



# Policy Research Perspectives

## Competition in PBM Markets and Vertical Integration of Insurers with PBMs:

2025 Update

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## Executive summary

This paper assesses competition in pharmacy benefit manager (PBM) markets. It addresses two questions. First, are PBM markets competitive? Second, what is the extent of vertical integration between PBMs and insurers? These are important questions of public policy because less competition can lead to consumer harm.

Using 2022 and 2023 data on prescription drug plan (PDP) lives and the PBMs used by insurers to manage them, the paper presents a descriptive analysis of PBM markets. PBM market shares and the Herfindahl-Hirschman Index (HHI)—a measure of market concentration—at the national and PDP region-levels are computed. These are then used to assess competition in PBM markets. High (low) market concentration suggests low (high) competition.

Concentration in PDP insurance markets is also computed as it helps explain concentration in the market for PBMs. Accordingly, it reports the 10 largest PDP insurers as well as average concentration levels in PDP insurance markets. The paper finds that PDP insurance markets are highly concentrated ( $\text{HHI} > 1800$ ) on average. The commercial average PDP-region HHI is 2605. The average HHI in the MAPDP market is 2389, and in the standalone market it is 2076.

**Across those PBM products, the vast majority (74 percent to 82 percent) of PBM markets are highly concentrated.**

Turning to PBMs, OptumRx is the largest PBM in the U.S. with a 22.2 percent share in the rebate negotiation market. CVS Health is the second largest with an 18.9 percent share, followed by Express Scripts (15.5 percent share) and Prime Therapeutics (10.6 percent share). The collective market share of those four PBMs is 67 percent.

On average, local PBM markets are highly concentrated ( $\text{HHI} > 1800$ ). The PDP region-level average HHI is close to 2300 in the rebate negotiation, retail network management and claims adjudication markets. Across those PBM products, the vast majority (74 percent to 82 percent) of PBM markets are highly concentrated.

Nationally, 77 percent of PDP lives are covered by an insurer that is vertically integrated with a PBM. However, there is variation by payer type. Seventy-one percent of commercial PDP lives are vertically integrated, compared to 88 percent in Part D. There is wide variation in the extent of vertical integration across PDP regions, with some PDP regions having little vertical integration, while others are almost entirely so.

These are important findings because low competition may lead to higher prices paid by insurers for PBM services, higher insurance premiums, PBMs not fully passing rebates through, and lower reimbursement to pharmacies. Moreover, given extensive vertical integration of insurers and PBMs, non-affiliated insurers may be losing access to PBMs. The findings highlight whether proposed or consummated mergers among PBMs and between insurers and PBMs should or should have raised antitrust concerns. A small number of large firms selling services in different sectors of the health care economy (e.g., insurers, PBMs, providers) poses a risk of a lessening of competition and presents increasing challenges for the antitrust authorities.

## Introduction

Pharmacy benefit managers (PBMs) are critical participants in health and prescription drug plan (PDP) insurance markets and the supply chain for prescription drugs, and they manage PDP benefits for the vast majority of Americans. Although they were created in the 1960s, PBMs recently have received much scrutiny from policymakers and regulators. In the past three years, the U.S. House of Representatives and Senate have held numerous hearings on PBMs (see References). There has also been a considerable amount of proposed legislation seeking to regulate them. Twenty-one bills referencing PBMs were introduced in the 118th Congress as of May 2023 (National Journal, 2023a), and 33 states and the District of Columbia enacted legislation in the first half of 2023 (National Journal, 2023b). In response to a House Education and Labor Committee's request, the U.S.

Government Accountability Office (GAO) published a report on PBMs (GAO, 2024), and the Federal Trade Commission (FTC) released an Interim Staff Report on PBMs in 2024 (Federal Trade Commission, 2024).

PBMs are middlemen between drug manufacturers and insurers (or employers). Their products are inputs to the production of health and PDP insurance services and thus determinants of premiums. PBM functions include negotiating rebates with drug manufacturers, assembling retail pharmacy networks, managing drug formularies, adjudicating pharmacy claims and designing drug benefits. They may also own specialty, mail-order and retail pharmacies.

PBMs were created to help health insurers contain drug spending. They conduct utilization management such as prior authorization and step therapy. PBMs can stimulate price competition among drug manufacturers by shifting demand among competing substitute drugs. In turn, manufacturers offer rebates to them for their drugs to be placed favorably in a drug formulary. PBMs are then supposed to pass those rebates through to insurers and employers. Importantly, PBM markets need to be competitive for full pass-through to occur (Garthwaite and Scott Morton, 2017). However, it is not clear whether

PBMs are (fully) passing those rebates through. Consolidation in the PBM market, combined with opaque pricing due to confidentiality of rebates, may cause higher pharmaceutical prices (Garthwaite and Scott Morton, 2017). An emerging view is that the use of rebates can also lessen competition, as the FTC has questioned the legality of certain rebates and announced in 2022 that it would ramp up enforcement against the use of illegal bribes and rebate schemes that foreclose (prevent) competition from cheaper drugs (Federal Trade Commission, 2022). In sum, although PBMs can negotiate lower prices from drug manufacturers, they can also lessen competition and raise prices.

Perhaps in response to the incomplete pass-through of rebates, health insurers increasingly have been vertically

integrating with PBMs. Since the largest insurers and PBMs nationally are vertically integrated, it seems like vertical integration is more widespread than it may be. However, smaller insurers may not have the scale to have their own PBMs.

