



Geographic Variation in the Profitability of Urban and Rural Hospitals

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OVERVIEW

The popular business quote “No margin, no mission” succinctly states the importance of profitability. The notion that if a hospital doesn’t make enough money to keep its doors open, its higher purpose is moot may be a simplistic view, but historic and recent evidence suggest that unprofitability can reduce hospital services and quality, or worse, lead to closure.

Between January 2010 and January 2016, 66 rural hospitals have closed, a majority of them in the South.¹ Understanding where some hospitals are succeeding, compared to those that are not, is important as policy makers try to craft sustainable models of health care for rural areas. Previous studies have shown geographic variation in the

KEY FINDINGS

- Across all census regions and divisions, CAHs and ORHs were less profitable than urban hospitals, particularly in the South.
- Across census divisions, CAHs, ORHs, and urban hospitals in East South Central were less profitable than their counterparts in other divisions. Urban hospitals in the West South Central were the most profitable.
- Across states, the lowest median total margins were for CAHs in Florida and ORHs in Maine. The highest median total margins were for urban hospitals in Alaska.

profitability of critical access hospitals (CAHs)² and also between urban and rural hospitals.³ In addition to noted increases in rural hospital closures, recent studies on the financial condition of safety net hospitals and hospitals affected by the Hospital Readmissions Reduction Program suggest that the geographic variation in hospital profitability may be increasing. A 2014 study found that there is a widening gap between the financial performance of nonprofit safety net hospitals and the performance of other nonprofit hospitals and of for-profit hospitals after the 2007-11 recession, especially in terms of total margins.⁴ The Centers for Medicare & Medicaid Services’ (CMS) Hospital Readmissions Reduction Program reduces Medicare payments for hospitals determined to have “excess” rates of patient readmissions for specific conditions. A fall 2015 study found that the average payment reduction (as a percentage of Medicare payments) for rural hospitals has exceeded that of urban hospitals for all three years (2013, 2014, 2015).⁵

These policy developments, coupled with historical challenges facing rural providers like lower patient volume and poorer and sicker populations, suggest the rural-urban gap in profitability may be exacerbating. To help policy makers, researchers, and communities understand which hospitals are likely to be less profitable, this study describes the current geographic variability of hospital profitability by comparing the 2014 profitability of CAHs,⁶ other rural hospitals (Medicare Dependent Hospitals, Sole Community Hospitals, and rural PPS hospitals, denoted as “ORHs”)⁷ and urban hospitals by census region, census division, and state.⁸

PROFITABILITY ANALYSIS

Total margin measures the control of expenses relative to revenues, and expresses the profit⁹ a hospital makes as a proportion of revenue brought in. For example, a five percent margin means that a hospital makes five cents of profit on every dollar of revenue. Because the total margin is a proportion, two hospitals with the same margin can have vastly different absolute dollars of profit. For example, a hospital with a five percent margin and \$50 million in total revenues will have \$2.5 million in profits, whereas a hospital with the same total margin but only \$5 million in revenue will have only \$250,000 in absolute profit.

Figure 1 shows the 2014 CAH, ORH and urban hospital median total margins by census region. The accompanying Table 1 identifies the number of hospitals for each region. Figures 2-4 show the 2014 total margin distribution by census division for CAHs, ORHs, and urban hospitals, respectively. Appendices 1 and 2 show the 2014 CAH, ORH and urban hospital median total margin by census division and state, respectively.

