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Assessing the Design of the Low-Income Subsidy Program in Medicare Part D

Andrew Stocking
Congressional Budget Office
(andrew.stocking@cbo.gov)

James Baumgardner
Congressional Budget Office
(jim.baumgardner@cbo.gov)

Melinda Buntin
Vanderbilt University
(melinda.buntin@vanderbilt.edu)

Anna Cook
Congressional Budget Office
(anna.cook@cbo.gov)

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Abstract

The structure of the Medicare Part D prescription drug program generally encourages plan sponsors to submit low bids. However, rules in the program relating to low-income beneficiaries generate a different set of incentives for plans seeking to serve those beneficiaries. We find that over the first five years of the Part D program, two types of plans emerged—those that catered primarily to beneficiaries receiving low-income subsidies (LIS plans) and those that catered primarily to standard beneficiaries (non-LIS plans). For each additional plan sponsor that entered the market, non-LIS basic plans reduced their bids by a statistically significant \$0.40 to \$0.70 (or 0.5 percent to 0.8 percent) per month of coverage, on average, while the bids of LIS plans did not respond in a statistically significant way, falling by \$0.03 to \$0.22 (or 0.03 percent to 0.2 percent) per month of coverage, on average. In addition, LIS plans were more likely to increase their bids so that their premiums approached the maximum premium subsidy, called the low-income benchmark. Finally, LIS plans appeared to recognize their own market power with respect to increasing the low-income benchmark, leading them to raise their bids more.

I. Introduction

Medicare Part D was created by the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 as a voluntary program through which Medicare beneficiaries could receive prescription drug coverage. The Part D program was launched in 2006, and between that year and 2013, enrollment grew from 28 million to 39 million. In 2013, Part D cost the federal government roughly \$50 billion, representing about 10 percent of total Medicare spending. Of the cost of Part D, about 40 percent went to benefits for people with low incomes, who received assistance with the premiums, deductibles, and copayments of Part D through the low-income subsidy (LIS) program. (For thorough summaries of Medicare Part D, see Congressional Budget Office, 2014; MedPAC, 2014; and Duggan et al., 2008.)

In designing Part D, policymakers appeared to have two objectives that are particularly relevant to the analysis in this paper. First, policymakers wanted to hold down the cost of prescription drug coverage by encouraging private insurance firms, or plan sponsors, to compete to attract beneficiaries on the basis of their low premiums. In a companion paper, we explored the relationship between the number of plan sponsors and premiums—a relationship that is sometimes called the extensive competitive margin (Stocking et al., 2014). In examining the first five years of the Part D program, we found that the presence of more plan sponsors in a regional market was associated with lower premiums. That finding is consistent with other research on the role of competition in other insurance markets. (Summaries of the literature are available from Gaynor and Town, 2011; Dafny, 2008; and Dranove and Satterthwaite, 2000).

Second, policymakers wanted to provide additional financial support to Part D beneficiaries with low incomes so they could afford to have and use prescription drug coverage. Helping potential beneficiaries who have low incomes has been a common objective in the design of government health care programs. For example, Medicaid provides health care services to low-income children and adults, including elderly or disabled individuals. Similarly, under the Affordable Care Act (ACA), individuals not eligible for Medicaid but with incomes between the federal poverty level (FPL) and 400 percent of the federal poverty level are eligible for subsidies to offset some of the cost of health insurance. Within Part D, the provision of additional financial assistance to low-income beneficiaries involves certain rules that change the incentives for plan sponsors. This paper explores those rules and their effect on incentives to submit low bids—a relationship that is sometimes called the intensive competitive margin.

Although the economics literature explores various aspects of rules that change participants' incentives within specific health care markets, there is no other paper that we are aware of that identifies the same response to the rules of the Part D LIS program that we do. Two researchers considered the implications of choice elasticities in Medicare Part D and found evidence that Part D plan sponsors strategically respond to the incentives provided under the LIS program and to consumer inertia in ways that increase the cost of the program (Decarolis, 2013; Ericson, 2014). That builds on a large body of research focused on the extent to which consumers select plans with low premiums and, thus, reward those plans that offer low premiums (Abaluck and Gruber, 2011; Ketcham et al., 2012). Other researchers considered changes to the Part D program that might lead to more consumers making choices that reward plans with low premiums (Kling et al., 2012). A similar research strategy to ours, albeit for a different market, was used in an evaluation of the market for durable medical equipment within Medicare and of the way that the

rules of that market distort the incentives of firms active in the market (Cramton and Katzman, 2010; Merlob et al., 2012). Finally, a related set of papers that extends far beyond health care markets considers how nudges, or the framing of choices, can be used to encourage consumers to make more efficient choices (for a summary of the literature on nudges, see Walton, 2014; and Dolan et al., 2012).

II. Background on Medicare Part D

The Part D marketplace for stand-alone prescription drug plans (PDPs) divides the United States into 34 independent regions, each of which includes one or more states and contains a different number of plan sponsors and plans. Part D plans are required to provide prescription drug coverage to all Medicare beneficiaries who apply and to charge the same premium for all enrollees of a particular plan within a region.¹ In 2010, 28 million beneficiaries enrolled in a Part D plan, with about 60 percent in a stand-alone PDP, 31 percent in a Medicare Advantage prescription drug (MAPD) plan, and the remainder in an employer plan (see Table 1). Although the share of enrollees in stand-alone PDPs declined between 2006 and 2010, that change reflects an increase in MAPD plan enrollment and not a drop in PDP enrollment, which remained relatively stable over that period.

Part D Program Design

Each Part D plan must offer a benefit package that meets certain minimum standards, as defined by the Centers for Medicare & Medicaid Services (CMS). In 2014, “defined standard coverage” has a fixed deductible (\$310 in 2014), requires the beneficiary to pay 25 percent coinsurance for spending between the deductible and the initial coverage limit (\$2,850 in 2014), has limited coverage when spending is between the initial coverage limit and the catastrophic threshold (called the coverage gap or “doughnut hole”), and has 5 percent coinsurance when spending exceeds the catastrophic threshold (\$4,550 in 2014).² Part D plan sponsors can also offer a plan that is “actuarially equivalent” to that defined standard coverage, meaning that a beneficiary of average health would expect to pay the same amount in out-of-pocket costs as if he or she was enrolled in a plan offering defined standard coverage. An actuarially equivalent standard benefit has the standard deductible but differs from the defined standard benefit primarily through the use of a copayment structure in which copayments are lower for certain drugs on the formulary and higher for others. Another type of plan structure is the “basic alternative” plan, which also must be actuarially equivalent to the defined standard benefit but can offer a deductible lower than that in the defined standard plan in addition to changes in cost sharing.³ Collectively, this paper refers to plans that offer defined standard coverage or any coverage that is actuarially equivalent to it as basic plans. Part D plan sponsors can also offer “enhanced” plans, which

¹ Although all beneficiaries see the same premium, low-income beneficiaries have some or all of the premium covered by the program; high-income beneficiaries pay a larger premium.

² Before the Affordable Care Act, there was no coverage between the initial coverage limit and the catastrophic threshold. Coverage in the gap is being phased in as part of the ACA, and by 2020 plans and manufacturers will collectively cover 75 percent of spending for brand-name and generic drugs for beneficiaries not qualifying for low-income subsidies.

³ Over the first five years of the program, 22 percent of basic plans offered defined standard coverage, 35 percent offered actuarially equivalent standard coverage, and 44 percent offered basic alternative coverage.

contribute more toward drug spending than a basic plan in exchange for a supplemental premium. Enhanced plans could include a reduced deductible, lower copayments, an expanded formulary (list of covered drugs), or more comprehensive coverage in the gap. Over the first few years of the program, some enhanced and basic plans were quite similar, causing CMS in 2011 to require all enhanced plans to have cost-sharing differences that resulted in lower out-of-pocket spending—by at least \$22 per month compared with basic plans—for a beneficiary of average health. About one-fifth of the approximately 16.5 million enrollees in stand-alone Part D plans were enrolled in an enhanced plan over the first five years of the program (see Table 1).

Each year, plans submit a bid that represents the amount they would accept to supply the basic benefit to a beneficiary of average health in a particular region minus the amount the plan expects to be paid in the form of reinsurance. A plan sponsor wanting to offer a nationwide stand-alone plan must submit 34 separate bids for each of the 34 PDP regions. The bids from each PDP and MAPD plan are averaged, and roughly 75 percent of that average is included in the government’s contribution toward the basic benefit (see Figure 1).⁴ The difference between the plan’s bid and the government’s contribution is used to calculate the plan premium that is paid by the enrollee unless the enrollee qualifies for the low-income subsidy program. Premiums reflect the full marginal difference between plan bids, so enrollees not receiving low-income subsidies pay the full marginal difference in bids. Once a plan submits its bid for the upcoming year, it cannot alter the bid and must accept all enrollees at the premium that results.

The design of the Part D program creates incentives for plans to manage drug benefits to hold down premiums and attract enrollees. Part D plans primarily use three techniques to achieve those objectives. First, plans can develop formularies to steer beneficiaries to brand-name drugs with lower costs. They do that by placing some drugs on a preferred tier with a lower copayment and other drugs on tiers with higher copayments. (Similarly, plans can designate preferred pharmacies that offer lower copayments for prescription drugs listed on the formulary.) Second, in exchange for preferred placement on their formularies and the steering of beneficiaries to particular brand-name drugs, Part D plan sponsors have been able to negotiate significant rebates from manufacturers and pharmacies that lower the net cost of brand-name drugs. Third, plans can encourage a shift toward the increased use of generic drugs primarily through a lower copayment for those drugs. (For more information on how Part D plans contain drug spending, see CBO, 2014.)

Low-Income Subsidy Program

Beneficiaries in the Part D program fall into two different groups: 1) low-income beneficiaries, and 2) standard beneficiaries who do not qualify for the low-income subsidy program. Low-income beneficiaries represent about half of stand-alone PDP enrollees and are primarily enrolled in basic plans, although some enroll in enhanced plans (see Table 2). The additional subsidy they receive from the government covers the premium up to a maximum amount (or benchmark), the deductible, and cost sharing. The benchmark is calculated for each region based on the premiums in the region. Low-income beneficiaries who select a plan with a premium

⁴ The formula for calculating the average bid changed over time. In 2006, for example, the national average bid was calculated by assigning equal weights to all PDP bids and assigning weights to MAPD plan bids based on their enrollment in 2005. Over the subsequent four years, that formulation changed to greater enrollment-weighting of PDP bids. By 2009, all bids were enrollment-weighted.

below the low-income benchmark generally have their full premium covered by the government. (About 2.5 percent of low-income beneficiaries are considered partial-subsidy beneficiaries and have less than the full premium covered by the government. This paper focuses on beneficiaries receiving the full premium subsidy.) Low-income beneficiaries who select a plan with a premium above the low-income benchmark generally pay the difference between the benchmark and their plan's premium.

Choice Environment. Part D beneficiaries face a choice environment in which basic plans are actuarially equivalent but may differ in terms of premium, deductible, copayment, coinsurance, formulary, and pharmacy network, among other factors. Researchers have found that standard beneficiaries place significant weight on the premium as a proxy for their total out-of-pocket spending if enrolled in the plan, which encourages plans to compete on premiums (Abaluck and Gruber, 2011; Ketcham et al., 2012). Conversely, low-income beneficiaries receiving the full subsidy do not pay a premium, unless they select a plan with a premium above the benchmark. In addition, they do not pay the deductible, and their cost-sharing subsidies in 2014 reduce the cost of brand-name drugs to \$3.60 and the cost of generic drugs to \$1.20.⁵ Thus, if they select a plan, that choice is probably based on other criteria such as the formulary, brand of the plan sponsor, or pharmacy network.