PBMs serve two “roles” along the supply chain. First, they are intermediaries between drug manufacturers and insurers (Ho and Lee 2024; Dranove, Rothman and Toniatti, 2019). In this role, they negotiate rebates and placement of drugs on formularies (Ho and Lee, 2024). Second, PBMs are suppliers to insurers, where *insurers* are the intermediaries between PBMs and final consumers (Dranove et al., 2019). It is important to distinguish between these two roles when thinking about the effects of PBMs on final consumer welfare. In the role as intermediaries, high concentration in PBM markets may increase their bargaining power with drug manufacturers and thus the ability to obtain higher rebates, which if passed through to consumers, would be a good thing. However, the savings obtained may not be reaching final consumers (Dranove et al., 2019). Even if PBMs passed any savings through to insurers, insurers may not pass those through to final consumers (Dafny, Duggan and Ramanarayanan, 2012). In PBMs’ other role as a supplier to insurers, low competition in PBM markets



may lead to higher prices paid by insurers for PBM services (Dranove et al., 2019), which could increase premiums and lower consumer welfare.

The objective of this paper is to shed light on PBM market competition and the products they supply to insurers. It addresses two questions. First, are PBM markets competitive? Second, what is the extent of vertical integration between PBMs and insurers? Using 2022 and 2023 data on PDP insurance coverage lives and the PBMs insurers use to manage those lives from the Decision Resources Group (DRG), this paper presents a descriptive analysis of PBM markets. This is an update to the original paper and its 2023 and 2024 updates. The first two editions focused on commercial PDP coverage lives. Like the 2024 update, this current edition also adds Medicare Part D PDP lives.

There are two types of PDP insurance coverage. In Part D, one is tied to a health plan and is known as Medicare Advantage PDP (MAPDP). The other type does not include health insurance and is sold as a standalone product (SAPDP). This disconnect from health insurance presented a challenge in defining geographic markets for standalone PDP markets as MSAs and states. As a result, this study defines local markets as PDP regions as in last year's edition.<sup>1</sup> These changes in methodology render the results in this edition comparable only to the ones in the 2024 edition.<sup>2</sup>

In contrast to other work, this research provides information on five different PBM functions. PBM market shares and market concentration at the national and PDP region-levels are computed. These are then used to assess competition in PBM markets. High (low) market concentration suggests low (high) competition.

Two other data sources (Fein, 2024; Health Industries Research Companies (HIRC), 2022) also report market shares of the largest PBMs. However, they are based on only one type of PBM function (adjudicated drug claims), only nationally, and they provide

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little information about the insurers that use them, particularly whether insurers self supply PBM services.

It is useful to consider the market shares of the insurers providing drug benefits, since they are the same covered lives managed by PBMs.<sup>3</sup> This helps explain the size of PBMs' market shares. If an insurer is large in the PDP insurance market, then the PBM that manages its lives would be large as well. Levels and changes in PBM market concentration are partly a function of levels and changes in insurance market concentration. Thus, the paper also presents the 10 largest insurers' national-level market shares as well as average concentration levels in PDP insurance markets.

Insurers face a "make or buy" decision—they can supply a PBM function in house (make) or go to the market and use a PBM (buy). This decision is reflected in the DRG data. For each of the five PBM functions, either the name of the PBM that supplies that function or whether the insurer performs it "in house" is reported. An insurer may or may not share ownership with the PBM it uses. Thus, the data can be used to quantify the extent of vertical integration between insurers and PBMs, and to determine whether the PBM is exclusive to an insurer.

Vertical integration and exclusivity between PBMs and insurers have important antitrust implications. There is a risk of *input* foreclosure, raising rivals' costs, or *customer* foreclosure (Salop, 2017). Gray, Alpert and Sood (2023) provide empirical evidence of input foreclosure in the Part D standalone PDP market. They study a large insurer-PBM merger in 2015 and find that non-vertically integrated insurers experienced increases in premiums after the merger compared to insurers that were vertically integrated with PBMs.

1 The Centers for Medicare & Medicaid Services (CMS) defines service areas known as PDP regions, where insurers make bids to provide PDP coverage. There are 34 PDP regions in the U.S.

2 For results based on only commercial drug coverage lives and at the state and MSA levels, see Guardado (2023).

3 Covered lives is a standard term used in health and drug insurance, which means the persons covered under a policy. It is synonymous with beneficiaries or enrollees.

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## Data

The data used in this study on PDP insurance coverage lives and the PBMs insurers use to manage them are from the same data source (DRG) used to produce *Competition in Health Insurance* (Guardado and Kane, 2024). The first two versions of this study used data for 2020 and 2021 and focused on commercial PDP covered lives. This current and last year's edition add data on Medicare Part D.<sup>4</sup> To collect data on PBM lives, DRG asks insurers for their number of PDP covered lives in addition to *medical* lives, as well as for the PBMs that manage them. Thus, the PBM lives are the same drug coverage lives reported by insurers but assigned to the PBM.

In employer-sponsored insurance, employers may choose not to get drug coverage from the insurer, and instead *carve it out* and buy the drug benefit separately. Similarly, a standalone PDP does not cover physician and hospital services. It is typically used by beneficiaries in traditional Medicare, which does not cover prescription drugs. This study includes both MAPDP and standalone PDP. DRG obtains the Medicare data from CMS.

The *commercial* drug insurance lives in the DRG data are part of a health plan that includes both a medical

benefit and a drug benefit; carved-out lives are excluded. As a result, the commercial data are missing about 39 percent of commercial lives in the combined fully insured and self-insured markets.<sup>5</sup> However, because the DRG data used in this study do include Medicare Part D PDP lives, the share of missing lives across commercial and Part D markets is much lower than that.

One major advantage of the data is that they report the PBM used by insurers to perform each of five different functions, including *rebate negotiation* (negotiation of rebates with drug manufacturers), *retail network management* (assembling of retail pharmacy networks), *claims adjudication* (administering and processing of pharmacy claims information), *formulary management* (controlling of the drug formulary—a list of drugs deemed most medically appropriate and cost effective by the entity with control of it), and *benefit design* (a means to incentivize the use of certain drugs over others, such as through tiering, copays and coinsurance). Alternatively, if the insurer performs the function itself, “in house” is reported instead.

