Can Multi-Payer Financing Achieve Single-Payer Spending Levels?

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Abstract

Many believe the high level of US health care costs compared with other countries is attributable to high administrative costs inherent in our pluralistic health care system. Instead of the usual statistics examining percentage of GDP various countries spend on health care, we show the percentage of Gross State Product various states spend on health care. Even adjusting for age and income, there is considerable variation across the states in spending levels, with the lowest quintile of states spending approximately the same percentage as the higher spending OECD countries other than the US. Although a single-payer system may be a sufficient condition to spend at these levels, it is not a necessary condition.

One of the most controversial areas of health policy has been the magnitude of administrative savings that might be reaped from a single-payer system (Aaron 2003; Altman and Shactman 1997; Woolhandler, et al. 2003; Woolhandler and Himmelstein 1997). Some argue that the administrative costs associated with the United States' pluralistic health care financing system are an important factor in excess American spending on health care. In particular, different payment rules and claims forms of various insurers are said to be one cause of higher administrative costs. Further, the lack of universal insurance in the United States requires health care providers to establish both eligibility and payment source. Indeed, this function may extend to the provider's ascertaining the person's potential eligibility for Medicaid or other need-based program and helping them qualify for or enroll in the program, something that goes well beyond simply asking a person for an eligibility card that demonstrates qualification in a universal system.

But there are also reasons to be skeptical of these arguments. Despite increasingly electronic claims processing and standardization of requested items across various payers' claims forms, which should lower administrative cost, American health care spending has moved inexorably up, and the gap between the United States and other countries has not narrowed. In addition, financing systems in some countries, such as Germany and Japan, have multiple payers, yet those countries still spend a substantially smaller proportion of GDP on health care than the United States. And over several decades real per capita growth rates of health care spending in the United States are not so different than those elsewhere (Newhouse 1992), implying that in 1960 when some

other countries such as Canada did not have a single-payer system, the United States still spent more.

More fundamentally, higher administrative costs may not necessarily increase overall health care spending. For example, higher administrative costs associated with services such as disease management to improve compliance or electronic personal health records could improve health and reduce the number of low or negative benefit services provided, such as duplicate testing.[1] Finally, the common metric of health spending as a percentage of GDP is not necessarily a good indicator of resources devoted to health care, since it is influenced by movements of GDP as well as by changes in health care spending.

Many of the claims about excessive administrative cost in American health care stem from the (much) larger total cost per person in the United States or the level of administrative costs in the American system compared with the Canadian. The former, of course, can be influenced by much more than administrative cost, whereas the US-Canadian differences in administrative cost may be influenced by many factors not directly related to a single-payer regime, such as the legal and regulatory framework within which providers function. The threat of malpractice litigation, for example, differs between countries; so too may the compliance framework. More generally, the dominant American fee-for-service reimbursement method is likely to generate greater billing costs

[1] Personal health records provide an electronic file with diagnostic, therapeutic, and pharmaceutical information from administrative data, typically claims. In some cases laboratory values may be included. Patients may also enter their own information, for example on the use of non-covered services such as over-the-counter drugs.

than hospitals on fixed budgets or physicians on salary, but it is not obvious that implementing a single-payer regime in the United States would change this reimbursement method.

To shed further light on the possible role of administrative costs in the American system, we move from the country to the state as the unit of observation and first present raw or unadjusted data on spending as a percentage of Gross State Product (GSP). We then adjust a state's spending on health care for the proportion of the state that is elderly and the level of its GSP. As a byproduct of this effort, we estimate the income elasticity of health care spending across states.

