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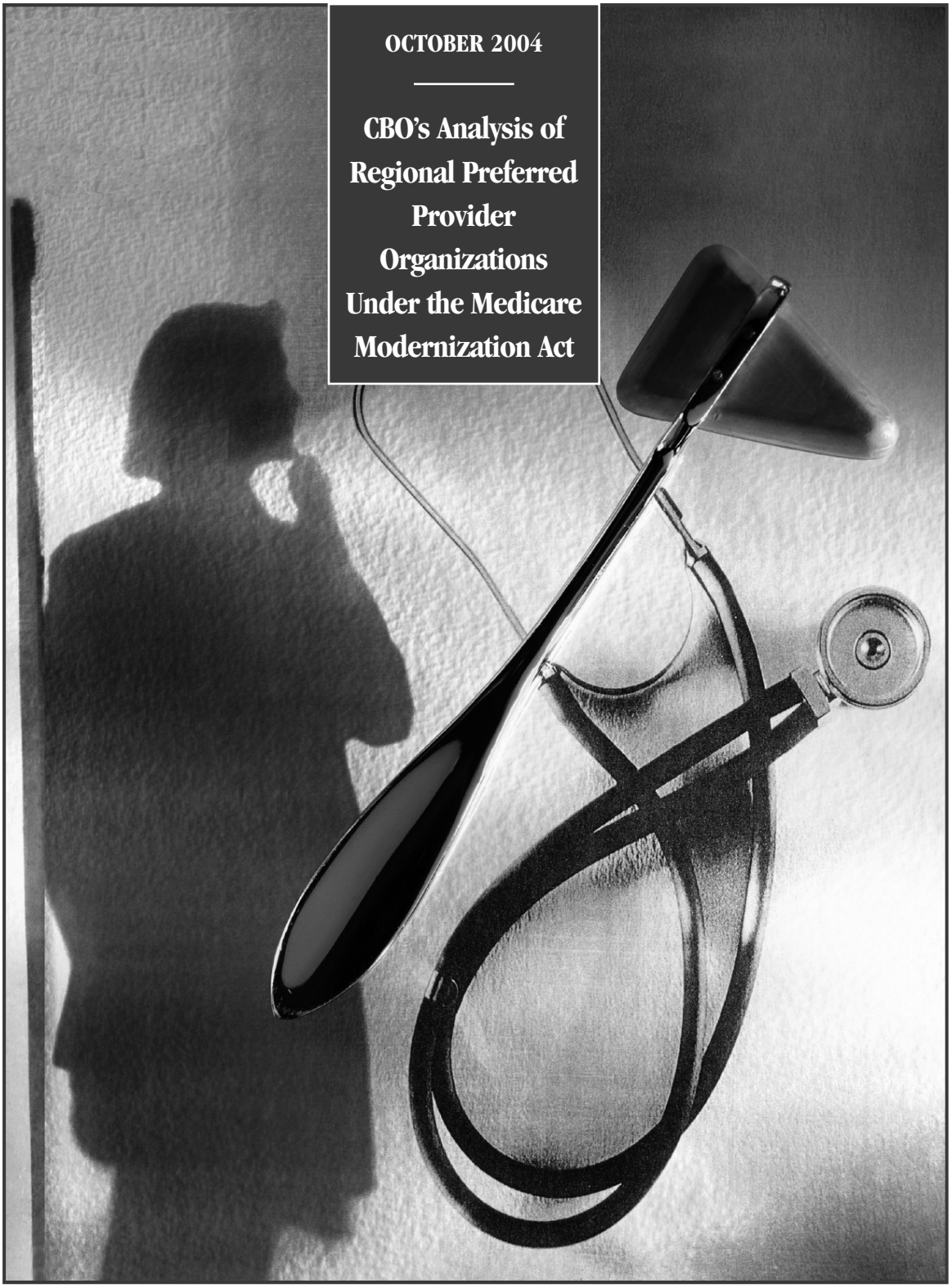
CBO's Analysis of Regional Preferred Provider Organizations Under the Medicare Modernization Act



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The Congress of the United States ■ Congressional Budget Office

Preface

The Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) made many changes to the Medicare program, including changes that increased the incentives for preferred provider organizations (PPOs) to serve broad regions of the country. About 13 percent of Medicare's 42 million beneficiaries currently are enrolled in private health plans; nearly all of those beneficiaries are in health maintenance organizations that primarily serve metropolitan areas. The service areas of regional PPOs generally would be larger than those of private plans that currently participate in Medicare and would include many areas that are not served by those plans.

This paper describes how the Congressional Budget Office (CBO) analyzed the likely effects of the MMA's provisions for regional PPOs. In accordance with CBO's mandate to provide objective, impartial analysis, this paper makes no recommendations.

Lyle Nelson of CBO's Health and Human Resources Division prepared the paper, with contributions from Shawn Bishop, under the general supervision of Steve Lieberman (formerly of CBO). Todd Anderson provided assistance with data and tabulations, and Meenakshi Fernandes fact-checked the paper. James Baumgardner, Tom Bradley, Philip Ellis, Arlene Holen, David Moore, Sven Sinclair, and Bruce Vavrichek, all of CBO, provided thoughtful comments on drafts, as did Joseph Antos of the American Enterprise Institute and William Scanlon, an independent consultant. (The assistance of external reviewers implies no responsibility for the final product, which rests solely with CBO.)

Christine Bogusz edited the paper, and John Skeen and Loretta Lettner proofread it. Maureen Costantino prepared the paper for publication and designed the cover. Lenny Skutnik produced the printed copies of the report, and Annette Kalicki produced the electronic versions for CBO's Web site (www.cbo.gov).

Douglas Holtz-Eakin
Director

October 2004

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CBO's Analysis of Regional Preferred Provider Organizations Under the Medicare Modernization Act

Summary and Introduction

The recently enacted Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) made many changes to the Medicare program, including changes in the way that private health plans are paid to provide Medicare benefits.[1] This paper focuses on a subset of those changes that affected a particular form of private health plan—preferred provider organizations, or PPOs—and PPOs' incentives to participate in Medicare and serve broad regions of the country. Although PPOs are widely used by privately insured Americans, few such plans have participated in the Medicare program.

PPOs are health plans that have networks of independent providers who have agreed to accept lower fees negotiated with the plan in exchange for access to a greater number of patients. Although PPOs will pay for covered services received outside their network, enrollees pay a smaller share of the costs when they use "in-network" providers. Compared with health maintenance organizations (HMOs), PPOs typically offer their enrollees a greater choice of providers and make fewer efforts to manage their enrollees' care.

Medicare's Experience with Private Health Plans

Private health plans have a long history of participating in Medicare. The Medicare risk program, implemented in 1985, permitted HMOs to participate in Medicare on a county-by-county basis and receive a fixed monthly payment for each beneficiary they enrolled. The participating health plans were known as risk plans because they were at financial risk if the costs of caring for enrollees exceeded their payments from Medicare. The payment rates were set at 95 percent of projected average per capita spending in the traditional fee-for-service (FFS) Medicare program at the county level. Plans that could deliver Medicare benefits at a cost below that payment rate were required to use the difference to provide additional benefits, such as prescription drugs and reduced cost-sharing on Medicare services, which provided a major incentive for beneficiaries to enroll. By 1997, 70 percent of Medicare beneficiaries lived in areas served by a risk plan, and 5.2 million beneficiaries (or 13.5 percent of the entire Medicare population) were enrolled in those plans.

The Balanced Budget Act of 1997 (BBA) replaced the Medicare risk program with the Medicare+Choice (M+C) program. The BBA and subsequent legislation substantially increased the payment rates offered to private health plans in some geographic areas—generally, those where plans either did not participate in Medicare or had small market shares—in an attempt to improve beneficiaries' access to plans. But the BBA also established a process whereby payment rates grew more slowly than private plans' costs in other geographic areas, particularly urban areas with substantial enrollment. The slow growth of payment rates in those areas contributed to a significant decline in the plans' availability and enrollment. The percentage of beneficiaries with access to a private plan fell from its peak of 74 percent in 1998 to 59 percent in 2003.[2] During that time, enrollment in private plans declined from 6.1 million to 4.6 million.

1. The Congressional Budget Office provided a detailed breakdown of its scoring of the entire MMA in its cost estimate titled *H.R. 1, Medicare Prescription Drug, Improvement, and Modernization Act of 2003* (November 2003). CBO's scoring of the MMA was also discussed by CBO Director Douglas Holtz-Eakin in his statement *Estimating the Cost of the Medicare Modernization Act,* before the House Committee on Ways and Means, March 24, 2004.

2. The statistics on plans' availability and enrollment in this section do not include private fee-for-service (PFFS) plans (which are discussed later in this paper) or plans that are paid by Medicare on a cost-reimbursement basis.

Provisions of the MMA Affecting Private Health Plans

The MMA made several changes to the payment system for private health plans and included incentives for plans to offer a PPO option to Medicare beneficiaries on a regionwide basis beginning in 2006. (Private health plans are now part of the newly named Medicare Advantage program, which replaced Medicare+Choice.)

Under the MMA, the existing payment system for "local" (county-based) plans was largely retained for 2004 and 2005, but the payment rates were increased. A modified payment system will be implemented in 2006 for both local plans and regional plans. The payment rates will become "benchmarks," and plans will submit bids reflecting the payment per enrollee for which they are willing to provide Medicare's covered benefits.[3] Plans will be paid their bids (up to the benchmarks) plus 75 percent of the amount by which the benchmarks exceed their bids. Plans must return that 75 percent to beneficiaries as additional benefits or as a rebate on their Part B or Part D premium.[4] Additional benefits and premium rebates will be the primary incentives for beneficiaries to enroll. Plans whose bids are above the benchmarks are required to charge enrollees the full difference as an additional premium for the Medicare benefit package.

Despite some differences in terminology, the bidding mechanism is analogous to current requirements, and the competitive pressures facing private plans will be similar. Currently, private plans that participate in Medicare submit a projection of the revenue per enrollee that they require to deliver Medicare's covered benefits, which is called the adjusted community rate (ACR). If a plan's ACR is less than its projected payment per enrollee from Medicare, it must return the difference to enrollees in the form of additional benefits or as a rebate of their Part B premium. Thus, the ACRs that plans submit under current law are analogous to the bids that plans will submit beginning in 2006.

The main distinction between the ACRs and the bids is in the amount that plans share with Medicare. Currently, plans can use 100 percent of the difference between their ACRs and their projected payments from Medicare to provide additional benefits. But for every dollar that they use to provide rebates on premiums, the Medicare program retains 20 cents and enrollees receive the other 80 cents. Under the MMA, plans must use 75 percent of the difference between their bids and the benchmarks for additional benefits or premium rebates, with Medicare always retaining the remaining 25 percent.

For the regional PPO program, the MMA requires the establishment of at least 10, but not more than 50, regions. PPOs that participate in Medicare in December 2005 will be allowed to continue to operate as local plans or to become regional plans. PPOs that enter Medicare in 2006 or 2007 will be required to operate as regional plans during that period; however, they may operate either as local plans or as regional plans after 2007. PPOs that enter Medicare after 2007 can operate as either local or regional plans.