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## Methodology

### Market shares and market definition

#### Geographic market definition

To calculate firms' market shares, the market in which competition takes place needs to be defined. Markets are characterized by two aspects: a geographic market and a product market. This study defines the geographic PBM market at both the national and local levels.<sup>6</sup> There are reasons why PBM markets may be both national and local. For example, of the 10 largest PBMs providing rebate negotiation services in our

data (collective share of 97 percent), six<sup>7</sup> do so in all 34 PDP regions (collective share of 68 percent). This suggests the PBM market may be national, albeit an oligopoly.

However, there are plausible reasons why PBM markets may also be local. Thirty-two percent of the national market gets their PDP benefits managed by a PBM without a national presence. Thus, the degree of concentration at the national level may

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4 Although Medicaid drug coverage lives are also reported in the DRG data, this paper excludes them and focuses on the commercial + Medicare Part D market.

5 DRG estimates that about 10 percent of fully insured commercial drug coverage lives and 65 percent of commercial self-insured lives are carved out. Of the health insurance lives in the DRG data, 47 percent are fully insured, and 53 percent are self-insured. 39 percent is a weighted average of the carved-out shares in the self-insured and fully insured commercial markets.

6 Similar methodologies to the ones used in *Competition in Health Insurance*, which exclude some of the raw *health insurance* commercial and MAPDP data, are used here as well (Guardado and Kane, 2024).

7 One of these PBMs is Envelope, which has since exited the market.

not necessarily reflect the degree of concentration that is relevant to all consumers. Also, health and PDP insurance markets (the PBMs' customers) are local. Relative PBM-insurer bargaining power and competition may thus be determined locally.

Moreover, analogous to health insurers' assembly of hospital and physician networks, PBMs assemble networks of pharmacies. If pharmacies need to be close to consumers for them to buy drugs, it is plausible that retail pharmacy markets may also be local. A national survey released by the National Community Pharmacists Association found that 85 percent of adults surveyed prefer getting prescription drugs from a local pharmacist instead of a mail order service.<sup>8</sup>

### Product market definition

A product market is a product or group of products for which there are no adequate substitutes. PBM market shares are computed for each function. Commercial and Part D PDP lives are summed by PBM for this calculation. At the outset, all five PBM functions were candidates to be considered as product markets to assess competition. However, at the national level, formulary management for an aggregate 27 percent of drug coverage lives was conducted in house by insurers. The share for benefit design was similar at 29 percent.<sup>9</sup> In contrast, the in-house shares were only one percent for the

other three PBM functions. For this reason, this paper assesses competition based only on *rebate negotiation*, *retail network management*, and *claims adjudication*.

### Vertical integration

Another major advantage of the data is that one can quantify the extent of vertical integration between insurers and PBMs. The PBM used by an insurer to manage its lives and what insurers' lives are managed by the PBM are reported. This paper considers an insurer vertically integrated if it meets at least one of two criteria for a PBM function. One is that the PBM reported is "in house." The other is that the PBM shares ownership with the insurer. Initially, the presence of five PBM functions seemed to present a challenge in determining whether an insurer is vertically integrated because of the possibility of being vertically integrated for some functions but not others. In general, however, there is consistency in whether the insurer is vertically integrated across functions. For example, the PBM reported for Cigna is always its PBM—Express Scripts. In other cases, the insurer is vertically integrated for some functions not others. In a less common case, vertical integration status differs by subsidiary. In this paper, if the insurer uses a PBM with which it shares ownership for at least four of the five functions *within* commercial or Part D lives, those lives are considered vertically integrated.

## Results

### Market shares

#### Drug insurer market shares

Table 1 reports national-level market shares of the 10 largest PDP insurers in 2023 and their shares in 2022 as well as average PDP region-level HHIs by payer type.<sup>10</sup> PDP insurance markets are generally local so the PDP region-level HHIs more appropriately characterize

market concentration.<sup>11</sup> In general, the results in Table 1 show little change in insurers' market shares between 2022 and 2023. Thus, this discussion focuses on 2023. Interestingly, the insurers in columns (1) and (4) are the same 10 largest commercial and MA *health* insurers in the U.S. (Guardado and Kane, 2024).<sup>12</sup>

8 <https://ncpa.org/newsroom/news-releases/2021/03/04/national-consumer-survey-more-8-10-adults-prefer-their-local>

9 These proportions are the aggregate market shares of *all* insurers supplying formulary management and benefit design in house. These shares fell from 35 percent and 36 percent in 2022 due DRG changing Elevance's PBM from "in house" to its PBM—CarelonRx.

10 The HHI is the Herfindahl-Hirschman Index—a measure of market concentration—which is equal to the sum of the squared market shares of all firms in a market. A market is highly concentrated if its HHI>1800.

11 National-level market shares do not necessarily reflect the degree of concentration that is relevant to most consumers. Nonetheless, they are a useful summary measure, paint a succinct picture that complements local-level market concentration, and motivate the PBM market results.

12 The ranking and some market shares may differ slightly given that insurers' numbers of *drug* and *medical* covered lives can differ. Part of the difference is due to the carve out of drug benefits described above, and another is due to some employers not providing a drug benefit.

