DataWatch

Geographic Variation In Medical Costs: Evidence From HMOs
by Stuart G. Schmid

Abstract: This DataWatch presents data on geographic variation in medical costs across a sample of forty-six cities, using enrollment-weighted average Federal Employees Health Benefits Program (FEHBP) health maintenance organization (HMO) premiums. Variation of average HMO premiums is markedly less than variation of per capita fee-for-service costs as measured by Medicare’s adjusted average per capita cost (AAPCC) index. Moreover, average HMO premiums across the sample were largely uncorrelated with AAPCC values. These findings raise some doubt about the suitability of using the AAPCC index for geographic adjustment of Medicare’s HMO capitation payments.

The perception that health care costs vary widely from city to city appears to be accurate for fee-for-service medical care. In Miami, Detroit, New York City, and Los Angeles, for example, average per capita Medicare spending is 60 percent higher than that in Buffalo/Schenectady, Albany, Salt Lake City, and Austin/Waco. For care delivered by health maintenance organizations (HMOs), however, the picture is very different. In this study, analysis of HMO premium data from the Federal Employees Health Benefits Program (FEHBP) revealed a tightly clustered distribution of average HMO premiums across a forty-six-city sample. Moreover, the FEHBP average HMO premiums were largely uncorrelated with per capita Medicare costs for corresponding locations, which were more dispersed. These findings raise important policy questions.

Data and methods. Federal workers and retirees and their dependents acquire health insurance through the FEHBP. During annual open enrollment periods, participants may enroll in one of a dozen fee-for-service and preferred provider options or in a participating HMO within their area, if one is available. In 1993, 330 HMOs (out of a national total of 560) participated in the program, enrolling 1.17 million federal active employees and annuitants, 28 percent of all FEHBP enrollees. Of active employees, 37 percent were enrolled in HMOs in 1993.

Participating HMOs serve nearly all of the nation’s major urban areas. In most areas in which federal workers live, two or more participating HMOs are likely to be available. The largest market is Washington, DC., which

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offers nearly a dozen HMO options. FEHBP enrollees may choose either individual or family coverage. This study focuses on family coverage premiums. FEHBP enrollees and the government both contribute to premium payments. The government share is 75 percent up to a programwide dollar cap set annually by statutory formula.

All FEHBP HMOs declare specific geographic service areas. FEHBP-eligible federal workers may enroll in any plan in whose service area they live. Most service areas cover entire urban areas; some cover entire states. I examine groupings of HMOs whose service areas include selected urban areas. Composite service areas formed by these groupings correspond approximately to primary metropolitan statistical areas (PMSAs) or combinations thereof. All forty-six of the HMO groupings include at least two HMOs serving a combined 1993 enrollment of at least 1,000 families. The sample includes 229 of the 330 participating HMOs.

To assess geographic variation, I calculated an enrollment-weighted average HMO premium for each city grouping using 1993 premiums and 1992 enrollment data. This measure of location-specific, per family expenditures on HMO-covered services emphasizes the premiums of those HMOs that were most successful in attracting FEHBP subscribers.

Results

Exhibit 1 presents HMO premium values along with an analytically comparable measure of fee-for-service performance, Medicare’s county-by-county adjusted average per capita cost (AAPCC). HMO premium values and AAPCC values are shown in relation to their sample means. (A value of 1.1 indicates an underlying absolute value 10 percent above the mean. A value of 0.85 indicates a value 15 percent below the mean, and so on.)

The relative dispersion of city-specific HMO premiums is markedly less than that of AAPCC values. Across the forty-six cities, forty-two normalized HMO average premiums are within 10 percent of the sample mean. In Boston and Hartford—the only New England cities in the sample—average HMO premiums are significantly above the mean. Seattle’s premium is slightly above and Albuquerque’s is just below the 10 percent band.

In contrast, twenty-five AAPCC values fall beyond the 10 percent band; of those, nine are beyond the 20 percent band, and Detroit and Miami are 30 percent or more above the AAPCC mean. Measured in terms of their respective coefficients of variation (the ratio of the standard deviation to the mean), HMO premium variation (.077) is half the variation of the AAPCC series (.155). (Had Boston and Hartford been left out of the sample, the AAPCC coefficient would have been three times that of the HMO premium coefficient.)
Comparative Geographic Variation In AAPCC And FEHBP HMO Premiums, Forty-Six-City Sample In Descending Order Of Average HMO Premium


Notes: Points on the graph represent Medicare AAPCC, adjusted average per capita cost. FEHBP is Federal Employees Health Benefits Program; HMO is health maintenance organization. Cities are, from left: Boston, MA; Philadelphia, PA/NJ; Los Angeles/S. Calif; Austin/Waco, TX; St. Louis, MO/IL; New York City/Long Island, NY; Albany/Schenectady, NY; New Orleans, LA; Norfolk, VA; Detroit, MI; Honolulu, HI; Baltimore, MD; Miami/Palm Beach, FL; Madison, WI; San Francisco/Oakland, CA; and Minneapolis/St. Paul, MN. A listing of cities not identified here is available from the author.

The correlation between the two series is weak. The high-end AAPCC outliers—Philadelphia, Los Angeles/Southern California, New York City/Long Island, New Orleans, Detroit, and Miami/Palm Beach—are associated with FEHBP premiums that are between 7 percent above and 3.5 percent below the all-city premium mean. Exhibit 1 illustrates a weak tendency for the low-premium cities to have low AAPCC values.

