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Variation In Health Spending Growth For The Privately Insured From 2007 To 2014

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ABSTRACT **We examined the growth in health spending on people with employer-sponsored private insurance in the period 2007–14. Our analysis relied on information from the Health Care Cost Institute data set, which includes insurance claims from Aetna, Humana, and UnitedHealthcare. In the study period private health spending per enrollee grew 16.9 percent, while growth in Medicare spending per fee-for-service beneficiary decreased 1.2 percent. There was substantial variation in private spending growth rates across hospital referral regions (HRRs): Spending in HRRs in the tenth percentile of private spending growth grew at 0.22 percent per year, while HRRs in the ninetieth percentile experienced 3.45 percent growth per year. The correlation between the growth in HRR-level private health spending and growth in fee-for-service Medicare spending in the study period was only 0.211. The low correlation across HRRs suggests that different factors may be driving the growth in spending on the two populations.**

From 1960 to 2013 US health care spending increased by 8.1 percent per year, on average, in real terms.[1] Over the past decade there has been a widely noted slowdown in Medicare spending.[2] By contrast, during the same period private insurance premiums have risen dramatically.[3] Unfortunately, while there are rich data on the variation and growth in fee-for-service Medicare spending across hospital referral regions (HRRs), much less is known about the variation and growth in health spending on the privately insured. Existing state-level and national data on insurance premiums offer a rough estimate on how health spending on the privately insured has grown over time. However, a deeper analysis of insurance claims data is necessary to offer more precise documentation of the patterns of spending on people with private health insurance.

While recent work has used insurance claims data to analyze cross-sectional variation in health spending on people with employer-sponsored insurance, much less is known about growth in private health spending over time.[4–6] For example, the 2013 Institute of Medicine report on variation in health spending briefly explored issues related to spending growth but did not look at variation in growth rates across the US.[7] Until now, the strongest analysis of the growth in commercial spending, by Michael Chernew and colleagues, used data for 1996–2006 and found that commercial spending growth across HRRs had a correlation with growth in fee-for-service Medicare spending of 0.20.[5]

We extended this earlier work by analyzing growth in health spending on people with employer-sponsored commercial health insurance in 2007–14 and documenting the variation in growth rates across HRRs. We began by analyzing the overall growth in health spending on the commercially insured during 2007–14, using the Health Care Cost Institute (HCCI) data

set—which is composed of claims data from Aetna, Humana, and UnitedHealthcare, three of the five largest health insurers in the US. We then documented the variation in growth rates in commercial health spending across HRRs. Finally, we correlated the HRR-level growth in commercial spending per enrollee in employer-sponsored coverage with spending growth on fee-for-service Medicare beneficiaries, and we identified HRRs that had low and high spending growth across both populations. This study is the first to characterize the variation in growth rates in health spending on the privately insured across HRRs.

Ultimately, crafting effective public policy requires a better understanding of the variation in growth rates in both Medicare and private health spending across the US. Moreover, it is critical to understand the extent to which fee-for-service Medicare and private health spending have had parallel growth across HRRs over recent years. Understanding the extent to which spending growth is correlated between fee-for-service Medicare and private employer-sponsored insurance sheds light on the extent to which different factors may be driving growth across the two populations and whether payer-specific policies are necessary to slow the growth of health spending in the US.

Study Data And Methods

DATA SOURCE The HCCI data set includes information on more than thirty-one million private health insurance enrollees per year and captured more than $106 billion in total health spending annually in 2007–14. While Medicare data are available through 2016, at the time we launched this analysis, 2014 was the most recent year for which private data were accessible via the HCCI.