Most low-income beneficiaries, however, do not actively select a plan but are assigned to plans by CMS. Specifically, CMS assigns all beneficiaries who are scheduled to receive a low-income subsidy (either because they also receive Medicaid assistance or because they applied separately for the low-income subsidy itself) to a basic plan in their region if they have not actively selected a plan before starting their coverage. Those assignments are made by lottery, with each plan sponsor with at least one plan that has a premium below the benchmark having an equal chance of being assigned a beneficiary; beneficiaries are then distributed equally across all the plans with premiums below the benchmark offered by those plan sponsors. Low-income beneficiaries can actively select another plan at any time during the enrollment year.

Low-income beneficiaries who initially participate in a plan and pay no premium can potentially be charged premiums in later years. During the annual bid submission process and the subsequent regional benchmark calculation, some plans that were previously below the benchmark may rise above the benchmark. To the low-income beneficiary, the premium of those plans would rise from zero when the plan was below the benchmark to a positive number equal to the difference between the premium and the benchmark. (The deductible and cost-sharing amounts of the new plan would still be fully subsidized.) To help ensure that low-income beneficiaries do not inadvertently stay in expensive plans, CMS automatically reassigns low-income beneficiaries from plans with premiums above the benchmark to plans with premiums below the benchmark—unless those beneficiaries have actively selected their plan, in which case the beneficiaries would be liable for any difference between that plan's premium and the benchmark. In the automatic reassignment process, CMS first reassigns beneficiaries to other

⁵ Those copayment amounts are for beneficiaries receiving the full low-income subsidy who have an income that is below the federal poverty level and selected assets with a value below \$8,660 (for a single individual). For low-income beneficiaries receiving the full subsidy who have income between the FPL and 135 percent of the FPL and selected assets with a value below \$8,660 (for a single individual), the copayments in 2014 are \$6.35 for brand-name drugs and \$2.55 for generic drugs.

plans with a premium below the benchmark offered by the same plan sponsor; if no such plans exist, CMS assigns the beneficiaries in equal numbers to each plan sponsor with at least one plan that has a premium below the benchmark. In 2010, about 8 percent of beneficiaries were reassigned to the same plan sponsor and the remaining beneficiaries were randomly reassigned (Summer et al., 2010).

Plan Incentives. A more competitive bidding environment creates a greater incentive for plans to reduce their premiums to attract more beneficiaries. The results of our companion paper (Stocking et al., 2014), which studies the bidding behavior of plans that cater primarily to standard beneficiaries, are consistent with that logic.

However, low-income beneficiaries do not generally pay a premium and thus do not contribute as strongly to incentives that encourage plans to lower their bid and premium. In fact, because most low-income beneficiaries have not actively selected a plan but were instead assigned to a plan, plans that cater to low-income beneficiaries only have an incentive to submit a bid that causes their premium to fall below the benchmark. Those plan sponsors with plans below the benchmark then receive an equal share of low-income enrollees who were randomly reassigned from plans above the benchmark. On average, a plan bidding below the benchmark could expect to receive about 4,000 beneficiaries each year over the study period through that reassignment mechanism, although the actual number of beneficiaries exceeded 10,000 in some regions in some years. The distance the plan's premium is below the benchmark has no bearing on the number of low-income beneficiaries reassigned to the plan, and plans have no option to reject the reassigned beneficiaries. To the extent that a plan is less interested in attracting standard beneficiaries who are sensitive to the size of the premium, plans that cater to low-income beneficiaries have a financial incentive to increase their bid such that their premium is close to the benchmark without exceeding it.

A second complication for plans that have a large number of low-income beneficiaries is that the cost-sharing subsidies offered by the government significantly reduce the ability of plans to steer the beneficiaries toward generic drugs, and there is almost no ability for plans to steer beneficiaries between different brand-name drugs using differential copayments. A copayment differential would be expected to affect the choices of standard beneficiaries, but low-income beneficiaries pay the same low copayment for all brand-name drugs and a slightly lower copayment for all generic drugs.⁶ Therefore, to steer low-income beneficiaries away from expensive brand-name drugs, plans need to implement prior-authorization requirements or step therapy, or to exclude such drugs altogether from their formularies.⁷

Other Rules. There are two additional rules governing the low-income subsidy program that warrant mentioning. First, the formula for calculating the benchmark changed several times between 2006 and 2010 (see Table 3). Under the formula that began being used in 2009, the low-income benchmark is calculated by weighting each bid by the number of low-income enrollees in

⁶ A small group of low-income beneficiaries pay 15 percent coinsurance on drugs, which would provide some incentive to use less expensive brand-name drugs.

⁷ All plans must offer at least two drugs in each therapeutic class, and there are six protected classes for which all unique chemical entities within the class must be offered. The six designated classes are anticonvulsants, antidepressants, antineoplastics, antipsychotics, antiretrovirals, and immunosuppressants.

the previous year. About 20 percent of low-income beneficiaries choose to stay in plans with a premium above the benchmark, which tends to boost the benchmark. Across each region in 2010, 40 percent of basic plans, on average, had premiums that fell below the low-income benchmark.

Second, the low-income program includes a rule, called the “de minimis rule,” that allows plans that submit a bid that causes their premium to rise above the benchmark by a small amount to accept a reduced premium for their low-income enrollees equal to the benchmark so their plan remains free for those enrollees. The de minimis rule was implemented on a trial basis in 2007 and extended in 2008. Plans that chose to accept a reduced premium for their low-income beneficiaries retained the low-income beneficiaries already enrolled in their plan; however, no new low-income beneficiaries were automatically reassigned to the plan in that year. In addition, the plan received its full premium for standard beneficiaries who chose to enroll in the plan. The de minimis threshold amounts were \$2 per month in 2007 and \$1 per month in 2008. That rule was discontinued in 2009 but was reinstated under the ACA at \$2 in 2011 and has remained at that level through 2014. The de minimis rule reduces the risk that plans that submit bids near the benchmark would lose their low-income beneficiaries.

III. Data

This analysis used public use data, confidential bid data, and the confidential so-called denominator file—all from CMS. All results reported here are presented in aggregate and do not reveal any confidential information. Unless otherwise stated, the data used for this analysis are for basic stand-alone plans.

CMS makes available on its website information on Part D contracts and the associated enrollment each year between 2006 and 2010 in a set of files called “Monthly Enrollment by Plan.” Available data include the name of each plan sponsor and its associated plans, as offered in each region. For this analysis, CBO harmonized plan sponsor names across time and plan names across regions and time. In a set of files called “Plan Crosswalks,” CMS makes available information about any planned transfer of beneficiaries from one plan to another, which could occur when a plan sponsor automatically enrolls beneficiaries from a terminated plan into a new plan offered by the same plan sponsor. From files titled “2006-2012 PDP, MA, and SNP Landscape Files,” we added information about whether the plan was basic or enhanced, the plan’s premium, the plan’s deductible, and whether the plan followed the standard design or was actuarially equivalent. CMS also makes available information about the annual regional low-income benchmark and the nationwide weighted-average bid.

The confidential data include the same identifying information from the enrollment and landscape files above as well as information about the bid for the basic component of each plan; the expected claims, overhead, and profit associated with each bid; and the relative risk of the plan’s beneficiaries when compared with a beneficiary of average health. The data also include information on risk corridor payments for each plan, similar to what is publicly available for each plan sponsor in CMS’s public files titled “Plan Payment Data.”

This analysis also used confidential information from the denominator file about the numbers of individual enrollees in each plan. This file allowed us to extract information about December and July enrollment between 2006 and 2010 for each plan, low-income enrollment in each plan in each year, and information related to plan switching by enrollees.

IV. Competition in Part D

In the economics literature, competition is generally measured through a count of the number of firms or some measure of market concentration, such as the Herfindahl-Hirschman Index (HHI), which uses each firm's market share in a given market (Baker, 2001; Scanlon et al., 2006). In addition to those measures, economists often consider several other criteria for determining whether a market is competitive: 1) the homogeneity of the product offering; 2) the sensitivity of purchasers to prices, or in this case, premiums; 3) the extent to which any firm can exert market power to unilaterally affect prices; and 4) the ease of entry for new competitors. We evaluated each criterion with respect to the Part D program as well as the low-income component of the Part D market and found that although the Part D market is competitive in a number of respects, some rules of the low-income program weaken the competitive nature of the market.

Homogeneity of the Product Offering

Compared with other health insurance products, the Part D market facilitates the trade of a fairly homogeneous product for which plan sponsors compete for market share primarily along the dimension of price. Those characteristics are consistent with a competitive market. Although Part D plans can vary their formulary or tiering structure, federal law requires all formularies to include at least two drugs from each therapeutic class and designates six classes as protected such that all unique chemical entities from those classes must be included on the formulary. (A therapeutic class is a group of drugs that are intended to treat a common set of medical conditions and that typically have similar modes of action.) To further reduce variability between formularies and ease the comparison of plans, CMS issued guidance to plan sponsors in 2008 that encouraged them to offer similar formularies:

CMS encourages Part D sponsors to submit formularies similar to those in widespread use today. CMS will check the formulary to ensure inclusion of a range of drugs in a broad distribution of therapeutic categories and classes, in order to satisfy the Medicare Modernization Act (MMA) requirement that a sponsor's categorization system does not substantially discourage enrollment by any group of beneficiaries. CMS will consider the specific drugs, tiering and utilization management strategies employed in each formulary. CMS will identify outliers from common benefit management practices for further evaluation. Sponsors may be asked to provide written clinical justification for unusual benefit features that are identified as outliers. (CMS, 2013)

That guidance and the associated regulations make it difficult for plan sponsors to differentiate their formulary from other formularies to increase premiums and profits. Moreover, CMS regulations require that all basic plans remain actuarially equivalent such that even though plans may differ in their deductible, copayment, or premium, they all must result in the same expected drug spending for a beneficiary of average health. Consequently, recent research by the Office of Inspector General (OIG, 2012) at the Department of Health and Human Services found that

despite the thousands of drugs available for coverage by Part D plans and the endless combinations of drugs, doses, and forms, there were only 272 unique formularies in 2012 (across more than 3,000 plans). The Medicare Payment Advisory Commission (MedPAC) reports that the seven PDPs with the highest enrollment covered 85 percent of all drugs on the market (MedPAC, 2012). Finally, although other health insurance products, such as insurance for physician and hospital coverage, may differentiate their product by varying the network of providers, within Part D providers are pharmacies or mail-order centers, which tend to be pervasive and more homogeneous in their ability to fulfill drug prescriptions than physician networks or hospital networks. Moreover, the vast majority of pharmacies in a PDP region are included in every Part D plan network. That allows beneficiaries to select a plan with little concern for where or how they will fill their prescriptions.

Despite the homogeneity of Part D plan offerings, we found that the rules associated with low-income beneficiaries have created incentives for the market to bifurcate such that plans primarily enroll either standard beneficiaries or beneficiaries who receive low-income subsidies. For example, in 2006, roughly 75 percent of standard enrollees and 95 percent of enrollees receiving low-income subsidies were enrolled in plans with a premium below the low-income benchmark (see Figure 2). By 2010, only about 25 percent of standard enrollees were in plans with a premium below the low-income benchmark and almost 80 percent of beneficiaries receiving low-income subsidies were in those plans.

Three rules have encouraged that bifurcation. First, the auto-assignment of low-income beneficiaries from plans with a premium above the benchmark to those with premiums below the benchmark concentrates low-income beneficiaries in plans with premiums below the benchmark.

Second, the shielding of most low-income beneficiaries from deductibles leads plan sponsors to offer plans with different amounts of deductibles that will tend to attract either standard beneficiaries or low-income beneficiaries but not both. Specifically, because the LIS program pays the deductible for most low-income beneficiaries, a low-income beneficiary will not be deterred by a high deductible to the same extent as a standard beneficiary. At the same time, beneficiaries not receiving low-income subsidies may consider a lower deductible to be an offset against a higher premium, particularly if the beneficiaries anticipate paying the entire deductible in a given year. Thus, some plan sponsors may offer basic plans with bids that cause their premium to rise above the benchmark and very low deductibles (to attract standard beneficiaries). Other plan sponsors may offer basic plans with bids such that the premium falls below the benchmark and standard, or maximum, deductibles (to attract low-income beneficiaries). That divergence occurred between 2006 and 2010 (see Figure 3). By 2010, almost 20 percent of plans bidding above the benchmark had a deductible of zero, while less than 1 percent of plans bidding below the benchmark had a deductible of zero. Moreover, basic plans with bids above the benchmark and a zero deductible enrolled 64 percent of standard beneficiaries (and 25 percent of standard beneficiaries were in plans with bids below the benchmark).