UnitedHealth Group (UHG) is the largest commercial PDP and Medicare Advantage PDP insurer, as well as the third largest in the standalone PDP market with 13.2 percent, 29.4 percent and 18.5 percent shares, respectively. Closely behind in the commercial market is Kaiser, which has an 11.0 percent share; however, Kaiser is fourth in the MAPDP market with a 6.6 percent share and not a participant in standalone PDP. CVS Health (Aetna) is the largest insurer in the standalone PDP market with a 27.2 percent share—up slightly from 25.6 percent in 2022. It is also the third largest in the MAPDP market. Centene follows it with a 19.7 percent share in the SAPDP market—a small increase from 17.8 percent in 2022.

These results suggest specialization in either commercial or Medicare markets as in *Competition in Health Insurance* (Guardado and Kane, 2024). For example, Humana is the second largest MAPDP insurer with an 18.9 percent share and fourth largest in SAPDP with a 13.1 percent share, but its share in the commercial market is only 0.9 percent. Cigna is third and fifth largest in the commercial and standalone markets with 9.8 percent and 11.2 percent shares, but is seventh in Medicare Advantage PDP with only a 2.0 percent share. Closely behind Cigna as the fourth largest in the commercial market with a 9.7 percent share is Elevance Health, which is fifth in MAPDP with a 5.9 percent share. Note that although they are licensed in a single state, BCBS FL, BS of CA and BCBS MI are among the 10 largest commercial insurers, given they are large insurers in very big markets.

Some insurers only sell standalone Part D plans but not health insurance, such as Delaware Life and Rite Aid, which were the sixth and seventh largest insurers with 1.9 percent and 1.5 percent shares in 2023. Rite Aid's share fell from 3.0 percent in 2022 to 1.5 percent in 2023, and it exited the standalone market in 2024. Medica became one of the largest 10 standalone PDP insurers in 2023—up from being 13th in 2022. Mutual of Omaha fell off the largest 10 in 2023 and exited the market in 2024.

Turning to market concentration, all PDP insurance markets are highly concentrated (HHI>1800) on

average regardless of payer type. The commercial average PDP region HHI was 2605 in 2023—a decrease of 123 points from 2022. The average HHI in the MAPDP market was 2389 in 2023—only slightly higher than in 2022. Finally, the average HHI in the standalone PDP market was 2076 in 2023—an increase of 96 points from 2022.

## Turning to market concentration, all PDP insurance markets are highly concentrated (HHI>1800) on average regardless of payer type.

### PBM market shares for rebate negotiation, retail network management and claims adjudication

Table 2 reports national-level market shares of the 10 largest PBMs in the rebate negotiation, retail network management and claims adjudication markets in 2023, along with their shares in 2022.<sup>13</sup> In general, the results show little difference in shares and rankings across PBM functions and over time. Thus, the following discussion focuses mainly on rebate negotiation. To get a glimpse into insurer-PBM vertical integration, the PBM's co-owned insurer is in parenthesis if not already evident.

OptumRx is the largest PBM in the U.S. Its national market share is 22.2 percent.<sup>14</sup> Closely behind as the second largest PBM is CVS Health, which has an 18.9 percent share. Interestingly, CVS was the largest PBM in 2022. However, it lost market share due to its loss of the Centene contract. Centene announced in 2022 that it was switching its PBM from CVS/Caremark to Express Scripts, effective as of 2024. According to the data source, (1) Centene was already also using its own Envolve PBM as well as CVS/Caremark for some PBM services and continued doing so through 2023; and (2) there was some pulling back of some PBM services from CVS/Caremark during the transition

13 Certain PBMs' shares reported include lives of more than one subsidiary, which this study combined. CVS Health includes Caremark and Aetna Pharmacy Management, Prime Therapeutics includes Magellan, and Intermountain includes Scripps.

14 There are a few differences in the national-level PBM market shares presented in Table 2 compared to those from Drug Channels and HIRC. The Appendix explores potential explanations for the differences.

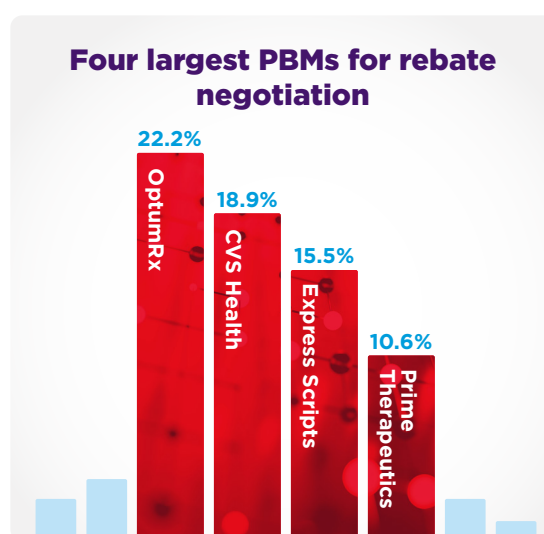
period. Because of this, the data source switched the PBM used by WellCare—a subsidiary of Centene—in the 2023 data from CVS/Caremark to Envolve. As a result, Envolve’s national share increased from 1.8 percent in 2022 to 6.1 percent in 2023. However, this is only a transitory and temporary increase. In fact, Envolve has exited the PBM market altogether. In the 2024 data (next year’s Update of this study), WellCare’s lives will be managed by Express Scripts.

In 2023, Express Scripts was the third largest PBM with a 15.5 percent share. However, Envolve’s market share will shift to Express Scripts and move Express Scripts up in rank and possibly make it one of the two largest, if not the largest PBM, in 2024. OptumRx’s, CVS Health’s and Express Scripts’s large PBM shares are due to their insurer counterparts’ big presence in the insurer market and because they manage several other insurers’ drug benefits as well.

These PBMs are followed by Prime Therapeutics, whose share is 10.6 percent. Insurers that are smaller at the national level may not have the scale to own PBMs. This characterizes the vast majority of Blue Cross Blue Shield (BCBS) insurers. Collectively, however, they can. Health Care Service Corporation and several other BCBS insurers, including Blue Cross and Blue Shield of Florida, jointly own Prime Therapeutics. Prime is almost exclusively used by BCBS insurers, including some that do not own it.