We limited our analysis of private health spending to people younger than age sixty-five. In addition, we excluded claims for which privately insured enrollees had coordinated benefits with another payer (for example, with Medicare or another private insurer), so that the only claims we analyzed were those where one of the HCCI data contributors was the patient's primary insurer. We limited our analysis to HRRs with more than 5,000 enrollees from the HCCI sample each year in 2007–14, to obtain more precise measures of HRR-level spending growth. This restriction excluded twelve of the nation's 306 HRRs from our analysis. To analyze Medicare spending, we used data on annual risk-adjusted spending per fee-for-service beneficiary by HRR, information that is posted online by the Dartmouth Institute for Health Policy and Clinical Practice.[8] We excluded from our analysis spending for prescriptions filled in pharmacies because it is not included in the Dartmouth Institute's Medicare spending data. Our data did not capture spending on beneficiaries with Medicare Advantage (MA).

The HCCI data set is one of the most comprehensive databases of private health insurance claims available.[9] It covers 28 percent of the people in the US with employer-sponsored insurance and includes about 4.5 billion claims from three of the five largest US insurers: Aetna, Humana, and UnitedHealthcare. However, it does not include claims for people with coverage provided by Blue Cross Blue Shield (BCBS) insurers. Accordingly, we tested our results for robustness in HRRs where BCBS insurers had above- or below-median market share.

ANALYSIS We calculated spending per beneficiary by summing total inpatient, outpatient, and physician spending for each person in our data in each HRR per year. To get the total number of private enrollees per HRR, we summed the member months of coverage per HRR per year and divided by twelve. Following the approach taken by the Dartmouth Institute, we risk-adjusted our HCCI spending samples for age and sex. While the Dartmouth team is able to risk-adjust for race differences across HRRs, we could not because we did not have a reliable race field in our HCCI sample. More details are available online about how the Dartmouth Institute constructed the measures of Medicare spending per fee-for-service beneficiary.[10]

For analyses of growth rates over time, in most instances we present the rates as compound annualized growth rates. To calculate these rates, we divided the spending levels in 2014 by the spending levels in 2007, raised the fraction to the power of 1 divided by 7 (for our seven-year study period), and subtracted 1 from the final result. The annual health spending data were inflation adjusted using the All Items Consumer Price Index from the Bureau of Labor Statistics. All figures are in 2014 dollars.

LIMITATIONS Our work had four primary limitations. First, we relied on a sample of private insurance spending drawn from three of the five largest insurers in the US. While we captured more than $106 billion per year in private health spending, spending patterns may have differed for patients covered by other commercial insurers. However, the low correlation we observed in spending growth between Medicare beneficiaries and private enrollees across HRRs was robust across areas where BCBS insurers had either high or low market share.

Second, our data on Medicare spending came only from the fee-for-service Medicare population. We did not have data on beneficiaries

enrolled in Medicare Advantage and therefore could not speak to the correlation between the growth in spending on people with employer-sponsored coverage and that for people enrolled in MA plans. Historically, MA plans have attracted healthier beneficiaries than fee-for-service Medicare has.[11] There is some evidence that rates of favorable selection into Medicare Advantage have increased over time.[12] To the extent that healthier patients are increasingly departing from traditional Medicare over time and leaving the fee-for-service program with a progressively riskier population, this would lead to an overstatement of the already low rates of growth that we observed for the fee-for-service Medicare program.

Third, while our data included spending on injectable and infused drugs administered by physicians, we did not include spending on prescription drugs obtained by patients from pharmacies. Drug spending accounts for approximately 10 percent of total US health spending.[13] As a result, while including drug spending would have been unlikely to dramatically affect our results, it could have altered the correlations we observed in spending growth across the two populations.

Fourth, we did not analyze why there were different patterns of growth across the two populations. The drivers of these differences could include differences in how providers are paid, differential use and adoption of new technologies, and differences in the mix of services delivered to Medicare beneficiaries and people with private insurance. This is an important topic that should be explored in future work.

