



Profitability of Rural Hospitals

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OVERVIEW

The Medicare Prospective Payment System (PPS) was introduced by the federal government in October 1983. Under this system, hospitals are paid a pre-determined rate for each Medicare admission. Each patient is classified into a Diagnosis Related Group (DRG) on the basis of clinical information. Except for certain patients with exceptionally high costs (called outliers), a hospital is paid a flat rate for the DRG, regardless of the actual services provided.

Concerns about the use of PPS for rural hospitals arose in the 1990s. Rural and small hospitals confront factors, such as diseconomies of scale, in comparison to urban and larger hospitals, that can hinder financial performance. Recognizing that many rural hospitals are the only health care facility in their community and that their survival is vital to ensure access to health care, Federal policymakers created special payment classifications under the Medicare program.

KEY FINDINGS

- Urban hospitals paid under PPS, and Rural Referral Centers, had consistently the highest profitability in comparison to hospitals with other payment classifications.
- Rural hospitals paid under PPS, and Critical Access Hospitals, generally had the lowest profitability in comparison to hospitals with other payment classifications.
- Across all hospital payment classifications, profitability improved between 2010 and 2012.

There are currently four classifications of rural hospitals that qualify for special payment provisions under Medicare: Critical Access Hospitals (CAHs), Medicare Dependent Hospitals (MDHs), Sole Community Hospitals (SCHs), and Rural Referral Centers (RRCs). Some hospitals have more than one designation.

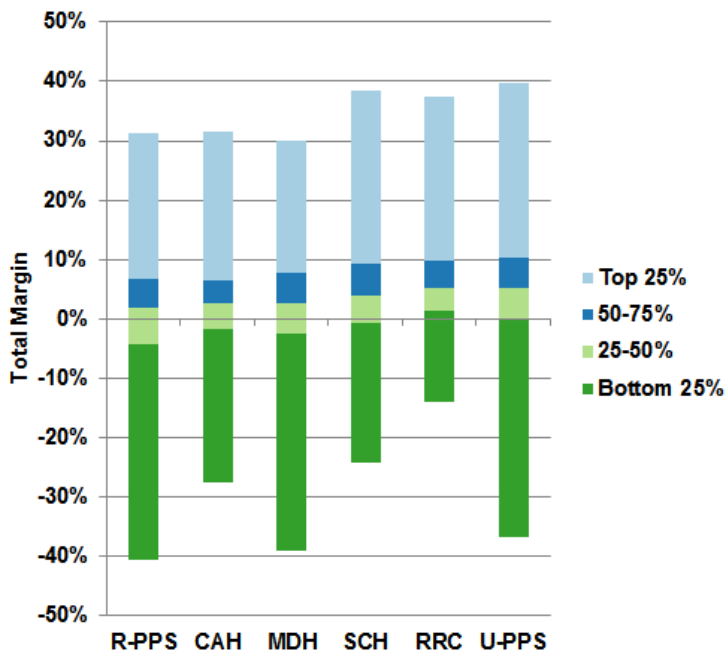
This study compares the profitability between 2010 and 2012 of urban and rural hospitals paid under PPS (U-PPS and R-PPS, respectively) to rural hospitals with special Medicare payment provisions. Four financial ratios were used to compare the profitability of hospital groups. The definition of each ratio is shown at the end of this brief.

TOTAL MARGIN

Total margin measures the control of expenses relative to revenues, and expresses the profit a hospital makes as a proportion of revenue brought in. For example, a 5% margin means the hospital makes 5 cents of profit on every dollar of total revenue. Because the margin is proportional, two hospitals with the same margin can have vastly

different absolute dollars of profit. For example, a hospital with a 5% total margin and 50 million in total revenues will have \$2,500,000 in profits, whereas a hospital with the same total margin but only 5 million in revenue will have just \$250,000.

Figure 1. 2012 Total Margin Distribution* by Hospital Type



*Outlier hospitals ($\leq 1\%$ or $\geq 99\%$) were excluded.