Kaiser Pharmacy (8.3 percent share) is the fifth largest PBM and is used exclusively by Kaiser. The sixth largest PBM is CarelonRx with a 7.8 percent share.<sup>15</sup> Although initially exclusively (and still largely) used by its owner (Elevance Health), CarelonRx is now also used by a couple of other BCBS insurers. CenterWell Pharmacy, whose share of 6.3 percent makes it the seventh largest PBM, is used exclusively by its owner Humana.

Notably, the seven largest PBMs have a collective market share of 89.7 percent, while the 10 largest PBMs’ share is 97.2 percent. Of those 10, nine PBMs share ownership with health insurers. In fact, in the rebate negotiation market, MedImpact is the only PBM not affiliated with a health insurer, though it sells a standalone PDP product so technically all 10 are vertically integrated. The only other PBM in Table 2 that is not affiliated with an insurer is SS and C Health.



The results in Tables 1 and 2 suggest a significant degree of vertical integration between insurers and PBMs. The eight largest insurers in the commercial market, which have a collective national market share of 63.5 percent, share ownership with the seven of the eight largest PBMs. The seven largest insurers in Medicare Advantage PDP (collective share of 77.0 percent), share ownership with seven of the eight

largest PBMs, while eight of the 10 largest standalone PDP insurers (collective share of 92.6 percent) are co-owned with eight of the 10 largest PBMs. Such insurer-PBM vertical integration and exclusivity have competitive implications. Although it may appear that insurers have a considerable number of PBMs to choose from, this may be overstated if non-vertically integrated ones can’t access those PBMs, or face higher PBM costs than vertically integrated insurers.

### PBM market shares for formulary management and benefit design

Table 3 reports the 10 largest market shares of firms providing formulary management and benefit design. A few interesting findings emerge from comparing Table 3 to Table 2. First, two insurers now appear in Table 3 (Centene and Blue Shield of California), which is not surprising since these are the functions more commonly performed in house. Second, CVS Health’s market share decreases from about 19 percent to about 13 percent. Some insurers that use CVS Health for the functions in Table 2 conduct formulary

<sup>15</sup> IngenioRx changed its name to CarelonRx on January 1, 2023.



management and benefit design in house. For this same reason, Express Scripts's market share decreases from about 15 percent to about 10 percent.

## PBM market concentration

Table 4 presents estimates of PBM market concentration at the national and PDP region-levels for the rebate negotiation, retail network management and claims adjudication markets. The results are generally similar across PBM functions so the following discussion

focuses on rebate negotiation. Nationally, the four-firm concentration ratio (CR4) was 67 percent in 2023. This indicates that the four largest PBMs collectively have a 67 percent share of the national PBM market. The seven largest PBMs have a collective national market share of 90 percent.

Locally, the average PBM market is highly concentrated ( $HHI > 1800$ ). In 2023, the average PDP region HHI was 2303. Finally, the vast majority of markets across PBM functions were highly concentrated, with 79 percent of rebate negotiation markets being so in 2023.

There were modest decreases in PBM market concentration between 2022 and 2023. Importantly, these decreases need to be interpreted with strong caution, as they were largely driven by the *transitory and temporary* phenomenon discussed above, which only affected the Part D market. Centene announced in 2022 that it was switching its PBM from CVS/Caremark to Express Scripts, effective as of 2024. Because of this, the data source switched the PBM used by WellCare—a subsidiary of Centene—from CVS/Caremark to its own Envolve *in the 2023 data*.

Because WellCare is so large in Part D, this caused huge shifts in enrollments and shares in 2023. This gave Envolve large PBM shares, while CVS/Caremark's PBM market shares shrank.<sup>16</sup>

In sum, the decrease in PBM market concentration was largely driven by Centene's *temporary* PBM switch from CVS/Caremark to Envolve. In 2024, Centene's PBM will be Express Scripts. In fact, Envolve has exited the PBM market. At least nationally, PBM market

concentration should rise, as Express Scripts's share ought to go up significantly in the 2024 data—next year's study.

**77% of enrollees are in a plan where the insurer and the PBM are vertically integrated**



## Extent of vertical integration of insurers and PBMs

Table 5 presents 2022 and 2023 shares of drug lives that are covered by an insurer that is vertically integrated. Three sets of statistics are presented.

One set combines the commercial and Medicare Part D markets and the other two present them separately. Nationally, 77 percent of combined market drug lives were vertically integrated in 2023. There is variation by payer type.<sup>17</sup> Seventy-one percent of commercial PDP lives were vertically integrated, compared to 88 percent in Part D.

The observed increases in the extent of vertical integration in 2023 also need to be interpreted with caution, given that the phenomenon discussed above also affected the extent of vertical integration. For 2023, the data source switched the PBM used by Centene to its own Envolve, making it appear as though Centene became vertically integrated, and only in Part D. The effects of this phenomenon can be illustrated by looking at the 2022-2023 change in

16 To illustrate the effect of the transition, PBM market shares and concentration were calculated separately for commercial and Part D lives. Those results reveal large decreases in PBM concentration in Part D, with average HHI decreases ranging from 399 to 420 points. In contrast, average HHIs only fell by 87 to 111 points in commercial markets, which were largely driven by decreases in concentration in commercial PDP insurance markets.

17 In this analysis, Medicare Part D includes both Medicare Advantage PDP and standalone PDP. Part D could not be separated into MAPDP and SAPDP because the DRG PBM-level data are not reported as such.

vertical integration by payer type. In the commercial market, the vertical integration share increased only from 69 percent to 71 percent, whereas in Part D, the increase was from 77 percent to 88 percent.