Another aspect of the incentives for PPOs to participate on a regional basis is that the MMA established a "stabilization fund" that the Centers for Medicare and Medicaid Services (CMS) may draw from to increase regional benchmarks or to make bonus payments to plans during the 2007-2013 period. That fund will have an initial balance of $10 billion.

CBO's Analysis of the Regional PPO Program

All of the provisions in title II of the Medicare Modernization Act, which altered the payment system for private plans and established the regional PPO program, will increase federal spending by $14 billion over the 2004-2013 period, the Congressional Budget Office (CBO) estimates. Spending from the stabilization fund for the regional PPO program accounts for $10 billion of the total. (CBO assumed that the entire amount of the stabilization fund would be spent.) The provisions that raised payment rates for local plans (including local PPOs) account for the remaining $4 billion. CBO estimates that, other than the $10 billion in spending from the stabilization fund, the regional PPO program will have a negligible ef-

3. The benchmark for a local plan will be a weighted average of the county-level benchmarks in the plan's service area. The benchmark for a regional plan will be a blend of two components: a weighted average of the county-level benchmarks in the region and a weighted average of the bids in the region. The blend percentage applied to the bids will be the percentage of Medicare beneficiaries nationally who are enrolled in local or regional plans.

4. The premium paid by beneficiaries who are enrolled in Medicare Part B, which covers physicians' services, outpatient hospital services, certain home health services, and other services and medical supplies, is $66.60 per month in 2004. The Part D premium is the premium that beneficiaries who enroll in the voluntary outpatient prescription drug benefit (offered as Part D of Medicare beginning in 2006) will pay for that coverage.

fect on federal outlays. This paper describes the analyses that formed the basis for that estimate regarding regional PPOs.

To analyze the regional PPO program, CBO projected the bids that regional plans would submit by analyzing cost data from private plans that participate in Medicare. (Discussions with industry representatives also contributed to the analysis.) CBO then compared those bids with the benchmarks the plans would face. The difference provides a measure of the incentives for beneficiaries to enroll.

In projecting the bids of regional PPOs, CBO accounted for the fact that the service areas of such plans would include places where private plans are not currently available to Medicare beneficiaries. About 40 percent of beneficiaries live in such areas. CBO expects that the per-enrollee costs of PPOs in those areas will be higher—in some cases, substantially so—than local per capita FFS expenditures.[5]

Areas in which Medicare beneficiaries do not have access to private plans differ from other areas in various ways that influence health plans' costs. In particular, those areas are more likely to be rural and to have relatively low per capita expenditures in the Medicare FFS program. Because of their limited number, rural health care providers typically have significant negotiating leverage with private health plans. Consequently, the rates that private plans must pay rural providers are often substantially higher than Medicare's FFS rates. In addition, such areas tend to have low utilization of expensive services, so private plans have little or no opportunity to achieve savings relative to the Medicare FFS program through utilization management.

Apart from temporary increases in enrollment attributable to the stabilization fund, CBO expects that the establishment of the regional PPO program will not significantly increase the percentage of Medicare beneficiaries who are enrolled in private plans. CBO estimated that, in most regions, the bids of regional PPOs would either be above the benchmarks (in which case the PPOs would be required to charge enrollees an additional premium for Medicare benefits) or below the benchmarks by such a small amount that the PPOs would not be able to offer a sufficiently generous package of additional benefits or premium rebates to attract significant enrollments.[6]

Even in those regions where it appears that PPOs could submit bids significantly lower than the benchmarks, CBO expects that they probably will participate either as local plans (for example, by entering the program after the two-year moratorium on new local PPOs expires) or as regional plans but draw their enrollments almost entirely from areas that are served by local plans (for example, by concentrating their marketing in such areas). Those situations were a component of CBO's cost estimate of the provisions of the MMA that increased payment rates for local plans.

In general, CBO expects that PPOs will tend to enroll beneficiaries only in areas where their costs per enrollee of providing Medicare's covered benefits are substantially lower than the county-level benchmarks (which CBO estimates will be true only in certain areas that are currently served by local plans). Enrolling a substantial number of beneficiaries in areas where a plan's costs per enrollee were greater than, or only slightly lower than, the county-level benchmark would reduce the gap between the regional benchmark and the plan's bid. As a result, the amount of additional benefits or premium rebates that the plan could offer to attract enrollees would diminish, placing the plan at a competitive disadvantage relative to plans that operated only in areas where their local costs were substantially below the county-level benchmarks.[7]

In the great majority of regions, the benchmarks and the projected bids of regional PPOs are higher than per capita FFS expenditures. Therefore, if PPOs participated in those regions, Medicare outlays would increase.

The remainder of this paper discusses the basis for CBO's conclusions regarding regional PPOs by describing the following factors in detail:

5. CBO projects that the per-enrollee costs of PPOs also will be higher than local per capita FFS expenditures in many areas where private plans currently participate in Medicare.

6. CBO conducted the analysis using various approaches to defining regions that are consistent with the specifications in the MMA.

7. The MMA includes a provision to adjust the payments to both local plans and regional plans to account for geographic variation in county-level benchmarks. CBO assumed that this provision would be applied in an identical manner for regional and local plans, in each case adjusting the payment for a particular enrollee to reflect the benchmark in the county where that person lives.

- Medicare's experience with private health plans;
- The provisions of the MMA that establish a program for regional PPOs; and
- CBO's analysis of the costs of regional PPOs in the Medicare program, including a comparison of the bids that such plans would submit to provide Medicare's covered benefits and the benchmarks those plans would face.

Medicare's Experience with Private Health Plans

Since the Medicare program's inception in 1965, the vast majority of beneficiaries have received their care through a fee-for-service system in which Medicare pays providers on a piecemeal basis for each service they deliver. Over the past 20 years, efforts have been made to expand the delivery system to include private health plans that receive a fixed payment per enrollee and thus have incentives to seek efficiencies in delivering care.

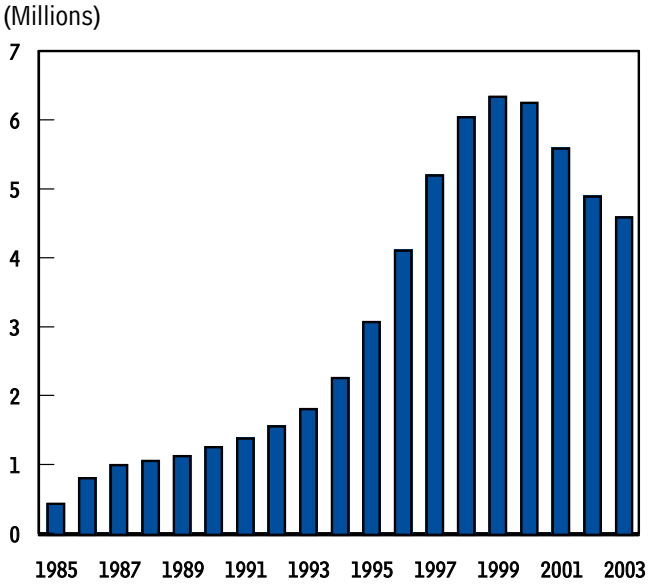
The Medicare Risk Program

The Medicare risk program, which was in force from 1985 to 1997, permitted HMOs to enroll Medicare beneficiaries and receive fixed monthly payments in return for providing all Medicare-covered services. Reflecting the expectation that HMOs would provide Medicare services more efficiently than the fee-for-service sector, payment rates were set at 95 percent of projected average per capita FFS expenditures at the county level. Payments were adjusted to account for differences between HMO enrollees and FFS beneficiaries with respect to selected demographic characteristics, such as age and sex. However, there is considerable evidence that Medicare HMO enrollees were healthier than FFS beneficiaries and that those differences were not fully accounted for by the demographic adjusters included in the payment formula.[8] That evidence suggests that the risk program did not save Medicare the intended 5 percent and may have led to even higher total spending on the program.

8. Michelle M. Mello and others, "Understanding Biased Selection in Medicare HMOs," *Health Services Research,* vol. 38, no. 3 (June 2003), pp. 961-992.

Figure 1.

Enrollment in Medicare Risk/ Medicare+Choice Plans, 1985 to 2003



Source: Marsha Gold and others, *Monitoring Medicare+Choice: What Have We Learned? Findings and Operational Lessons for Medicare Advantage* (report submitted by Mathematica Policy Research, Inc., to the Robert Wood Johnson Foundation, August 2004).

Note: The Balanced Budget Act of 1997 created the Medicare+Choice program to replace the Medicare risk program.

The payment system included an additional feature designed to prevent HMOs from earning a higher return on their Medicare business than on their commercial business. Each year, HMOs were required to submit an actuarial projection of the rate they would charge commercial enrollees for the Medicare benefit package, after accounting for differences between commercial enrollees and Medicare enrollees in the level and intensity of their use of services. If that projected rate, called the adjusted community rate, was less than the average payment a plan expected to receive from Medicare, the plan was required to provide the difference to enrollees in the form of additional benefits. Those additional benefits could include services not covered by Medicare, such as prescription drugs, and reductions in cost-sharing for Medicare services. Those richer benefit packages were a major incentive for beneficiaries to enroll in HMOs, and plans generally competed for enrollees on that basis.

Enrollment in Medicare HMOs grew slowly at first and then accelerated in the mid-1990s, reaching 5.2 million

(or 13.5 percent of the Medicare population) by 1997 (see Figure 1). Enrollment rates were highest in U.S. counties with higher payment rates, reflecting the fact that HMOs were more likely to serve such areas and were able to offer more-generous benefit packages there.[9] Medicare HMOs were heavily concentrated in urban areas. In 1996, 82 percent of beneficiaries in metropolitan areas lived in the service area of at least one Medicare HMO, compared with only 19 percent of beneficiaries in nonmetropolitan areas.[10] The proportion of Medicare beneficiaries enrolled in HMOs also varied greatly by state. In 1997, more than 35 percent of Medicare beneficiaries in Arizona and California were enrolled in HMOs, but there were 25 states in which fewer than 5 percent of Medicare beneficiaries were enrolled in HMOs.

The Medicare+Choice Program

The Balanced Budget Act of 1997 created the Medicare+Choice program to replace the Medicare risk program as the vehicle by which private health plans could participate in Medicare.

Key Provisions. Lawmakers established the M+C program to give Medicare beneficiaries access to an array of health plans comparable to those that were available to people with employment-based coverage. The BBA expanded the types of health plans eligible to participate in Medicare to include PPOs, provider-sponsored organizations, and private fee-for-service plans. The BBA also changed the method of setting payment rates for private health plans. Among the many competing objectives of the BBA, the new M+C payment method gave plans greater incentives to participate in areas with low per capita FFS spending levels (many of which are rural areas).[11] Under the Medicare+Choice program, the payment rate for each county was the greatest of three amounts:

- A minimum increase from the previous year's rate;
- A minimum (floor) rate; and
- A blend of a local (county-level) rate and the national rate.

