



**The Effect of the Balanced Budget Act of 1997 on
Medicare HMO Enrollment**

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I. Introduction

Congress implemented a number of measures in the Balanced Budget Act of 1997 (BBA) to encourage Health Maintenance Organizations (HMOs) to enter underserved markets and expand enrollment in existing markets. Rather than promoting HMO enrollment, however, the policy changes appear to be having the opposite effect. Forty-three managed care plans announced in the Fall of 1998 that they would terminate their Medicare plans in certain counties and states, with most claiming that government payments are too low to generate a profit. Between 1997 and 1999, a total of 734,000 Medicare beneficiaries lost their HMO coverage due to plan withdrawals, and an estimated 913,000 will lose coverage in 2000 for the same reason. After growing rapidly from three percent in 1990 to 14 percent in 1998, the percentage of Medicare beneficiaries enrolled in an HMO has increased by only two percentage points between 1997 and 1999 (Figure 1).

In 1994, individuals 65 years of age and older spent an average of 18 percent of their income on health care, up substantially from 1973 when the elderly spent seven percent of their income on health care. This increase in personal medical care spending is the principal reason why Medicare HMO grew rapidly in the early and mid-1990s and why the government once projected that 35 percent of the elderly would be enrolled in a managed care plan by 2007. Prior to the BBA, an elderly person could save an estimated \$1,700 per year by enrolling in a Medicare HMO because HMOs typically waived the deductible and co-insurance payments required in the traditional fee-for-service (non-HMO) Medicare system. Most HMOs also offered a more comprehensive set of medical services (e.g., outpatient prescription drugs, eye care, and routine physicals) than the traditional Medicare policy, which then allows a Medicare HMO enrollee to forego an expensive Medigap insurance policy.

By providing comprehensive medical benefits with low out-of-pocket expenditures, Medicare HMOs offer the elderly the promise of income security and better access to medical care. In theory,

Medicare HMOs care can also help reduce government medical expenditures. When a Medicare beneficiary enrolls in an HMO, the Health Care Financing Administration (HCFA) pays the HMO 95 percent of the amount that HCFA expects to spend on that person's behalf if they were to remain in the fee-for-service Medicare system. If the method of paying Medicare HMOs is designed properly, the government will be able to save money and the elderly will be able to choose a relatively comprehensive and affordable health insurance plan. The government's method of reimbursing Medicare HMOs prior to the BBA was criticized for two reasons. First, Medicare HMOs were only available in some geographic locations due, in part, to substantial variation across counties in the price that HMOs received when they enrolled Medicare beneficiaries. In 1997, one-third of the Medicare beneficiaries lived in counties that were not served by an HMO. Second, the government was paying an estimated \$2 billion more to the HMOs than was justified based on the expected medical costs of the enrollees. This perceived imbalance occurred because of adverse selection -- the tendency for relatively sick beneficiaries to remain in the traditional Medicare system while relatively healthy beneficiaries enroll in Medicare HMOs (PPRC, 1997).

Relatively little is known regarding how the price that Medicare HMOs receive from the government affects the number of HMOs that participate in a market, the medical services that the HMO plans cover, the premium they charge enrollees, and ultimately the level of HMO enrollment in a market. It is important for policy makers to have available a model that can simulate the effect of proposed changes in Medicare HMO payment rates on these outcomes. This paper examines the effect of payment changes from the BBA on Medicare enrollment between 1997 and 1999.

There are four existing studies that analyze how responsive Medicare HMO enrollment is to the price that HMOs receive from the government (Porell and Walack, 1990; Welch, 1996; PPRC, 1997; Abraham *et al.*, 1998). The evidence from these studies is mixed; some conclude that enrollment is not very responsive to the price that HMOs receive from the government while others come to the opposite

conclusion. A fundamental problem with these studies, however, is that the government's method of reimbursing Medicare HMOs and the existence of adverse selection may create a causal relationship between HMO enrollment in a geographic market and the price that HMOs receive from the government. As a result, the prices used in these four studies are not exogenous and the results do not necessarily offer a good prediction of what would happen if the government changed how much it pays or how it pays Medicare HMOs. The BBA, on the other hand, caused large exogenous price changes that vary in magnitude across different markets.