Figure 1: 2014 CAH, ORH and Urban Median Total Margins by Census Region

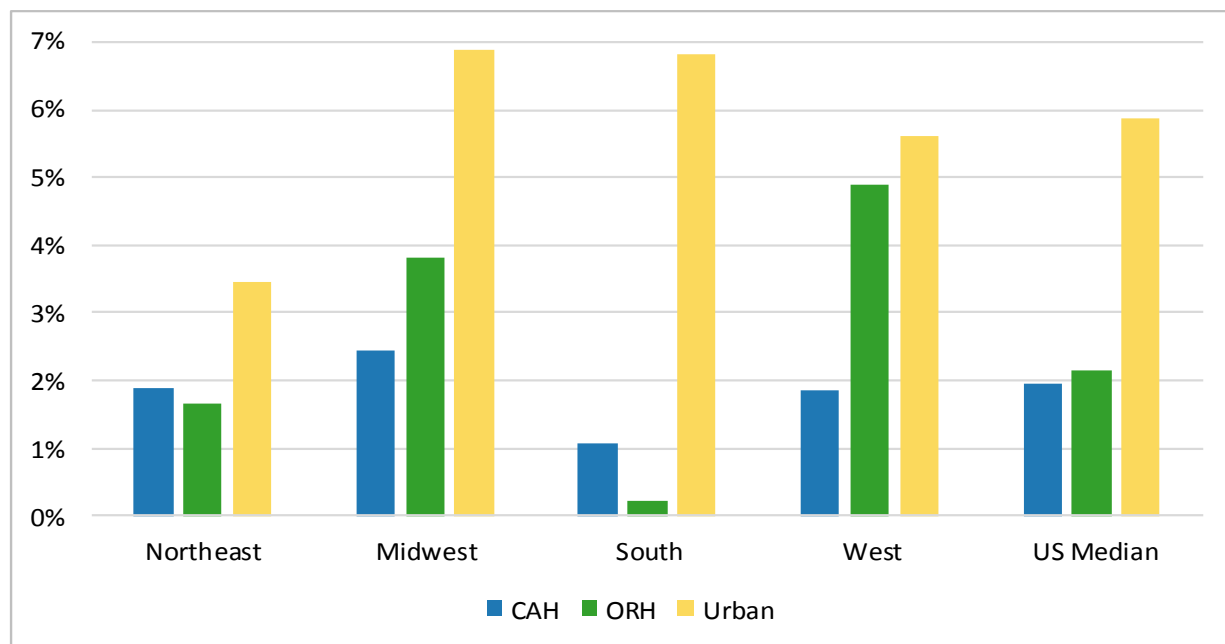


Table 1: Number of Hospital Medicare Cost Reports, Fiscal Year 2014*

	Northeast	Midwest	South	West	US
CAH	61	595	292	251	1199
ORH	93	212	435	113	853
Urban	358	454	748	384	1944
Total	512	1261	1475	748	3996

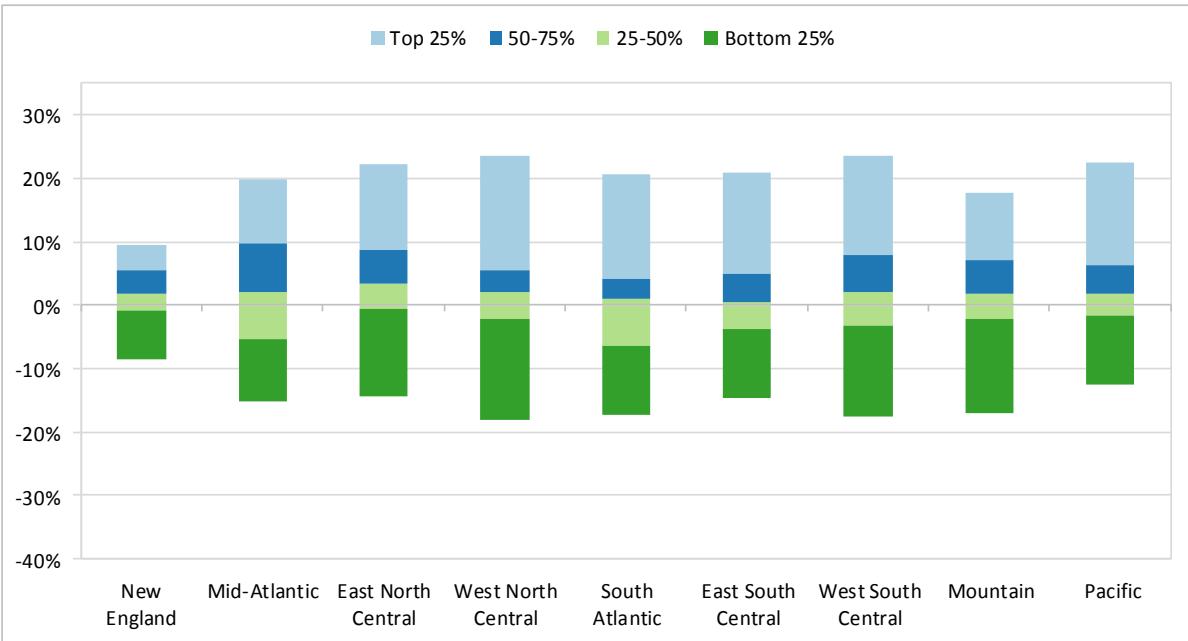
*These are the number of hospitals having total margin values for Medicare Cost Reports falling within fiscal year 2014 and having at least 360 days in production.