Study Results

Private spending per employer-sponsored insurance enrollee increased from $3,304 in 2007 to $3,864 in 2014—a growth rate of 16.9 percent. Conversely, Medicare spending per beneficiary decreased 1.2 percent during the same period, from $9,706 to $9,586. The online appendix provides trends in total, inpatient, and outpatient spending for the two populations.[14] Similar to total spending (appendix exhibit 1.1), inpatient spending for Medicare enrollees decreased, while inpatient spending on the privately insured increased slightly (appendix exhibit 1.2).[14] By contrast, outpatient spending for both populations rose considerably during this period (appendix exhibit 1.3).[14] Appendix exhibit 1.4 compares the changes in spending over time measured using the HCCI and Dartmouth Institute data and data from the National Health Expenditure Accounts (NHEA) of the Centers for Medicare and Medicaid Services.[14] The trends in our data were consistent with those in the NHEA data.

For private spending, HRRs in the tenth percentile experienced a compound annualized growth rate of 0.22 percent in the period 2007–14, while the median HRR had a rate of 2.02 percent, and HRRs in the ninetieth percentile had a rate of 3.45 percent (exhibit 1). There was more variation in HRR-level growth rates for the privately insured across HRRs than there was for the fee-for-service Medicare population. The standard deviation of the HRR-level compound annualized growth rates in private spending was 1.26 percent, compared to 0.80 percent in Medicare spending. HRRs in the tenth percentile of fee-for-service Medicare spending growth had a rate of –0.86 percent, and those in the ninetieth percentile had a rate of 0.94 percent.

All but nineteen of the HRRs in our data had growth in real spending per private insurance enrollee during this period (exhibit 2). By contrast, approximately half of the HRRs experienced an increase in Medicare spending per beneficiary, and half experienced a decrease. The maps illustrate that there was little correlation between private and Medicare spending growth rates across HRRs. Maps for inpatient and outpatient spending are presented in the appendix.[14] Appendix exhibit 2.1 shows that nearly two-thirds of HRRs experienced growth in inpatient spending on the privately insured, while

EXHIBIT 1

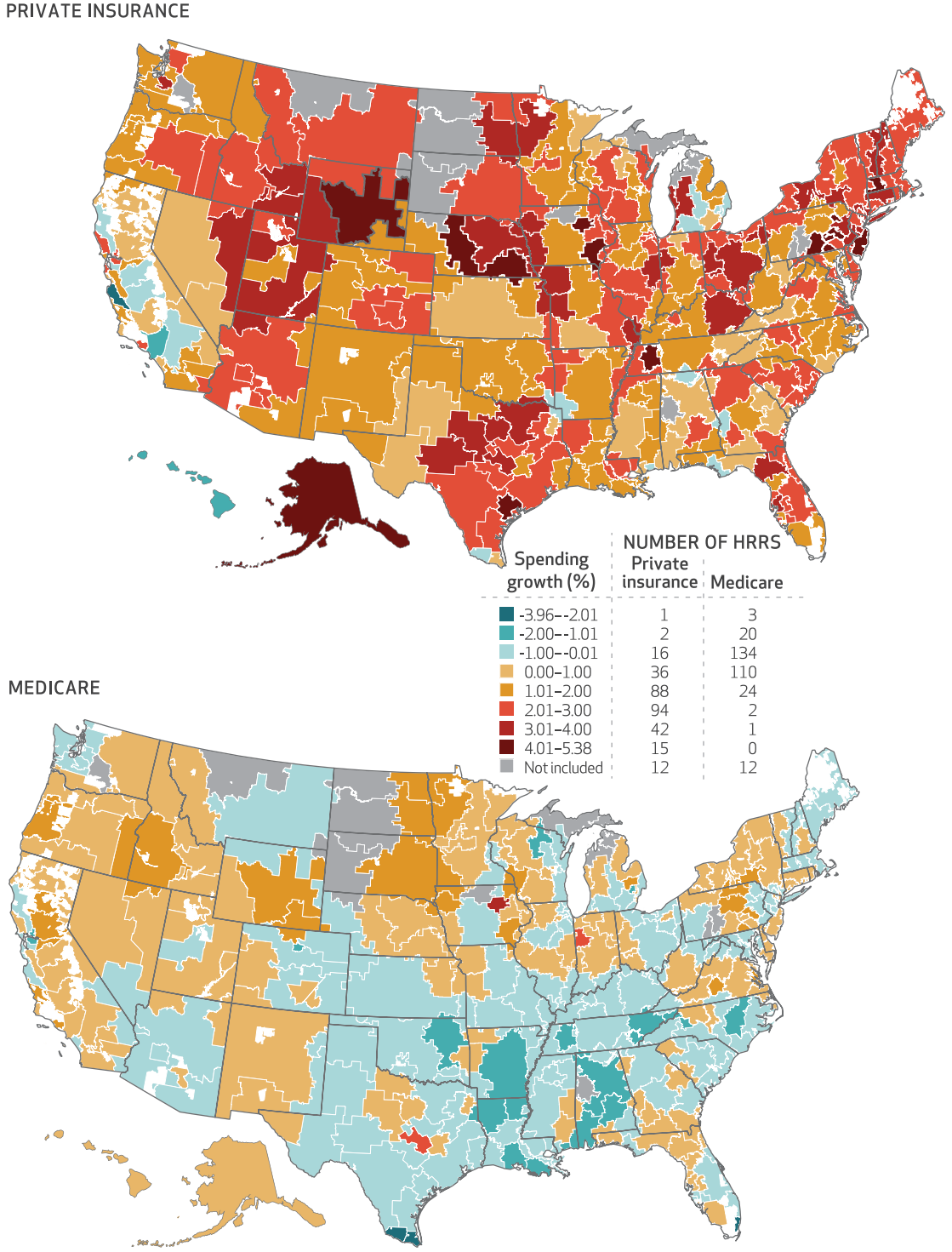
Growth in spending for people with employer-sponsored private insurance or fee-for-service Medicare, 2007–14

