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Rural Policy Brief

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Financial Performance of Rural and Urban Hospitals in the Medicare Shared Savings Program

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Purpose

In this policy brief, we present financial performance trends of hospitals who participated in Medicare's Shared Savings Program (SSP) from 2011 to 2018. We compare trends in six financial outcomes between SSP and non-SSP hospitals over time and differences in these trends among rural (non-metropolitan) and urban (metropolitan) hospitals.

Key Findings

- Hospitals participating in the SSP had, on average, higher outpatient revenue, higher inpatient revenue, higher net patient revenue, higher operating margins, lower inpatient revenue share, and higher Medicare revenue share at the baseline year 2011 and throughout the study period.
- Compared to their respective non-SSP counterparts, rural SSP hospitals experienced a higher percentage increase in outpatient revenue than urban SSP hospitals.
- Rural hospitals participating in SSP experienced higher increases in inpatient revenue and net patient revenue than rural hospitals not participating in SSP. In contrast, urban hospitals participating in SSP experienced lower increases in these measures than urban hospitals not participating in SSP.

Background

As a value-based payment model, an accountable care organization (ACO) is expected to curb cost growth and improve care quality by incorporating organizational accountability and pay-for-performance arrangements. The SSP, through which the Centers for Medicare & Medicaid Services (CMS) enters into participation agreements with ACOs to provide care to assigned Medicare beneficiaries, is one of the most widespread value-based programs. A growing number of hospitals have participated in SSP ACOs since the program launched in 2012. In 2021, 1,397 prospective payment system (PPS) hospitals and 405 Critical Access Hospitals (CAHs) participated in 477 SSP ACOs that served 10.7 million assigned Medicare beneficiaries [1]. There is little empirical research on financial performance among hospitals participating in SSP. The question is whether SSP participation poses a risk to rural hospitals in particular. In previously published work, we used these data to

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test for significant differences between those groups. We used an event-study design to compare changes over time, controlling for "hospital and year fixed effects and organizational and service-area characteristics." The results showed that SSP participation "was associated with differential increases in net patient revenue." Details can be obtained from the article published in 2023.[2] In this *Policy Brief*, we present financial performance data comparing rural hospitals participating in SSP to a comparison group of rural hospitals not in SSP ACOs.

Data and Methods

We developed a longitudinal dataset containing information on hospital financial outcomes, geographic locations, and SSP participation from 2011 to 2018. Hospital financial outcomes and geographic locations were obtained from annual CMS Hospital Cost Reports [3]. SSP participation status was identified each year from the annual SSP ACO Provider-level Research Identifiable File (RIF) [4]. A hospital was classified as an SSP hospital if it participated in an SSP ACO for at least one year between 2012 to 2018. All datasets were linked at the hospital level using the Medicare provider number.

We measured hospital financial performance using six outcome variables: *outpatient revenue*, *inpatient revenue*, *net patient revenue* (total patient revenue, which equals the sum of inpatient and outpatient revenue, minus contractual allowance and discount), *operating margin* (the ratio of net income, which equals net patient revenue minus total operating expenses, to net patient revenue), *inpatient revenue share* (the ratio of inpatient revenue to total patient revenue), and *Medicare revenue share* (the ratio of Medicare revenue to total patient revenue). Rural-Urban Continuum Codes (RUCC) were used to classify hospital geographic locations: those located in counties with RUCC 4-9 were classified as rural hospitals and those in counties with RUCC 1-3 were classified as urban hospitals [5].

Our sample included all non-federal general medical and surgical hospitals operating in the 50 U.S. states and the District of Columbia. We excluded 40 hospitals with missing values. Our final sample included 4,547 hospitals and 33,050 hospital-year observations (i.e., the combination of number of hospitals over the years of the study).

Results

Between 2011 and 2018, 1,704 unique hospitals participated in the SSP for at least one year, accounting for 37.5 percent of the total sample. Among these SSP hospitals, 1,024 were located in urban counties (39.6 percent of the 2,586 urban hospitals) and 680 hospitals were located in rural counties (34.7 percent of the 1,961 rural hospitals).