The minimum increase was 2 percent in every year except 2001, when it was 3 percent. The BBA set the floor rate at $367 per month in 1998 and required the Centers for Medicare and Medicaid Services to update the floor rate and the local and national components of the blended rate each year by the projected change in national per capita Medicare expenditures, minus a specified reduction.[12] In 2001, lawmakers established separate floor rates of $525 and $475 for counties in a metropolitan area with a population of more than 250,000 and for all other counties, respectively.

The BBA specified that the local component of the blended rate was to be updated from the 1997 county-level rates under the Medicare risk program (thus reflecting local average costs in the FFS program); the national rate was the national average of the local rates. In computing the blended rate for a particular county, the BBA required that the national rate be adjusted to account for geographic variation in the prices of the "inputs" that private plans used to deliver Medicare's services.[13] The BBA established a budget-neutrality adjustment for the blended rates, which sought to ensure that total projected M+C payments each year were equal to the payments that would have been made if all plans had been paid the local rates. Because of that provision, 2000 is the only year in which the rates for any counties were based on the blend. In all other years, every county received either the minimum update or the floor rate.[14]

Experience Under Medicare+Choice. Under the M+C program, a substantial number of plans withdrew from Medicare or reduced their service area, and many plans significantly lessened the generosity of their benefits.[15]

9. Timothy D. McBride, "Disparities in Access to Medicare Managed Care Plans and Their Benefits," *Health Affairs,* vol. 17, no. 6 (November/December 1998), pp. 170-180.

10. Ibid.

11. The BBA also required Medicare to develop and implement a new method of risk adjustment to account for differences in beneficiaries' health status as well as differences in their demographic characteristics in setting payments.

12. The reduction applied to the update was at its highest in 1998 (at 0.8 percentage points) and declined to zero in 2003.

13. CMS implemented that requirement by adjusting the national rate to account for geographic variation in the wages of hospital employees and the costs of the inputs used by physicians to deliver Medicare's services.

14. The budget-neutrality adjustment was applied only to the blended rates, because the BBA did not allow rates to be reduced below the floors or minimum update amounts. Consequently, it was not possible to achieve overall budget neutrality every year.

15. Marsha Gold, "Medicare+Choice: An Interim Report Card," *Health Affairs,* vol. 20, no. 4 (July/August 2001), pp. 120-138.

By 2003, the fraction of beneficiaries who had access to a private plan had fallen to 59 percent, from a high of 74 percent in 1998, and the enrollment in private plans had fallen to 4.6 million, from a high of 6.3 million in 1999 (see Figure 1).[16] Few of the new types of plans authorized by the BBA entered the program.[17]

M+C payment rates grew more slowly than private plans' costs in some areas of the country, particularly urban areas that previously had substantial enrollment. Some of those areas received the minimum payment update in most (or all) years. Other areas, particularly those where plans did not operate or those with small Medicare market shares, saw significant increases in the payment rates that were offered. Nationally, M+C payment rates (weighted by M+C enrollment) increased by about 2 percent in both 1998 and 1999 and grew at an average annual rate of 3.2 percent from 1997 to 2003. The slow growth in payment rates in areas where private plan enrollees were concentrated contributed to the decline in plans' availability and enrollment.[18]

By design, the statutory payment floors caused M+C payment rates to grow more rapidly in counties where FFS spending was low. In the lowest-spending counties (those with 2003 per capita FFS expenditures of less than $400 per month), payment rates increased by an average of 67 percent from 1997 to 2003 (see Table 1).[19] In the highest-spending counties (those with 2003 per capita FFS expenditures of at least $650 per month), payment rates increased by only 14 percent.

The large increases in payment rates in areas where FFS spending was low, however, did not result in significantly larger M+C enrollments in those areas. In the lowest-spending counties, where M+C payment rates had grown to an average of 36 percent higher than per capita FFS expenditures by 2003, the percentage of Medicare beneficiaries who were enrolled in private plans increased but remained low, rising from 0.5 percent in 1997 to 1.8 percent in 2003 (see Table 1). In counties in the next-lowest spending category (where per capita FFS expenditures in 2003 were greater than $400 but less than $450), the percentage of Medicare beneficiaries who were enrolled in private plans remained stable at about 6 percent, despite the fact that M+C payment rates in those areas had grown to an average of 23 percent higher than per capita FFS expenditures by 2003. That limited M+C enrollment—even with payment rates that were substantially higher than per capita FFS expenditures—indicates that there are factors that hinder plans' ability to operate in such areas, including high costs relative to payment rates, providers' resistance to contracting with private plans, or beneficiaries' reluctance to enroll in private plans.

Private fee-for-service plans, which were not included in the estimates of private plan participation and enrollment presented above, serve many areas that are not covered by Medicare+Choice HMOs. PFFS plans are not required to have provider networks, they do not attempt to coordinate care, and their enrollees are allowed to obtain care from any provider who will furnish it. Only three PFFS plans participated in Medicare in 2003, but they each had large multistate service areas. In all, although more than 15 million beneficiaries (or about 38 percent of the Medicare population) lived in areas served by a PFFS plan in 2003, fewer than 25,000 beneficiaries were enrolled in such plans. About half of the beneficiaries who had access to PFFS plans in 2003 did not have access to a Medicare HMO, and about a third lived in nonmetropolitan areas.

PFFS plans are permitted to use Medicare fee-for-service rates to reimburse providers. Thus, their greatest potential for success would appear to be in areas where M+C payment rates are much higher than per capita FFS expenditures (which tend to be rural areas and other areas with low FFS spending levels), where the potential gap between their costs of providing Medicare benefits and their payments from Medicare is greatest. The small number of PFFS plans that have participated in Medicare, along with the limited enrollment in such plans, is further evidence of the challenges facing private

16. The estimates of plans' availability and enrollment do not include PFFS plans, which are discussed later in this section.

17. Additional PPOs entered the Medicare PPO Demonstration in 2003, which offered more favorable terms than the M+C program.

18. Robert E. Hurley, Joy M. Grossman, and Bradley C. Strunk, "Medicare Contracting Risk/Medicare Risk Contracting: A Life Cycle View from Twelve Markets," *Health Services Research,* vol. 38, no. 1, part II (February 2003), pp. 395-417.

19. All counties in the United States were included in this analysis, and payment rates were weighted by the number of beneficiaries in each county.

Table 1.

Changes in the Percentage of Medicare Beneficiaries Enrolled in Private Plans and Increases in Payment Rates, 1997 to 2003

Average per Capita FFS Expenditure per Month in 2003	Percentage of Beneficiaries	Percentage Increase in Payment Rates, 1997 to 2003	Ratio of M+C Payment Rate to per Capita FFS Expenditures, 2003	Percentage of Medicare Beneficiaries Enrolled in Private Plans[a]	
				1997	2003
Less Than $400	2.9	66.8	1.36	0.5	1.8
$400 to $449	9.2	49.7	1.23	5.9	6.2
$450 to $499	16.5	40.1	1.14	6.1	6.2
$500 to $549	19.4	26.8	1.05	11.4	9.7
$550 to $599	14.7	20.9	0.98	12.6	9.4
$600 to $649	12.6	17.2	0.94	18.4	12.9
$650 and Higher	24.8	14.2	0.96	22.4	19.1
Total	**100.0**	**24.7**	**1.04**	**13.5**	**11.3**

Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

Notes: CBO weighted the payment rates and per capita FFS expenditures by the number of beneficiaries in each U.S. county and used those weighted averages to calculate the changes in payment rates and the ratio of M+C payment rates to per capita FFS expenditures.

FFS = fee for service; M+C = Medicare+Choice.

a. In 1997, private plan enrollees were beneficiaries enrolled in Medicare risk plans. In 2003, they were beneficiaries enrolled in M+C plans.

plans in rural areas and other areas where per capita FFS spending is low.

The MMA's Regional PPO Program

Preferred provider organizations have become the most popular form of health insurance among privately insured people, selected by 55 percent of the workers enrolled in employment-based health plans in 2004.[20] The key component of a PPO is a network of providers who agree to accept discounted payment rates in exchange for access to a larger volume of patients. A PPO will pay for covered services furnished by a nonnetwork provider, but enrollees have financial incentives (in the form of lower fees and lower copayments) to obtain their care in the PPO network. Compared with HMOs, PPOs offer enrollees a greater choice of providers and employ less utilization management. In particular, PPOs typically do not require enrollees to select a primary care physician who is responsible for coordinating their care.[21]

The Medicare Modernization Act included provisions that affected the incentives for private health plans to offer a PPO option to Medicare beneficiaries on a region-wide basis beginning in 2006. The law requires that CMS establish at least 10 regions but no more than 50 and that they be defined to maximize the availability of regional plans. Plans may offer PPOs in as many regions as they wish. PPOs that participate in Medicare in December 2005 will be allowed to continue on a county-by-county basis (or as local plans in the terminology of the MMA) or they can convert to the regional program. New PPOs that enter Medicare in 2006 or 2007 will be required to be regional plans. After 2007, PPOs may participate on either a local or a regional level.

The MMA retained the basic structure of the M+C payment method for 2004 and 2005 but modified it to in-

20. Kaiser Family Foundation and Health Research and Educational Trust, *Employer Health Benefits 2004 Annual Survey,* available at www.kff.org.

21. Many large health plans offer both HMO products and PPO products in their commercial business. The term PPO is used in this paper to refer to the PPO product and, in cases in which the meaning is clear, the health plan offering the PPO product.

crease the rates.[22] Beginning in 2006, the payment rates will be called benchmarks, and a new payment system will be implemented for both local plans and regional plans. Both types of plans will submit bids reflecting the per capita payment for which they are willing to provide Medicare (nondrug) benefits for a "standard beneficiary."[23] Plans' bids will be compared to the benchmark amounts. Medicare will pay plans their bids (up to the benchmarks), plus 75 percent of the amount by which the benchmarks exceed the bids. Plans must then return that 75 percent to enrollees in the form of extra benefits or as rebates on their Part B or Part D premium. Plans with bids above the benchmarks must charge beneficiaries the full difference as an additional premium for the Medicare benefit package. Thus, beneficiaries will face financial incentives to enroll in plans with low bids.

For a local plan, the benchmark will be a weighted average of the statutorily determined county-level benchmarks in the plan's service area. For a regional plan, the benchmark will be a blend of the county-level benchmarks within the region and the regional bids. The blend percentage applied to the bids in the region will be the national percentage of beneficiaries who are enrolled in a local or regional private plan. The MMA includes a provision to adjust the payments to both local plans and regional plans to account for variations in county-level benchmarks. CBO assumed that this provision would be implemented in an identical manner for regional and local plans, in each case adjusting the payment for a particular enrollee to reflect the local benchmark in the county where that person lives.