On average, 76 percent of PDP region-level drug lives were vertically integrated in 2023. The observed increase in Table 5 was also largely driven by Centene's PBM switch noted above, as it is really only observed in the Part D market. There is wide variation in the extent of vertical integration across PDP regions, with some PDP regions having little vertical

integration, while others are almost entirely so. The PDP region with the smallest vertical integration share (Michigan) has only 30 percent of its lives vertically integrated, whereas the highest share of 97 percent is in North Carolina.

In sum, although the largest insurers and PBMs nationally are vertically integrated, a significant portion of the market and especially certain local markets are not. Several insurers that don't have a national presence but are large locally are not vertically integrated and still need PBMs.

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## Conclusion

This paper presents an analysis of pharmacy benefit manager (PBM) markets and the supply of PBM products to prescription drug plan (PDP) insurers. Using data from 2022 and 2023 and in contrast to other studies, it provides information on five different PBM functions as well as for local markets. It finds that for three of the functions (rebate negotiation, retail network management and claims adjudication), insurers largely use a PBM, whereas for benefit design and formulary management, 27 percent and 29 percent of those markets are conducted by insurers in house.

The study also presents average PDP region market concentration (HHIs) in insurance markets and national-level market shares of the 10 largest PDP insurers in the U.S. UnitedHealth Group is the largest PDP insurer nationally in the commercial (13.2 percent share) and Medicare Advantage PDP (29.4 percent share) markets as well as third largest in the standalone PDP market with an 18.5 percent share. CVS Health is the largest insurer in the standalone PDP market with a 27.2 percent share, the third largest in MAPDP, and fifth largest in the commercial market. Insurers tend to specialize in one of those three markets. For example, Humana is the second largest insurer in the Medicare Advantage PDP market with an 18.9 percent share and the fourth largest in standalone PDP with a 13.1 share. In contrast, its share in the commercial market is only 0.9 percent.

Kaiser is the second largest insurer in the commercial market with an 11.0 percent share. It is fourth largest in Medicare Advantage PDP (6.6 percent share), but it does not supply standalone PDP. Cigna is third largest with a 9.8 percent share in the commercial market,

and it is fifth with an 11.2 percent share in standalone PDP. Elevance Health—a Blue Cross and Blue Shield (BCBS) insurer in 14 states—is the fourth largest insurer with a 9.7 percent share in the commercial market, and fifth in MAPDP with a 5.9 percent share.

Turning to PBMs and focusing on rebate negotiation, OptumRx was the largest PBM in the U.S. in 2023 with a 22.2 percent market share. CVS Health is closely behind with an 18.9 percent share. CVS was the largest PBM in 2022, but it lost market share due largely to the loss of Centene's WellCare. Had CVS/Caremark kept Wellcare, it would have remained the largest PBM. The third largest PBM is Express Scripts, which had a 15.5 percent share in 2023. As a preview, with the securing of Centene's contract, Express Scripts should rise to second or even the largest PBM nationally in next year's edition of this study which will be based on 2024 data.

Prime Therapeutics ranks fourth with a 10.6 percent share. Prime is owned and almost exclusively used by BCBS insurers, including some that do not own it. Kaiser Pharmacy (8.3 percent share) is the fifth largest PBM and is used exclusively by Kaiser. CarelonRx, which is owned and largely used by Elevance Health, has a share of 7.8 percent. Finally, CenterWell Pharmacy, which is used exclusively by its owner, Humana, is the seventh largest PBM with a 6.3 percent share.

In terms of PBM market concentration, the collective national market share of the four largest PBMs (CR4) is 67 percent. There was a slight decrease from 70 percent in 2022 that is only transitory and temporary due to Centene's PBM switch from CVS/Caremark to Express Scripts, which was not yet captured in

the data. With Express Scripts's increase in its 2024 national market share, the CR4 should increase closer to its 2022 level and may even increase in 2024.

On average, local PBM markets are highly concentrated (HHI>1800). The PDP region-level average HHI was close to 2300 in the rebate negotiation, retail network management and claims adjudication markets. Across those PBM products, the vast majority (74 percent to 82 percent) of PBM markets are highly concentrated.

Finally, this paper quantifies the extent of vertical integration between insurers and PBMs. Nationally in 2023, 77 percent of PDP lives were covered by an insurer that is vertically integrated—up from 72 percent in 2022. However, as with the slight decrease in the CR4, this increase is only transitory and temporary, and again due to the same reason—Centene's switch of PBMs from CVS/Caremark to Envoke. In 2024, the extent of vertical integration should return closer to its 2022 level. There is variation in the extent of vertical integration by payer type, with a higher vertical integration share in Part D. There is also wide variation across PDP regions, with some regions having little vertical integration while others are almost entirely vertically integrated.

The findings in this paper highlight whether proposed or consummated mergers among PBMs and between insurers and PBMs should or should have raised antitrust concerns. Low competition may lead to higher prices paid by insurers for PBM services, higher insurance premiums, PBMs not fully passing rebates through, and lower reimbursement to pharmacies. Moreover, given extensive vertical integration of insurers and PBMs, non-affiliated insurers may be losing access to PBMs.