Figure 1 shows the unadjusted trends of six financial outcomes between hospitals that participated in the SSP (SSP hospitals) and those that have never participated in the program (non-SSP hospitals). The trends from 2011 to 2018 suggest that inpatient revenue, outpatient patient revenue, and net patient revenue increased over time in both SSP and non-SSP hospitals. Inpatient revenue share and Medicare revenue share both decreased during the same period. Compared to non-SSP hospitals, SSP hospitals had higher outpatient revenue, higher inpatient revenue, higher net patient revenue, higher operating margins, lower inpatient revenue share, and higher Medicare revenue share at the baseline year 2011 and throughout the study period. To assess how the differences in financial outcomes between SSP and non-SSP hospitals [5] changed over time, we present the group averages and the differences between group averages in Appendix

Table A1. In the total sample, the difference in average outpatient revenue between SSP and non-SSP hospitals increased from $62 million in 2011 to $83.1 million in 2018. The difference in average inpatient revenue decreased from $45.8 million to $26.1 million during the same period. The differences in average net patient revenue, average operating margins, average inpatient revenue share, and average Medicare revenue share fluctuated over time.

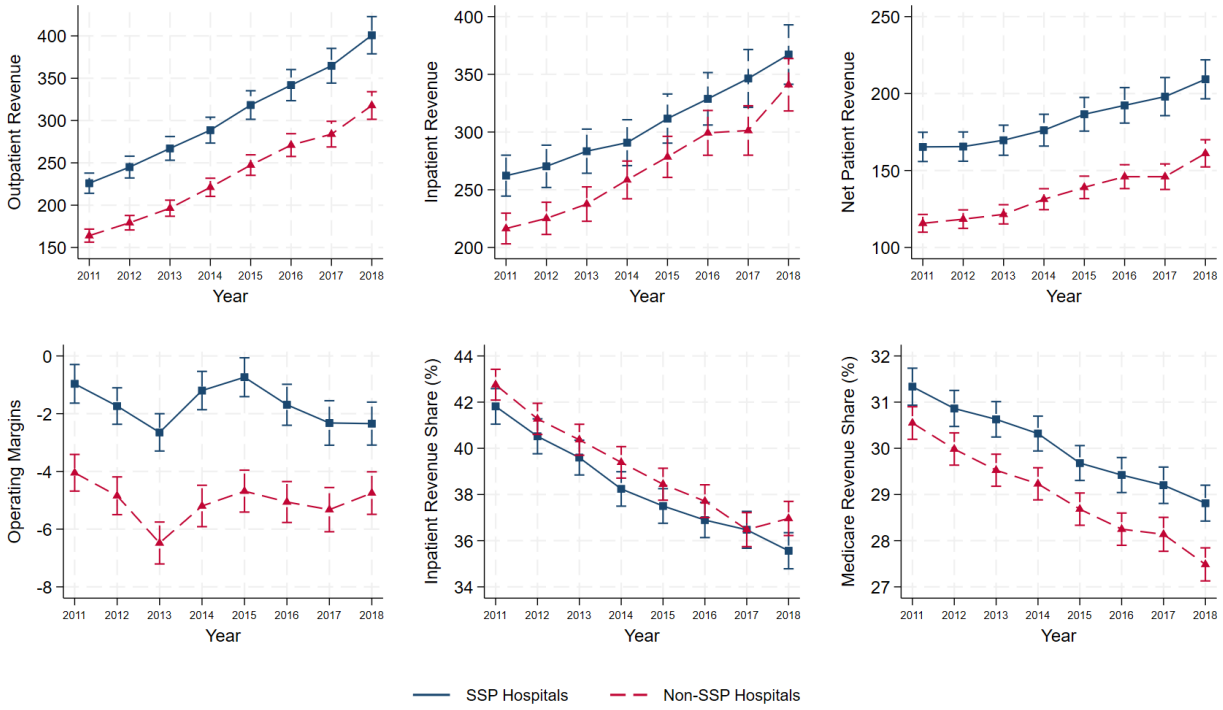

Figure 1. Unadjusted Trends of Financial Outcomes All Hospitals (SSP vs. non-SSP)