The third rule encouraging the bifurcation is the shielding of low-income beneficiaries from most cost sharing, which forces plans to find strategies other than differential copayments to steer beneficiaries toward preferred drugs. Two approaches available to plans to steer low-income beneficiaries toward preferred drugs are the implementation of some type of utilization

management—such as prior authorization, step therapy, or quantity controls—and the removal of certain drugs altogether from the formularies, within the confines of the law.⁸ OIG (2012) found that plans with bids below the benchmark employ more utilization management than plans with bids above the benchmark, which could discourage standard beneficiaries from enrolling in those plans. Specifically, OIG found evidence that between 2011 and 2012, plans increased their use of utilization management tools for the 200 most-used drugs by low-income beneficiaries from an average of 19 percent of those drugs in 2011 to an average of 22 percent of those drugs in 2012. However, when the share of drugs subject to utilization management in each plan is weighted by enrollment of low-income beneficiaries in that plan, 26 percent of the 200 most-used drugs by low-income beneficiaries were subject to utilization management, suggesting that the plans with higher enrollment by low-income beneficiaries employ utilization management to a greater extent.⁹ Such intensive use of utilization management for plans with premiums below the benchmark probably deters standard beneficiaries from enrolling in those plans and encourages them to enroll in plans with premiums above the benchmark with less utilization management.

Sensitivity of Beneficiaries to Premiums

We found that each year a large fraction of standard beneficiaries in basic stand-alone Part D plans selected new plans or switched to plans that tended to have a lower premium, which are features consistent with a competitive market.¹⁰

A slightly larger share of low-income beneficiaries than standard beneficiaries changed basic plans each year, but many of the changes by low-income beneficiaries stemmed from the auto-assignment of low-income beneficiaries to plans with a bid below the benchmark. Specifically, between 21 percent and 25 percent of standard beneficiaries in stand-alone plans selected a new plan each year (see Table 4), and 27 percent to 36 percent of low-income beneficiaries in stand-alone plans joined a new plan each year (see Table 5). Between 10 percent and 15 percent of low-income beneficiaries voluntarily switched to a new plan, and between 10 percent and 20 percent were automatically reassigned by CMS because their plan raised its bid such that its premium exceeded the benchmark. In addition, each year some share of both types of beneficiaries—between 1 percent and 10 percent—were “crosswalked,” or moved by a plan sponsor to a new plan, because the previous plan was discontinued. The total amount of switching that we estimate is consistent with research on standard beneficiaries by MedPAC (Suzuki, 2013).

On average, beneficiaries who switched plans tended to join plans with lower premiums. As evidence of that, we compared those who switched plans and those who did not with the entire low-income population (see Figure 4). (We consider the entire low-income population because

⁸ Prior authorization requires a physician to receive approval from the plan sponsor or a state board before prescribing certain drugs; step therapy requires that patients begin treatment using the most cost-effective or safest drug therapy and progress to more costly or risky drug therapies only if earlier steps prove ineffective; and quantity controls include limits on the number of drugs per prescription or period of time.

⁹ The OIG report further found that 99 percent of low-income beneficiaries in 2012 were enrolled in plans that included at least 172 of the 200 drugs used most by low-income beneficiaries, which leaves 28 of the most-used drugs on only a subset of formularies. (Nine drugs were on no formularies because they were not eligible for coverage under Part D.)

¹⁰ For a different analysis that reaches the same conclusion, see Frakt and Pizer (2010).

we only have aggregate numbers of auto-assigned beneficiaries and not plan-specific data so we cannot differentiate between low-income switchers who voluntarily moved and those who were auto-assigned.) Over the first five years of the program, low-income beneficiaries migrated or were assigned into plans that were less expensive, on average, than the plans switched into by standard beneficiaries, as might be expected from the automatic-assignment rules for low-income beneficiaries. At the same time, the standard beneficiaries who switched plans were in plans that were less expensive, on average, than the plans of standard beneficiaries who did not switch. In 2010, for example, 87 percent of low-income beneficiaries were in basic plans within 50 percent of the lowest regional basic premium, and 67 percent of standard beneficiaries who switched were in such plans, but only 40 percent of standard beneficiaries who did not switch were in such plans.

Moreover, when considering the premiums of beneficiaries who switched plans, the reductions in premiums tended to be larger for low-income beneficiaries than for standard beneficiaries: The premiums of low-income beneficiaries fell by \$7.00 per month, and the premiums of standard beneficiaries fell by \$5.60 per month.

We also found, however, that beneficiaries who switched plans did not always migrate to the plan in their region with the lowest premium. In all years of the program except 2008, only about 20 percent of standard beneficiaries who selected a new basic plan were enrolled in the lowest-premium plan in their region. (That fraction was notably higher, though, than the fraction of standard beneficiaries who did not switch plans and were enrolled in the lowest-premium plan in their region, which was between 1 percent and 10 percent.) And, consistent with the rules of the auto-assignment mechanism for low-income beneficiaries, which randomly distributes low-income beneficiaries across all plan sponsors with a plan that has a premium below the benchmark, we observed that only about 20 percent of all low-income beneficiaries in basic plans were enrolled in the lowest-premium basic plan offered in their region.

Extent of Market Power

We define market power in Part D as the ability of plan sponsors to strategically raise their bids and increase government payments to plans or total payments to plans without risking the loss of a large number of the plan sponsor's beneficiaries. There are limited or no opportunities for plan sponsors to exert such market power if they cater primarily to standard beneficiaries. In contrast, plan sponsors that primarily enroll low-income beneficiaries do have opportunities to exert such market power because of the rules for the low-income program.

To exercise such market power among standard beneficiaries, plan sponsors would need to increase the standard government contribution with the objective of shifting costs from beneficiaries to the government or just increasing the payments they receive without changing the beneficiary's premium. However, starting at any given bid, it is not possible for a plan sponsor to engage in a strategy that increased the government's contribution or their payment and at the same time improved or maintained their position in the market. Standard beneficiaries pay the marginal dollar difference between the government's contribution and the premium, which means that any plan sponsor attempting to increase the government's contribution by raising its bid would also increase the government's contribution for all of the other plan

sponsors but increase the likelihood that its enrollees would switch to other, less-expensive plans.¹¹

There are opportunities, however, for plan sponsors to profitably exercise market power within the low-income program. One approach, as already mentioned, is for plan sponsors that cater primarily to low-income beneficiaries to raise their bid such that their premium approaches the benchmark without exceeding it. Such a strategy increases the government's payments to the plan without affecting the costs paid by low-income beneficiaries, who pay no premium. That is, an increase in a plan sponsor's bid is not reflected as an increase in the premium paid by most low-income beneficiaries, as long as the premium remains below the low-income benchmark.

A second approach is for plan sponsors to recognize their ability to increase the low-income benchmark, which would also increase the government's payment to plans without affecting the amounts paid by low-income beneficiaries. (As mentioned above, starting in 2009, the low-income benchmark was calculated on a regional basis by weighting plan bids in a region by the number of low-income beneficiaries enrolled in that plan within the region in the previous year.) In some regions, a single plan enrolls over 40 percent of the low-income beneficiaries in the region, which would give the premium of that plan 40 percent of the weight in determining the benchmark for the region. Thus, plans with a large share of low-income beneficiaries in their regions can more aggressively raise their bid toward the benchmark, knowing that their bid will also put upward pressure on the benchmark. An increase in the low-income benchmark results in an increase in the largest bid that qualifies for a full subsidy under the low-income program and would increase the probability that the plan's higher bid was still below the low-income benchmark. The combination of higher profits without the potential to lose many beneficiaries (because the plan's premium does not exceed the benchmark or because another plan below the benchmark offered by the same plan sponsor can receive any LIS beneficiaries reassigned from the plan) creates an incentive for plans to use their market power within the low-income program. Determining whether plans are engaging in either of those two strategies is left for the econometric analysis in Section V.

Another application of market power is examined by Decarolis (2013), who considers the potential for plan sponsors to profit by shifting enrollees between their plans between 2006 and 2011. He finds that plans enrolling a large share of low-income beneficiaries could benefit from the aspect of the automatic assignment rule that gives preference to plans offered by the same plan sponsor before randomly assigning beneficiaries to other plans. That feature allows a plan sponsor to offer two plans and alternately offer one above and one below the low-income

¹¹ For example, between 2006 and 2010 the largest plan sponsor had an enrollment of about 27 percent of the national Part D market for stand-alone plans. That enrollment, however, was spread across 72 basic plans and 36 enhanced plans in all 34 regions in 2010. If that plan sponsor had increased the bid on all of its plans by \$10, the nationwide average bid would have increased by \$2.70. However, the government's contribution would have increased by only about 75 percent of that amount, or roughly \$2. The premium for each plan offered by that plan sponsor would have increased by \$8, but the premiums for all other plans (assuming they had not changed their bids) would have fallen by \$2, causing the plans of the largest sponsor to be \$10 more expensive than the plans offered by other sponsors. That would probably have caused at least some of the plan sponsor's beneficiaries to switch to less expensive plans. The total income per beneficiary for every plan except the plans of the largest insurer would have remained the same, although more of each premium would have been paid by the government and less by the beneficiary.

benchmark, relying on CMS to auto-assign any low-income beneficiaries from the plan above the benchmark to the plan below the benchmark. Although that may have been happening to some extent, CMS reported that only 8 percent of reassigned beneficiaries in 2010 were reassigned to a plan offered by the same plan sponsor (Summer et al., 2010). Moreover, such a strategy was no longer possible starting in 2011 because CMS limited plan sponsors to offering only one basic plan per region.

There are other opportunities for plan sponsors to exercise market power outside of their relationship with the government, but those opportunities lie outside the scope of this paper. For example, in interactions with drug manufacturers, plan sponsors can leverage market power in their price negotiation based on their ability to steer some of their enrollees toward or away from the manufacturer's prescription drugs. That type of market power allows plan sponsors to command a lower price for a drug relative to their competitors.¹² Similarly, in interactions with beneficiaries, plan sponsors can capitalize on beneficiaries who are somewhat inelastic to changes in their plan's premium by raising their bid and thus their premium. Ericson (2014) observes that some plans initially set low prices and then raised their prices over time, and he hypothesizes that some beneficiaries do not switch plans because search frictions lead to inertia.

Ease of Plan Sponsor Entry

In the first five years of operation, the Medicare Part D market experienced some entry and exit of plan sponsors, which suggests that there are sufficiently low costs for firm entry to deter plans from setting prices above a competitive level (for other insurance applications, see Frakt et al., 2012; Baker, 2001). Moreover, we found that the rules of the low-income program reduced the cost of entry for some plans, which may have increased the competitive nature of the market over the period evaluated.

Entry into the Part D market occurred regularly throughout the 2006–2010 period. An analysis of new entrants indicates that after 2006, plan sponsors entered regions through several different paths:

- The plan sponsor was not formerly active in any Part D market and launched new plans in each of the 34 regions. Specifically, 3 firms launched a new Part D plan in every region over the period studied.
- The plan sponsor expanded from its initial offering into additional regions. Specifically, existing plan sponsors added 146 plans across 34 regions between 2007 and 2010.
- The plan sponsor offered an MAPD plan or employer Part D plan and subsequently decided to enter the stand-alone Part D market. Specifically, 13 plan sponsors offered an MAPD plan but not a stand-alone plan in 2006 and then entered the stand-alone

¹² Price differences between plan sponsors for the same drug usually take the form of larger rebates to one plan sponsor relative to its competitors. Thus, the plan sponsor with the lowest price for a drug probably pays a similar price to the pharmacy for the drug relative to its competitors but receives the largest rebate from the drug's manufacturer.

plan market in 2007 or later. Most of those plan sponsors were active in only a single region.