Gaynor and Kanter (2025) argue that a small number of massive health care conglomerate platforms exhibit many of the same concerning characteristics as big tech platforms and that similar antitrust attention and action may be necessary. Policymakers and stakeholders should not only look at those platforms' individual services but instead consider the power and influence created by the merging of services and

**If a firm acquires businesses in different health care markets, rivals may have to do the same to compete effectively, making entry even more difficult.**

resulting formation of firms that function as essential health care middlemen (Gaynor and Kanter, 2025). The present study finds a handful of firms are large in both PBM and PDP insurance markets, while Guardado and Kane (2024) find this to be the case in health insurance. These large firms are also participants in other health care markets. For example, Kaiser also has significant shares in the hospital markets in which it operates (Guardado, 2024), and it is the largest employer of physicians in the U.S. with 25,270 physicians.<sup>18</sup> The most prominent example is UnitedHealth Group, which employs almost 10,000 physicians,<sup>19</sup> is the largest U.S. insurer and PBM, and owns other providers, data and analytics, health care payments and pharmacy services as well. One negative effect of this merging of services is the need for multilevel entry (Gaynor and Kanter, 2025). If a firm acquires businesses in different health care markets, rivals may have to do the same to compete effectively, making entry even more difficult. Gaynor and Kanter (2025) argue that the dominance of these large systems denies independent physicians, practitioners and pharmacists the ability to compete fairly.

Some policymakers already are scrutinizing big health care firms. In April 2025, the National Association of Attorneys General sent a letter to congressional leaders urging them to prohibit PBMs from owning or operating pharmacies (National Association of Attorneys General, 2025). In fact, Arkansas became the first state to enact that ban (Governor of Arkansas, 2025). The results of the next editions of this study and of Competition in Health Insurance will be strongly awaited to see if big conglomerates remain big or whether the trend starts to slow or turn in the other direction.

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18 See <https://about.kaiserpermanente.org/who-we-are/fast-facts> and the AHRQ Compendium of U.S. Health Systems <https://www.ahrq.gov/chsp/data-resources/compendium.html>

19 Additionally, UnitedHealth contracts or affiliates with another 80,000 physicians. <https://www.healthcaredive.com/news/change-healthcare-cyberattack-congress-unitedhealth-andrew-witty/714954/>

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**Table 1.**

**Largest prescription drug plan insurers' market shares at the U.S. national level**

Insurer	Market Share (%)		Insurer	Market Share (%)		Insurer	Market Share (%)	
Commercial			Medicare Advantage PDP			Standalone PDP		
	2022	2023		2022	2023		2022	2023
UnitedHealth Group	13.0	13.2	UnitedHealth Group	28.2	29.4	CVS Health (Aetna)	25.6	27.2
Kaiser	11.4	11.0	Humana	19.0	18.9	Centene	17.8	19.7
Cigna	10.1	9.8	CVS Health (Aetna)	8.9	9.1	UnitedHealth Group	17.6	18.5
Elevance Health	10.0	9.7	Kaiser	6.9	6.6	Humana	14.9	13.1
CVS Health (Aetna)	5.3	7.7	Elevance Health	6.0	5.9	Cigna	12.5	11.2
HCSC	5.4	5.9	Centene	5.6	5.1	Delaware Life	1.3	1.9
Centene	2.8	3.6	Cigna	2.2	2.0	Rite Aid	3.0	1.5
BCBS FL	2.6	2.6	Highmark	1.3	1.3	Elevance Health	1.6	1.5
BS of CA	2.4	2.3	BCBS MI	0.8	1.1	HCSC	1.0	1.1
BCBS MI	2.2	2.0	SCAN	1.0	1.0	Medica	0.3	0.4
Mean PDP Region HHI	2727	2605	Mean PDP Region HHI	2350	2389	Mean PDP Region HHI	1980	2076

Notes:

- 1 Source: Author's analysis of Managed Market Surveyor Suite | MSA Rx and Medical | Program | January 1, 2022-23 | Enterprise License © 2022-23 DR/Decision Resources, LLC. All rights reserved.
- 2 Insurers' market shares are based on prescription drug plan (PDP) coverage lives.
- 3 There are 34 PDP regions in the United States. For Medicare Advantage PDP, data are only for 33 PDP regions since Medicare Advantage is not available in one of them (Alaska).

**Table 2.**

**Largest pharmacy benefit managers' market shares in the U.S., commercial and Part D markets  
Rebate negotiation, retail network management and claims adjudication**

PBM	Rebate Negotiation Share (%)		PBM	Retail Network Management Share (%)		PBM	Claims Adjudication Share (%)	
	2022	2023		2022	2023		2022	2023
OptumRx (UHG)	20.8	22.2	OptumRx (UHG)	21.3	22.2	OptumRx (UHG)	21.1	22.1
CVS Health (Aetna)	21.3	18.9	CVS Health (Aetna)	21.4	19.0	CVS Health (Aetna)	19.9	17.3
Express Scripts (Cigna)	17.1	15.5	Express Scripts (Cigna)	17.1	15.5	Express Scripts (Cigna)	17.1	15.4
Prime Therapeutics (BCBS)	10.3	10.6	Prime Therapeutics (BCBS)	10.3	10.6	Prime Therapeutics (BCBS)	9.5	9.8
Kaiser Pharmacy	8.6	8.3	Kaiser Pharmacy	8.6	8.3	Kaiser Pharmacy	8.6	8.3
CarelonRx (Elevance)	8.0	7.8	CarelonRx (Elevance)	8.0	7.8	CarelonRx (Elevance)	8.0	7.8
CenterWell (Humana)	6.8	6.3	CenterWell (Humana)	6.8	6.4	CenterWell (Humana)	6.8	6.4
Envolve (Centene)	1.8	6.1	Envolve (Centene)	1.8	6.1	Envolve (Centene)	1.4	6.1
Navitus (SSM/Dean)	0.7	0.7	MedImpact	1.7	1.2	SS and C Health	1.7	1.6
MedImpact	1.2	0.7	Navitus (SSM/Dean)	0.7	0.7	MedImpact	1.7	1.2

Notes:

- 1 Source: Author's analysis of Managed Market Surveyor Suite | Pharmacy Benefit Evaluator | Program | January 1, 2022-23 | Enterprise License © 2022-23 DR/Decision Resources, LLC. All rights reserved.
- 2 To illustrate insurer-PBM integration, the PBM's co-owned insurer is in parenthesis where not clear. If a parent PBM owns different PBMs, the parent is listed. CVS Health—owner of insurer Aetna—owns the Caremark and Aetna Pharmacy Management PBMs. Navitus is majority owned by Dean Health Plan's owner—SSM Health. Finally, Prime Therapeutics includes Magellan Rx Management.