			Percentile				
Spending growth	**Mean**	**SD**	**10th**	**25th**	**50th**	**75th**	**90th**
Private insurance	1.99%	1.26	0.22%	1.34%	2.02%	2.84%	3.45%
Fee-for-service Medicare	–0.08%	0.80	–0.86%	–0.47%	–0.04%	0.44%	0.94%

SOURCE Authors' analysis of data from the Health Care Cost Institute and the Dartmouth Atlas. **NOTES** Mean growth rates across hospital referral regions are compound annualized growth rates for the period 2007–14, as explained in the text. They are weighted by the number of either privately insured enrollees or fee-for-service Medicare beneficiaries in each population. Spending is normalized to 2014 US dollars using the All Items Consumer Price Index. SD is standard deviation.

EXHIBIT 2

Geographic distribution of growth rates in total spending per person in hospital referral regions (HRRs) for people with employer-sponsored private insurance or Medicare, 2007–14



SOURCE Authors' analysis of data from the Health Care Cost Institute (HCCI) and the Dartmouth Atlas. **NOTES** Growth rates are compound annualized growth rates for the period 2007–14, as explained in the text. Total spending includes spending on physician fees and inpatient and outpatient spending by insurers and beneficiaries. Spending is normalized to 2014 US dollars using the All Items Consumer Price Index. Private and Medicare spending are adjusted for age and sex using indirect adjustment. Medicare spending is also adjusted for race. The sample is limited to the HRRs that had at least 5,000 beneficiaries in each year of the period in the HCCI database. "Not included" refers to the 12 HRRs with fewer than 5,000 annual enrollees. The sample of privately insured is limited to people ages 0–64.

only 8 percent of HRRs had positive growth in inpatient spending for people with Medicare.[14] However, appendix exhibit 2.2 shows that nearly all of the 294 HRRs in our sample experienced outpatient spending growth in both the Medicare and privately insured populations.[14]