The bidding mechanism that takes effect in 2006 will be similar to current requirements. The bids to be submitted are analogous to the ACRs that plans currently submit; both reflect plans' projections of the revenue per enrollee that they require to provide Medicare's covered benefits. The bidding mechanism will preserve a central feature of the current payment system—plans will compete for enrollees by offering additional benefits or rebates of premiums. Currently, the amount of additional benefits or premium rebates that plans must offer is determined through a comparison of their ACRs with their projected per capita payments from Medicare. In the bidding mechanism to be implemented in 2006, the amount of additional benefits or rebates to be offered will be determined through a comparison of the plans' bids with their benchmarks.

The main distinction between the two payment systems is in the portion that plans share with Medicare. Through 2005, plans can use 100 percent of the difference between their ACRs and their projected payments from Medicare to provide additional benefits. But for every dollar that plans use to provide premium rebates, the Medicare program retains 20 cents and beneficiaries receive the other 80 cents. Under the MMA, plans must use 75 percent of the difference between their bids and benchmarks for either extra benefits or premium rebates, with Medicare always retaining the remaining 25 percent.

The MMA includes several incentives for private health plans to participate as regional PPOs. First, the Medicare program will share the risk for medical expenses with all regional plans for the first two years (2006 and 2007). Symmetric risk corridors will be established so that regional plans will share some of their losses or profits (depending on whether their costs of providing Medicare benefits turn out to be higher or lower than they estimated in their bids) with the Medicare program.[24] Second, the Secretary of the Department of Health and Human Services may draw from a stabilization fund to increase regional benchmarks or make bonus payments to plans that participate on a regional or national basis. The stabilization fund, which will be capitalized with $10 billion, will be available from 2007 through 2013. Third, Medicare will provide up to $25 million in 2006 to subsidize services furnished by certain "essential" hospitals to enrollees in regional plans. That amount will be updated in subsequent years according to the increase in the hos-

22. The minimum increase is now the greater of 2 percent or the projected growth in per capita Medicare spending. Among the other changes the law requires, the payment formula (described on page 5) in 2004 includes a fourth option, which is the level of per capita FFS expenditures in the county. After 2004, each county's rate will be updated from the previous year's rate according to the new formula specifying a minimum increase.

23. A standard beneficiary is an individual with characteristics that, based on the risk-adjustment mechanism in the payment formula, is expected to have average Medicare expenditures (at the national level). Plans must also submit separate bids for Part D (prescription drug) benefits and for any supplemental benefits they offer, such as reductions in cost-sharing for Medicare services or additional benefits not covered by Medicare.

24. Regional plans will be at full risk for medical expenses that are within 3 percent of a target amount and will share the risk with Medicare for expenses outside that range.

pital market basket index, which measures the increase in the prices of inputs used by hospitals.

Analyzing the Regional PPO Program

In analyzing the regional PPO program, CBO estimated the bids that plans would submit under the program and compared those bids with the regional benchmarks. In general, the lower the bids relative to the benchmarks, the greater the anticipated enrollment in regional PPOs, because lower bids would allow PPOs to offer more-generous benefit packages or larger premium rebates. CBO assumed that PPOs would be unlikely to enter the program unless they could attract significant enrollment—which, in turn, would require that their bids be substantially below the benchmarks. CBO further assumed that if any plans participated but had bids that were either above the benchmarks or only slightly below the benchmarks, they would have very small enrollment.

CBO estimated the effects of the regional PPO program on Medicare outlays by comparing the amount per enrollee that Medicare would pay the plans with per capita FFS expenditures in each region. Inducing beneficiaries to switch from the FFS sector to regional PPOs would reduce total Medicare outlays only if Medicare's payments for PPO enrollees were less than what it would have cost the program to cover those beneficiaries in the FFS sector.

In developing its estimate of the costs of the regional PPO program, CBO assumed that the entire amount of the stabilization fund would be spent. The analyses in this paper formed the basis for CBO's estimate of the costs of the regional PPO program other than those costs attributable to the stabilization fund.

CBO projected the bids of regional PPOs by estimating the per capita costs that PPOs would face at the county level and then totaling those costs for regions.[25] CBO assumed that plans' bids would reflect their costs of providing Medicare's required benefits at the statutory cost-sharing level or at an actuarially equivalent level, as required by the MMA. To put costs and benchmarks on a comparable basis, CBO assumed that the distribution of PPO enrollees across counties within each region would equal the corresponding distribution of the Medicare population.[26] PPOs' costs were estimated from the costs of M+C plans, virtually all of which are HMOs. CBO used information from industry sources and prior research to predict how the costs of PPOs would differ from those of HMOs. In addition, because regional PPOs would be required to serve geographic areas that are not served by M+C plans, CBO used multivariate regression analysis to predict PPOs' costs in those areas. That component was a critical part of CBO's approach, because geographic areas that are not served by M+C plans differ greatly from other areas in a number of ways that are expected to influence private health plans' costs. In projecting the costs of regional PPOs, CBO assumed that plans would be required to meet the same network adequacy standards that they were required to meet under the M+C program.

CBO also examined cost projections submitted by plans that are participating in the Medicare PPO Demonstration that began in 2003 (see Box 1). The PPOs in the demonstration were permitted to select particular counties to serve; nearly all of them serve metropolitan counties that are also covered by Medicare HMOs. CBO used the cost projections of the demonstration PPOs as an additional source of data on cost differences between PPOs and HMOs. Information from the Medicare PPO Demonstration had a limited role in CBO's analysis, however, because the demonstration covers selected geographic areas that are not representative of the nation as a whole, and the participating plans may not be representative of those that might participate more broadly in the regional PPO program.

The next section of this paper presents CBO's analysis of the costs of M+C plans. That is followed by a discussion of why costs for M+C plans vary geographically and differ from costs in the Medicare FFS program, which

25. In this paper, a health plan's costs refer to its required revenues for providing Medicare-covered benefits, including administrative costs and an allowance for normal profits.

26. The basic conclusions of the analysis are not sensitive to that assumption. To the extent that enrollment would be concentrated in counties with local plans, the effects were captured in CBO's analysis of the MMA's provisions affecting local plans. To the extent that enrollment would be concentrated in counties without local plans, regional PPOs would be even less viable than this analysis concludes.

Box 1.

The Medicare PPO Demonstration

In contrast with their widespread availability and enrollment in the privately insured health care market, preferred provider organizations (PPOs) have a limited history in Medicare. Although the Balanced Budget Act of 1997 allowed health plans to offer PPOs to Medicare beneficiaries beginning in 1999, few did so until the Medicare PPO Demonstration began in January 2003. The demonstration was designed to attract private plans by offering three features:[1]

- Payment rates in each county were equal to the greater of 99 percent of average fee-for-service expenditures or the Medicare+Choice payment rate;
- PPOs were allowed to enter into risk-sharing arrangements with the Centers for Medicare and Medicaid Services; and
- Requirements for quality assurance monitoring and reporting were lessened for demonstration PPOs to reduce their administrative burden.

1. Marsha Gold, Lori Achman, and Jim Verdier, *The Medicare Preferred Provider Organization Demonstration: Overview of Design, Characteristics, and Outstanding Issues of Interest* (report prepared by Mathematica Policy Research, Inc., for AARP, June 2003), available at www.aarp.org/ppi.

Those features persuaded some 17 health plans to participate in the demonstration, which ends in December 2005.[2] The demonstration PPOs primarily serve metropolitan counties that are also served by Medicare's health maintenance organizations (HMOs). Some 94 percent of beneficiaries with access to a demonstration PPO live in metropolitan counties, and 92 percent have access to a Medicare HMO. In contrast, only 69 percent of beneficiaries who do not have access to a demonstration PPO live in metropolitan counties, and only 46 percent have access to a Medicare HMO.

Just over 10 million beneficiaries, or about one-quarter of the entire Medicare population, live in the service area of a demonstration PPO. Yet only about 100,000 beneficiaries had enrolled in a demonstration PPO as of September 2004. Nearly half of the demonstration enrollees are in a single plan that replaced one of its Medicare HMO products with the PPO demonstration product. On the basis of enrollment trends, it appears that most of the enrollees in that PPO switched from the plan's HMO product.

2. The 17 health plans have 35 contracts with Medicare that cover different geographic areas.

provides a basis for understanding projected costs for PPOs. The following section describes how CBO estimated PPOs' costs for areas that are served by county-based plans and those that are not. The final section compares the estimated bids of regional plans with the benchmarks and uses those comparisons to draw conclusions regarding the likely enrollment in regional PPOs.

The Costs of Medicare+Choice Plans

In their annual ACR submissions, M+C plans project their costs of providing Medicare benefits (including administrative costs and normal profits) given the expected characteristics of their enrollees. CBO standardized those projected costs to reflect the costs that would be expected for a standard beneficiary in each county. The per capita FFS expenditures were similarly standardized (by CMS) to make them comparable.[27] CBO's estimates are based on ACR data submitted for 2002, the most recent data available when CBO conducted its analysis for its cost es-

27. The standardization was based on the demographic factors included in the payment mechanism. A standard beneficiary has a nationally average demographic profile—that is, at the national level, he or she is expected to have average Medicare expenditures.

Table 2.

Costs per Enrollee of Medicare+Choice Plans Based on County-Level Estimates, 2002

Mean per Capita FFS Expenditure per Month in County	Percentage of M+C Enrollees	Mean Plan Cost per Enrollee (Dollars)	Ratio of Plan Costs to Per Capita FFS Expenditures	Ratio of Plan Costs to M+C Payment Rate	Ratio of M+C Payment Rate to per Capita FFS Expenditures
Less Than $400	1.3	464	1.24	0.88	1.41
$400 to $449	6.7	474	1.11	0.88	1.26
$450 to $499	9.2	491	1.03	0.90	1.16
$500 to $549	19.0	500	0.96	0.90	1.07
$550 to $599	16.5	524	0.91	0.90	1.02
$600 to $649	18.3	531	0.85	0.88	0.96
$650 and Higher	29.0	594	0.86	0.87	1.00
Total	**100.0**	**531**	**0.93**	**0.88**	**1.05**

Source: Congressional Budget Office based on data (adjusted community rates) submitted by M+C plans for 2002. Costs in this analysis are the plans' projected costs of providing the standard Medicare benefit package, including administrative costs and profits.

Notes: For each U.S. county, the mean plan cost is the enrollment-weighted average of the county-level cost of the plans that serve the county. Only counties that had plans in 2002 were included in the analysis.

FFS = fee for service; M+C = Medicare+Choice.

timates of the MMA.[28] Subsequently, CBO replicated its analysis using 2003 ACR data and obtained similar results.

In the past, analysts have expressed concerns about the reliability of the data in plans' ACR submissions. To address those concerns, CMS began using a completely revised ACR reporting form in 2000 and began subjecting plans to more extensive auditing. Although there may be inaccuracies in the ACR submissions, they are still an appropriate data source for this analysis because plans present through their ACRs the same information that they will reveal through their bids—namely, the revenue per enrollee that they need to receive to provide Medicare's covered benefits.