We show that, as a raw percentage of GSP, a number of states spend at approximately the level of the higher spending OECD countries, a finding that implies a single-payer system is not a necessary condition for the United States to spend at those levels. Whether it would be a sufficient condition we cannot say, since no state has a single-payer system. It would be presumably be easier in a single-payer system to control prices or budgets for health care and thereby control spending, but such control raises the possibility of foregone innovation or foregone services that could have adverse consequences for population health. This is in contrast to the purported administrative savings of a single-payer system, which at least at first blush appear to many to be a free lunch. Furthermore, the variation in the proportion of GSP that different states spend on health care raises the question of what lies behind that variation and whether the states that spend more obtain any benefit from that spending. Several studies now suggest that

higher spending states and regions in absolute dollars may simply have more off-frontier production, meaning that interventions targeted at overuse could both reduce cost and improve, or at least not worsen outcomes.[2]

Although the potential administrative savings from a single-payer system is an argument typically found on the political left, a common explanation among many health economists for why the United States spends so much on health care is the exclusion of employer-paid health insurance premiums from taxable income (Pauly 1986). Just as a single-payer system could have some administrative economies, it is almost certainly true that the tax exclusion has led to more widespread insurance coverage and in turn to higher spending levels. But clearly all states operate under the same federal tax code, so the tax treatment of health insurance premiums cannot explain much of the marked variation in spending that we observe across the states.[3]

METHODS

We collected data on health spending by state of residence from the health accounts published by CMS, which are available online.[4] Data on GSP came from the Bureau of

[2] States spending more per Medicare beneficiary appear to have worse measures of process quality and worse outcomes (Baicker and Chandra 2004; Fisher, et al. 2003a; 2003b). Another study found relatively similar performance across on quality measures across 12 communities despite what are likely to be considerable differences in spending (Kerr, et al. 2004). Thus, reductions in spending need not reduce measured quality of care and may even improve it.

[3] The varying distributions of income across states mean there is some variation in the distribution of marginal tax rates across the states. In our empirical work the effect of this variation will be mostly picked up by the GSP variable, and any remaining effect is surely small. Likewise there is some variation in state income tax rates, but this seems too small to explain more than a small fraction of the variation we observe in spending.

[4] http://www.cms.hhs.gov/NationalHealthExpendData/05_NationalHealthAccountsStateHealthAccounts.asp#TopOfPage.

Economic Analysis.[5] We used data from the 50 states plus the District of Columbia for the years 1991-1997, yielding a total of 51x7 or 357 observations. Because of a change from SIC industry definitions to NAICS industry definitions, there is a discontinuity in the GSP time series data at 1997 that affects both the level and growth rate of these estimates, and thus we were unable to construct a continuous GSP time series for years beyond 1997. We deflated each state's health spending and GSP by the national GDP deflator for the relevant year so that dollars are constant 1994 dollars. Because the District of Columbia is an outlier in health spending per capita, we tested the robustness of our regression results to deleting the District of Columbia.

In attempting to explain the variation in spending across states we faced several issues. First, if we had simply explained the absolute amount of total state health care spending using total GSP, we would show a spurious correlation from variation in population across the states; i.e., more populous states would tend to have a higher absolute level of GSP as well as a higher level of health care spending without implying a causal relationship. Rather than explaining total spending, therefore, we explained the variation in per capita health spending using per capita GSP. Second, some variation is likely attributable to variation in the proportion of elderly in the state, given that those over 65 spend about three times as much per capita as those under 65. We therefore included the proportion of the state's population over age 65 as a second explanatory variable.

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[5] http://bea.gov/bea/regional/gsp/default.cfm?series=SIC

We also tested for whether variation in the percentage of the state population that is under 18 years of age and the percentage uninsured explained variation in spending, but these latter two variables had little additional explanatory power. Hence we do not show results here of including these variables, but they are available from the authors upon request. We did not adjust for gender mix, since there is little variation across the states.[6] Data on population age distributions are from U.S Census Bureau population estimates.[7]

We included state fixed effects because many potential variables that are invariant over time and correlated with GSP, for example health risk factors, could affect a state's health spending thereby biasing our estimate of the GSP effect. We included year fixed effects for analogous reasons. We did not use random effects models because the necessary assumption that state or year effects be independent of covariates did not seem plausible. We tested a model with random state effects and year fixed effects, but such a model was rejected by the data.