- The plan sponsor purchased a plan previously offered by another plan sponsor that wanted to divest some of its plan offerings in particular regions. Specifically, between 2007 and 2010, 2 plan sponsors entered a region through an acquisition, while the plan sponsor who divested the plans remained in the market.

The automatic assignment policy of the low-income subsidy program offers new and existing plans the ability to gain enrollees without expenditures on marketing or recruitment. That automatic influx of enrollees makes entry less costly for plan sponsors seeking low-income enrollees. Thus, in a plan's first year, if it bids such that its premium is below the low-income benchmark, it could expect to receive some share of reassigned low-income enrollees in the region, even if its premium was not the lowest or its brand was not well-known. That encourages entry among plan sponsors interested in serving primarily low-income beneficiaries.

Taking together all of the basic plans that entered the market each year, the vast majority of their enrollment was low-income beneficiaries (see Table 6). For example, in 2007, 85 percent of total enrollment in all of the new basic plans was by low-income beneficiaries. By 2010, low-income beneficiaries made up 91 percent of total enrollment in plans that entered the market in 2007. Thus, new plans were able to gain enrollment of low-income beneficiaries. In contrast, new plans had relative difficulty gaining enrollment of standard beneficiaries.

V. Plan Bids and the Number of Plan Sponsors

Plans whose enrollees tend to be people with low income appear to behave differently in the market than plans that enroll primarily standard beneficiaries. This analysis critically evaluates the behavior of both types of plans—those bidding such that their premium is below the low-income benchmark and those bidding such that their premium is above the low-income benchmark (referred to as LIS-plans and non-LIS plans, respectively).

Using historical data from 2006 to 2010, our empirical objective is to estimate the relationship between the number of plan sponsors in a region and plan bids, and to estimate how that relationship differs for LIS plans and non-LIS plans. Conceptually, we model the Part D market like an auction because:

- All plans submit their bids at the same time, and those bids are used to determine the government's contribution and the plan's premium;
- Premiums are an important aspect influencing beneficiaries' selection of a plan and, thus, the amount of the bid compared with other plans' bids determines the number of enrollees each plan can expect to receive;
- The bids and premiums are binding for the year and cannot be changed; and
- Plans must accept every beneficiary who applies.

Although plans do not know the characteristics of the enrollees they will attract, concerns about adverse selection within Part D are at least partly mitigated by an adjustment of payments to plans to compensate them for enrolling beneficiaries having characteristics associated with high drug expenditures. As such, the development of bids by a plan probably relies mostly on the plan's average cost to deliver drug coverage (including the size of its negotiated rebates and the effectiveness of its formulary in steering beneficiaries toward drugs that have a lower net cost) rather than a concern about the characteristics of beneficiaries attracted to the plan. Those attributes suggest that the Part D market resembles a type of private-value, sealed-bid reverse auction with many winners. For that type of auction, theory suggests that each additional plan sponsor will cause bids to fall toward costs until plans are no longer earning economic profit (Krishna, 2002; Stocking et al., 2014).

To assess that prediction, we focus on changes in the number of plan sponsors within regions and across time. Over the period from 2006 to 2010, we observe a large number of plan sponsors entering and exiting the regions. Although much of the entrance occurred in 2007, each year of the study period witnessed at least several new plan sponsors. Similarly, plan sponsors exited regions in each year of the program.

For this analysis, we focus on the bids of basic plans and not enhanced plans mainly because basic plans are expected to be more responsive to the number of competitors. Basic plans tend to offer benefit packages that have very similar features (e.g., deductible, copayments, maximum out-of-pocket limits), with about 20 percent having identical benefit structures (other than the premium) and 56 percent having the same deductible but different cost sharing and premiums. As a result, for basic plans the premium is the most notable difference between plans. In contrast, enhanced plans offer benefit packages that differ between plans in more ways. In addition, all plan sponsors in a region must offer at least one basic plan but are not required to offer an enhanced plan, which makes the count of the number of plan sponsors an exact measure of the number of competitors offering basic plans but not enhanced plans.

Bifurcated Strategies

The bidding behavior observed for LIS plans differs from non-LIS plans, as is evident from Figure 2 and Figure 3, and that difference is consistent with the incentives present for beneficiaries and for each type of plan. In the subsequent discussion, we show that each type of plan behaves in ways consistent with its respective incentives and auction theory, after controlling for other factors related to the number of plan sponsors in a market and the distance between the plan's premium and the benchmark in its region.

Methods. To quantify the relationship between the number of plan sponsors and plan bids, we divide the sample into two groups based on their bids in the previous period and identify the association between the change in the number of plan sponsors and the change in plan bids through variation within regions over time using regression (1):

$$\Delta bid_{jRt} = \beta_1 \Delta Comp_{Rt} + \beta_2 Dist_{jR,t-1} + \beta_3 Dist_{jR,t-1}^2 + \left(\beta_4 Dist_{jR,t-1} + \beta_5 Dist_{jR,t-1}^2 \right) \cdot \Delta Comp_{Rt} + \beta_6 \Delta MAPD_{R,t} + \rho_R + \tau_t + \varphi_i + \Delta \varepsilon_{jRt} \quad (1)$$

where plan sponsor i offers several plans j , each of which submits a bid that represents the average monthly amount it would be willing to accept to provide Part D coverage in region R and year t to a beneficiary of average health. (The delta indicates a first difference between the previous period's value and the current period's value.) Our identification strategy relies on a plan sponsor's decisions to change its bids across time within regions.

Summary statistics of the variables in this regression are provided in Table 7. The main variable of interest to test the competitiveness of the market is the change in the number of plan sponsors ($\Delta Comp_{R,t}$). We are also interested in the association between changes in bids and the distance the plan's premium was above or below the benchmark in the previous year ($Dist_{j|R,t-1}$). Distance for each group is measured in absolute value ($Dist_{j|R,t-1} = |Prem_{j|R,t-1} - Bench_{R,t-1}|$). Interactions are estimated between the number of plan sponsors and the distance from the benchmark. Given those interactions, the association between the number of plan sponsors and the bids of plans is represented by a linear combination of several variables. For ease of interpretation, we have measured the distance relative to the average distance for plans with a premium above or below the benchmark. Thus, for plans with a premium below the benchmark, \$4.97 is subtracted from the distance between the premium and the benchmark in the previous year; for plans with a premium above the benchmark, \$7.51 is subtracted from the distance between the premium and the benchmark in the previous year.

We estimate the coefficients in regression (1) separately for LIS plans and non-LIS plans, where the plan type is determined by the relationship between the premium and the benchmark in the previous year. We also control for the change in the fraction of a region's covered beneficiaries enrolled in an MAPD plan ($\Delta MAPD_{R,t}$). That control allows for any difference in bid levels that might reflect systematic differences between regions with high and low fee-for-service (FFS) costs relative to Medicare Advantage costs.

We also include fixed effects for each of the 34 PDP regions (ρ_R), each year (τ_t), and each plan sponsor (φ_i). The purpose of the plan-sponsor fixed effect is to control for systematic changes in bids that are related to the use of a similar bidding strategy over time for all of that sponsor's plans across all regions. However, we also consider two alternative fixed-effect specifications, which control for systematic differences in other ways.

One alternative, plan fixed effects, captures differences between plans offered by the same sponsor. (The average plan sponsor offers 1.4 unique basic plans.) We include that fixed effect by replacing φ_i in regression (1) with φ_{ji} . That fixed effect was constructed by grouping together plans with identical names offered by the same plan sponsor across regions (e.g., AARP Preferred or AARP Saver). That fixed effect controls for features of the plan that do not vary over time, such as a consistent bidding strategy for a lower-premium basic plan that may differ from that for a higher-premium basic plan.

As another alternative, we consider plan-by-region fixed effects. Those interaction terms ($\rho_R \cdot \varphi_{ji}$) control for bidding strategies and other features of the plan that do not vary over time within a given region.

Results. The results using the approaches described above are shown in Table 8. The first three columns correspond to the results for LIS plans, and the second three to the results for non-LIS plans. Across all specifications, the results are consistent with our prediction that a greater number of plan sponsors is associated with lower plan bids, which is an outcome that would be expected in a competitive market.¹³

We found that the bids of both types of plans fall when the number of competitors in the region rises. For non-LIS plans, an additional plan sponsor is associated with bids falling by statistically significant amounts of \$0.40 to \$0.70 (or 0.5 percent to 0.8 percent). For LIS plans, an additional plan sponsor is associated with bids falling by statistically insignificant amounts of \$0.03 to \$0.22 (or 0.03 percent to 0.2 percent). Those results conform to expectations about the two types of plans. An additional plan sponsor represents a competitor who may undercut other non-LIS plans and thereby attract more beneficiaries. Consequently, non-LIS plans lower their bids to increase their probability of winning more beneficiaries. In contrast, the most important factor that affects enrollment in LIS plans is the number of plans with a premium below the benchmark rather than the amount by which a plan's premium is below the benchmark, because only about 20 percent of the beneficiaries enrolled in LIS plans are standard beneficiaries and thus sensitive to price. Consequently, LIS plans are less likely than non-LIS plans to lower their bids when they face an additional plan sponsor.

We also found that LIS plans raise their bids when their premiums are below the benchmark in the previous year, holding the number of competitors in the region constant. An LIS plan that increases its premium, and thus its bid, toward the benchmark receives additional profit from each beneficiary and from the possibility that its higher bid will increase the benchmark, although it potentially loses some enrollees who are sensitive to price. A plan with a premium that is \$10 below the benchmark in the previous year is estimated to increase its bid by between \$6.90 and \$9.70 in the current year, holding the number of plan sponsors constant. The amount of the increase is proportionately larger for plans with bids closer to the benchmark (as can be seen from the sign of the squared term in the estimated equation).

One feature of such a strategy is that the actions by plans to raise their bids reduce the chance that the benchmark falls. And in fact, the benchmark rarely fell after 2008 when it was based on a weighted average of bids. Rather, in most years the benchmark increased by a few dollars, which is consistent with plans increasing their bids.

Figure 5 illustrates the results shown in Table 8, for different changes in the number of plan sponsors and for plans with bids at different distances from their regional low-income benchmark. The figure plots the change in a plan's bid as a function of the distance from the benchmark in the previous year and changes in the number of other plan sponsors.

The strategy of plans above the benchmark appears to differ from that of plans below the benchmark in two important ways. First, although the bids of plans are generally lower in markets with a larger number of plan sponsors, the bids of plans with premiums below the low-income benchmark are less responsive to changes in the number of plan sponsors at most

¹³ Despite the different specifications, the results are also largely consistent with the results from Stocking et al. (2014), as shown in Table A1.

distances from the benchmark. In Figure 5, for instance, the difference between the effects of losing four sponsors and gaining four sponsors tends to be smaller for plans below the benchmark in the previous year. Second, with no change in the number of plan sponsors, plans with premiums below the benchmark raise their bids much more aggressively than plans with premiums above the benchmark lower their bids. In Figure 5, the slope of the line for no change in sponsors is steeper for plans below the benchmark in the previous year. Taken together, the average distance of basic plans with premiums below the benchmark fell from \$8 in 2006 to \$3 in 2010, whereas the average distance of basic plans with premiums above the benchmark fell between 2006 and 2007 from \$6 to \$3 but then rose to \$9 by 2010.

