 3 of 0.11 percent in Exhibit 2.2. For the purpose of comparison (and for further discussion below), the Factor 3s based on Worksheet S-10 charity care + bad debt definition for 2012 range from 0.0 to 1.89 percent compared to 0.0 to 0.75 percent for the current proxy methodology.

Using the current law proxy methodology, the distribution of Factor 3s is more evenly distributed across hospitals than the resulting Factor 3s would be if it was based on the Worksheet S-10 data. For example, only 43 percent of Medicare DSH payments would be distributed to the top 10<sup>th</sup> percentile of hospitals under the current methodology, compared to approximately 50-60 percent of DSH payments if the Worksheet S-10 data were used (depending on the uncompensated care definition presented above). Furthermore, the top 0.5<sup>th</sup> percentile of hospitals under the current methodology would be allocated to about 6 percent of the total DSH payments, compared to about 15-20 percent under the Worksheet S-10 Factor 3 calculations.

**Exhibit 2.2: Factor 3 Distribution by Percentile Range for Proxy Methodology Applied to FY2017 DSH Eligible Hospitals; Percentile based on Hospital-specific Factor 3**

Percentile Range	Number of Hospitals	FY 2011-2012 Cost Reports	
		Portion of Factor 3	Cumulative Portion of Factor 3
0 - 5	121	0.01%	0.01%
5 - 10	122	0.16%	0.17%
10 - 25	366	1.77%	1.94%
25 - 50	609	8.36%	10.30%
50 - 75	609	20.69%	30.99%
75 - 90	365	26.41%	57.40%
90 - 95	122	15.74%	73.15%
95 - 99	97	18.07%	91.22%
99 - 99.5	12	3.27%	94.49%
99.5 - 100	13	5.51%	100.00%

Source: Dobson | DaVanzo Team analysis of Worksheet S-10 data, 2011 through 2013. Note, totals may not sum due to rounding.

Within the three Worksheet S-10 definitions of uncompensated care, the Factor 3s derived for each hospital differ significantly. Exhibit 2.3 shows the distribution of Factor 3s by percentile for each

## *Trend Analysis of Worksheet S-10 Data*

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definition of uncompensated care. The values shown are for the percentile range end-points (i.e., the Factor 3 at the 75<sup>th</sup> percentile for the 50-75<sup>th</sup> percentile range).

This exhibit demonstrates that not only are the Factor 3s unevenly distributed across hospitals, but the higher percentiles contain significant “outliers.” Across all years and Factor 3 uncompensated care definitions, the proportion of Factor 3 attributed to hospitals in the 99<sup>th</sup> percentile demonstrates this point. Hospitals in this percentile receive at least 0.3 percent of all Medicare DSH payments (Factor 3 of 0.003 or higher), while hospitals with the maximum (100<sup>th</sup> percentile) Factor 3 within each definition received at least 1.5 percent of all Medicare DSH payments.

Consistent with the finding that the charity care definition of uncompensated care produces the most skewed results out of the three analyzed uncompensated care definitions, this definition also produces the highest proportion of Factor 3 at the 99<sup>th</sup> percentile and 100<sup>th</sup> percentile (maximum) across years compared to the same percentile using different definitions (with the exception of charity care + bad debt + and reimbursed costs for 2013 in which the maximum Factor 3 is higher).

Despite the differences among the higher percentiles, the interquartile range is relatively consistent across years and definitions, with a range of about 0.03 to 0.04 percent of Factor 3 (calculated as Factor 3 at 75<sup>th</sup> percentile minus that at the 25<sup>th</sup> percentile)

In general, over time within each uncompensated care definition, the Factor 3 values at each percentile level remain relatively constant. At the 95<sup>th</sup> percentile and above, however, the Factor 3s vary more significantly over time, suggesting that there are outliers present in each year that alter the overall distribution of Factor 3s. Despite the consistent Factor 3s over time throughout the rest of the percentile distribution, these results suggest that extreme outliers (represented as the 95<sup>th</sup> percentile and higher) continue to be reported within the S-10 data as of 2013.