Because of their larger populations, larger states will tend to have more precisely estimated means than smaller states, so we calculated robust standard errors. To correct for serial correlation within states over time, we use standard errors clustered on state in all models.

[6] The majority of state have between 50% and 52% female (at the extremes, a few states in certain years have up to 53% or as low as 47% percent female).

[7] Population estimates program, population division, US Census Bureau, Washington DC. Available online at http://www.census.gov/popest/archives/1990s/ST-99-09.txt. Data on percent uninsured from US Census Bureau historical health insurance tables, available online at www.census.gove/hhes/www/hlthins/historic/hihistt4.html

RESULTS

In Table 1 we group the states into quintiles and show the average actual (raw) share of GSP spent on health care in that quintile in 1995, as well as the predicted share adjusted for age and the predicted share adjusted for age and the level of GSP.[8] As can be seen, there is substantial variation across the quintiles, with the lowest quintile of states spending in the 9 to 10 percent of GSP range.

The key finding in this table is that spending in the lowest quintile is roughly similar to the analogous value of spending in 1995 for those OECD countries spending relatively high proportions of GDP on health care, in particular Austria (9.7 percent), Canada (9.2 percent), France (9.4 percent), Germany (10.3 percent), Greece (9.6 percent), Iceland (10.2 percent), Netherlands (9.2 percent), and Switzerland (9.7 percent).[9] The average percent of GSP spent on health care across the states in 1995 shown in Table 1 (12.2%) is lower than the National Health Expenditure Accounts figure reported for the U.S. overall (13.8%) because the usual figure in the Accounts is calculated using total health expenditures whereas the state level expenditures include personal health care expenditures only. Moreover, the OECD figures are not strictly comparable with either total or personal health care spending as reported in the US National Health Expenditure Accounts. We doubt, however, that the definitional differences would account for more

[8] Predicted values at the national means of percent over 65 years of age and GSP with state and year fixed effects included.

[9] Data on GDP percentages come from http://www.oecd.org/dataoecd/60/28/35529791.xls.

than a tenth of a percentage point or two difference between the state data reported in Table 1 and the OECD figures.[10]

Not surprisingly, some of the variation in spending across states is attributable to differences in the age distribution of the states' population. To account for such differences, the second column of Table 1 shows age-adjusted health spending as a percentage of GSP; specifically, the value shown is the predicted spending if each state had the US average percentage over 65 population. As can be seen, this adjustment pulls the two extreme quintiles toward the mean, because the low spending states had disproportionately few elderly and the high spending states disproportionately many. Nonetheless, the qualitative picture of substantial variation across the quintiles with the lowest quintile still being in the range of the high spending OECD countries does not change.

Finally, the rightmost column shows percentages adjusted for both age and the income level of the state, meaning a predicted value for the state is calculated at the values for the average percent elderly across the states and the average state GSP per capita. The values scarcely change from the age-adjusted values, although the highest quintile does modestly increase, indicating that these states spend somewhat more on health care than a linear regression on income predicts. On balance, the states in this quintile tend to be poorer states.

[10] The National Health Expenditure Accounts (NHEA) include research spending, whereas the OECD data exclude it; research spending is both a small percentage of total health spending and not a component of personal health care spending. The NHEA also do not account for exports and imports of health care services while the OECD data do, but these are not likely to be a major component of overall health spending in the relevant countries.

We used the results from our models to calculate income elasticities; Table 2 shows estimates with GSP and age effects included. The upper bound of the predicted income elasticity from the models that include the District of Columbia as an observation is 0.30, and from the models without the District is 0.17. Neither of these estimates is significantly different from zero. The imprecision likely stems from our use of year and state fixed effects, since they remove over 98 percent of the variation in per capita state health care spending and leave only the variation within state that departs from the national trend across the seven years of our sample. As a result, there is relatively little variation left with which to estimate the income elasticity. Nonetheless, these upper bounds fall well short of the income elasticity estimates at the country level, as one would expect (Gerdtham and Jonsson 2000; Getzen 2006).