Unlike the results in Table 8, Figure 5 weights the analysis by the enrollment of each plan in July of the relevant year. Without such weighting, a graph of the coefficients predicted in Table 8 shows statistically insignificant but very large responses to the number of plan sponsors for plans with premiums very close to the benchmark. Upon further analysis, we found that primarily in 2008, and to a lesser extent in 2009 and 2010, some plans between the benchmark and \$4 above the benchmark lowered their bid below the benchmark in the subsequent year following a drop in the number of plan sponsors. Although that result may seem counterintuitive, more than 80 percent of the beneficiaries in those plans received the low-income subsidy, and their actions were probably responses to incentives in the LIS program: By lowering their bids, those plans requalified for receipt of automatically assigned beneficiaries. The de minimis rule in effect in 2007 and 2008 may have reduced the incentive for LIS plans to maintain a premium below the benchmark because it allowed plans with a premium between the de minimis threshold and the benchmark to retain their low-income beneficiaries. Non-LIS plans between the benchmark and \$4 above the benchmark increased their bid following a drop in the number of plan sponsors; the average share of low-income enrollees in those plans was 50 percent. In general, plans very close to and above the benchmark were small plans; when the analysis is weighted by total enrollment, those plans have less influence on the estimates.

Exercising Market Power

Recent changes in the formulation of the low-income benchmark increase the incentive for plan sponsors to exercise market power by raising their bids, because their higher bids will also raise the low-income benchmark, as described earlier. Specifically, although all LIS plans have an incentive to raise their bid toward the benchmark, an LIS plan with a larger share of enrollment has the added incentive that as it raises its bid, it also increases the benchmark significantly; that effect makes it less risky for the plan to more aggressively raise its bid toward the benchmark (but not to exceed the benchmark). (The de minimis rule present in 2007 and 2008 further reduced the risk of plans' losing their low-income beneficiaries.)

Methods. To quantify the extent to which plans are exerting market power, we modify regression (1) to add several terms interacted with years, because the methodology used to calculate the regional benchmark changed over time. We then estimate the coefficients in regression (2) for all plans with a premium below the benchmark (LIS plans):

$$\begin{aligned} \Delta bid_{jRt} = & \beta_1 \Delta Comp_{Rt} + \beta_2 Dist_{jR,t-1} + \beta_3 Dist_{jR,t-1}^2 + (\beta_4 Dist_{jR,t-1} + \beta_5 Dist_{jR,t-1}^2) \cdot \Delta Comp_{Rt} \\ & + \beta_6 \Delta MAPD_{R,t} + \beta_7 Enroll_{jR,t-1} (1 + \gamma_1 \tau_t) + \rho_R + \tau_t + \varphi_i + \Delta \varepsilon_{jRt} \end{aligned} \quad (2)$$

We used two different measures of enrollment in our estimation of regression (2) because the measures of enrollment used in calculating the benchmark varied by year. In 2008, the regional benchmark was calculated by weighting bids by the share of total regional enrollment in the previous year, implying that the bids of plans with a large enrollment would have more influence on the benchmark than the bids of plans with a small enrollment. In contrast, in 2009 and 2010, the regional benchmark was calculated by weighting bids by the share of total low-income enrollment in the previous year, suggesting that plans with a large enrollment of *low-income beneficiaries* would be most able to influence the benchmark. We hypothesize that if LIS plans or plan sponsors were exercising market power, then coefficients on the year indicators interacted with enrollment will be positive for 2008 using total enrollment and for 2009 and 2010 using low-income enrollment.

As with the previous regression, we consider a plan-sponsor fixed effect (φ_i), a plan fixed effect (φ_{ji}), and a plan-by-region fixed effect ($\rho_R \cdot \varphi_{ji}$). We also consider a fourth fixed effect—that is, plan-sponsor-by-region ($\rho_R \cdot \varphi_i$). The plan-sponsor-by-region fixed effect captures any strategic behavior by the plan sponsor implemented across all of its plans within a region that is not observed on only the plan level. It may also pick up strategic behavior by plan sponsors that is missed by including only a plan-sponsor fixed effect if the plan sponsor engages in different strategies across different regions.

Results. The estimates of the coefficients in regression (2) are shown in Table 9. The first four columns show the results of specifications in which each plan’s share of regional total enrollment in the prior year is interacted with year indicators, and columns 5 through 8 show specifications in which each plan’s share of regional low-income enrollment in the prior year is interacted with year indicators. The first row shows the estimates of the coefficient on the number of plan sponsors, which are very similar to the results shown in columns 1 through 3 in Table 8.

With respect to market power, we found that for every percentage point increase in total enrollment held by a plan with a premium below the benchmark in 2008, plan sponsors increased the bids of their plans, on average, by statistically significant amounts (\$0.12 and \$0.18) in the two specifications with plan-sponsor fixed effects; in the third and fourth specifications with only plan fixed effects, the results were very imprecise, probably because of the relatively small amount of variation in enrollment within plans over time. Similarly, in 2009, LIS plan sponsors raised the bids of their plans, on average, for every additional percentage point of regional low-income enrollment held by the plan by statistically significant amounts (\$0.15 to \$0.23) in the two specifications providing the greatest precision. In 2010, however, the effects appear to be much smaller. There is little difference between the results using the same specifications but different measures of enrollment, probably because the two measures of enrollment are highly correlated. Overall, the results provide some evidence that LIS plans raised their bids in ways consistent with exertion of market power that would influence the regional benchmark and increase their profits.

The economic effects of those changes in bids can be calculated from the summary statistics. In 2008, the average LIS plan enrolled 3.7 percent of the regional enrollment in the previous year; using the coefficients estimated for 2008, that translates to an average increase in bids of \$0.43 to \$0.65 per beneficiary per month relative to an average bid of \$82. With about 5.7 million

beneficiaries in plans with premiums below the benchmark, the results suggest that the exercise of market power by plan sponsors cost the federal government \$30 million to \$45 million in additional costs in 2008, if all plans responded similarly. In 2009, the average LIS plan enrolled 5.6 percent of the regional low-income enrollment in the previous year, suggesting that the average plan increased its bid by \$0.84 to \$1.28 per beneficiary per month relative to an average bid of \$88. That increase cost the federal government an additional \$60 million to \$93 million for the 6 million low-income beneficiaries in plans with premiums below the benchmark in 2009 if all plans responded similarly.

VI. Discussion

The rules of the low-income program in Part D create incentives for LIS plans to be less responsive to the number of plan sponsors, to raise their bids toward the benchmark, and to strategically bid in ways that raise the low-income benchmark and, in turn, the government's costs. Policymakers could pursue a variety of strategies to alter the incentives of plan sponsors to further restrain the costs of the program.

One strategy that policymakers could pursue would be to change the assignment rule to increase the reward to those LIS plans with the lowest bids by assigning beneficiaries from above the benchmark to a limited number of plans with premiums furthest below the low-income benchmark rather than to all plans with premiums below the benchmark. That would create an incentive among LIS plans to lower their bids to a level that made them competitive with the lowest-bidding plans. And the reward of more automatically assigned beneficiaries would lower the cost of entry for plans that were capable of bidding among the lowest-premium plans. Such a policy would tend to lower the cost of the program by reducing the premium subsidy for low-income beneficiaries. It would also allow plans that cater primarily to standard beneficiaries to submit a bid such that their premium fell below the low-income benchmark without concern that they would be automatically assigned low-income beneficiaries, as long as the plans were not among the limited number of lowest-premium plans that receive such beneficiaries.

One argument against such a strategy would be that the plans with the lowest bids might also be the plans with the narrowest formularies. That could mean either fewer drugs included on the formulary or more drugs on higher cost-sharing tiers. If the reassignment strategy caused large numbers of low-income beneficiaries to switch between low-cost plans each year and those plans had different narrow formularies, the outcome might prove detrimental to the health of the beneficiaries (if, for example, their drugs were no longer covered). It could also raise federal costs, to the extent that the drugs taken by low-income beneficiaries were expensive brand-name drugs on higher cost-sharing tiers or on specialty tiers. (Low-income beneficiaries have little incentive to avoid drugs on those higher-cost tiers.) To address that concern, any reassignment strategy could be combined with a mechanism for giving preference to low-cost plans that include in their formularies the same set of drugs currently used by the beneficiary. That might increase the potential number of recipient LIS plans but could still strengthen the incentives to submit low bids relative to the current reassignment mechanism.

Policymakers might choose to combine such a reassignment strategy with a new mechanism for calculating the low-income benchmark. As low-income beneficiaries concentrated in a few of the

lowest-cost plans, a benchmark based on bids and weighted by the previous year's low-income enrollment (as in the current mechanism) would fall toward the premium of those lowest-cost plans. That could reduce the number of plans with premiums below the benchmark, which would reduce the choices available to low-income beneficiaries who did not want to pay a premium.

A second strategy that policymakers could pursue would be to reduce or eliminate the requirement that basic plans that have a premium that falls below the benchmark must receive automatically assigned low-income beneficiaries.¹⁴ (The bifurcation of plan type suggests that some basic plans would prefer not to receive low-income beneficiaries.) For example, plans could be allowed to opt out of receiving such beneficiaries. To the extent that the automatic assignment of low-income beneficiaries discourages some non-LIS plans from reducing their bids as much as they might otherwise, allowing plans to opt out of automatic reassignment might result in lower premiums. And if more premiums fell below the benchmark, costs to the federal government would be reduced.

An argument against such a strategy would be a concern that all plans would opt out of receiving low-income beneficiaries because low-income beneficiaries are viewed as more difficult or expensive to cover. Although that does not appear to be the case today—given that some plans are actively pursuing low-income beneficiaries—one approach for reducing that concern might be to allow or require plans that opt out of receiving low-income beneficiaries to offer at least one plan with a premium below the benchmark that accepts auto-assigned low-income beneficiaries.¹⁵ That additional change would mitigate the potential decrease in the number of choices available to low-income beneficiaries under such a strategy.

A third strategy that policymakers could pursue would be to find ways to encourage low-income beneficiaries to be more active in their selection of plans that reduce federal costs. If low-income beneficiaries were more likely to select a plan with a premium further below the benchmark, LIS plans would have a stronger incentive to submit lower bids. One way to encourage beneficiaries to select lower-cost plans would be to share the resulting savings generated for the government with the beneficiary. For example, beneficiaries could receive a cash award equal to a fraction of the difference between the premium of the plan they have chosen and the benchmark. That change would reward beneficiaries who choose plans with lower bids.

An argument against such a strategy would be a concern that low-income beneficiaries might select plans based on their low premiums even if those plans did not include on their formularies drugs taken by those beneficiaries. In addition, depending on the size of the cash award, such a policy may not reduce total government expenditures. For example, government expenditures could increase if large amounts of cash awards are paid to beneficiaries who were already choosing low-cost plans. To address those concerns, the cash award could be set such that it was

¹⁴ One mechanism for plan sponsors to achieve a similar objective under current conditions is to offer a basic plan with a premium below the benchmark and an enhanced plan with a premium below the benchmark. The enhanced plan cannot receive automatically assigned beneficiaries. Such a strategy is complicated by the CMS requirement that enhanced plans must be meaningfully different from basic plans, which makes it difficult for plan sponsors to offer an enhanced plan with a premium below the benchmark.

¹⁵ Such an approach would require a change to current rules that limit plan sponsors to one basic plan and up to two enhanced plans.

equal for several low-cost plans, allowing low-income beneficiaries to choose the best plan for them among a group of low-cost plans without regard to the costs. The ability of the policy to generate budgetary savings would depend on a variety of design elements beyond the scope of this analysis.

Any of the above approaches could be implemented with a modified de minimis rule. For example, the de minimis rule could be symmetric, meaning that plans that happen to bid a few dollars below the benchmark could choose not to receive low-income beneficiaries. Alternatively, the de minimis rule could specify that plans within a threshold above or below the benchmark can keep their low-income beneficiaries but cannot be assigned new beneficiaries. (Today that is only the case for LIS plans with a premium slightly above the benchmark.)