## Trend Analysis of Worksheet S-10 Data

**Exhibit 2.3: Proportion of Factor 3 by Uncompensated Care Definition; Percentile based on Hospital-specific Factor 3**

Year	Uncompensated Care Definition	Minimum	1st Percentile	5th Percentile	25th Percentile	50th Percentile	75th Percentile	95th Percentile	99th Percentile	Maximum
2011	Charity Care	0.000%	0.000%	0.000%	0.002%	0.013%	0.038%	0.155%	0.453%	2.757%
2012		0.000%	0.000%	0.000%	0.003%	0.013%	0.038%	0.161%	0.428%	2.691%
2013		0.000%	0.000%	0.000%	0.003%	0.013%	0.039%	0.146%	0.415%	3.627%
2011	Charity Care + Non-Medicare Bad Debt	0.000%	0.000%	0.000%	0.007%	0.019%	0.041%	0.142%	0.355%	2.048%
2012		0.000%	0.000%	0.000%	0.007%	0.019%	0.042%	0.140%	0.353%	1.886%
2013		0.000%	0.000%	0.000%	0.008%	0.020%	0.043%	0.139%	0.308%	2.266%
2011	Charity Care + Non-Medicare Bad Debt + Unreimbursed	0.000%	0.000%	0.000%	0.005%	0.019%	0.048%	0.145%	0.344%	1.675%
2012		0.000%	0.000%	0.000%	0.006%	0.020%	0.047%	0.154%	0.326%	1.483%
2013		0.000%	0.000%	0.000%	0.005%	0.019%	0.045%	0.136%	0.308%	7.219%

Source: Dobson | DaVanzo project team analysis of Worksheet S-10 data, 2011 through 2013.

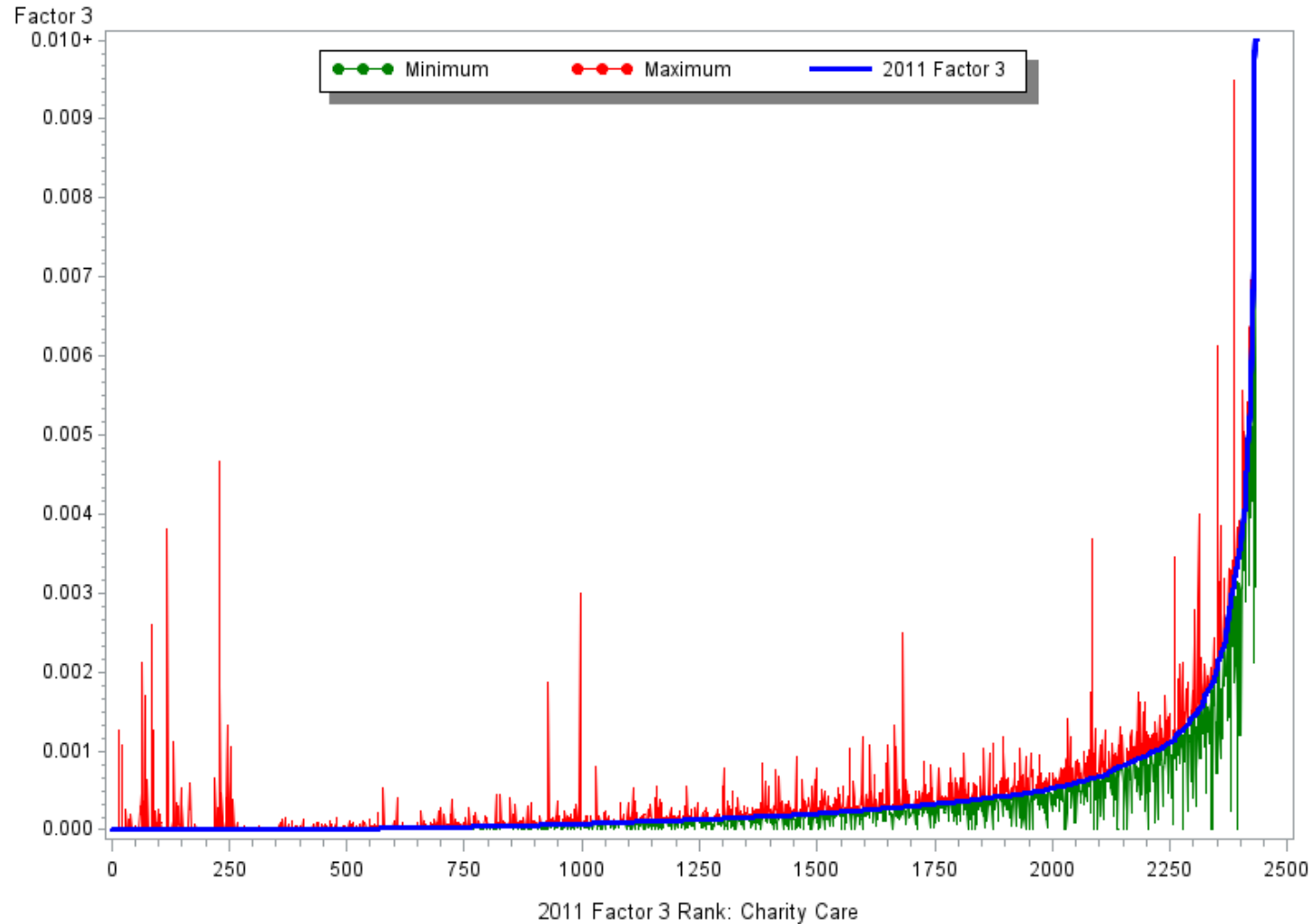
Note: The mean Factor 3 value across all years and uncompensated care definitions is 0.411%. Since the sum of Factor 3 is always 100% and the analytic sample is consistent across years and definitions (2,436 hospitals), the mean does not change.