Figure 1 and Table 1 show that, across all census regions, CAHs and ORHs were less profitable than urban hospitals, particularly in the South.

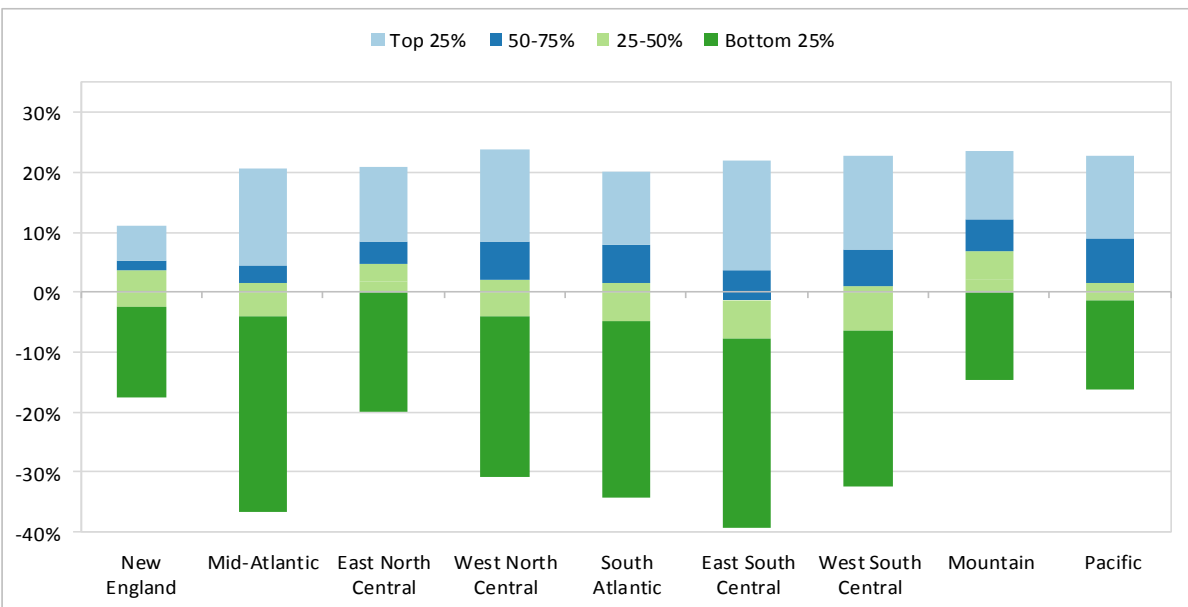
Figures 2-4 and Appendix 1 show that, among CAHs, the highest median total margin was in East North Central (3.35%) and the lowest was in the East South Central (0.38%). Most CAHs had a positive total margin while 37% had negative total margins for fiscal year 2014. Among ORHs, the highest median total margin was in Mountain (6.72%) and the lowest was in East South Central (-1.48%). Thirty-nine percent of ORHs has a negative total margin for fiscal year 2014. Among urban hospitals, the highest median total was in West South Central (8.32%) and the lowest in Mid-Atlantic (3.39%). Only 21% of urban hospitals had a negative total margin for fiscal year 2014.

Appendix 2 shows that among CAHs, the highest median total margins were in Alaska (8.2%), Massachusetts (8.0%), and Nevada (6.9%), and the lowest were in Florida (-6.7%), Mississippi (-2.9%), and Arkansas (-1.4%). Among ORHs, the highest median total margins were in Delaware (14.1%), South Dakota (11.4%), and Maryland (9.0%) and the lowest were in Maine (-2.9%), Tennessee (-2.7%), and Oklahoma (-2.1%). Among urban hospitals, the highest median total margins were in Alaska (22.7%), Utah (17.2%), and Wyoming (15.6%), and the lowest were in Arkansas (0.7%), Mississippi (1.4%), and Alabama (1.6%).