CONCLUDING REMARKS

Our data cast some doubt on the argument that the administrative savings in a single-payer system are an important part of the difference in health spending levels between the U.S. and other countries. In particular, several states, all of which have multi-payer systems, are able to achieve spending as a percentage of GSP at or near the levels of several OECD countries. Of course, this does not show that spending in all states might not be one or two percentage points less in a single-payer system. Although we doubt the savings are anywhere near that large, any conclusion must remain speculative because there are no American data with which to test this question.[11]

[11] Medicare operates at a lower administrative cost than private insurance, but these economies would not necessarily be as large if Medicare insured everyone. For example, claims processing costs tend not to rise

It is also important to keep in mind when assessing potential savings in administrative costs from a single-payer system that such a system does not necessarily mean a single plan (and its lower administrative expenses). For example, Medicare could be termed a single-payer program for the elderly, yet 19 percent of the elderly belong to a variety of Medicare Advantage plans, and hospitals and physicians who treat these patients bill multiple plans and work with multiple formularies. (And the administrative costs incurred by the plans are not typically counted as a Medicare administrative expense.) Similarly, physicians treating patients in traditional Medicare deal with many formularies across the Part D plans. Further, most beneficiaries in traditional Medicare have some form of supplementary insurance, including Medicaid, in which case hospitals and physicians may need to help them co-ordinate Medicare and supplementary benefits. In addition, as noted earlier, Germany and Japan, among other countries, have multiple insurance plans, yet their spending is well below that of the United States.

Finally, whether competing insurance plans are desirable is certainly an important issue. Clearly there is little or no adverse selection in a single plan that is universal or nearly universal; on the other hand, medical care may be produced less efficiently in such a plan. We doubt, however, that the magnitude of administrative costs should importantly figure in the American debate over whether there should be a single health insurance plan.

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proportionately with the size of the bill, and the elderly tend to have larger bills. Medicare uses Social Security Admininstration offices as field offices; this presents economies for the elderly, who are also Social Security beneficiaries, but there would not be analogous economies for the non-elderly. Most importantly, deadweight losses from tax financing are not accounted for.

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Table 1. Percent of GSP spent on health, average state and by state quintiles (unweighted)
1995 data

Quintile	Raw percent of GSP	Percent GSP, age adjusted[f]	Percent GSP, age and GSP adjusted[f]
Average	12.2%	12.2%	12.3%
Lowest[a]	9.7%	10.5%	10.3%
Second[b]	11.3%	11.4%	11.5%
Third[c]	12.3%	12.2%	12.3%
Fourth[d]	13.1%	13.0%	13.2%
Highest[e]	14.9%	14.0%	14.4%

[a]10 states plus DC (DC, AK, NV, WY, DE, UT, VA, CO, CA, TX, WA)
[b]10 states (ID, NM, CT, IL, HI, NB, NC, NJ, GA, AZ)
[c]10 states (OR, NH, MN, IN, MD, IA, MO, MI, SD, WI)
[d]10 states (NY, OH, SC, MA, VT, KS, TN, KY, LA, AR)
[e]10 states (PA, OK, MT, ME, MS, AL, RI, ND, FL, WV)
[f]State and Year Fixed Effects Included

Table 2
Regression model results

depvar	phepc	phepc	phepc	phepc
Model	(1)	(2)	(3)	(4)
gsppc	0.047	0.008	0.011	-0.002
(std. error)	(0.004)	(0.015)	(0.012)	(0.011)
(95% CI)	(.039 -- .055)	(-.022 -- .037)	(-.020 -- .035)	(-.023 -- .020)
%>65			9605.076	6100.632
(std. error)			(4773.0)	(4806.3)
year fe		yes	yes	yes
state fe		yes	yes	yes
omit DC from analysis				yes
clustered std errors	yes	yes	yes	yes

phepc = state personal health care expenditures per capita
gsppc = gross state product per capita
Data are deflated to 1994 dollars using GDP deflator