The Effect of the BBA on Medicare HMO Reimbursement

Prior to the BBA, the price that an HMO received from the government when a person enrolled was a function of the medical costs of Medicare beneficiaries in the traditional (fee-for-service, or non-managed care) Medicare system in a particular county, adjusted for the characteristics of the Medicare beneficiaries in this county (the adjusted average per capita cost, or AAPCC), and five characteristics of the beneficiary who enrolled in the HMO: age, gender, employment status, whether the person was eligible for Medicaid, and whether the person was living in a nursing home. Therefore, an HMO would receive much more for signing up an 80 year-old male from Philadelphia than a 66 year-old female from Philadelphia, and an HMO in Minneapolis would receive much less than the HMO in Philadelphia for signing up the same kind of enrollee due to the relatively high costs of treating Medicare beneficiaries in Philadelphia. HMOs were and still are able to charge enrollees a supplemental premium in addition to the payment they receive from the government, as long as the premium does not result in "excessive" profits to the HMOs given the services that are being provided to the enrollees.

In 1997 there was considerable variation between counties in the payment that Medicare HMOs were receiving from the government due to the underlying geographic variation in the cost of caring for Medicare beneficiaries. The first column of Table 1 presents data on the distribution of the HMO

monthly payment across 903 metropolitan counties and 2,305 non-metropolitan counties in 1997. Among metropolitan counties, the per enrollee payments ranged from \$223 per month for an HMO in a county at the 5th percentile in terms of payment generosity, to \$582 per month at the 95th percentile. The median HMO payment among non-metropolitan counties was 12 percent lower than the median among metropolitan counties.

In the four existing studies mentioned above, the proportion of a county's Medicare beneficiaries who are enrolled in an HMO is regressed on the county's AAPCC using cross-sectional data. The estimated coefficient on the AAPCC variable is interpreted as the effect of an exogenous change in the Medicare HMO price on enrollment. This interpretation is problematic. A recent study concludes that the prior medical expenses of the people who enroll in a Medicare HMO are 37 percent lower than individuals who decide to remain in the traditional Medicare system (PPRC, 1997). Self-selection of the relatively healthy elderly into HMOs implies that as Medicare HMO enrollment increases in a market, the AAPCC (and therefore the price that HMOs receive from the government) will rise. This relationship exists because the AAPCC is being determined by the medical expenditures of the beneficiaries who remain in the traditional Medicare system, a population that is increasingly dominated by relatively unhealthy individuals if adverse selection occurs.

The Balanced Budget Act of 1997 instituted a new payment system for Medicare HMOs that will be phased-in from 1998 to 2002. In 1998, an HMO would receive the maximum of the following three possible per enrollee payments: (1) \$367 per month -- the legislated "floor"; (2) their actual 1997 payment, as determined by the pre-BBA method, increased by two percent to account for a modest amount of inflation; or (3) a weighted average of the national average payment level and the HMO's actual payment in 1997, adjusted downward to remove indirect medical education (IME) payments and adjusted upward

by two percent to account for inflation.¹ Over time the county-specific costs would be less important; the weight in the latter scenario on the national average payment would be only 10 percent in 1998 but 42 percent in 2002.

The BBA reduced the geographic variation in Medicare HMO payments. The HMO payment would increase in counties that historically had low Medicare costs because condition (1) or condition (3) would bind. Conversely, condition (2) would bind in counties with relatively high Medicare costs, so the HMO payment would decrease in real terms over a five-year period, under the realistic assumption that medical inflation would consistently exceed two percent per year.² This can be seen in the second column of Table 2. By 2002, the median Medicare HMO payment per enrollee in metropolitan and non-metropolitan counties is projected to be almost identical. Moreover, counties that had low HMO payment rates in 1997 will experience substantial increases relative to counties that had been at the upper end of the distribution. The standard deviation and coefficient of variation (standard deviation divided by the mean) are both projected to decrease substantially between 1997 and 2002.