To further illustrate the change in the concentration of Factor 3 over time, Exhibits 2.4 through 2.6 are graphs depicting the minimum and maximum Factor 3 values for a given hospital across three years for each of the uncompensated care definitions. These graphs show the Factor 3 for each hospital in our sample sorted by hospital-specific Factor 3 (blue solid line). They also show the minimum (green; below the solid line) and maximum (red; above the solid line) value for each hospitals based on 2011 through 2013 data. A large spike above or below the blue solid line indicates that a given hospital has a large outlier in either 2012 or 2013 Worksheet S-10 data that produces an anomalous Factor 3.

Across all three definitions, high outliers (shown as red spikes) are most prevalent when using the charity care + bad debt + unreimbursed cost definition (Exhibit 2.6). Generally, the 2011 through 2013 Factor 3 values range for any given hospital within a Factor 3 of 0.001 (0.1 percent of DSH payments). There are select hospitals with significant variation across years. Select hospitals have very large outliers, which significantly alter their Factor 3 across years.

## Trend Analysis of Worksheet S-10 Data

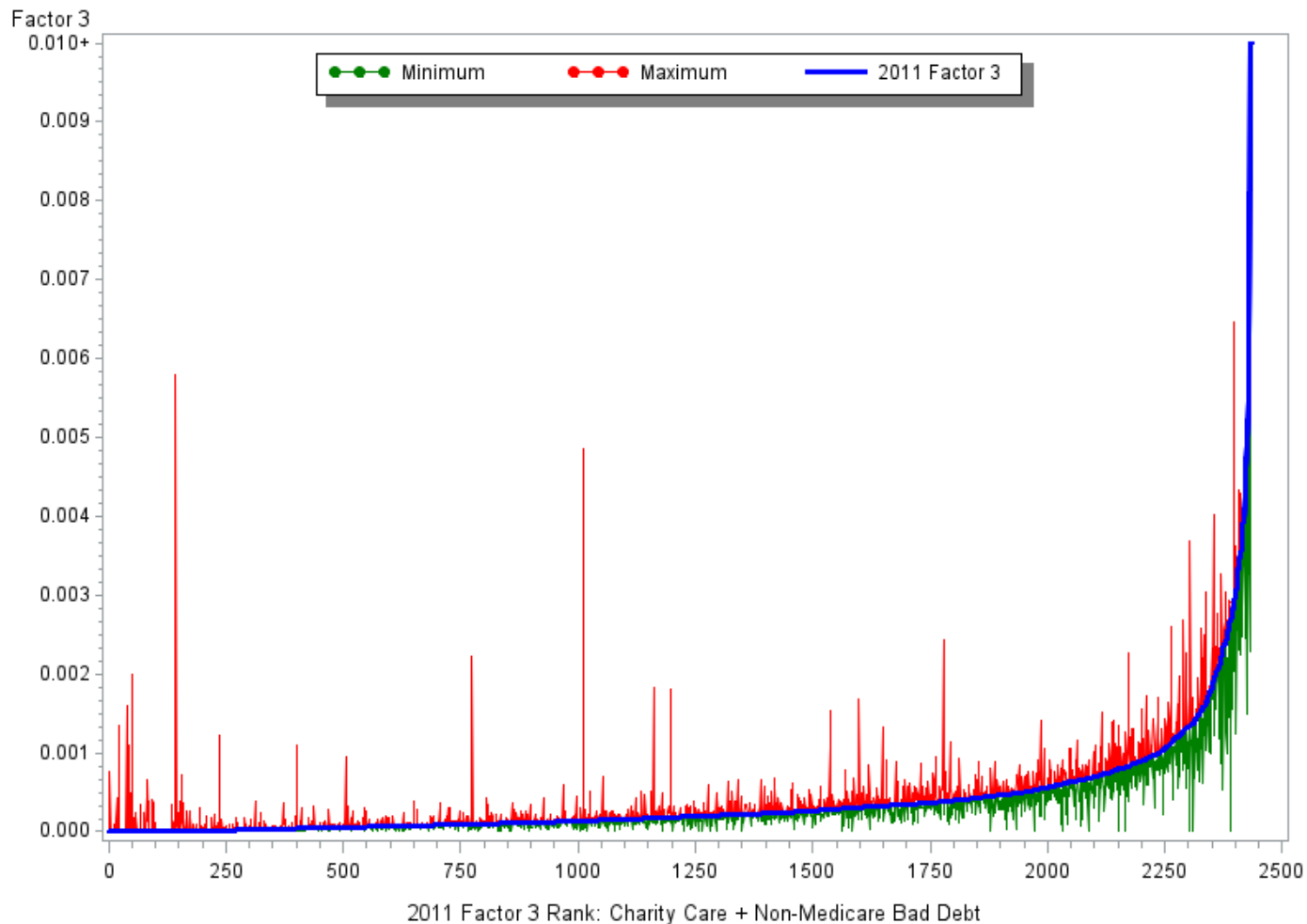
**Exhibit 2.4: Distribution by Rank – Minimum and Maximum Factor 3s by Hospital for 2011 through 2013: Charity Care**  
**Factor 3 Charity Care: 2011 - 2013 Distribution by Rank**