Figures 2 and 3 show unadjusted trends of financial outcomes between SSP and non-SSP hospitals separately for the rural and urban samples (detailed data are presented in Appendix Table A1). All financial outcomes showed similar overall trends as those shown in the total sample. However, several findings are noteworthy when comparing the differences between SSP and non-SSP hospitals within the urban and rural subsamples. First, the gap in average outpatient revenue between SSP and non-SSP hospitals became wider in rural hospitals than in urban hospitals ($Difference_{2018}$-$Difference_{2011}$ = $16.1 million in rural hospitals, an 86.8 percent increase from the baseline difference; compared to $6.3 million in urban hospitals, an 8.8 percent increase from the baseline difference). Second, the difference in average inpatient revenue between SSP and non-SSP hospitals increased in rural hospitals from $9.5 million in 2011 to $12.5 million in 2018 (widening the gap between SSP and non-SSP hospitals) but decreased in urban hospitals from $39.3 million in 2011 to -$14.2 million in 2018 (closing the gap between SSP and non-SSP hospitals). In fact, at the end of the period, urban SSP hospitals had lower average inpatient revenue than urban non-SSP hospitals. Third, the difference in average net patient revenue between SSP and non-SSP hospitals increased over time in rural hospitals from $10.8 million in 2011 to $12.3 million in 2018 but decreased in urban hospitals from $62.3 million in 2011 to $53.3 million in 2018. We found

no persistent patterns when comparing trends in other financial outcomes across urban and rural hospitals.