In 2002, M+C plans operated in less than 20 percent of U.S. counties, but those counties contained about 61 percent of the Medicare population. In those areas, M+C plans delivered Medicare services at a cost per enrollee that was, on average, 7 percent lower than per capita FFS expenditures (see Table 2).[29] Private plans' costs relative to per capita FFS expenditures vary greatly among counties, however. For example, private plans' costs were much higher relative to FFS expenditures in counties where FFS spending was low. On a per capita basis, private plans' costs averaged 24 percent higher than FFS expenditures in the lowest-spending counties (those with per capita FFS spending of less than $400 in 2002) but 14 percent lower than FFS expenditures in the highest-spending counties (those with per capita FFS spending of at least $650 in 2002).[30]

On average, private plans' costs per enrollee were higher than per capita FFS expenditures in counties where per capita FFS spending was less than $500 per month (see Table 2). Private plans can operate in those areas because

28. To compare plans' costs with FFS spending, CBO used 2003 county-level per capita FFS expenditure data from CMS and deflated those estimates to 2002 (county-level estimates were not available for 2002). After CBO released its estimate of the effects of the MMA on federal costs, CMS revised its estimates of national FFS expenditures in 2002 and 2003. The estimates in this paper incorporate those revised estimates of FFS spending. That change had a relatively minor effect on the estimated relationship between plans' costs and FFS spending.

29. Estimated FFS expenditures include the administrative costs of processing Medicare FFS claims, which in 2002 were 0.2 percent of benefit payments for Part A services and 1.5 percent of benefit payments for Part B services.

30. ACR filings contain data at the plan level and are not broken out by county. CBO used a procedure described in the appendix to estimate plans' costs at the county level.

Medicare's payment rates are higher than per capita FFS expenditures—in some cases, substantially higher. For example, in counties that were served by M+C plans in 2002 and where per capita FFS spending was less than $400, payment rates were 41 percent higher than per capita FFS spending.

M+C plans' per capita costs in 2002 were, on average, 12 percent lower than the payments they received from Medicare. That difference translated into an average of $72 per month that plans offered as additional benefits to their enrollees. Despite the offer of those additional benefits, only 20 percent of beneficiaries who lived in the service area of an M+C plan in 2002 were enrolled in such a plan. That evidence indicates that, in general, plans must offer a substantial amount of additional benefits to induce beneficiaries to enroll in managed care plans and accept the utilization controls and restrictions on choosing a health care provider that distinguish such plans from coverage in the FFS sector.

The packages of additional benefits that plans offered in 2002 were less generous than what plans had offered at the beginning of the M+C program, because payment rates in the areas where enrollment was concentrated grew more slowly than plans' costs.[31] By 2002, a substantial number of M+C plans had withdrawn from the program or reduced their service area, and M+C enrollment had fallen significantly. Therefore, the 12 percent difference between plans' costs and payment rates measured in 2002 may not be sufficient for plans to enter new areas and attract substantial numbers of new enrollees.

Variation in M+C Plans' Costs

Why do private plans' costs relative to fee-for-service expenditures vary so much among geographic areas? And why are those ratios higher in geographic areas where FFS spending is low? In general, the costs of private plans relative to FFS expenditures depend on the net effect of three factors:

- The level and intensity of beneficiaries' use of services in private plans relative to their use of services in the FFS sector;
- The payment rates that providers receive from private plans relative to the rates they receive from FFS Medicare; and
- The administrative costs of private plans relative to those of FFS Medicare.

In all geographic areas, private plans have higher administrative costs per enrollee than FFS Medicare because of their smaller scale of operations and their costs associated with marketing, utilization management, network development and retention, and reinsurance. Administrative costs and profits account for about 11 percent of M+C plans' costs of delivering Medicare benefits, whereas the administrative costs of the Medicare program account for less than 2 percent of benefit payments.[32] Thus, private plans can provide Medicare services at a lower cost than the FFS sector only if they can achieve savings through utilization management or reductions in providers' payment rates that more than offset their higher administrative costs. The ability of plans to achieve such savings varies greatly among geographic areas.

Savings Through Utilization Management. The available evidence suggests that, in general, HMOs constrain medical costs by reducing the level and intensity of service utilization, particularly by limiting visits to specialists, inpatient hospital care, costly tests and procedures, and services in intensive care units.[33] HMOs use various approaches to reduce the use of those services, including selective contracting with low-cost providers, coordination of care by primary care physicians, requirements for prior authorization, financial incentives to providers to discourage excessive use of services, and programs to educate providers and offer feedback on their patterns of practice.

Private plans have much greater potential to achieve savings through utilization management in geographic areas where FFS practice involves relatively high utilization of costly services—which also tend to be areas with high per capita FFS expenditures. Plans have little or no opportunity to achieve savings through those approaches in areas

31. Lori Achman and Marsha Gold, *Trends in Medicare+Choice Benefits and Premiums, 1999-2002* (report prepared by Mathematica Policy Research, Inc., for the Commonwealth Fund, November 2002).

32. CBO computed the average administrative cost of M+C plans from 2002 ACR data. Information on Medicare's administrative costs is available from CMS at www.cms.hhs.gov/charts/default.asp.

33. Robert H. Miller and Harold S. Luft, "HMO Plan Performance Update: An Analysis of the Literature, 1997-2001," *Health Affairs,* vol. 21, no. 4 (July/August 2002).

where utilization rates for expensive services in the FFS sector are already relatively low. Those areas tend to have low per capita FFS expenditures, which explains the findings presented in Table 2 showing that plans' costs are higher relative to FFS spending in areas where FFS spending is low.

Savings Through Reductions in Providers' Payment Rates. One of the approaches that health plans use to reduce spending for the privately insured is to contract with providers who are willing to accept discounted payment rates in exchange for a greater number of patients. Those discounted rates generally exceed the rates that Medicare pays to providers. An analysis of claims data conducted for the Medicare Payment Advisory Commission (MedPAC) found that, on average, private insurers paid physicians about 20 percent higher rates than Medicare paid in 2001.[34] In general, the fees that private insurers pay physicians are slightly higher than Medicare's fees for office visits and other medical services but are substantially higher for major procedures, tests, and diagnostic imaging.

Less information is available on how the hospital payment rates of private plans compare with those of Medicare.[35] In recent years, the rates that private plans pay hospitals have grown substantially, as hospitals have achieved much stronger bargaining positions relative to health plans.[36] The stronger negotiating positions of hospitals are the result of various factors, including hospital consolidations, strong consumer preferences that hospitals not be excluded from the networks of private plans, and high demand for hospital services relative to the available supply in some markets, which reduces hospitals' incentive to accept discounts.

Differences between the rates paid to physicians by private insurers and those paid by Medicare also vary geographically. In the Medicare FFS program, payment rates for physicians vary to account for differences in providers' input costs. Relative to Medicare FFS rates, the rates paid by private insurers are higher in rural areas and small metropolitan areas than in large metropolitan areas. According to one study, the rates paid to physicians by private plans are an average of 30 percent higher than Medicare's rates in small metropolitan areas and rural areas, 10 percent higher in medium-sized metropolitan areas, and 1 percent higher in large metropolitan areas.[37] In addition, although rural hospitals have lower margins on their Medicare business than urban hospitals, rural hospitals have greater total margins because the payments they receive from private health plans exceed their associated costs by a much greater percentage than is true for urban hospitals.[38] Those findings are supported by industry sources who have reported that private plans typically must pay rates in rural areas that far exceed Medicare's rates because of the lack of competition among providers in such areas. That factor contributes to the higher relative costs reported for plans in counties where FFS expenditures are low, since those areas are more likely to be rural.

Estimating the Costs of Medicare PPOs

Although the preceding analysis explains why private plans' costs might diverge from per capita FFS spending, CBO's quantitative analysis was based primarily on cost information provided by Medicare plans themselves and not on specific assumptions about payment rates, service utilization rates, or administrative costs. Specifically, CBO estimated the costs that PPOs would incur to provide Medicare services using 2002 data on the costs of M+C plans. Because virtually all M+C plans are HMOs, CBO assumed an overall average difference in costs between HMOs and PPOs that captured the net effect of differences in payment rates, service utilization rates, and

34. Direct Research, LLC, *Medicare Physician Payment Rates Compared to Rates Paid by the Average Private Insurer, 1991-2001* (report prepared for the Medicare Payment Advisory Commission, August 2003).

35. Comparisons of payment-to-cost ratios for Medicare and private payers reported by MedPAC suggest that private plans' payment rates for hospital services are higher than Medicare's rates. Because of data limitations, however, it is not possible to quantify the difference.

36. Justin S. White, Robert E. Hurley, and Bradley C. Strunk, "Getting Along or Going Along? Health Plan-Provider Contract Showdowns Subside," Center for Studying Health System Change, Issue Brief No. 74 (January 2004).

37. Dyckman & Associates, *Survey of Health Plans Concerning Physician Fees and Payment Methodology* (report prepared for the Medicare Payment Advisory Commission, August 2003). In the analysis cited, small metropolitan areas are those with a population of less than 1 million, medium-sized metropolitan areas are those with a population between 1 million and 3 million, and large metropolitan areas are those with a population of over 3 million.

38. Medicare Payment Advisory Commission, *Medicare in Rural America* (report to the Congress, June 2001).

administrative costs. The analysis was conducted separately for counties where M+C plans operate and counties where they do not, because the two sets of counties differ greatly in terms of the characteristics that influence private plans' costs.

Counties Where M+C Plans Operate. In counties with M+C plans, CBO used the costs of those plans to estimate the costs that PPOs would face. To estimate those costs, however, CBO needed information on how PPOs differ from HMOs in their ability to control costs. Previous studies of the effects of private health plans on health care spending and service utilization have focused primarily on HMOs. There is little empirical evidence on the effects of PPOs. However, based on published descriptions of how PPOs and HMOs differ and on information obtained from industry sources, CBO expects that PPOs will have higher costs per enrollee than HMOs for a given benefit package.[39]

Differences Between PPOs and HMOs in Their Ability to Control Costs. PPOs are less likely than HMOs to manage service utilization because they offer enrollees a greater choice of providers and employ less utilization management. Because many PPOs have broader provider networks than HMOs do, they have less success in directing enrollees to the lowest-cost providers in a community. Industry sources also report that PPOs typically pay providers higher rates than those paid by HMOs, which are able to negotiate lower rates from providers in exchange for a higher anticipated number of patients. PPOs have less ability than HMOs to steer enrollees to particular providers—and thus less leverage for negotiating lower rates—because of their broader networks of providers and the ability of enrollees to obtain care outside the network. At the same time, PPOs have lower administrative costs than HMOs, in part because they engage in less care management. Those lower administrative costs offset some of the higher costs that PPOs incur as a result of greater utilization rates and higher payment rates to providers.

Based on information obtained from industry sources, including insurers that offer both PPO and HMO products, CBO assumed that PPOs would deliver Medicare services at an overall cost per enrollee that was 10 percent higher than that of HMOs. That 10 percent cost difference is consistent with cost projections submitted by PPOs for the first year of the Medicare PPO Demonstration. According to an analysis of financial projections submitted by the demonstration PPOs, the PPOs' projected costs per enrollee were, on average, about 3 percent higher than per capita FFS expenditures in their service areas and about 10 percent higher than the projected average cost per enrollee of Medicare+Choice HMOs operating in those areas.