We found a correlation of 0.211 between private insurance and Medicare growth in spending per person at the HRR level. The low correlation is consistent with the correlation of 0.20 found in Chernew and colleagues' analysis of the correlation between Medicare and private growth rates across HRRs in 1996–2006.[5] While 130 of the 294 HRRs in our sample experienced spending growth in both populations, 12 experienced reductions in spending on both populations (exhibit 3): Alameda County, CA; Detroit, MI; Gulfport, MS; Huntsville, AL; Kalamazoo, MI; Lansing, MI; McAllen, TX; Napa, CA; Panama City, FL; Pontiac, MI; Salinas, CA; and Texarkana, AR. Finally, seven HRRs experienced growth in Medicare spending and reductions in private spending, and 145 experienced reductions in Medicare spending and growth in private spending. The appendix provides similar scatterplots for inpatient and outpatient spending (appendix exhibits 3.1 and 3.2).[14]

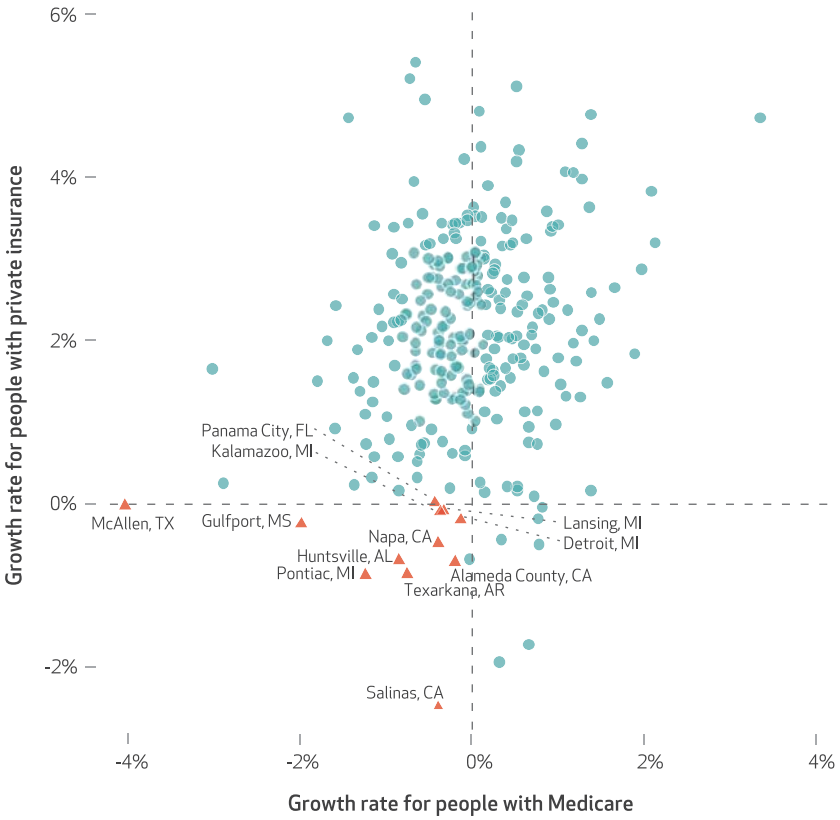
There is a concern that differences in demographic characteristics between Medicare beneficiaries and the privately insured HCCI sample could have driven our results. To rule this out, we also analyzed private health spending on people ages 55–64. When we correlated HRR-level spending growth on this sample of privately insured enrollees and Medicare beneficiaries, we also observed a similar correlation in the growth in spending per person across HRRs of 0.244.

To illustrate the robustness of our results, we also measured the correlation between private and Medicare spending growth across HRRs in areas where BCBS insurers had high or low market shares. As stated earlier, the HCCI database does not include data from BCBS plans, so the HCCI data contributors have a lower market share in areas where BCBS plans are dominant. The patterns we observed in our data could differ in markets where the HCCI insurers had a low versus high a market share. However, we observed that in HRRs where BCBS insurers had an above-median market share (above 47 percent of lives in the HRR), the correlation between private and Medicare spending growth was 0.180. In HRRs where BCBS insurers had a below-median market share, the corresponding correlation was 0.267. In other words, there was no qualitatively large difference in our results in areas where the HCCI insurers had high versus low market share.