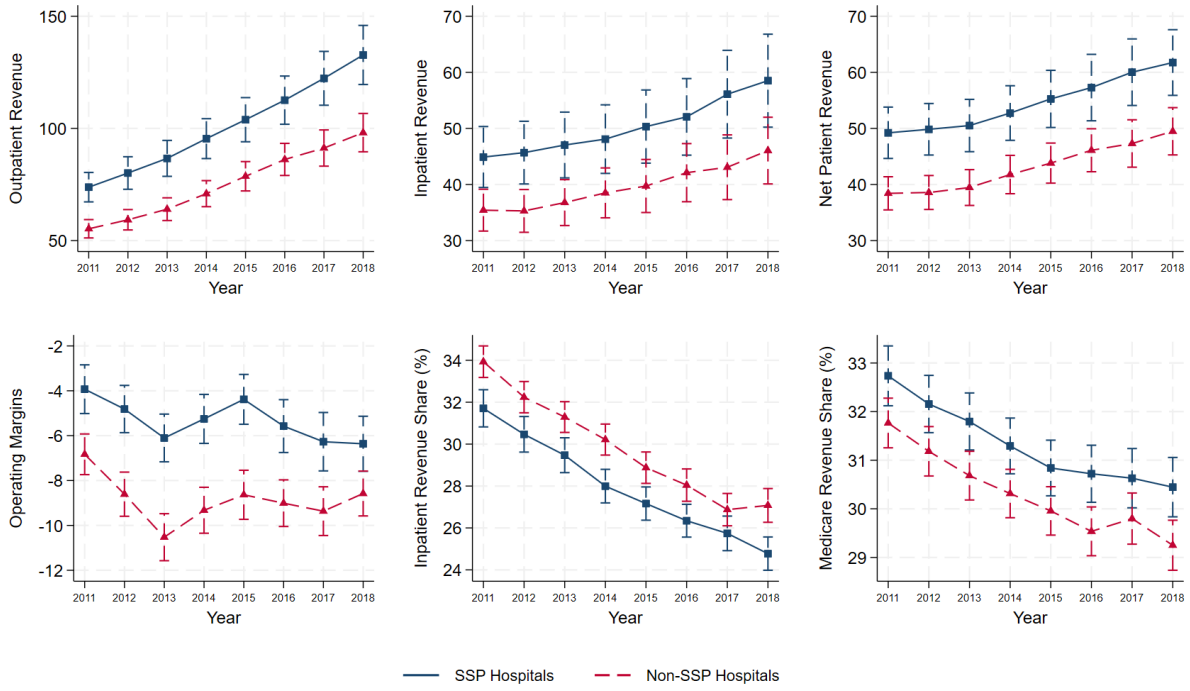

Figure 2. Unadjusted Trends of Financial Outcomes in Rural Hospitals (SSP vs. non-SSP)

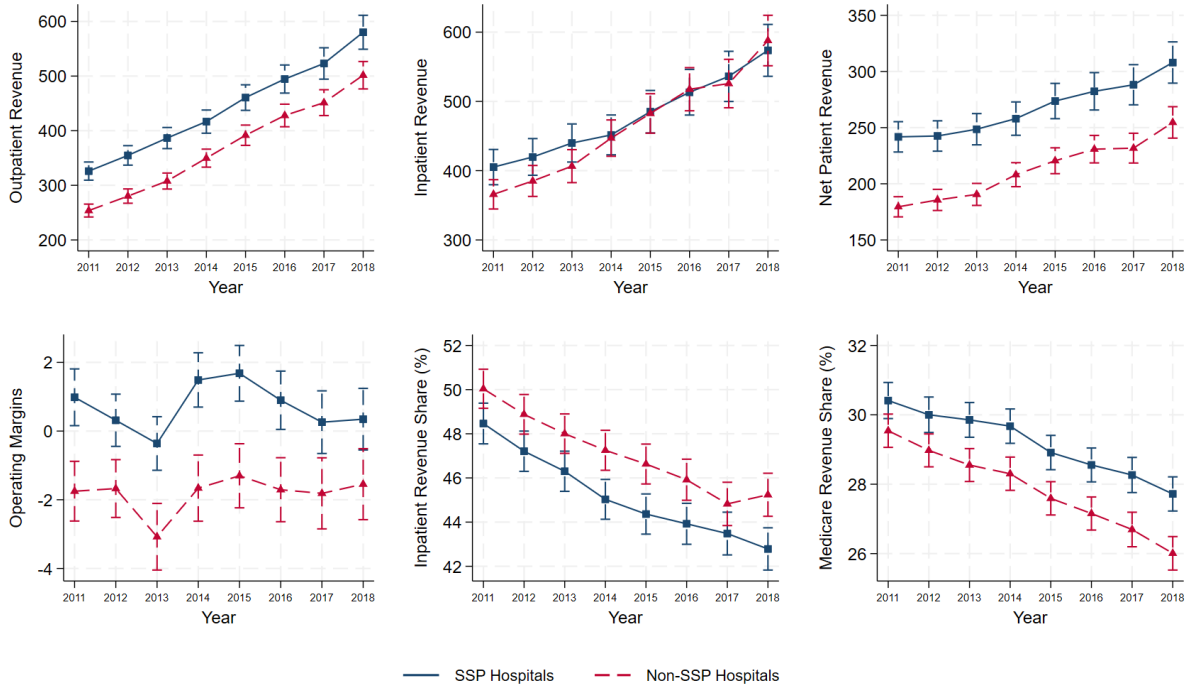

Figure 3. Unadjusted Trends of Financial Outcomes in Urban Hospitals (SSP vs. non-SSP)

Discussion

We found that SSP hospitals posted more favorable financial positions than non-SSP hospitals in the baseline year 2011 and throughout the study period. The unadjusted trends are largely parallel between SSP and non-SSP hospitals in both the rural and urban samples for most financial outcomes except that in the urban sample, non-SSP hospitals' average inpatient revenue increased faster than, and surpassed that of, SSP hospitals towards the end of our study period. We also found that rural hospitals participating in SSP experienced higher increases in inpatient, outpatient, and net patient revenue than rural hospitals not participating in SSP.