Figure 1 shows that in 2012, U-PPS hospitals and RRCs had the highest median total margin. Additionally, along with SCHs, they had the absolute highest total margins. In contrast, R-PPS had the lowest median total margin. CAHs and MDHs had only slightly better median total margins and similar, but lower than SCH, absolute highest margins. There was broad variability in total margin for all hospital groups except for RRCs where negative margins were not as marked.

Figure 2. 2010-12 Medians for Total Margin

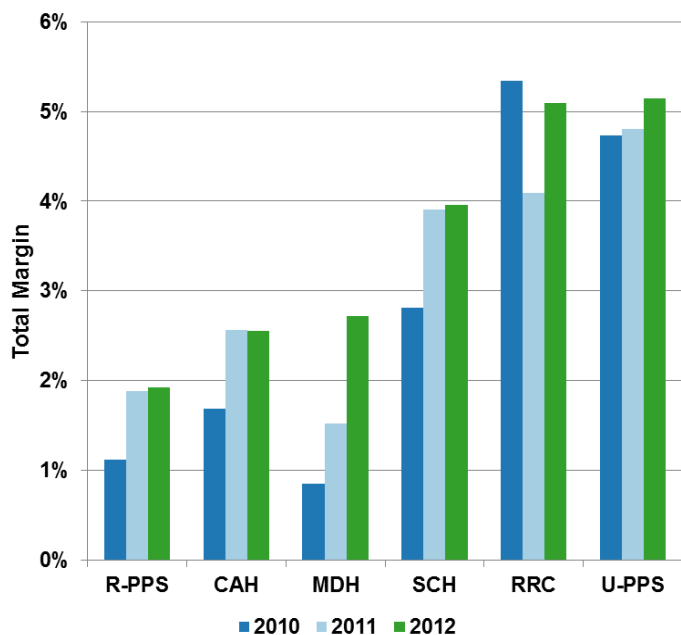


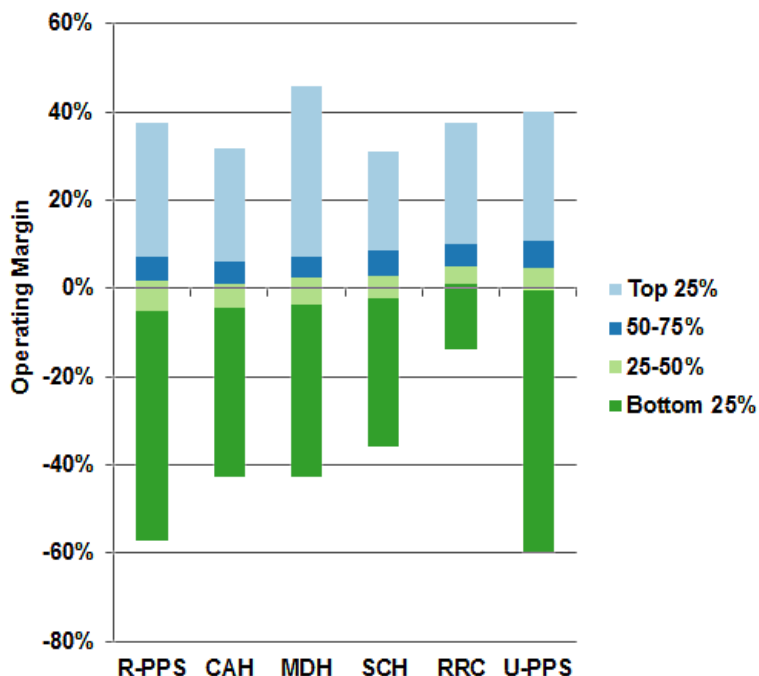
Figure 2 shows that between 2010 and 2012, U-PPS hospitals had the highest median total margin in 2011 and 2012. RRCs had the highest median in 2010. In

contrast, R-PPS had the lowest median total margin in 2012 and MDHs had the lowest median in 2011 and 2010. Across all payment classifications, the 2012 median total margin is greater than the 2010 median, with the exception of RRCs.