Exhibit 4 presents the HRRs with the highest and lowest growth rates in private spending and Medicare fee-for-service spending during this period. Binghamton, NY; Casper, WY; Reading, PA; Temple, TX; Waterloo, IA; and York, PA, were in the twenty regions with the highest growth rate for both Medicare and the privately insured (exhibit 4). Conversely, Gulfport, MS; McAllen, TX; and Pontiac, MI, were in the twenty regions with the lowest growth rate for both populations.

EXHIBIT 3

Growth rates in total spending in hospital referral regions (HRRs) per person for people with employer-sponsored private insurance or Medicare, 2007–14



SOURCE Authors' analysis of data from the Health Care Cost Institute and the Dartmouth Atlas. **NOTES** Each point in the scatterplot represents an HRR. The labeled HRRs are those with negative growth in both Medicare and private spending. There were 12 such HRRs, 145 with positive growth rates for the privately insured alone, 7 with positive growth rates for people with Medicare alone, and 130 with positive growth rates for both types of beneficiaries. The correlation between HRR-level growth in private and Medicare spending per person was 0.211. Growth rates, total spending, and spending adjustment are explained in the notes to exhibit 2. The samples of HRRs and the privately insured are limited as explained in the notes to exhibit 2. Spending is normalized to 2014 US dollars using the All Items Consumer Price Index.

Discussion

US health spending has increased steadily since 1960. In this study we analyzed growth in health spending on Medicare beneficiaries and people with employer-sponsored private health insurance in the period 2007–14. Whereas Medicare

EXHIBIT 4

Bottom and top 20 hospital referral regions (HRRs) in growth in total spending per enrollee in employer-sponsored private insurance or fee-for-service Medicare, 2007–14

Bottom 20 HRRs				Top 20 HRRs			
Private insurance		Medicare		Private insurance		Medicare	
Name	Growth (%)	Name	Growth (%)	Name	Growth (%)	Name	Growth (%)
Salinas, CA	−2.52	McAllen, TX[a]	−3.96	Wilkes-Barre, PA	5.38	Waterloo, IA[b]	3.35
Los Angeles, CA	−1.98	Miami, FL	−2.96	Newark, NJ	5.18	Lafayette, IN	2.15
Honolulu, HI	−1.77	Harlingen, TX	−2.82	Anchorage, AK	5.08	Temple, TX[b]	2.10
Pontiac, MI[a]	−0.91	Gulfport, MS[a]	−1.93	Victoria, TX	4.93	La Crosse, WI	1.99
Texarkana, AR	−0.90	Boulder, CO	−1.74	Camden, NJ	4.78	Stockton, CA	1.91
Alameda County, CA	−0.75	Monroe, LA	−1.63	York, PA[b]	4.73	Grand Forks, ND	1.68
Huntsville, AL	−0.72	Johnson City, TN	−1.54	Waterloo, IA[b]	4.70	Lynchburg, VA	1.60
Royal Oak, MI	−0.72	Montgomery, AL	−1.53	Jackson, TN	4.69	Newport News, VA	1.51
Fresno, CA	−0.54	Jackson, TN	−1.38	Casper, WY[b]	4.38	Danville, PA	1.44
Napa, CA	−0.50	Lafayette, LA	−1.32	Lincoln, NE	4.35	Sioux Falls, SD	1.42
San Bernardino, CA	−0.47	Wausau, WI	−1.31	Paterson, NJ	4.31	York, PA[b]	1.41
Gulfport, MS[a]	−0.28	Houma, LA	−1.28	Springfield, MA	4.19	Chico, CA	1.40
Detroit, MI	−0.23	Raleigh, NC	−1.25	Harrisburg, PA	4.17	Fargo ND	1.38
Columbus, GA	−0.23	Little Rock, AR	−1.19	Iowa City, IA	4.03	Binghamton, NY[b]	1.30
Lansing, MI	−0.13	Pontiac, MI[a]	−1.19	Reading, PA[b]	4.02	Casper, WY[b]	1.30
Kalamazoo, MI	−0.12	Birmingham, AL	−1.18	Binghamton, NY[b]	3.95	Ventura, CA	1.30
Modesto, CA	−0.09	Knoxville, TN	−1.12	Cape Girardeau, MO	3.91	Eugene, OR	1.28
McAllen, TX[a]	−0.06	Contra Costa, CA	−1.12	Hackensack, NJ	3.87	Salem, OR	1.24
Panama City, FL	−0.02	Tulsa, OK	−1.11	Temple, TX[b]	3.79	Reading, PA[b]	1.21
Santa Barbara, CA	0.05	Hickory, NC	−1.10	Fort Worth, TX	3.66	Sayre, PA	1.20