Estimated Costs for PPOs. Based on the assumed 10 percent difference between the costs of PPOs and HMOs, CBO estimated that the average cost per enrollee in PPOs in areas that were served by M+C plans would be about 2 percent higher than per capita FFS expenditures (see the top panel of Table 3). Estimated costs for PPOs would be much higher relative to per capita FFS expenditures in areas where FFS spending was low, which is consistent with the pattern observed for M+C plans. On average, estimated costs for PPOs on a per capita basis are 37 percent higher than FFS expenditures in the lowest-spending counties (those with per capita FFS spending of less than $400) and 5 percent lower than per capita FFS expenditures in the highest-spending counties (those with per capita FFS spending of at least $650). The much higher relative costs in the lowest-spending counties are consistent with the expectation that PPOs in those areas would achieve little or no savings (relative to FFS costs) through utilization management, would pay providers significantly higher rates than Medicare, and would have higher administrative costs than FFS Medicare.

On average, the estimated costs that PPOs would have faced in 2002 in areas that were served by M+C plans were 3 percent lower than M+C payment rates. That difference translates into about $18 per month in additional

39. Simple comparisons of commercial HMOs' premiums and PPOs' premiums do not provide the required information on relative costs because such comparisons do not control for differences in the value of the benefit package or differences in the characteristics of enrollees.

Table 3.

Estimated Costs That PPOs Would Have Incurred if They Had Entered the Medicare+Choice Program, 2002

Mean FFS Expenditure per Month	Percentage of Beneficiaries	Mean PPO Cost (Dollars)	Ratio of PPO Cost to Per Capita FFS Expenditures	Ratio of PPO Cost to M+C Payment Rate	Ratio of M+C Payment Rate to per Capita FFS Expenditures
		Counties With M+C Plans			
Less Than $400	1.0	510	1.37	0.97	1.41
$400 to $449	4.4	521	1.22	0.97	1.26
$450 to $499	7.1	540	1.14	0.99	1.16
$500 to $549	11.5	550	1.05	0.99	1.07
$550 to $599	10.4	576	1.00	0.99	1.02
$600 to $649	10.0	584	0.93	0.97	0.96
$650 and Higher	16.2	653	0.95	0.95	1.00
Total	**60.5**	**584**	**1.02**	**0.97**	**1.05**
		Counties Without M+C Plans			
Less Than $400	4.0	521	1.40	1.04	1.35
$400 to $449	9.9	541	1.27	1.05	1.20
$450 to $499	10.5	554	1.17	1.07	1.10
$500 to $549	8.7	568	1.08	1.07	1.01
$550 to $599	4.0	590	1.03	1.10	0.94
$600 to $649	1.5	604	0.97	1.10	0.89
$650 and Higher	1.1	642	0.94	1.09	0.87
Total	**39.5**	**558**	**1.17**	**1.07**	**1.10**
		All Counties			
Less Than $400	5.0	519	1.39	1.03	1.36
$400 to $449	14.3	535	1.25	1.03	1.22
$450 to $499	17.6	548	1.16	1.03	1.12
$500 to $549	20.2	558	1.07	1.02	1.04
$550 to $599	14.4	580	1.01	1.02	0.99
$600 to $649	11.5	586	0.94	0.99	0.95
$650 and Higher	17.3	652	0.95	0.96	0.99
Total	**100.0**	**574**	**1.08**	**1.01**	**1.07**

Source: Congressional Budget Office.

Note: PPOs = preferred provider organizations; FFS = fee for service; M+C = Medicare+Choice.

benefits that PPOs would have been able to offer (see Table 3).[40] As noted earlier, HMOs' per capita costs were about 12 percent lower than M+C payment rates, which enabled them to offer an average of $72 per month in additional benefits. In general, CBO would expect PPOs to be more attractive to beneficiaries than HMOs for reasons previously stated: they have broader networks of providers, offer coverage for services received outside the network, and employ less utilization management. Therefore, to achieve a given level of enrollment, PPOs should be able to offer less generous additional benefits than HMOs. The fact that few PPOs participated in the M+C program suggests that PPOs generally believed that the amount of additional benefits they would have been

40. The average Medicare+Choice payment rate in those areas in 2002 was $602, 3 percent of which is $18.

Table 4.

Comparison of the Characteristics of Counties With and Without Medicare+Choice Plans, 2002

	Counties With M+C Plans			Counties Without M+C Plans		
Mean FFS Expenditure per Month	Percentage of Beneficiaries	Percentage of Beneficiaries Who Live in Nonmetropolitan Areas	Ratio of M+C Payment Rate to per Capita FFS Expenditures	Percentage of Beneficiaries	Percentage of Beneficiaries Who Live in Nonmetropolitan Areas	Ratio of M+C Payment Rate to per Capita FFS Expenditures
Less Than $400	1.7	39.1	1.41	9.8	83.3	1.35
$400 to $449	7.2	18.6	1.26	24.8	58.9	1.20
$450 to $499	11.5	9.0	1.16	26.6	53.3	1.10
$500 to $549	19.1	4.8	1.07	21.9	41.4	1.01
$550 to $599	17.2	3.7	1.02	10.3	43.1	0.94
$600 to $649	16.5	1.7	0.96	3.9	50.1	0.89
$650 and Higher	26.8	0.8	1.00	2.7	39.8	0.87
Total	**100.0**	**5.1**	**1.05**	**100.0**	**53.5**	**1.10**

Source: Congressional Budget Office.

Notes: In 2002, the average per capita FFS expenditure was $578 in counties with M+C plans and $484 in counties without M+C plans.

M+C = Medicare+Choice; FFS = fee for service.

able to offer (estimated in this analysis at 3 percent of M+C payment rates, on average) was not sufficient for them to attract significant enrollment.

Counties Where M+C Plans Do Not Operate. About 40 percent of Medicare beneficiaries live in geographic areas that are not served by M+C plans. Those areas differ from other areas in a variety of ways that are important to this analysis. In particular, areas that are not served by M+C plans are more likely than other areas to be rural and to have relatively low per capita expenditures in the FFS program. Although PPOs could have lower *absolute* costs by operating in areas that are not served by M+C plans, the key to determining whether they would participate is their costs *relative* to the benchmark. To estimate the costs per enrollee that PPOs would face in counties that have no M+C plans, CBO started with the cost data from M+C plans but adjusted the data to account for differences in counties' characteristics.

Characteristics of Counties That Are Not Served by M+C Plans. Areas that are not served by M+C plans are much more likely than other areas to be nonmetropolitan. In 2002, more than half of the beneficiaries who did not have access to an M+C plan lived in a nonmetropolitan area, compared with only 5 percent of beneficiaries with access to an M+C plan (see the bottom row of Table 4). Because nonmetropolitan areas tend to have sparsely distributed providers, plans would have to contract with a very large proportion of those providers to establish networks. Private health plans generally must pay providers in rural areas rates that far exceed Medicare's FFS rates, according to industry sources, because of the market power of those providers.

Areas that are not served by M+C plans also have much lower per capita FFS expenditures than other areas ($484 versus $578 in 2002). More than 60 percent of the beneficiaries who did not have access to an M+C plan in 2002 lived in counties where the per capita FFS expenditure was less than $500, while only 20 percent of all other beneficiaries lived in counties where the per capita FFS expenditure was that low (see Table 4). As noted previously, areas with low per capita FFS expenditures tend to have low utilization of expensive services, so private plans have little or no opportunity to reduce costs through utilization management.

At the same time, M+C payment rates are relatively high in areas that are not served by private plans, at least compared with local per capita FFS costs. On average, payment rates in areas that were not served by M+C plans in 2002 were 10 percent higher than per capita FFS expenditures, whereas payment rates in other areas were 5 per-

cent higher. The rates in areas without M+C plans are higher because beneficiaries in those areas are more likely to be concentrated in areas with low per capita FFS expenditures (where M+C payment rates are substantially higher than per capita FFS expenditures). The absence of plans suggests that plans' costs in those areas range from close to, to substantially higher than, M+C payment rates.

Among counties with similar per capita FFS expenditures, those that are not served by M+C plans have *lower* payment rates than other counties. That outcome is to be expected because, all other things being equal, plans are more likely to participate in counties with higher payment rates. For example, among counties with per capita FFS expenditures of at least $650 in 2002, payment rates in the counties that were not served by M+C plans were 13 percent lower than per capita FFS expenditures, on average, while payment rates in the counties that were served by M+C plans were equal to per capita FFS expenditures (see Table 4). That result is consistent with the findings of a multivariate analysis conducted for this study that found that, after controlling for other factors, plans are more likely to serve counties with higher payment rates (see the appendix).

Estimated Costs for PPOs. CBO used cost data from M+C plans and a regression model that controls for differences between counties that are served by M+C plans and those that are not to predict the costs that private plans would face if they entered areas without M+C plans.[41] Since virtually all M+C plans are HMOs, the predictions from the model reflect the costs that HMOs would face if they entered areas that were not served by M+C plans. For the reasons described previously, CBO assumed that the costs per enrollee of PPOs in those areas would be 10 percent higher than the projected costs of HMOs. As discussed below, however, the basic conclusions of the analysis are not sensitive to that assumption.

In areas without M+C plans, the PPOs' costs per enrollee would be 17 percent higher, on average, than per capita FFS expenditures, CBO estimates (see the middle panel of Table 3). In contrast, their estimated costs per enrollee would average only 2 percent higher than per capita FFS expenditures in areas with M+C plans. The higher estimated costs in counties that are not served by M+C plans result primarily from the fact that beneficiaries in those counties are heavily concentrated in areas with low per capita FFS expenditures, where plan costs are expected to be high relative to FFS expenditures. Among most groups of counties that have similar per capita FFS expenditures, the estimated average cost for PPOs in counties that are not served by M+C plans is only slightly higher than the corresponding average cost in counties that are served by M+C plans (compare the top and middle panels of Table 3).[42] The direction of those differences is consistent with expectations because, even among counties with similar per capita FFS expenditures, those that are not served by M+C plans are more likely to be rural (see Table 4). As already noted, health plans typically must pay providers higher rates (relative to Medicare's FFS rates) in rural areas than in urban areas.

In areas without M+C plans, the estimated costs for PPOs were, on average, 7 percent higher than the M+C payment rate (see the middle panel of Table 3). Although some PPOs might have costs that are lower than the county-level averages estimated in this analysis, the fact that no plans participated in those areas suggests that the costs of those more efficient plans were either above the M+C payment rates or below the payment rates by too small a margin to permit the plans to offer enough additional benefits to attract significant enrollments.