OPERATING MARGIN

Operating margin measures the control of operating expenses relative to operating revenue. A positive value indicates an operating profit because operating revenue is greater than operating expenses. High positive values often indicate greater patient volumes, which drive down the cost per unit of service. A negative value indicates an operating loss because operating revenue is less than operating expenses.

Figure 3. 2012 Operating Margin Distribution* by Hospital Type



*Outlier hospitals ($\leq 1\%$ or $\geq 99\%$) were excluded.

Figure 3 shows that in 2012, RRCs and U-PPS hospitals had the highest median operating margins. In contrast, R-PPS hospitals and CAHs had the lowest median operating margin. Again, there was notable variability in operating margins for all groups except RRCs. PPS hospitals, in particular, had large negative variability in the lowest quartile.

Figure 4. 2010-12 Medians for Operating Margin

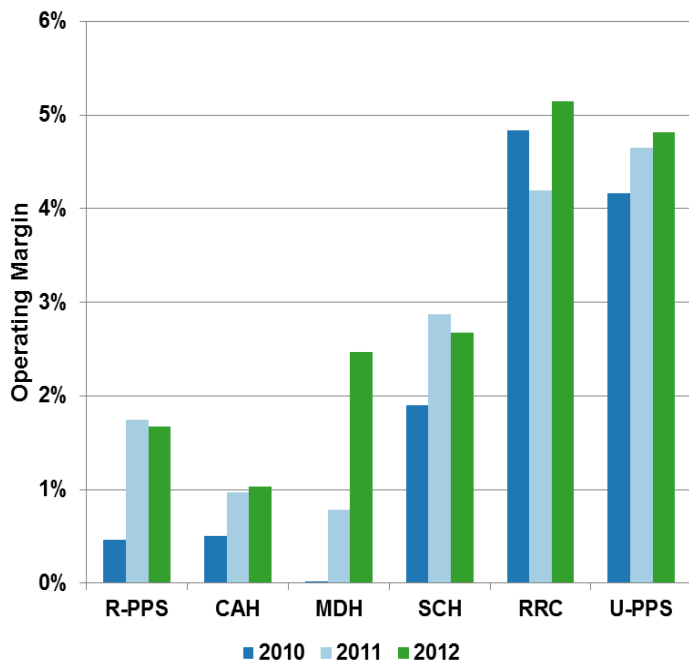


Figure 4¹ shows that between 2010 and 2012, RRCs had the highest median operating margin in both 2010 and 2012, while U-PPS had the highest median in 2011. In contrast, CAHs had the lowest median operating margin in 2012, while MDHs had the lowest median in 2011 and 2010. Across all payment classifications, the 2012 median operating margin was greater than the 2010 median.

RETURN ON EQUITY

Return on equity measures the net income generated by equity investment. In a not-for-profit entity, the equity is called net assets and is the sum of the government grants, philanthropic contributions, and accumulated earnings of the hospital. In a for-profit entity, the equity is the value of the owner-supplied capital. A positive value indicates net income was generated by equity investment. High positive values often indicate opportunity for debt financing. A negative value indicates a loss was generated by equity investment. The range of values for this ratio is greater than other profitability ratios because many small hospitals have small or even negative equity investment values. Furthermore, the actual equity value may not be reflected in its net assets if the hospital is part of a larger system.

In 2012, Table 1 shows that U-PPS hospitals had the highest median and Q3 return on equity, while RRCs had the highest Q1 return on equity. In contrast, MDHs had the lowest Q1, median and Q3 return on equity.

Table 1. 2012 Return on Equity Percentiles

Percentile	R-PPS	CAH	MDH	SCH	RRC	U-PPS
1%	-240.5%	-220.0%	-168.0%	-94.4%	-62.3%	-331.3%
25% Q1	-1.7%	-2.6%	-3.2%	0.0%	2.6%	2.5%
50% Median	7.1%	5.6%	4.3%	6.2%	8.2%	10.4%
75% Q3	18.9%	14.2%	11.1%	13.3%	15.2%	23.1%
99%	235.9%	182.7%	287.6%	274.2%	142.7%	474.6%
Cost reports	351	1236	179	312	279	1988

CASH FLOW MARGIN

Cash flow margin measures the ability to generate cash flow from providing patient care services. A positive value indicates that cash inflows are greater than cash outflows.