Implications

The findings presented here offer a new perspective on the economic performance of both HMOs and the fee-for-service sector. Holding benefits, demographics, and certain structural features common across a sample of urban markets, we find that the most successful HMOs—those weighted most heavily in the computation of each city’s average premium-deliver medical services at prices that vary little geographically. Boston and Hartford, the exceptions in the sample, reinforce the rule: HMOs are remarkably adept at transcending whatever factors drive geographic variability of
AAPCC values and, presumably, fee-for-service medicine in general.\(^6\)

Many factors, from varying practice patterns and patient mix to different concentrations of tertiary hospitals, have been invoked over the years to explain geographic variability of per capita fee-for-service expenditures. The relative absence of similar variability among HMOs may cast new light on this puzzle. The most conspicuous distinction between HMOs and the fee-for-service sector is the presence and absence, respectively, of normal economic market constraints on physicians' (and other decisionmakers') behavior. HMO decisionmakers operate within a competitive environment in which decisions about products, production methods, and prices are ultimately governed by the need to please informed buyers who are spending, at the margin, their own money. No such regulation exists in the fee-for-service sector, with the result that average prices and service intensity for entire urban areas are free to respond to diverse influences that are tied loosely, if at all, to consumer preferences or cost-effectiveness criteria.

To the extent that contrasting geographic variability of the two sectors can be explained by the absence of the economic pressures that compel efficient production, the data presented here can be interpreted as further evidence that the fee-for-service sector operates without the benefit of any inherent tendency toward efficiency. This conclusion, long inferred from differential cost and anecdotal evidence, suggests a crucial public policy interest in encouraging a shift from fee-for-service to capitated forms of medical services delivery. The FEHBP, for example, offers consumers an easy, natural, and economically rewarding HMO option; as a result, 36 percent of active federal enrollees have joined HMOs.

Medicare’s HMO program thus far has enrolled only 5 percent of Medicare beneficiaries in HMOs. The FEHBP data suggest that a good part of the problem may be the result of a flawed capitation payment scheme. Medicare adjusts capitation payments according to several demographic attributes of enrollees plus geographic location. The geographic adjustment factor used by Medicare is the county-level AAPCC index, which is based on fee-for-service. This payment methodology has been criticized for other technical and conceptual weaknesses, but not for what now must be viewed as its most fundamental defect—namely, the lack of any systematic relationship between the AAPCC geographic adjuster (based on fee-for-service) and actual geographic variation of real-world HMO per capita costs.\(^7\) Average HMO costs vary across cities, but not nearly as much as, and not in association with, per capita fee-for-service costs.

**Concluding comments.** Preliminary evidence suggests that FEHBP HMOs tend to fine-tune their price/quality/promotion strategies in response to distortions introduced by properties of the FEHBP’s employer/employee cost-sharing structure.\(^8\) If this is true, then a change in the
cost-sharing structure could induce more price competition among participating HMOs, which in turn could lead to lower premiums for federal enrollees.

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NOTES

1. In 1993, 60 percent of 4.1 million FEHBP enrollees had family coverage, and 40 percent had employee-only coverage.
2. The rule has recently been amended to require HMOs to accept eligible employees who either live or work in the defined service area.
3. The largest conglomeration used here is Southern California, which combines the Los Angeles-Long Beach, Orange County, San Bernardino, Riverside-San Bernardino, and Ventura PMSAs plus the San Diego MSA. This combination was dictated by the comprehensive service area of the dominant area HMO, Kaiser Permanente. Other combinations of MSAs dictated by HMO service areas were Phoenix and Tucson, Arizona; Denver and Pueblo, Colorado; and Miami-Fort Lauderdale and Palm Beach, Florida. The New York area consists of three PMSAs: New York City, Nassau/Suffolk (Long Island), and Newark, New Jersey.
4. Of the forty-six areas, five contain two HMOs, twenty-one contain three or four HMOs, eleven contain five or six, and the remainder contain seven to thirteen HMOs.
5. The AAPCC is a comprehensive measure of hospital and physician services spending by Medicare enrollees that is published county by county. To compute an average AAPCC value for the forty-six sample areas, it was necessary first to link each area to specific sets of counties. In most instances, sample areas corresponded to MSAs or to a subset of PMSAs within an MSA. Each such standardized area consists of specific counties and cities. A population-weighted average across these jurisdictions (using total 1990 county population and 1993 AAPCC values) was then computed for each of the forty-six areas.
6. The Boston and Hartford findings repeat a pattern of high FEHBP premiums observed in these areas for the past several years. Further confirming the pattern, the Group Health Association of America has reported regional HMO per member operating costs to be highest in New England. See Group Health Association of America, HMO Industry Profile (Washington: GHAA, 1992).
a. The federal premium share under the FEHBP is seventy-five cents on the marginal dollar, up to the maximum federal contribution set by statutory formula. In 1993 the government’s maximum contribution (for family coverage) was $4,850. Beyond the $4,850 threshold, the government’s marginal share of higher premiums is zero. On the other hand, premiums below the threshold induce a cut in the government contribution of seventy-five cents on the dollar. Economic analysis suggests that the optimum strategy for efficient, lower-cost HMOs is to forgo price competition below the $4,850 threshold and instead hold price near the threshold while competing on the basis of quality and promotional outlays.