Source: Dobson | DaVanzo project team analysis of Worksheet S-10 data, 2011 through 2013.

## Trend Analysis of Worksheet S-10 Data

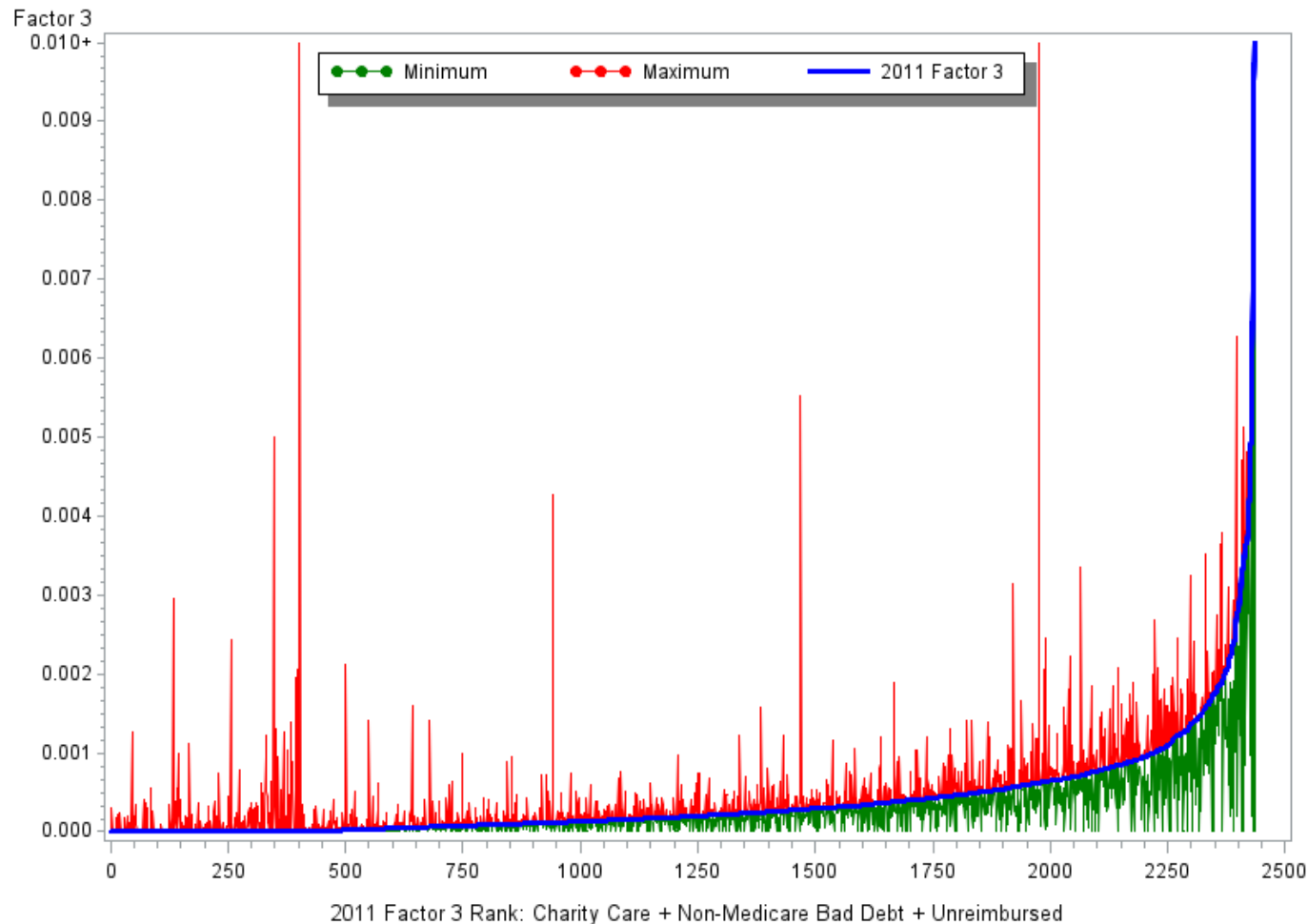
**Exhibit 2.5: Distribution by Rank – Minimum and Maximum Factor 3s by Hospital for 2011 through 2013: Charity Care + Bad Debt**  
**Factor 3 Charity Care + Non-Medicare Bad Debt: 2011 - 2013 Distribution by Rank**