The projected costs per enrollee that HMOs would face in areas without M+C plans are not presented here but can be readily derived from the projected costs for PPOs in Table 3, because, as previously noted, CBO assumed that PPOs' costs per enrollee would be 10 percent higher than HMOs' costs. Thus, while PPOs' projected costs per enrollee in areas that are not served by M+C plans are an average of 7 percent higher than the M+C payment rate, HMOs' projected costs per enrollee in those areas are an

41. The estimation of the model is described in the appendix. CBO used a sample selection model to control for possible differences between the two groups of counties on important unobserved characteristics as well as observed characteristics. For a discussion of such models, see Francis Vella, "Estimating Models with Sample Selection Bias: A Survey," *Journal of Human Resources,* vol. 33, no. 1 (Winter 1998).

42. For example, in counties where the average FFS expenditure was between $400 and $450 in 2002, the estimated average PPO cost was 27 percent higher than per capita FFS expenditures in areas without M+C plans and 22 percent higher in areas with M+C plans.

average of 3 percent lower than the payment rate.[43] Those estimates indicate that if HMOs had entered such areas in 2002, they would have been able to offer an average of only $16 per month in additional benefits.[44] The absence of HMOs in those areas suggests that they did not believe they would have been able to attract significant enrollment with such limited additional benefits.

In contrast, in areas where M+C plans operated in 2002, their costs were an average of 12 percent lower than the M+C payment rate (see Table 2), which allowed them to offer an average of $72 per month in additional benefits. Moreover, there may be factors other than those fully accounted for in this analysis of plans' cost data that influenced plans' decisions not to enter certain geographic areas. For example, the difficulty that plans would face in developing networks of providers to meet Medicare's network adequacy requirements in rural areas may not have been fully captured in this analysis. Furthermore, plans may believe that beneficiaries in rural areas would be more resistant to enrolling in managed care plans than beneficiaries in urban areas because of their more limited experience with such plans.

Finally, the basic conclusions of this analysis are not sensitive to the assumption that PPOs' costs are 10 percent higher than HMOs' costs in areas without M+C plans.[45] Even if CBO had assumed that there was no difference between PPOs' costs and HMOs' costs in such areas, the estimated cost of private plans in those areas would be 3 percent lower than the M+C payment rate, on average. That amount is identical (in percentage terms) to the estimated difference between PPOs' costs and M+C payment rates in areas where M+C plans operate (see the top panel of Table 3). The fact that few PPOs have participated in the Medicare+Choice program suggests that a larger gap between PPOs' costs and payment rates would be necessary to attract significant numbers of PPOs to the Medicare program.

Projecting the Bids of Regional PPOs

CBO used the county-level estimates of PPOs' costs in 2002 to project the bids of regional PPOs beginning in 2006.[46] CBO projected the bids under a variety of assumptions about how regions would be defined, such as defining regions as states or as the 10 regions that CMS uses to manage the Medicare program. (The MMA does not specify precisely how regions are to be defined but requires that there be no fewer than 10 and no more than 50.) CBO assumed that PPOs' costs would grow at the same rate as per capita national health care expenditures for hospital and physicians' services (for all payers) from 2002 to 2006 and at the rate of increase in Medicare's per capita FFS expenditures in subsequent years.

To assess the regional PPO program, CBO compared the projected bids of the plans with the regional benchmarks. Whether regions are defined either as the 10 CMS management regions or as states, the majority of beneficiaries live in regions where PPOs' projected average bids in 2006 exceed the benchmarks (see the bottom panel of Table 5). CBO assumed that PPOs would not participate in those regions or that few beneficiaries would join such plans if they were available. In most other regions, the projected average bids are only slightly below the benchmarks. If regions are defined as the 10 CMS regions, 34 percent of beneficiaries live in regions where the bids are below the benchmarks. However, on average, the bids are only 3 percent lower than the benchmarks in those regions. And, under the provisions of the MMA, only 75 percent of that difference would be available for additional benefits or premium rebates; the government would keep the remainder. Although some PPOs would have lower-than-average costs and thus submit bids that were below the projected averages, CBO concluded that

43. The average ratio of estimated costs for PPOs to M+C payment rates in areas that are not served by M+C plans is 1.07 (see the middle panel of Table 3). Therefore, because CBO assumed that PPOs' costs are 10 percent higher than HMOs' costs in such areas, the average ratio of estimated costs for HMOs to M+C payment rates in those areas is 0.97 (1.07 divided by 1.1).

44. The average M+C payment rate in 2002 in areas without M+C plans was $524 per month, 3 percent of which is $16.

45. The difference between PPOs' costs and HMOs' costs may be smaller in the mostly rural areas that are not served by M+C plans than in the mostly urban areas that are served by such plans. HMOs in rural areas have less ability to achieve cost savings relative to Medicare's FFS program than their urban counterparts—and therefore may be more similar to PPOs—for the reasons discussed previously. As noted, however, the assumed 10 percent cost difference between PPOs and HMOs in areas that are not served by M+C plans yielded estimated costs for PPOs relative to per capita FFS expenditures in those areas that are consistent with the estimated costs for PPOs in areas that are served by M+C plans.

46. For each year, the regional bid was computed as the weighted average of the projected costs for PPOs for counties in the region, with the weights equal to the proportion of beneficiaries in the region who live in each county.

Table 5.

Projected Bids of Regional PPOs Relative to per Capita Fee-for-Service Expenditures and Benchmarks Under Alternative Approaches to Defining Regions, 2006

	Regions Defined as 10 CMS Regions		Regions Defined as States	
	Distribution of Beneficiaries (Percent)	Mean Ratio	Distribution of Beneficiaries (Percent)	Mean Ratio
Ratio of PPOs' Bids to per Capita FFS Expenditures				
Less than 0.95	0	n.a.	2.2	0.89
0.95 to 0.99	10.2	0.99	16.5	0.98
1.00 to 1.049	24.0	1.04	16.1	1.01
1.05 to 1.099	37.1	1.09	21.6	1.08
1.10 or higher	28.7	1.15	43.6	1.20
Ratio of PPOs' Bids to Benchmarks				
Less than 0.95	0	n.a.	0.7	0.85
0.95 to 0.99	34.2	0.97	43.2	0.97
1.00 to 1.049	48.1	1.02	33.8	1.02
1.05 to 1.099	17.7	1.05	21.9	1.07
1.10 or higher	0	n.a.	0.5	1.11

Source: Congressional Budget Office.

Note: PPOs = preferred provider organizations; CMS = Centers for Medicare and Medicaid Services; n.a. = not applicable.

the difference between those bids and the benchmarks would not be enough to attract substantial enrollment.[47]

CBO therefore inferred that regional plans would attract relatively few enrollees. That conclusion is based in part on evidence that the elderly are much less likely than the nonelderly to switch health plans in response to financial incentives.[48] CBO conducted simulations using a range of sensitivities to such incentives consistent with the findings of prior research on the elderly and concluded that the amount of additional benefits and premium reductions that regional PPOs could offer would attract only a small number of beneficiaries. That conclusion is also consistent with the experience of the Medicare PPO Demonstration.

Even if PPOs could submit bids significantly lower than the benchmarks in some regions, such plans probably would participate either as local plans (for example, by entering the program after the two-year moratorium on new local PPOs expires) or as regional plans but draw their enrollment almost entirely from areas that are served by local plans. Both cases were included in CBO's estimate of the costs of the MMA provisions that increased payment rates for local plans. If a regional PPO developed in a state, it would probably concentrate its marketing efforts in counties where its local costs were substan-

47. CBO computed the regional benchmarks as a blend of the county-level benchmarks in the region and the bids in the region, as required by the MMA. Including the bids in the formula for the regional benchmarks did not change the conclusions of the analysis. In regions where the average bid was projected to be above the statutory component of the regional benchmark, incorporating bids in the calculation of benchmarks increased the benchmarks modestly, but not by enough to change CBO's conclusions about the incentives for plans to participate or for beneficiaries to enroll. In regions where the average bid was projected to be below the statutory component of the benchmark, incorporating bids in the calculation of benchmarks reduced the benchmarks, thus decreasing the amount of additional benefits or premium rebates that plans could offer.

48. Thomas C. Buchmueller, "The Health Plan Choices of Retirees Under Managed Competition," *Health Services Research,* vol. 35, no. 5 (December 2000), pp. 949-976.

tially below the county-level benchmark. Otherwise, by enrolling beneficiaries in counties where its local costs exceeded the local benchmark or were only slightly below the benchmark, the plan would narrow the gap between its overall bid for the region and the overall regional benchmark (and thus reduce the amount of additional benefits it could offer to attract enrollees). In effect, enrollees in areas where the PPO's local costs were substantially below the local benchmark would be subsidizing extra benefits for enrollees in other areas served by the plan—putting the plan at a competitive disadvantage relative to other plans that operated only in areas where their local costs were substantially below the local benchmark.

Because the projected bids of regional PPOs are higher than per capita FFS expenditures in most regions, the participation of regional plans would be likely to increase outlays for Medicare. If regions are defined either as the 10 CMS management regions or as states, nearly two-thirds of beneficiaries live in regions where the projected bids are at least 5 percent higher than per capita FFS expenditures (see the top panel of Table 5).

APPENDIX

Technical Aspects of the Analysis

This appendix describes the Congressional Budget Office's (CBO's) approach to two components of its analysis of regional preferred provider organizations (PPOs) under the Medicare Modernization Act: the estimation of county-level costs from plan-level data for areas that are served by Medicare+Choice (M+C) plans, and the multivariate analysis used to predict plans' costs in geographic areas that are not served by M+C plans.

Estimation of County-Level Costs from Plan-Level Data

For areas that are served by M+C plans, the adjusted community rate reports contain plans' estimates of their average costs of delivering Medicare benefits in their service areas. Those service areas could cover several counties, however, and plans are not required to report costs by county. To account for geographic variation in plans' costs, CBO first disaggregated plan-level costs into county-level costs for each plan using the approach described here. In counties with more than one plan, CBO then computed a weighted average plan cost for each county, using the plans' enrollments in the county as weights.

To estimate the variation in costs across counties for a given plan, CBO first examined the variation in costs across plans. For that analysis, CBO classified plans by the per capita fee-for-service (FFS) expenditure in their service area. For plans that serve more than one county (which is true of most plans), the per capita FFS expenditure for the *plan* was computed as a weighted average of per capita FFS expenditures in the *counties* in the plan's service area, where the weights are based on the distribution of the plan's enrollees across counties.

The analysis of plan-level data found that, on average, plans' costs per enrollee were 6 percent lower than per capita FFS expenditures in the plans' service areas (see Table A-1). Plans that serve areas where FFS spending is low have much higher relative costs than plans that serve areas where FFS spending is high.[1] On a per capita basis, private plans' costs are 26 percent higher than FFS expenditures in the lowest-spending service areas (those where the per capita FFS expenditure is less than $400) and 12 percent lower than FFS expenditures in the highest-spending service areas (those where the per capita FFS expenditure is at least $650). Private plans have greater potential to achieve savings in areas with high FFS spending levels because expensive services that plans seek to limit are used at a higher rate in those areas. In addition, areas with high FFS spending are more likely to be metropolitan, and plans are generally able to negotiate more favorable payment rates in those areas because of greater competition among providers.