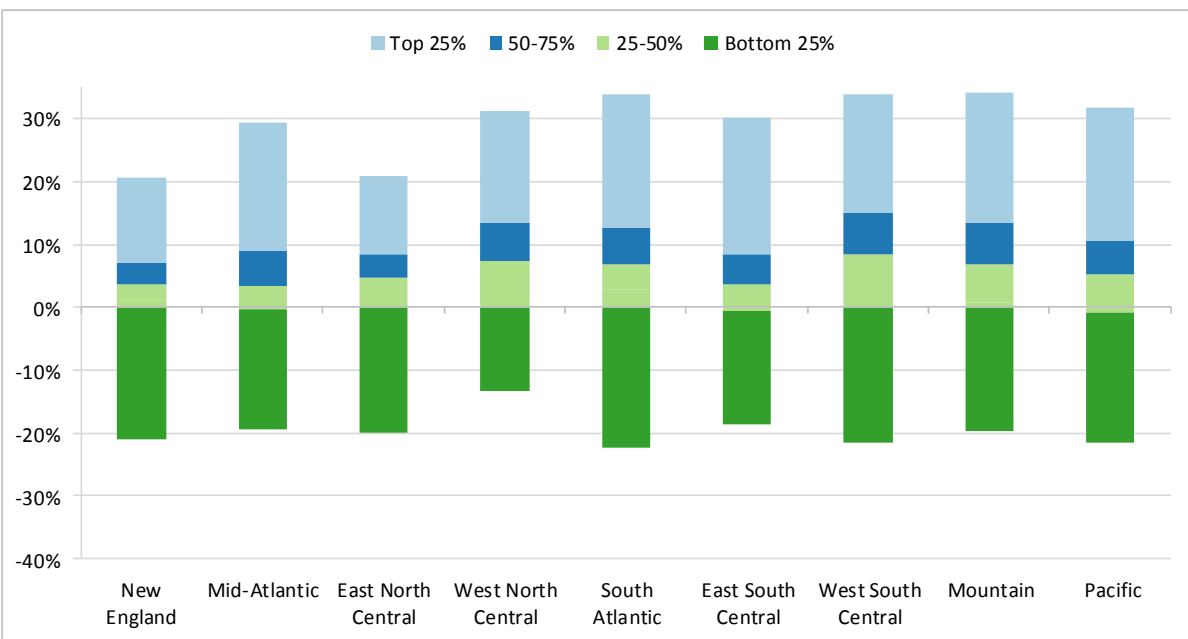
2014 Total Margin Distribution by Census Division



**Figure 2
CAH**



**Figure 3
ORH**



**Figure 4
Urban
PPS**

DISCUSSION

There are three important findings from this study: 1) across all census regions, CAHs and ORHs were less profitable than urban hospitals, particularly in the South; 2) CAHs, ORHs, and urban hospitals in East South Central were less profitable than their counterparts in other census divisions, and 3) across states, the lowest median total margins were for CAHs in Florida and ORHs in Maine, and the highest were for urban-PPS hospitals in Alaska.

There are many reasons for geographic variation in the profitability of urban and rural hospitals: for example, compared to urban hospitals, rural hospitals serve older, poorer, and sicker communities where higher percentages of patients are covered through public insurance programs if they are covered at all.¹⁰ Most rural hospitals are located in the South, the region with the highest rates of poverty, and in the Midwest, the region with the lowest rates of poverty.¹¹ Regardless of the reasons, hospitals under the most financial pressure are at greater risk of closing and warrant the greatest concern of policy makers and communities.

The hospital groups identified in this study as under the most financial pressure may not be well positioned to meet future challenges. These hospitals have financial weaknesses that may make it difficult for them to respond to new realities in the health care delivery system. Major payment reform and industry restructuring brought on by the passage of the Patient Protection and Affordable Care Act (ACA) will put significant pressures on hospitals of all types, but especially on financially weak organizations. Furthermore, the pressures will increase in the next two years: Under the ACA, \$43 billion in Medicaid cuts to the Disproportionate Share Hospital (DSH) program are scheduled, starting with \$2 billion in 2018 and reaching \$8 billion by 2024. This amounts to about two-thirds of the entire DSH program.¹² Thus, it will be critical to assess carefully how the various provisions of the ACA are affecting these hospitals, the care they deliver, and the populations they serve.

STUDY METHOD

The research design is based on standard financial statement analysis. Project data came from the Healthcare Cost Report Information System (HCRIS) and the CMS Fiscal Year Impact Files and continues previous work by the North Carolina Rural Health Research Center on rural hospital profitability.¹³ 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. Observations with missing data for the studied financial indicators as well as those outliers beyond 5% were excluded. As such the number of hospital Cost Reports used in this study is below the actual number of hospitals operating in Fiscal Year 2014. Medicare payment designation was verified using the CMS FY 2014 Impact File. Total margin was defined as net income (Worksheet G-3, line 29) divided by total revenue (Worksheet G-3, lines 3+25).