SOURCE Authors' analysis of data from the Health Care Cost Institute and the Dartmouth Atlas. **NOTE** Total spending is defined in the notes to exhibit 2. [a]HRR is in the twenty slowest-growing HRRs for both private and Medicare spending. [b]HRR is in the twenty fastest-growing HRRs for both private and Medicare spending.

spending per fee-for-service beneficiary decreased by 1.2 percent in real terms during this period, spending per private insurance enrollee increased by 16.9 percent. Of note, there was substantial variation in the growth rates for private health spending across HRRs (less so for Medicare spending). This variation suggests that some regions are more successful than others at constraining health spending growth. This is particularly apparent in HRRs where there were negative growth rates in both Medicare and private spending. Going forward, more work is necessary to increase understanding of how and why some regions have lower rates of spending growth for both fee-for-service Medicare beneficiaries and people with employer-sponsored private coverage.

Consistent with the results of prior work, across HRRs overall our study found a low correlation in growth rates between private health spending and spending on fee-for-service Medicare beneficiaries. This result was robust when we limited our analysis to privately insured people ages 55–65 and to HRRs where BCBS insurers had high or low market shares.

This divergence in growth rates suggests that at least during our study period, different factors were driving health spending growth in the Medicare and privately insured populations. Prior work has demonstrated that there is a low cross-sectional correlation between HRR-level health spending on fee-for-service Medicare beneficiaries and that on people with private health insurance.[4,5] One driver of this low correlation is the low correlation between the regulated payments in fee-for-service Medicare and the prices that health care providers and insurers negotiate for care. It is likely that differences in growth rates between regulated fee-for-service Medicare provider payments and providers' negotiated transaction prices are also driving some of the difference in the growth in spending across these two populations. Indeed, recent work has found that in the short run, growth in providers' prices is driving growth in private health spending.[15]

Additional potential drivers of the differential rates of spending growth across the two populations include differences in the mix of care delivered to the populations (and differences in how those mixes of care changed over time) and

differences in the rates at which new technology was adopted and used for care delivered to the two populations. Future work should analyze the factors driving Medicare and private spending growth.

This research has one very clear implication for public policy: Given the low correlation between the growth in private health spending on people with employer-sponsored coverage and the growth in spending on fee-for-service Medicare beneficiaries, separate policies will be necessary to curb spending growth in the two populations. Future work should also assess the factors that lead to slow growth in private health spending in some HRRs and faster growth in others.

Conclusion

Using data on 28 percent of people in the US with employer-sponsored private health insurance, we observed substantial variation across HRRs in the growth rates of spending on privately insured people in the period 2007–014—more variation than we saw in fee-for-service Medicare growth rates across HRRs. In addition, the correlation between the growth of health spending on privately insured people and fee-for-service Medicare beneficiaries across HRRs in the study period was 0.211. This suggests that different factors may be driving spending growth across the two populations. ■

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