By enacting a substantial exogenous change in HMO prices, the Balanced Budget Act of 1997 affords a rare opportunity to analyze the responsiveness of Medicare HMO enrollment to the government price. There are several ways in which changes in the payment amounts can affect enrollment. One possibility is that HMOs already operating in a market will alter the plan's benefits when the government changes the price. A second possibility is that the price change will induce HMOs to enter unserved markets or exit markets that can no longer sustain multiple health insurance companies. Less competition between HMOs can lead to fewer (costly) benefits being offered to prospective enrollees (e.g.,

¹ Medical education payments represent six percent of total Medicare expenditures but are typically much higher in heavily populated urban areas that tend to have large Medicare HMO enrollment.

² The average annual increase in Medicare expenditures per enrollee in the 1990s has been 8.8 percent.

eliminating free vision care).

To analyze the reduced form effect of the BBA's price changes, I collected county-level data from the Health Care Financing Administration web site (www.hcfa.gov) on the number of Medicare beneficiaries and the number of Medicare beneficiaries enrolled in an HMO in March 1997 (before the BBA) and March 1999 (after the BBA). The actual HMO payment by county for 1997 was also included in the data set. There are about 3,200 counties with positive Medicare HMO enrollment in both years. Sample means are presented in Table 2, separately for metropolitan (located in a Metropolitan Statistical Area, or MSA) and non-metropolitan counties. The percentage of Medicare beneficiaries enrolled in an HMO in metropolitan counties increased from 8.8 to 13.4 percent between 1997 and 1999 while the percentage in non-metropolitan counties increased much more modestly from 2.2 to 2.6 percent. Recall from Table 1 that the HMO payment rate was increasing in non-metropolitan counties relative to metropolitan counties during this time period, and yet enrollment has grown more rapidly in urban areas.

I simulate the effect of the BBA when it is fully phased-in by applying the new pricing formula specified in the BBA to the prices that were in effect in 1997 under the former payment method. The output from this simulation is the price a Medicare HMO would receive for enrolling a Medicare beneficiary in each U.S. county for each year between 1997 and 2002.

To estimate the effect of the Medicare payment rates on HMO enrollment, I regress the change in the number of HMO enrollees per county between 1997 and 1999 on the per enrollee payment in 1997, the change in the per enrollee payment between 1997 and 2002, and the number of Medicare eligibles living in the county in 1997. All variables are measured in logarithms given the skewed nature of the data. The fully phased-in price change is used rather than the change between 1997 and 1999 because the policy essentially set prices for all five years. Forward-looking firms should make decisions about whether to exit the market and how to change the benefits offered to enrollees with long run payment rates in mind. The number of Medicare eligibles is included as a measure of the potential size, and

therefore profitability, of the market. The regressions are run separately for metropolitan and non-metropolitan counties given the marked differences in the HMO penetration levels in 1997 (Table 2).

Results

Coefficient estimates from the ordinary least squares regressions are reported in Table 3. The coefficient on the 1997 per enrollee payment is positive and significant, and the coefficient on the change in the per enrollee payment is insignificant in both regressions. Medicare HMO enrollment has grown in counties that had a relatively high payment rate in 1997, even though HMOs in these counties received relatively small price increases (about two percent per year in nominal terms). One possible explanation for this result is that HMOs in high-payment counties were earning economic rents in 1997. Although the reduction in the payments caused by the BBA might have trimmed these rents, the HMOs have not withdrawn from these markets or cut their benefits substantially (e.g., increasing the pharmaceutical co-payments, increasing the premium that the enrollee is responsible for) such that Medicare enrollees have switched back to the traditional Medicare system. The enrollment-price elasticities in both regressions are close to one; a one percent increase in the baseline HMO payment rate in 1997 is associated with a one percent increase in the growth rate of Medicare HMO enrollment.

There is no statistical relationship between the magnitude of the price *change* caused by the BBA and the subsequent change in the number of beneficiaries enrolling in HMOs. However, this may not necessarily imply that HMO enrollment is unresponsive to *changes* in the payment rate. There is a strong negative correlation (-0.91) between the HMO payment in 1997 and the magnitude of the *change* in the HMO payment between 1997 and 2002; counties with high initial payments are projected to experience relatively small increases in their payments between 1997 and 2002. It is difficult, therefore, to separate the effect of the initial level of payment from the effect of the change in the payment. When both these variables are included in the regression there is substantial colinearity between the two, which

increases the standard errors and might cause the coefficients to be insignificant.