VII. Conclusion

Analysis of Part D data suggests that two types of plans have emerged—those that cater primarily to low-income beneficiaries and have lower premiums, and those that cater to standard beneficiaries and have higher premiums. Such a bifurcation would not necessarily be expected because standard beneficiaries are attracted to plans with low premiums. However, the data for 2010 indicate that plans bidding such that their premium is below the low-income benchmark only enrolled about 60 percent of beneficiaries, and most of those were low-income beneficiaries. Moreover, since the program began in 2006, plans bidding such that their premium is above the low-income benchmark have increased their share of standard beneficiaries, reduced their share of low-income beneficiaries, and increased their share of total enrollment.

Basic plans with a premium below the benchmark have maintained a high deductible (only standard beneficiaries pay a deductible), whereas plans with a premium above the low-income benchmark have reduced their deductible, often to zero. Because standard beneficiaries prefer a lower deductible and low-income beneficiaries are largely indifferent to the deductible, plans with a premium below the benchmark and a high deductible discourage standard beneficiaries from enrolling despite the low premium for their plan. Beneficiaries were probably selecting plans based in part on criteria other than premiums (such as deductibles), and plans may have relied on those preferences to help them enroll particular types of enrollees. Plans may have chosen to specialize in serving low-income or standard beneficiaries because mechanisms for influencing drug utilization differ between low-income beneficiaries and standard beneficiaries. For instance, low-income beneficiaries pay a flat copayment for brand-name drugs that cannot differ by plan or cost-sharing tier, as specified by law.

We found that when additional plan sponsors entered a particular market, the bids of LIS plans fell, but by a statistically insignificant \$0.03 to \$0.22 (or 0.03 percent to 0.2 percent). In comparison, non-LIS plans reduced their monthly bid by a statistically significant \$0.40 to \$0.70 (or 0.5 percent to 0.8 percent), on average, for each additional plan sponsor that entered the market. We also found that LIS plans increased their bids such that their premiums approached the benchmark. That is consistent with the incentives created by the auto-assignment rule that rewards all plan sponsors with a premium below the low-income benchmark with an equal share of reassigned beneficiaries. Finally, we found some evidence that LIS plans appear to recognize their own market power with respect to increasing the low-income benchmark and tended to

more aggressively increase their bid and the corresponding payment received from the government for each of their enrollees.

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Table 1.**Market Size and Plan Distribution**

Year	2006	2007	2008	2009	2010
Total Enrollment in PDPs					
All MAPD Plans (millions)	5.4	6.1	7.0	7.7	8.5
Basic Plans (millions)	12.9	13.0	12.8	12.2	12.9
Enhanced Plans (millions)	2.7	3.3	3.7	4.3	3.7
Employer Plans (millions)	1.6	1.9	2.2	2.3	2.4
Total Nationwide Enrollment (millions)	22.8	24.3	25.6	26.6	27.5
Standard Enrollment in PDPs					
All MAPD Plans (millions)	5.2	5.0	5.4	5.8	6.3
Basic Plans (millions)	5.1	5.2	5.0	4.6	5.0
Enhanced Plans (millions)	2.4	3.0	3.4	3.8	3.4
Employer Plans (millions)	1.6	1.9	2.2	2.3	2.4
Total Nationwide Enrollment (millions)	14.3	15.1	16.0	16.5	17.1
Low-Income Enrollment in PDPs					
All MAPD Plans (millions)	0.2	1.1	1.6	1.9	2.2
Basic Plans (millions)	7.8	7.8	7.7	7.7	7.8
Enhanced Plans (millions)	0.2	0.3	0.3	0.4	0.3
Total Nationwide Enrollment (millions)	8.3	9.2	9.7	10.0	10.4

Note: Totals may not add up because of rounding. MAPD = Medicare Advantage prescription drug; PDP = stand-alone prescription drug plan.

Table 2.

The Low-Income Benchmark With Bids and Monthly Premiums for Plans Above and Below the Benchmark

Year	Avg Low-Income Benchmark (regional range) ¹	Premium Below Low-Income Benchmark		Premium Above Low-Income Benchmark	
		Plan Bids mean (st dev) ²	Plan Premiums mean (st dev) ²	Plan Bids mean (st dev) ²	Plan Premiums mean (st dev) ²
2006	\$31.42 (\$23.25 - \$36.39)	\$83.33 (\$7.64)	\$23.23 (\$7.64)	\$97.31 (\$60.23)	\$37.21 (\$60.23)
2007	\$27.87 (\$20.56 - \$33.56)	\$71.90 (\$6.10)	\$21.84 (\$6.10)	\$82.75 (\$3.69)	\$29.71 (\$3.69)
2008	\$27.33 (\$15.92 - \$36.42)	\$76.42 (\$4.30)	\$23.83 (\$4.30)	\$83.62 (\$5.64)	\$31.03 (\$5.64)
2009	\$29.19 (\$16.22 - \$38.15)	\$80.56 (\$3.83)	\$26.59 (\$3.83)	\$90.49 (\$5.39)	\$36.52 (\$5.39)
2010	\$32.29 (\$21.42 - \$40.89)	\$85.21 (\$4.25)	\$28.82 (\$4.25)	\$96.52 (\$6.12)	\$40.43 (\$6.12)

Notes: MAPD = Medicare Advantage prescription drug; PDP = stand-alone prescription drug plan. (1) The low-income benchmark represents the maximum monthly subsidy available for low-income beneficiaries. The subsidy only covers the premium, which may be less than the benchmark. Averages are weighted by total regional enrollment. The range of low-income benchmarks across regions is shown in parentheses; (2) Plan bids and monthly premiums are weighted by plan enrollment in July of each year (i.e., weighted by enrollment earned as a result of their bid) with the standard deviation shown in parentheses.

Table 3.

Methodology for Determining the Part D National Average Bid and Low-Income Benchmark

Year	Nationwide Average Bid	Regional Low-Income Benchmark
2006	Weighted average of PDP and MAPD bids nationwide; PDP bids weighted equally, new MAPD bids no weight, existing MAPD bids weighted by enrollment in previous March	Weighted average of all PDP and MAPD bids within each Region; PDP bids weighted equally, new MAPD bids no weight, existing MAPD bids weighted by enrollment in previous June
2007	Average of two approaches: 40 percent using 2006 methodology and 60 percent using 2009 methodology	
2008	Average of two approaches: 20 percent using 2006 methodology and 80 percent using 2009 methodology	Average of two approaches: 50 percent using 2007 methodology and 80 percent using 2009 methodology
2009	Weighted average of PDP and MAPD bids nationwide with bids weighted by enrollment in previous June	Weighted average of all PDP and MAPD bids with bids within each Region weighted by enrollment of low-income beneficiaries in previous June
2010		

Notes: MAPD = Medicare Advantage prescription drug; PDP = stand-alone prescription drug plan.

Table 4.**New Enrollment Among Beneficiaries Not Receiving the Low-Income Subsidy**

Year	2006	2007	2008	2009	2010
Standard Population (millions)	7.68	8.19	8.35	8.38	8.36
Potential New Standard Enrollees					
Not Previously Enrolled ¹	NA	13.4%	9.8%	9.5%	8.7%
Switching to New Part D Plan ²	NA	11.6%	12.4%	11.5%	12.6%
Total	100%	25.0%	22.1%	21.0%	21.3%
Crosswalked Beneficiaries ³	NA	3.1%	0.8%	4.0%	9.0%

Notes: MAPD = Medicare Advantage prescription drug; PDP = stand-alone prescription drug plan. Switching percentages are shown as a fraction of total enrollment at the end of the previous year. (1) Includes those who just turned 65 and became eligible¹, those who obtained Social Security Disability Insurance and became eligible for Medicare for the first time, and those who were not enrolled in Medicare previously but were eligible. (2) Includes those who switched between plan sponsors either by choice or because the previous plan sponsor exited the market; those who switched from employer plan or MAPD plan; those who switched to a new plan but with the same plan sponsor, and those who moved and switched from an MAPD plan or a PDP and may or may not have stayed with the same plan sponsor (does not include those who were crosswalked by their plan sponsor into a new plan). (3) Crosswalked beneficiaries had their plan eliminated by the insurer and replaced by a different plan. All beneficiaries in the original plan were automatically assigned to the replacement plan if they did not otherwise select a new plan.

Table 5.**New Enrollment Among PDP Beneficiaries Receiving the Low-Income Subsidy**

Year	2006	2007 ⁴	2008	2009	2010
Low-Income Enrollees (millions)	8.27	8.23	8.18	8.21	8.34
Potential New Standard Enrollees					
Not Previously Enrolled ¹	NA	5.4%	5.7%	4.6%	5.0%
Switching to New Part D Plan ²	NA	21.3%	10.5%	15.4%	11.2%
Autoassigned Enrollees	NA		19.9%	14.3%	10.8%
Total	NA	26.7%	36.1%	34.3%	27.0%
Crosswalked Beneficiaries ³	NA	1.8%	0.2%	3.0%	4.2%

Notes: MAPD = Medicare Advantage prescription drug; PDP = stand-alone prescription drug plan. Only includes switching within or to PDPs (i.e., switching between MAPD plans or employer plans is not included). Switching percentages are shown as a fraction of total enrollment at the end of the previous year. (1) Includes those who just turned 65 and became eligible, those who obtained Social Security Disability Insurance and became eligible for Medicare for the first time, and those who were not enrolled in Medicare previously but were eligible. (2) Includes those who switched between plan sponsors either by choice or because the previous plan sponsor exited the market; those who switched from employer plan or MAPD plan; those who switched to a new plan but with the same plan sponsor, and those who moved and switched from an MAPD plan or a PDP and may or may not have stayed with the same plan sponsor (does not include those who were crosswalked by their plan sponsor into a new plan). (3) Crosswalked beneficiaries had their plan eliminated by the insurer and replaced by a different plan. All beneficiaries in the original plan were automatically assigned to the replacement plan if they did not otherwise select a new plan. (4) In 2007, the data are not available to separate out the fraction of beneficiaries who are auto-assigned to new plans.

Table 6.

New Basic Plan Characteristics, by Entry Year

Year Plan Launched	# of New Plans	In Launch Year		In 2010	
		% who qualify for low-income Subsidies	% of Total Enrollment	% who qualify for low-income Subsidies	% of Total Enrollment
2007	374	85%	3%	91%	13%
2008	84	95%	4%	86%	5%
2009	66	96%	3%	96%	4%
2010	33	94%	2%	94%	2%

Table 7.**Summary Statistics**

Regression Variable	Plans with Premium Below Benchmark Mean St Dev.	Plans with Premium Above Benchmark Mean St Dev.
Plan Bid (bid)	85.63 [9.53]	90.93 [12.24]
Change in Plan Bid (Δ bid)	2.49 [7.40]	1.03 [14.09]
Change in Plan Sponsors current and previous yr (Δ Comp)	0.35 [3.74]	0.15 [3.19]
Distance From the Low-Income Benchmark year t-1 (Dist)	-4.97 [4.43]	7.51 [8.22]
Percent of Reg. Total Enrollment in Plan in year t-1	2.60% [4.67%]	2.13% [4.62%]
Percent of Reg. Low-Income Enrollment in Plan in year t-1	6.71% [5.84%]	1.42% [3.10%]
Change in Percent of MAPD Subscribers in Region (Δ MAPD)	1.3% [0.97%]	1.2% [0.89%]

All statistics are for basic plans between 2006 and 2010 and are unweighted. MAPD = Medicare Advantage prescription drug.

Table 8.