Table 2. 2012 Cash Flow Margin Percentiles

Percentile	R-PPS	CAH	MDH	SCH	RRC	U-PPS
1%	-57.3%	-35.7%	-34.2%	-26.5%	-9.6%	-59.6%
25% Q1	0.8%	0.8%	1.8%	2.0%	6.1%	3.6%
50% Median	6.0%	7.0%	6.8%	7.8%	9.9%	9.0%
75% Q3	12.6%	12.0%	11.5%	13.6%	14.5%	15.2%
99%	36.1%	35.2%	35.9%	35.2%	40.1%	44.5%
Cost reports	354	1239	179	313	280	1990

In 2012, Table 2 shows that U-PPS hospitals had the highest Q3 cash flow margin, while RRCs had the highest median and Q1 cash flow margin. In contrast, MDHs had the lowest Q3 cash flow margin, while R-PPSs had the lowest median and Q1 (tied with CAHs) cash flow margin.

DISCUSSION

This study compares the profitability of urban and rural hospitals paid under PPS to rural hospitals with special Medicare payment provisions over a recent three year period. There are three principal findings:

- Urban hospitals paid under PPS and Rural Referral Centers had consistently the highest profitability in comparison to hospitals with other payment classifications. This finding is likely influenced by the fact that U-PPS hospitals and RRCs are the largest of the types of hospitals. Relatively more

patient activity generates higher revenue and spreads fixed costs over more patients. U-PPS hospitals and RRCs may also be better able to maintain an effective mix of medical, nursing, and other staff to meet local patient demand.

- Rural hospitals paid under PPS or as Critical Access Hospitals generally had the lowest profitability in comparison to hospitals with other payment classifications. This finding is likely influenced by the fact that R-PPS hospitals and CAHs are the smallest among the types of hospitals. Relatively less patient activity generates less revenue and spreads fixed costs over fewer patients in comparison with larger hospitals. R-PPS hospitals and CAHs may also have more difficulty maintaining an effective mix of medical, nursing, and other staff to meet local patient demand.
- Across all hospital payment classifications, profitability improved between 2010 and 2012. These trends likely reflect the improving economy after the 2007-2009 recession.

The hospitals under the greatest financial pressure have greater risk of closing and warrant the greatest concern by policy makers and those concerned with access to hospital care by rural residents. This study did not investigate the reasons for the poor profitability, but they may include patient volume, payer mix, geographic location or the payment mechanism itself.

STUDY METHOD

The research design is based on standard financial statement analysis. Project data came from the Healthcare Cost Report Information System (HCRIS) and continues previous work by the Center on rural hospital profitability.² Longitudinal files were created that included all of the Medicare cost report worksheets required for provider identification and calculation of financial indicators. The financial indicator definitions and the Medicare cost report account codes for them were verified with a technical adviser and compared to other sources of financial ratios. An analytical file with the Medicare cost report data was created for each hospital with at least 360 days in a cost report period. There were missing data for some indicators and for some hospitals; therefore, the number of hospital cost

reports used to calculate an indicator median was sometimes less than the total number of hospital cost reports.

The definition of each profitability ratio is shown in the table below.

Ratio	Definition
Total margin	$\frac{\text{Net income}}{\text{Total revenue}}$
Operating margin	$\frac{\text{Net operating income}}{\text{Operating revenue}}$
Return on equity	$\frac{\text{Net income}}{\text{Net assets}}$
Cash flow margin	$\frac{\text{Net income} - (\text{contributions, investments, and appropriations}) + \text{depreciation} + \text{interest}}{\text{Net patient revenue} + \text{other income} - (\text{contributions, investments, and appropriations})}$

1. In Figure 4 the value for MDH in 2010 was 0.02%, which is effectively zero.
2. Pink, G., Slifkin, R., Howard, H.A., *A Financial Comparison of Rural Hospitals With Special Medicare Payment Provisions to Hospitals Paid Under Prospective Payment* (2010).

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