For rural hospitals, the data presented in this *Policy* Brief at a minimum demonstrate there was no decline from previous trends in patient revenue and operating margins. These findings may allay rural hospital leaders' concerns about potential revenue loss and adverse financial impact due to SSP participation. At best, there may have been some improvement in measures of inpatient revenue (total and net). We cannot, based on the data presented here, attribute changes to SSP participation. However, previous examination of the data using event-study difference-in-difference analysis, did find differential increases in those measures between participating and non-participating hospitals [1]. Given potential for shared savings if total Medicare expenditures are under targets, there may be financial reasons for rural hospitals to consider participating in SSP ACOs.

Appendix

Table A1. Comparing Average Financial Outcomes by Year, SSP Participation, and Rurality.

Year	Total			Rural			Urban		
	Non-SSP	SSP	Difference	Non-SSP	SSP	Difference	Non-SSP	SSP	Difference
Outpatient Revenue (Million)									
2011	164.0	226.0	62.0	55.3	73.8	18.5	253.8	326.1	72.3
2012	179.3	245.0	65.8	59.3	80.1	20.9	280.3	354.8	74.5
2013	196.4	267.1	70.7	64.0	86.6	22.6	307.8	386.6	78.8
2014	221.1	288.6	67.5	70.9	95.4	24.5	349.8	416.7	66.9
2015	247.4	318.3	71.0	78.7	103.9	25.2	391.7	460.7	69.0
2016	271.0	341.9	70.9	86.2	112.6	26.4	427.9	494.6	66.7
2017	283.9	364.7	80.8	91.3	122.3	31.1	451.4	523.1	71.8
2018	317.8	400.8	83.1	98.1	132.8	34.6	501.6	580.3	78.6
$Difference_{2018}$-$Difference_{2011}$			21.1			16.1			6.3
Inpatient Revenue (Million)									
2011	216.4	262.2	45.8	35.4	44.9	9.5	365.8	405.2	39.3
2012	225.2	270.3	45.1	35.3	45.7	10.4	385.1	419.8	34.7
2013	237.6	283.4	45.8	36.8	47.0	10.3	406.5	439.9	33.4
2014	258.5	290.8	32.3	38.5	48.1	9.6	447.0	451.6	4.6
2015	278.5	311.7	33.2	39.7	50.3	10.6	482.6	485.1	2.5
2016	299.3	328.8	29.5	42.1	52.1	10.0	517.6	513.2	-4.4
2017	301.3	346.4	45.1	43.1	56.1	13.0	525.7	536.1	10.4
2018	341.0	367.1	26.1	46.1	58.5	12.5	587.9	573.7	-14.2
$Difference_{2018}$-$Difference_{2011}$			-19.6			3.0			-53.5
Net Patient Revenue (Million)									
2011	115.7	165.4	49.7	38.4	49.2	10.8	179.5	241.8	62.3
2012	118.4	165.6	47.1	38.6	49.8	11.3	185.6	242.6	57.0
2013	121.5	169.7	48.2	39.5	50.5	11.1	190.5	248.6	58.0
2014	131.4	176.2	44.8	41.8	52.7	11.0	208.1	258.0	49.9
2015	139.1	186.6	47.5	43.8	55.3	11.4	220.5	273.7	53.2