The Relationship Between the Number of Plan Sponsors, Distance From the Low-Income Benchmark, and Subsequent Changes in Bids

Dependent Variable	Below Benchmark in Previous Year			Above Benchmark in Previous Year		
	(1)	(2)	(3)	(4)	(5)	(6)
	bid _{jiRt} - bid _{jiR(t-1)}			bid _{jiRt} - bid _{jiR(t-1)}		
Change in Competition (Δ Comp)	-0.029 [0.13]	-0.098 [0.12]	-0.22 [0.20]	-0.67** [0.29]	-0.44* [0.26]	-0.60 [0.52]
Distance From the Benchmark year t-1 (Dist), de-meanned by group	0.67*** [0.046]	0.84*** [0.043]	0.97*** [0.067]	-0.23*** [0.075]	-0.35*** [0.078]	-0.36** [0.15]
Dist ²	-0.014** [0.0062]	-0.023*** [0.0057]	-0.035*** [0.0091]	-0.033*** [0.0040]	-0.028*** [0.0038]	-0.032*** [0.0074]
Dist * Δ Comp	-0.030*** [0.0097]	-0.043*** [0.0089]	-0.078*** [0.014]	-0.21*** [0.021]	-0.17*** [0.020]	-0.20*** [0.046]
Dist ² * Δ Comp	-0.0017* [0.0010]	0.000046 [0.00097]	0.0027* [0.0015]	0.0082*** [0.00086]	0.0066*** [0.00091]	0.0081*** [0.0016]
Change in % of MAPD Subscribers in Region	-0.77 [18.5]	-2.49 [17.7]	17.1 [29.8]	-45.1 [43.8]	-57.4 [37.8]	-77.5 [72.7]
Region Indicators	X	X		X	X	
Year Indicators	X	X	X	X	X	X
Plan Sponsor Indicators	X			X		
Plan Indicators		X			X	
Plan*Region Indicators			X			X
Number of Observations	1428	1428	1428	1185	1185	1185
R ²	0.72	0.78	0.87	0.70	0.79	0.86
Adjusted R ²	0.71	0.76	0.71	0.67	0.77	0.67
F-statistic	74.2	64.2	167.7	37.2	36.5	61.4

Notes: Robust standard errors in brackets * p<0.10; ** p<0.05; *** p<0.01. Basic plans with a premium below the low-income benchmark in the previous year are included in regressions (1) through (3); basic plans with a premium above the low-income benchmark in the previous year are included in regressions (4) through (6). Basic plans that entered after 2006 were coded on the basis of whether their first-year premium was above or below the previous year's low-income benchmark. MAPD = Medicare Advantage prescription drug.

Table 9.

The Relationship Between Enrollment Share and Subsequent Changes in Bids for LIS Plans

Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	bid _{jirt} - bid _{jir(t-1)}				bid _{jirt} - bid _{jir(t-1)}			
Change in Competition (Δ Comp)	-0.042 [0.13]	-0.016 [0.16]	-0.094 [0.12]	-0.23 [0.19]	-0.044 [0.13]	-0.023 [0.17]	-0.098 [0.12]	-0.23 [0.19]
Distance From the Benchmark year t-1 (Dist), de-means by group	0.70*** [0.048]	0.79*** [0.064]	0.85*** [0.043]	1.01*** [0.067]	0.69*** [0.048]	0.80*** [0.064]	0.85*** [0.043]	1.00*** [0.070]
Dist ²	-0.015** [0.0062]	-0.023** [0.0089]	-0.022*** [0.0060]	-0.029*** [0.010]	-0.014** [0.0061]	-0.022*** [0.0086]	-0.022*** [0.0058]	-0.032*** [0.0095]
Dist * Δ Comp	-0.031*** [0.0097]	-0.045*** [0.012]	-0.043*** [0.0089]	-0.073*** [0.013]	-0.032*** [0.0097]	-0.048*** [0.012]	-0.044*** [0.0089]	-0.077*** [0.013]
Dist ² * Δ Comp	-0.0013 [0.0010]	-0.000031 [0.0014]	0.00037 [0.00099]	0.0026* [0.0015]	-0.0015 [0.0010]	-0.00019 [0.0013]	0.00027 [0.00098]	0.0029* [0.0015]
Change in % of MAPD Subscribers in Region	-3.33 [18.2]	-0.014 [23.0]	-5.30 [17.5]	16.5 [29.1]	-4.57 [18.3]	-1.97 [23.4]	-6.82 [17.6]	7.45 [29.1]
Enrollment Statistic Used	% of Total Regional Enrollment in Plan t-1				% of Regional Low-Income Enrollment in Plan in t-1			
Enrollment Statistic * 2007	-0.025 [0.036]	0.0079 [0.050]	-0.14** [0.055]	-0.45* [0.24]	-0.029 [0.063]	0.024 [0.092]	-0.12* [0.070]	-0.33 [0.21]
Enrollment Statistic * 2008	0.12*** [0.039]	0.18*** [0.051]	-0.049 [0.056]	-0.26 [0.23]	0.093** [0.041]	0.19*** [0.057]	-0.022 [0.047]	-0.047 [0.15]
Enrollment Statistic * 2009	0.17** [0.077]	0.25** [0.100]	0.051 [0.076]	-0.046 [0.19]	0.15*** [0.057]	0.23*** [0.074]	0.090 [0.057]	0.15 [0.11]
Enrollment Statistic * 2010	0.029 [0.081]	0.034 [0.096]	-0.036 [0.075]	-0.10 [0.12]	0.033 [0.047]	0.034 [0.053]	0.0062 [0.044]	0.0092 [0.070]
Region Indicators	X		X		X		X	
Year Indicators	X	X	X	X	X	X	X	X
Plan Sponsor Indicators	X				X			
Plan Indicators			X				X	
Plan Sponsor*Region Indicators		X				X		
Plan*Region Indicators				X				X
Number of Observations	1428	1428	1428	1428	1428	1428	1428	1428
R ²	0.73	0.79	0.78	0.87	0.73	0.79	0.78	0.87
Adjusted R ²	0.71	0.68	0.76	0.72	0.71	0.68	0.76	0.72
F-statistic	69.7	190.8	58.9	122.9	69.7	193.0	59.3	122.1

Note: Robust standard errors in brackets * p<0.10; ** p<0.05; *** p<0.01. All regressions include only basic plans with a premium below the low-income benchmark in the previous year. Basic plans that entered after 2006 were included if their first-year premium was above or below the previous year's low-income benchmark. Δ Comp is the change in the number of plan sponsors in comparison to the previous year. Dist is the distance from the low-income benchmark in the previous year relative to the average distance for all plans included in the estimation. Δ MAPD is the change in the share of Medicare Advantage prescription drug (MAPD) plan enrollees in the region in comparison to the previous year. Enrollment statistic percentages are measured from 0 to 100.

Appendix Table A1.

Crosswalk of Results From Stocking et al. (2014) to Table 7

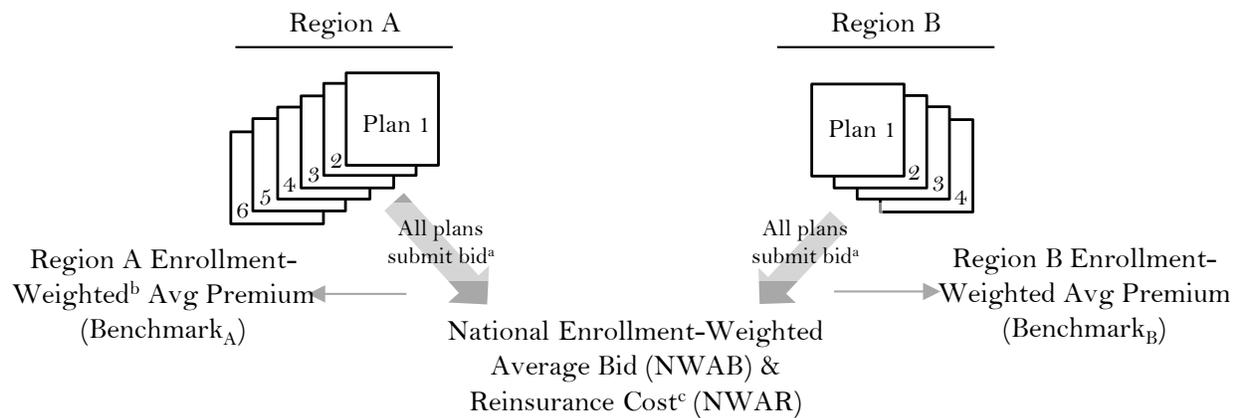
	Table 5 from Stocking et al., (2014)			Comparable Regression with Interactions		
Composite Effect						
Marg. Effect of No. Plan Sponsors for Plan with Prem (t-1) > Benchmark (t-1)	-0.095***	-0.075**	-0.090*	-0.14***	-0.089**	-0.11*
Marg. Effect of No. Plan Sponsors for Plan with Prem (t-1) < Benchmark (t-1)	0.10***	0.094***	0.11**	0.017	-0.01	-0.0019
Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)
	ln(bid _{jiRt})- ln(bid _{jiR(t-1)})			ln(bid _{jiRt})- ln(bid _{jiR(t-1)})		
Change in No. Plan Sponsors [Δln(No. Plan Sponsors)]	-0.095***	-0.075**	-0.090*	-0.14***	-0.089**	-0.11*
	[0.035]	[0.033]	[0.050]	[0.050]	[0.045]	[0.066]
De-meaned Distance From the Benchmark year t-1 (Dist)				0.0025***	0.0038***	0.0044***
Dist ²				[0.00066]	[0.00069]	[0.0010]
				-0.00031***	-0.00026***	-0.00026***
				[0.000036]	[0.000034]	[0.000054]
Dist * Δln(No. Plan Sponsors)				0.039***	0.033***	0.037***
				[0.0036]	[0.0034]	[0.0056]
Dist ² * Δln(No. Plan Sponsors)				0.0017***	0.0014***	0.0016***
				[0.00018]	[0.00019]	[0.00027]
Interaction with Dummy, where D=1 if Plan Prem (t-1) < Benchmark (t-1)						
Change in No. Plan Sponsors [Δln(No. Plan Sponsors)]	0.20***	0.17***	0.20***	0.16***	0.078	0.11
	[0.021]	[0.019]	[0.030]	[0.057]	[0.054]	[0.077]
De-meaned Distance From the Benchmark year t-1 (Dist)				0.0065***	0.0071***	0.0076***
Dist ²				[0.00088]	[0.00088]	[0.0012]
				0.00016*	-0.000026	-0.000082
				[0.000085]	[0.000081]	[0.00011]
Dist * Δln(No. Plan Sponsors)				-0.049***	-0.044***	-0.053***
				[0.0043]	[0.0040]	[0.0063]
Dist ² * Δln(No. Plan Sponsors)				-0.0022***	-0.0015***	-0.0014***
				[0.00030]	[0.00030]	[0.00041]
Region Controls	X	X		X	X	
Year Controls	X	X	X	X	X	X
Plan Sponsor Controls	X			X		
Plan Controls		X			X	
Plan*Region Controls			X			X
Observations	2613	2613	2613	2613	2613	2613
R2	0.52	0.58	0.63	0.70	0.77	0.84
Adjusted R2	0.50	0.56	0.36	0.69	0.76	0.72
F-statistic	59.9	54.0	224.5	57.8	61.2	181.3

Notes: Robust standard errors in brackets * p<0.10; ** p<0.05; *** p<0.01. Other variables included in the regression are the change in the percentage of Medicare Advantage prescription drug (MAPD) plan subscribers in the region, a constant, and interactions of those variables, year indicators, and the region indicators (equal to one if the plan's premium in the previous year was below the low-income benchmark in the previous year). Columns (3) and (6) include a full set of interactions of plan and region indicators.

Figure 1.