The coefficient on the number of Medicare beneficiaries living in the county is negative and significant in both regressions. Controlling for the initial price and the change in the price, HMO enrollment grew more substantially in counties with a relatively small number of Medicare beneficiaries. Notice, however, that the coefficient on the number of beneficiaries is substantially smaller in magnitude than the coefficient of the initial per enrollee payment. This result is somewhat surprising, but it may be that the less populated areas had lower initial levels of Medicare HMO enrollment and therefore offered greater growth opportunities. Alternatively, if elderly households in small rural counties have lower incomes, then HMOs may be more attractive in these counties.

Discussion

The above empirical results provide mixed news for policy makers. The bad news is that the large payment increases instituted by the BBA for rural counties do not appear to have fostered substantial growth of Medicare HMOs in those areas. The good news is that the efforts by Congress to reduce HMO prices in markets with high prices does not appear to be destroying the Medicare HMO business. These prices were thought to be creating “excessive” profits for Medicare HMOs operating in metropolitan areas where the average medical cost per Medicare beneficiary had historically been high. The results of the regression analysis are consistent with this hypothesis. Medicare HMO enrollment has grown in counties that had a relatively high payment rate in 1997, even though the BBA substantially reduced, in real terms, HMO payments in these counties.

Table 1

Distribution of Monthly HMO Payment Per Medicare Enrollee, Actual 1997 and Projected 2002

Metropolitan Counties (n = 903)

	<u>1997</u>	<u>2002</u>
5 th percentile	\$223	\$445
25 th percentile	\$371	\$507
Median	\$423	\$517
75 th percentile	\$478	\$536
95 th percentile	\$582	\$638
Standard deviation	\$96	\$54
Coefficient of variation	0.23	0.10

Non-Metropolitan Counties (n = 2,305)

	<u>1997</u>	<u>2002</u>
5 th percentile	\$273	\$492
25 th percentile	\$328	\$507
Median	\$371	\$513
75 th percentile	\$420	\$521
95 th percentile	\$504	\$556
Standard deviation	\$71	\$27
Coefficient of variation	0.19	0.05

Source: Health Care Financing Administration; author's calculation.

Table 2
Sample Means

Metropolitan counties (n = 903)

<u>Variable</u>	1997		1999	
	<u>Mean</u>	<u>Standard Deviation</u>	<u>Mean</u>	<u>Standard Deviation</u>
Medicare beneficiaries	33123	59369	33673	59834
HMO enrollees	5719	18589	7150	20395
Monthly payment per enrollee	\$424	\$96	\$454	\$74
Percentage of beneficiaries enrolled in an HMO	8.8	11.7	12.0	13.4

Non-metropolitan counties (n = 2,305)

<u>Variable</u>	1997		1999	
	<u>Mean</u>	<u>Standard Deviation</u>	<u>Mean</u>	<u>Standard Deviation</u>
Medicare beneficiaries	3997	3747	4050	3819
HMO enrollees	130	473	158	558
Monthly payment per enrollee	\$376	\$71	\$420	\$47
Percentage of beneficiaries enrolled in an HMO	2.2	5.0	2.6	5.6

Table 3

Coefficient Estimates on the Change in Medicare Enrollment, 1997-1999

dependent variable = $\log(\text{Medicare HMO enrollment, 1999}) - \log(\text{Medicare HMO enrollment, 1997})$

Metropolitan counties (n = 899) Non-metro counties (n = 2,158)

<u>Variable</u>	<u>Coefficient Estimate</u>	<u>Coefficient Estimate</u>
log(payment per enrollee), 1997	1.10** (0.405)	0.902* (0.486)
Change in per enrollee payment, 1997 - 2002	-0.258 (0.484)	0.0435 (0.568)
log(Medicare beneficiaries in county), 1997	-0.134** (0.0126)	-0.103** (0.0095)
Constant	-5.29** (2.54)	-4.82* (3.06)
R ²	0.13	0.07

Notes:

Standard errors are in parentheses.

* = significantly different from zero at the 5 percent level.

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