Year	Total			Rural			Urban		
	Non-SSP	SSP	Difference	Non-SSP	SSP	Difference	Non-SSP	SSP	Difference
2016	146.0	192.3	46.3	46.1	57.3	11.2	230.8	282.3	51.5
2017	146.0	198.0	52.0	47.3	60.0	12.7	231.7	288.2	56.4
2018	161.2	209.3	48.1	49.5	61.8	12.3	254.6	308.0	53.3
$Difference_{2018}$-$Difference_{2011}$			-1.6			1.5			-8.9
Operating Margins									
2011	-4.1	-1.0	3.1	-6.8	-3.9	2.9	-1.8	1.0	2.7
2012	-4.8	-1.7	3.1	-8.6	-4.8	3.8	-1.7	0.3	2.0
2013	-6.5	-2.7	3.8	-10.5	-6.1	4.4	-3.1	-0.4	2.7
2014	-5.2	-1.2	4.0	-9.3	-5.3	4.1	-1.7	1.5	3.2
2015	-4.7	-0.7	3.9	-8.6	-4.4	4.3	-1.3	1.7	3.0
2016	-5.1	-1.7	3.4	-9.0	-5.6	3.4	-1.7	0.9	2.6
2017	-5.3	-2.3	3.0	-9.4	-6.3	3.1	-1.8	0.3	2.1
2018	-4.8	-2.3	2.4	-8.6	-6.4	2.2	-1.6	0.4	1.9
$Difference_{2018}$-$Difference_{2011}$			-0.7			-0.7			-0.8
Inpatient Revenue Share (%)									
2011	42.8	41.8	-0.9	33.9	31.7	-2.2	50.0	48.5	-1.6
2012	41.3	40.5	-0.8	32.2	30.5	-1.8	48.9	47.2	-1.7
2013	40.4	39.6	-0.8	31.3	29.5	-1.8	48.0	46.3	-1.7
2014	39.4	38.2	-1.2	30.2	28.0	-2.2	47.3	45.0	-2.2
2015	38.5	37.5	-1.0	28.9	27.2	-1.7	46.6	44.4	-2.3
2016	37.7	36.9	-0.8	28.0	26.4	-1.7	45.9	43.9	-2.0
2017	36.5	36.5	0.0	26.9	25.7	-1.1	44.8	43.5	-1.3
2018	37.0	35.6	-1.4	27.1	24.8	-2.3	45.2	42.8	-2.5
$Difference_{2018}$-$Difference_{2011}$			-0.5			-0.1			-0.9
Medicare Revenue Share (%)									
2011	30.6	31.3	0.8	31.8	32.7	1.0	29.5	30.4	0.9
2012	30.0	30.9	0.9	31.2	32.2	1.0	29.0	30.0	1.0
2013	29.5	30.6	1.1	30.7	31.8	1.1	28.6	29.9	1.3
2014	29.2	30.3	1.1	30.3	31.3	1.0	28.3	29.7	1.4

Year	Total			Rural			Urban		
	Non-SSP	SSP	Difference	Non-SSP	SSP	Difference	Non-SSP	SSP	Difference
2015	28.7	29.7	1.0	30.0	30.8	0.9	27.6	28.9	1.3
2016	28.3	29.4	1.2	29.5	30.7	1.2	27.2	28.6	1.4
2017	28.1	29.2	1.1	29.8	30.6	0.8	26.7	28.3	1.6
2018	27.5	28.8	1.3	29.3	30.5	1.2	26.0	27.7	1.7
$Difference_{2018}$-$Difference_{2011}$			0.5			0.2			0.8
No. of Hospitals	2,843	1,704		1,278	680		1,565	1,024	
No. of Hospital-Year	19,938	13,112		9,139	5,226		10,799	7,886	

References and Endnotes

[1] CMS. 2021. Shared Savings Program Fast Facts. https://www.cms.gov/files/document/2021-shared-savings-program-fast-facts.pdf. Last Accessed, October 31, 2022

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[4] CMS. 2022. Medicare Shared Savings Program Accountable Care Organizations (ACO) Provider-level RIF. https://resdac.org/cms-data/files/share-saving-program-aco-provider-level. Last Accessed, October 31, 2022.

[5] US Department of Agriculture. 2020. Rural-Urban Continuum Codes. https://www.ers.usda.gov/data-products/rural-urban-continuum-codes.aspx. Last Accessed, October 31, 2022.

[6] The difference in an average financial outcome between SSP and non-SSP hospitals corresponds to the gap between the two groups' trend lines in Figure 1.

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