Appendix 1: 2014 CAH, ORH and Urban Hospital Median Total Margin by Census Division

Region	Division	CAH Total Margin	ORH Total Margin	Urban Hospital Total Margin
1 Northeast	1 New England	1.89% (39)	3.56% (23)	3.61% (104)
	2 Mid-Atlantic	2.17% (22)	1.51% (70)	3.39% (254)
2 Midwest	3 East North Central	3.35% (191)	4.76% (106)	6.72% (334)
	4 West North Central	1.93% (404)	2.03% (106)	7.46% (120)
3 South	5 South Atlantic	0.87% (85)	1.46% (134)	6.73% (357)
	6 East South Central	0.38% (73)	-1.48% (139)	3.57% (104)
	7 West South Central	2.01% (134)	1.01% (162)	8.32% (287)
4 West	8 Mountain	1.90% (145)	6.72% (68)	6.83% (113)
	9 Pacific	1.88% (106)	1.63% (45)	5.25% (271)
Total Cost Reports		1,199	853	1,944

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- Although there are some CAHs that are located in metro areas, we consider all CAHs “rural hospitals”.
- Rural Referral Centers are excluded from ORHs because 94% of RRCs are located in large urban areas, and they are much larger than other rural hospitals (median bed size of 140 beds), performing more like urban hospitals.
- For details on Census divisions and regions, see https://www.census.gov/geo/reference/gtc/gtc_census_divreg.html.
- For not-for-profit hospitals, the difference between revenues and expenses is technically termed “change in net assets,” but the term “profit” is used for all hospitals (see <http://www.accountingcoach.com/nonprofit-accounting/explanation/2>).
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Appendix 2: 2014 CAH, ORH and Urban Hospital Median Total Margin by State

State	CAH Total Margin	ORH Total Margin	Urban Hospital Total Margin	State	CAH Total Margin	ORH Total Margin	Urban Hospital Total Margin
Alabama	-1.2%	-2.1%	1.6%	Montana	-0.1%	5.4%	6.8%
Alaska	8.2%	2.3%	22.7%	Nebraska	4.3%	7.6%	11.8%
Arizona	2.8%	6.4%	2.9%	Nevada	6.9%	3.4%	4.7%
Arkansas	-1.4%	-0.1%	0.7%	New Hampshire	2.6%	4.2%	8.5%
California	1.8%	1.1%	4.5%	New Jersey	N/A	6.5%	4.6%
Colorado	1.8%	7.3%	7.8%	New Mexico	6.4%	3.1%	3.7%
Connecticut	N/A	0.2%	5.8%	New York	2.1%	0.6%	2.2%
Delaware	N/A	14.1%	13.8%	North Carolina	0.9%	3.0%	8.5%
D.C.	N/A	N/A	7.6%	North Dakota	-0.8%	5.8%	4.1%
Florida	-6.7%	-0.1%	8.1%	Ohio	4.3%	5.0%	7.2%
Georgia	-0.5%	-1.6%	4.3%	Oklahoma	3.3%	-2.1%	9.2%
Hawaii	6.6%	5.9%	6.2%	Oregon	1.9%	5.5%	7.0%
Idaho	3.8%	8.3%	10.7%	Pennsylvania	2.1%	1.7%	5.4%
Illinois	3.6%	4.0%	3.6%	Rhode Island	N/A	N/A	2.6%
Indiana	4.0%	5.9%	11.2%	South Carolina	0.2%	0.3%	8.7%
Iowa	2.9%	2.5%	10.9%	South Dakota	2.0%	11.4%	14.8%
Kansas	-1.3%	0.7%	6.9%	Tennessee	2.3%	-2.7%	5.9%
Kentucky	0.5%	0.5%	7.3%	Texas	1.3%	2.8%	9.3%
Louisiana	4.3%	1.7%	6.6%	Utah	6.6%	8.7%	17.2%
Maine	1.1%	-2.9%	1.7%	Vermont	1.3%	5.1%	5.2%
Maryland	N/A	9.0%	5.0%	Virginia	1.6%	0.8%	8.4%
Massachusetts	8.0%	4.2%	3.2%	Washington	0.5%	1.1%	4.8%
Michigan	1.8%	3.8%	5.3%	West Virginia	2.4%	-0.6%	3.0%
Minnesota	3.3%	2.3%	8.6%	Wisconsin	4.7%	5.2%	9.0%
Mississippi	-2.9%	-1.0%	1.4%	Wyoming	3.7%	8.1%	15.6%
Missouri	0.8%	0.8%	3.9%	U.S.	2.0%	2.2%	5.9%