Overview of How the Government Contribution Is Set for Prescription Drug Plans

Calculating the Medicare Part D Premium and Government Contribution



	Individual Premium (for Plan 1, Region A)	Government Contribution to Basic Benefit ^d (for Plan 1, Region A)
Standard Beneficiary	$Prem_1 = Bid_1 - 74.5\%(NWAB) + 25.5\%(NWAR)$	$\text{Govt Cont.} = \underbrace{\text{Adj}(\text{Bid}_1) - Prem_1}_{\text{Direct Subsidy}} + \underbrace{80\%(\text{Actual Cat Spending})}_{\text{Reinsurance}}$
Low-Income Beneficiary^e	If $Prem_1 < Benchmark_A$, then $Prem_{1,LI} = \$0$ Otherwise: $Prem_{1,LI} = Prem_1 - Benchmark_A$	

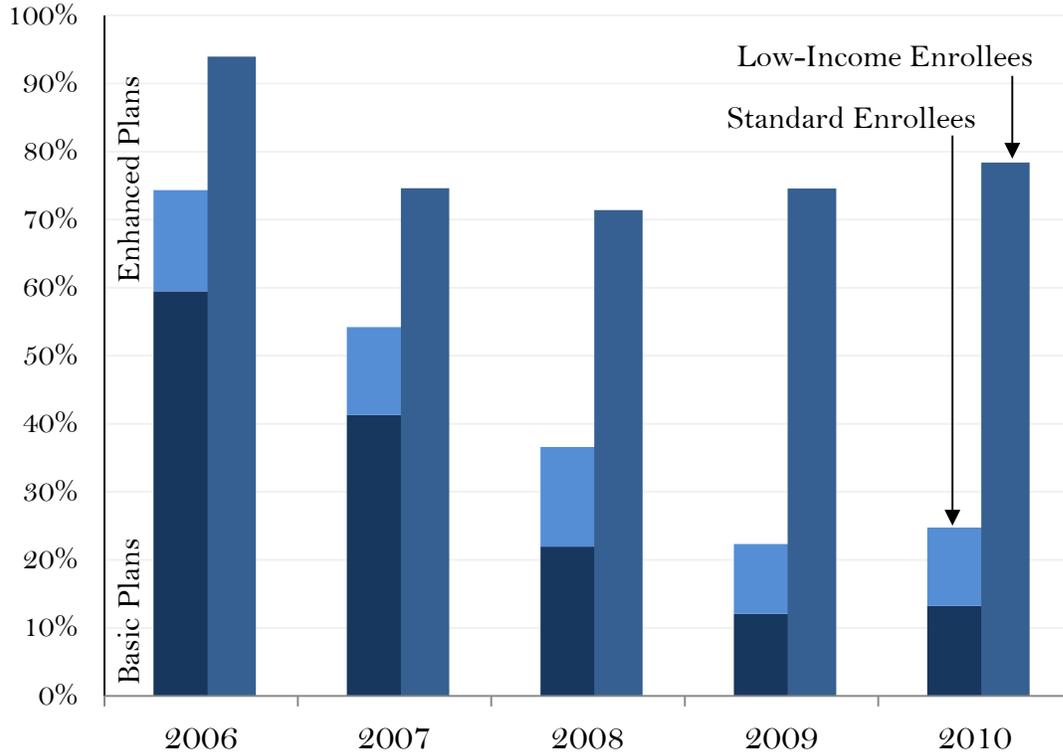
Source: Congressional Budget Office based on MedPac, *Part D Payment System* (October 2013).

Notes:

- a. Each plan sponsor submits one or more bids that reflect the amount it is willing to accept to provide the basic benefit to a beneficiary of average health (but not including costs associated with reinsurance which are part of the basic benefit). In addition, plan sponsors submit an estimate of the expected costs associated with reinsurance (which covers 80 percent of drug costs above a catastrophic threshold).
- b. Starting in 2009, the benchmark was constructed by weighting premiums by the enrollment of low-income beneficiaries in the previous year, not by total enrollment in the previous year.
- c. The NWAR is the product of the national enrollment-weighted bid and a ratio of total expected estimated nationwide reinsurance expenses to total nationwide bid payments.
- d. The government adjusts the direct subsidy based on whether the plan attracts more expensive (larger direct subsidy) or less expensive (smaller direct subsidy) beneficiaries than they anticipated when they submitted their bid. In addition, once all direct subsidy payments are made, additional adjustments are made to guarantee each plan a minimum level of profit (large profits result in reduced payments).
- e. Low-income beneficiaries pay no premium if they select a plan with a premium that is below the low-income benchmark in their region; otherwise, they pay the difference between the premium and their regional low-income benchmark.

Figure 2.

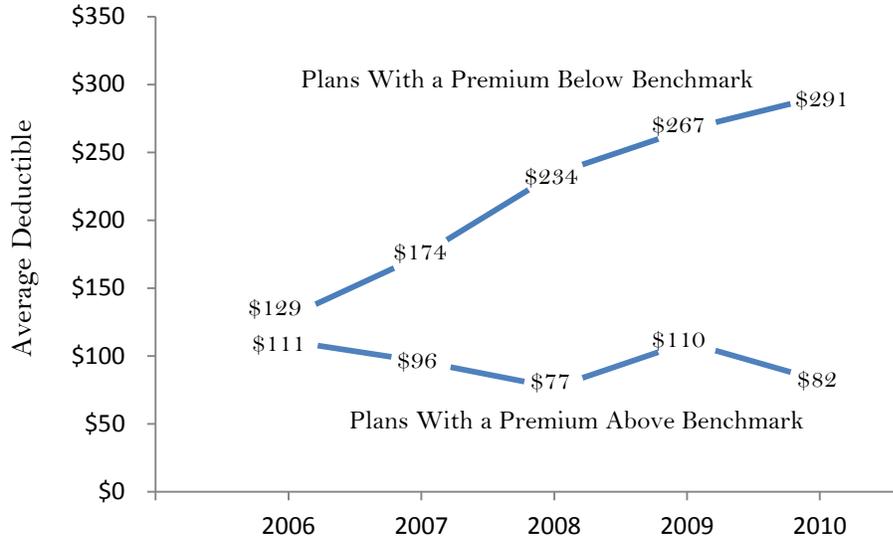
Share of Enrollee Types in Plans With Premiums Below the Low-Income Benchmark



Notes: Bar height represents the share of enrollees in different plan types. In 2006, for example, 94 percent of low-income enrollees were in basic plans with a premium below the benchmark; the remaining were in plans with a premium above the benchmark (about 1 percent were in enhanced plans with a premium below the benchmark). In that same year, 59 percent of standard enrollees were in basic plans with a premium below the benchmark and 15 percent were in enhanced plans with a premium below the benchmark. The share of low-income enrollees in enhanced plans is not shown in the figure and measures less than 5 percent in each year shown.

Figure 3.

Average Deductible for Plans with Premiums Above and Below the Low-Income Benchmark



Note: Deductible amounts weighted by total enrollment in July. Only includes basic plans.

Figure 4.

Distribution of Premiums Selected by Switchers and Non-Switchers

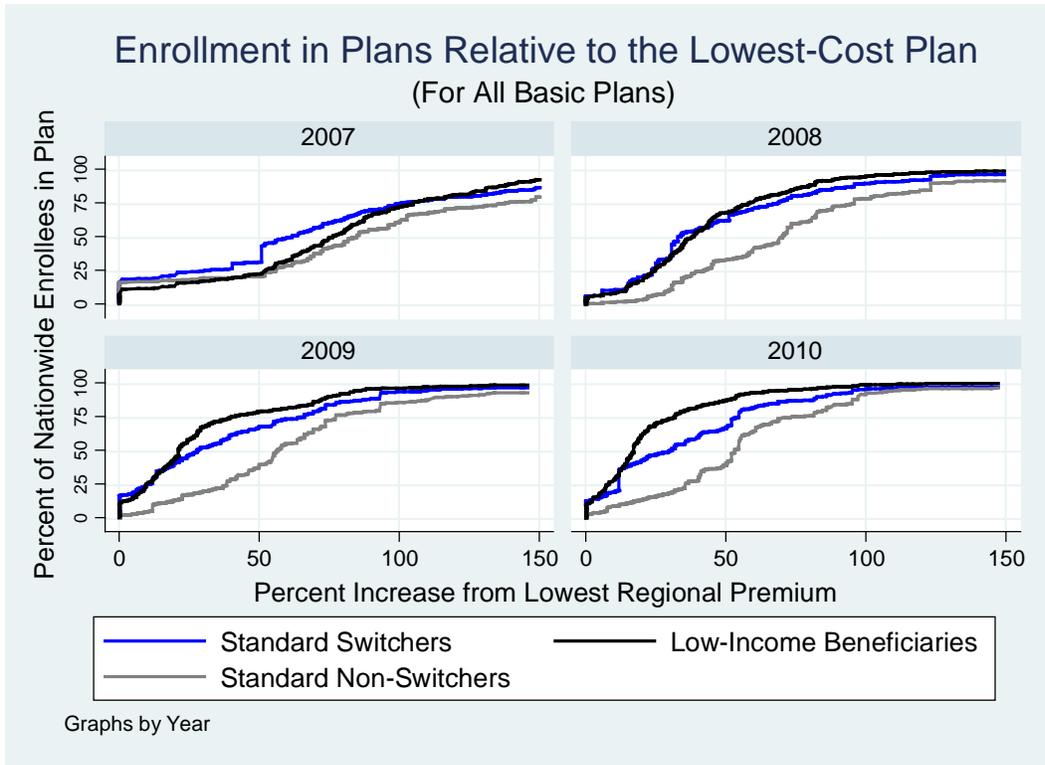
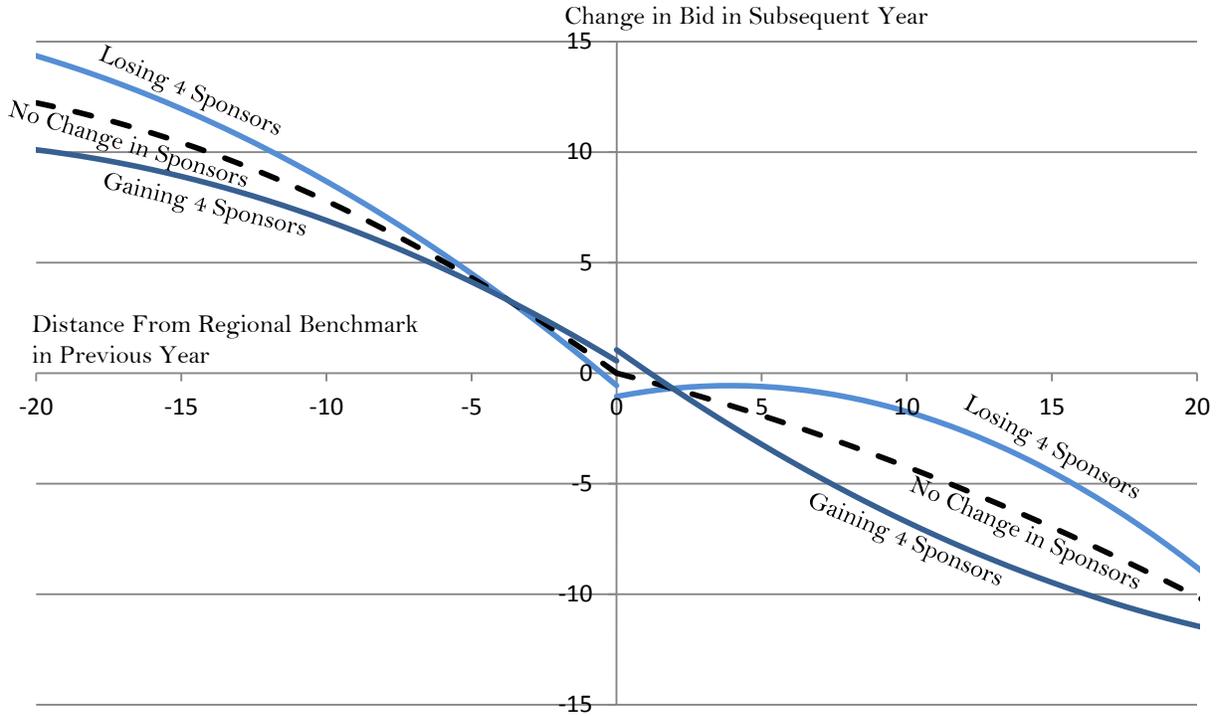


Figure 5.

Bid Response to Distance From the Low-Income Benchmark and Change in Number of Plan Sponsors



Note: Results based on the specifications reported in Table 8, where the coefficients for the three specifications for plans above the benchmark were averaged and the coefficients for the three specifications for plans below the benchmark were averaged. Each regression was weighted by total plan enrollment in July of the coverage year.