The factors that contribute to the variation in costs across *plans* are also expected to contribute to variation in costs across *counties* served by a particular plan. Therefore, CBO used the plan-level relative cost ratios in Table A-1 to allocate costs across counties for each plan. To illustrate the approach, consider a plan that serves three counties.[2] Let:

C = the cost per enrollee reported by the plan for its service area,

C_i = the (unobserved) cost per enrollee for the plan in county i,

P_i = the proportion of the plan's enrollees who live in county i, and

F_i = per capita FFS expenditures in county i.

1. The relative cost refers to the plan's cost per enrollee relative to per capita FFS expenditures.

2. The approach is valid for a plan that serves any number of counties.

Table A-1.

Costs per Enrollee of Medicare+Choice Plans Based on Plan-Level Estimates, 2002

Mean FFS Expenditure per Month in Plan's Service Area	Percentage of Plans	Ratio of Plan Costs to Per Capita FFS Expenditures	Ratio of Plan Costs to M+C Payment Rate
Less Than $400	3.4	1.26	0.86
$400 to $449	12.3	1.12	0.87
$450 to $499	17.9	1.02	0.89
$500 to $549	16.5	0.96	0.88
$550 to $599	13.3	0.89	0.88
$600 to $649	17.9	0.88	0.87
$650 and Higher	18.7	0.88	0.84
Total	**100.0**	**0.94**	**0.87**

Source: Congressional Budget Office based on data (adjusted community rates) submitted by M+C plans for 2002.

Note: M+C = Medicare+Choice; FFS = fee for service.

The total cost per enrollee for the plan is a weighted average of its county-level costs:

- $P_1{*}C_1 + P_2{*}C_2 + P_3{*}C_3 = C.$

Assume that the per capita FFS expenditures in counties 1, 2, and 3 are $425, $540, and $630, respectively. Then, using the estimates in Table A-1:

- $C_1/F_1 = (1.12/0.96) * C_2/F_2$ and
- $C_1/F_1 = (1.12/0.88) * C_3/F_3.$

The values 1.12 and 0.96 appear in equation (2) because they are the relative cost ratios in Table A-1 that correspond to the assumed per capita FFS expenditures in counties 1 and 2 ($425 and $540, respectively). The values 1.12 and 0.88 appear in equation (3) for analogous reasons.

Equations (1), (2), and (3) have three unknowns—the three county-level costs per enrollee (C_1, C_2,and C_3).[3] After rearranging those equations, CBO can compute the cost per enrollee in each county.

That approach yields county-level estimates of relative costs that exhibit the same pattern with respect to FFS expenditures as the corresponding plan-level estimates do (that is, the county-level relative cost ratios in Table 2 are very similar to the plan-level estimates in Table A-1). The key assumption in that approach is that relative cost ratios vary across counties within a plan's service area in the same proportion as they vary across plans.

CBO considered and rejected two alternative assumptions before using the more complex approach described above. The first alternative that was rejected is that a plan's costs per enrollee do not vary across counties. That assumption is clearly not appropriate, since the service areas of many plans include counties that vary greatly with respect to per capita FFS expenditures and other local market characteristics that influence plans' costs. The second alternative that was rejected is that a plan's costs vary across counties in the same proportion as the variation in per capita FFS expenditures. That assumption was rejected because the plan-level estimates indicate that plans' costs exhibit less variation across geographic areas than per capita FFS expenditures do.

Multivariate Analysis

To predict private plans' costs in counties where M+C plans do not operate, CBO estimated a regression model in which costs are a function of counties' characteristics. Counties without M+C plans differ from other counties in a variety of ways that are associated with higher plan

3. Another equation could be written expressing the relationship between the relative cost ratios in counties 2 and 3, but that would not be an independent equation because it could be derived directly from equations (2) and (3).

costs relative to per capita FFS expenditures. For example, they have lower per capita FFS expenditures and higher M+C payment rates relative to FFS expenditures and are more likely to be nonmetropolitan. It is likely that the two groups of counties also differ with respect to important unobserved characteristics that influence plans' costs. Plans only enter counties where they expect to be successful—that is, where their costs are far enough below the payment rate to allow them to offer an attractive benefit package—and they may have more detailed information on local health care markets than is captured in available data sources.

CBO estimated a sample selection model designed to control for both observed and unobserved differences between counties where M+C plans operate and counties where they do not. The model consists of two equations.[4] The first is a probit model in which a binary (0/1) measure of whether or not the county is served by any M+C plans is specified as a function of the county's characteristics. The second is a linear regression model in which the average cost per enrollee in the county is specified as a function of the county's characteristics. The costs per enrollee in the second equation are only observed in counties where M+C plans operate.

The estimated parameters of the first equation indicate that, all other things held constant, counties with higher payment rates are more likely to be served by M+C plans (see the middle column of Table A-2).[5] Counties with large numbers of beneficiaries and those in which a high proportion of the non-Medicare population is enrolled in a health maintenance organization (HMO) are more likely to have M+C plans, all other factors held constant. In contrast, areas with high hospital input prices (as measured by the Centers for Medicare and Medicaid Services' hospital wage index), those with high poverty rates, and nonmetropolitan areas that are not adjacent to a metropolitan area are less likely to have M+C plans.

Counties with a high geographic adjustment factor (GAF), which measures geographic variation in physicians' input prices, are more likely to have M+C plans. One possible explanation for that finding comes from a recent study that showed that the higher the GAF, the lower the private health plans' payment rates to physicians relative to Medicare's FFS rates.[6] Thus, private plans appear to negotiate lower payment rates to physicians relative to Medicare's rates in areas with high GAFs, which would explain why counties with high GAFs are more likely to have M+C plans.

The estimated parameters of the second equation show that higher per capita FFS expenditures and a higher hospital wage index are associated with higher health plan costs (see the right-hand column of Table A-2). The model includes an interaction term that allows the marginal effect of per capita FFS expenditures on plans' costs to differ for per capita FFS expenditures below $550 and those above $550. CBO included the interaction term—and set the threshold at $550—because that approach was consistent with the relationships observed in the data. The coefficient on the "lambda" term is negative and statistically significant, indicating that unobserved factors that increase the likelihood that a county has an M+C plan are associated with lower plan costs, which was expected.[7]

To permit identification of the model, two variables that were included in the first equation were excluded from the second equation: the M+C payment rate, and the ratio of that rate to per capita FFS expenditures. CBO assumed that those variables influence the decision of plans to enter counties but have no independent effect on plans' costs. (That assumption could hold even if plans' costs were correlated with M+C payment rates.) M+C payment rates clearly affect plans' decisions about which counties to enter, but they are not expected to affect plans' costs. That is because those rates are established through a statutory formula in which key parameters (such as the floors and the minimum updates) are set legislatively and are not directly linked to costs in local markets.

4. James J. Heckman, "Sample Selection Bias as a Specification Error," *Econometrica,* vol. 47, no. 1 (January 1979), pp. 153-161.

5. The estimates are from a probit model. As such, they do not provide a direct estimate of the marginal effect of the independent variables on the probability that a county has an M+C plan. However, they indicate the sign and statistical significance of those effects.

6. Dyckman & Associates, *Survey of Health Plans Concerning Physician Fees and Payment Methodology* (report prepared for the Medicare Payment Advisory Commission, August 2003).

7. For a description of the lambda term, see Heckman, "Sample Selection Bias as a Specification Error."

Table A-2.

Estimated Parameters of Sample Selection Model of Medicare+Choice Plans' Costs

Independent Variable	Probability That an M+C Plan Is Present in a County	Average Plan Cost per Enrollee
Constant	-9.94 **	294.87 **
M+C Payment Rate	0.011 **	n.a.
Ratio of M+C Payment Rate to per Capita FFS Expenditure	0.816 **	n.a.
Per Capita FFS Expenditure	n.a.	0.237 **
Per Capita FFS Expenditure "spline" variable	n.a.	0.314 **
Hospital Wage Index	-2.47 **	111.5 **
Geographic Adjustment Factor	5.45 **	-58.3
Number of Medicare Beneficiaries (Thousands)	0.013 **	0
Population per Square Mile	0	0.001
Poverty Rate	-0.032 **	0.588
Non-Medicare HMO Penetration Rate	1.52 **	2.30
Number of Hospital Beds per Capita	0	-1.12
Number of Physicians per Capita	-0.20	0.73
Metropolitan Area, Not Central City	-0.314	-0.72
Nonmetropolitan Area, Adjacent to Metropolitan Area	-0.282	-5.63
Nonmetropolitan Area, Not Adjacent to Metropolitan Area	-0.684 **	1.78
Lambda	n.a.	-18.29 *

Source: Congressional Budget Office.

Notes: Both equations also included regional dummy variables.

The spline variable involving per capita FFS expenditures is equal to zero for counties with per capita FFS expenditures of $550 or less and equal to per capita FFS expenditures minus $550 for counties with higher spending levels. It was included to allow the partial derivative of plan costs with respect to FFS expenditures to differ for FFS values above $550 per month and for values below $550 per month, which is consistent with the patterns in the data.

M+C = Medicare+Choice; FFS = fee for service; **= significant at the 0.01 level; *= significant at the 0.05 level; HMO = health maintenance organization; n.a. = not applicable.

CBO used the estimated parameters of the second equation in the sample selection model to predict the cost per enrollee that private plans would face if they entered counties that had no M+C plans. A predicted cost was then generated for each county by inserting the values of the county's characteristics into the equation. In addition, because there were no M+C plans in those counties, the equation to predict private plans' costs included the expected value of the error term in the second equation of the sample selection model, conditional on no M+C plans' being present.[8]

Because virtually all M+C plans are HMOs, the sample selection model yielded predictions of the costs that HMOs would face in counties that were not served by M+C plans. CBO assumed that PPOs' average costs per enrollee would be 10 percent higher than the predicted

8. Including the conditional expectation of the error term yielded a better prediction of plans' costs because it made use of important information about the counties for which predictions were being made (that is, those counties had no M+C plans). For a discussion of this approach, see Francis Vella, "Estimating Models with Sample Selection Bias: A Survey," *Journal of Human Resources,* vol. 33, no. 1 (Winter 1998), pp. 145-146.

costs for HMOs in those counties—the same assumption that was used in counties that are served by M+C plans.[9] That assumption was based on information obtained from industry sources, including insurers that offer both HMO and PPO products, and is consistent with cost projections submitted by PPOs for the first year of the Medicare PPO Demonstration. PPOs are expected to have higher costs per enrollee than HMOs because they employ less utilization management and they typically pay providers higher rates (PPOs have less negotiating power with providers because of their lesser ability to steer enrollees to particular providers). At the same time, PPOs have lower administrative costs than HMOs, in part because of their more limited utilization management. The assumed 10 percent higher costs for PPOs than for HMOs reflects the net effect of those factors.

9. As noted, however, the basic conclusions of the analysis would not have changed if CBO had assumed that the costs of PPOs and HMOs were equal in the areas without M+C plans.