Source: Dobson | DaVanzo project team analysis of Worksheet S-10 data, 2011 through 2013.

## Trend Analysis of Worksheet S-10 Data

**Exhibit 2.6: Distribution by Rank – Minimum and Maximum Factor 3s by Hospital for 2011 through 2013: Charity Care + Bad Debt + Unreimbursed Costs**  
**Factor 3 Charity Care + Non-Medicare Bad Debt + Unreimbursed: 2011 - 2013 Distribution by Rank**



Source: Dobson | DaVanzo project team analysis of Worksheet S-10 data, 2011 through 2013.

# Conclusions

This report summarizes the findings of two benchmarking analyses that attempt to determine the extent to which Worksheet S-10 data aligns with the trends and magnitude of IRS 990 data, and is consistently reported by hospitals over time. These results are informative as CMS considers the potential future use of S-10 data to distribute Medicare DSH payments to hospitals.

We conclude in our Worksheet S-10 and IRS 990 benchmarking analysis that the resulting Factor 3s are highly correlated. However, there is a consistent difference between the two datasets over time. Specifically, across all quartiles there is an average (absolute) difference in the Factor 3s of about 50 percent across all years (48 percent in 2010, 45 percent in 2011, and 47 percent in 2012). We do note, however, that the two datasets appear to be converging, as the correlation coefficient between the IRS 990 and S-10 has increased over time. While we may not ever expect the IRS 990 and S-10 values to be exactly the same, it is unclear what level of convergence is necessary to verify the accuracy of the S-10 while using the IRS 990 as a benchmark.

The Worksheet S-10 trend analysis suggests that the data produces a similar distribution of Factor 3s across all hospitals over time. While the distribution is very top-heavy with about 50-60 percent of the DSH payments allocated to the top 10<sup>th</sup> percentile of hospitals, the number and magnitude of outliers is relatively consistent over time. This may suggest a systematic trend that by using the possible definitions of uncompensated care investigated in this report, very large public hospitals will receive a seemingly disproportionate share of total DSH and uncompensated care payments. Compared to the current proxy methodology, the distribution of uncompensated care payments using Worksheet S-10 will be more concentrated among a few hospitals. As a result, distributing Medicare uncompensated care payments based on Worksheet S-10 data would produce significant redistribution of payments across hospital types, which could be mitigated with a phase-in.

Our work has two potential implications for the future calculation of Medicare DSH add-on payments. First, the IRS 990 data could offer a benchmark to assess ongoing improvements in the reporting of S-10

## *Conclusions*

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data. As this analysis compared three years of IRS 990 and S-10 data, an ongoing comparison could further capture convergence or divergence of the two datasets. Furthermore, the findings from these analyses could be used to further investigate the cause of differences in uncompensated care costs across the data sources and across time. For example, detailed analysis of the hospitals with the largest difference in IRS 990 and S-10 values may help identify areas of the S-10 where hospitals may have difficulty understanding or adhering to the instructions. Additionally, a detailed analysis of hospitals who do appear as outliers in one or multiple years will help CMS understand the financial model with which these large hospitals operate, and validate whether the S-10 was completed correctly by the hospital. Follow-up with select hospitals could identify and remedy these issues, if appropriate.