**Table 3.**

**Largest pharmacy benefit managers' market shares in the U.S., commercial and Part D markets**  
**Formulary management and benefit design**

PBM	Formulary Management Share (%)		PBM	Benefit Design Share (%)	
	2022	2023		2022	2023
OptumRx	17.2	17.4	OptumRx	17.0	17.3
CVS Health	11.7	12.7	CVS Health	11.4	12.4
Express Scripts	10.2	10.3	Express Scripts	9.8	9.3
Kaiser Pharmacy	8.6	8.3	Kaiser Pharmacy	8.6	8.3
Prime Therapeutics	8.0	8.3	Prime Therapeutics	7.9	8.3
CarelonRx	0.0	6.3	CarelonRx	0.0	6.3
CenterWell (Humana)	6.7	6.2	CenterWell (Humana)	6.7	6.2
Centene	4.6	4.6	Centene	4.5	4.5
Envolve Pharm Sol	1.4	1.9	Envolve Pharm Sol	1.4	2.0
BS of CA	1.7	1.6	BS of CA	1.7	1.6
Elevance Health	7.8	1.4	Elevance Health	7.8	1.4

Notes:

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- 2 In cases of insurer self supply, the PBM's name is changed from "in house" to the name of the insurer performing the function.
- 3 Formulary management for an aggregate 27 percent of PDP coverage lives was conducted by insurers in house. The share for benefit design was 29 percent. These shares are the sums of all insurers supplying these functions in house, including the insurers listed in this table (e.g., BS of CA). These shares decreased from 35 percent and 36 percent, respectively, in 2022 due to a change in the data source's methodology, which consisted of changing Elevance's PBM from "in house" to its PBM—CarelonRx—for commercial lives and for one subsidiary's Part D lives. Elevance Health is 12th largest in this table—not 11th. It is listed to show its shares in 2022 and 2023.



**Table 4.****Pharmacy benefit manager market concentration, commercial and Part D markets**

Market Concentration Measure	Rebate Negotiation		Retail Network Management		Claims Adjudication	
	2022	2023	2022	2023	2022	2023
<b>National Level</b>						
Four-Firm Concentration Ratio	70%	67%	70%	67%	68%	65%
<b>PDP Region Level</b>						
Mean HHI	2410	2303	2451	2328	2414	2285
Median HHI	2292	2212	2423	2214	2316	2211
% (#) Highly Concentrated (HHI>1800)	82% (28)	79% (27)	85% (29)	82% (28)	85% (29)	74% (25)

## Notes:

- 1 Source: Author's analysis of Managed Market Surveyor Suite | Pharmacy Benefit Evaluator | Program | January 1, 2022-23 | Enterprise License © 2022- 23 DR/Decision Resources, LLC. All rights reserved.
- 2 The four-firm concentration ratio (CR4) is the sum of the market shares of the four largest firms in a market. For example, the four largest PBMs at the national level in the U.S. have a 67% share of the rebate negotiation market (third column in Table 2).
- 3 There are 34 PDP regions in the United States.

**Table 5.**

**The extent of vertical integration between insurers and PBMs**

Geographic Market	Vertical Integration Share (%)					
	<i>Combined</i>		<i>Commercial</i>		<i>Medicare Part D</i>	
	<i>2022</i>	<i>2023</i>	<i>2022</i>	<i>2023</i>	<i>2022</i>	<i>2023</i>
<b>National Level</b>	72	77	69	71	77	88
<b>PDP Region Level</b>						
Mean	70	76	65	67	78	89
Minimum	28	30	11	11	58	62
Maximum	92	97	94	96	89	99

Notes:

- 1 The numbers reported represent percentages of prescription drug plan (PDP) lives covered by an insurer that is vertically integrated with a PBM. The combined market is for the combined commercial and Medicare Part D (Medicare Advantage PDP and standalone) lives.
- 2 The national level share is for the U.S. as a whole. The PDP region-level statistics are for the 34 PDP regions in the U.S.

## Appendix

There are a few differences in the national-level PBM market shares presented in Table 2 compared to those from Drug Channels and HIRC, the latter two of which are themselves more similar. Drug Channels reports the six largest PBMs. The most notable difference is that Drug Channels has CVS as the largest PBM in the U.S. with a 34 percent national market share in 2023. In contrast, this study finds that OptumRx was the largest PBM (22 percent shares), and it computes a market share of 17 percent to 19 percent for CVS/ Caremark.

There are a couple of plausible reasons that might explain such differences. One is that the DRG data exclude drug benefits that are based on direct relationships between self-insured employers and PBMs. If CVS is overrepresented in that carved-out segment, its share would be smaller in the DRG data than in the Drug Channels and HIRC data. Second, the shares presented by Drug Channels and HIRC are based on the *number of prescription claims* managed, whereas the DRG data are based on the number of

drug coverage enrollees. If there are more claims per covered life among CVS's consumers, that would also make CVS bigger in the Drug Channels than in the DRG data. There is some evidence for this. This study finds that CVS's insurers are much larger in the Medicare standalone PDP market than in the commercial market. Thus, it may have an older and sicker population of enrollees in the PBM market.

Other notable differences in market shares are for Prime Therapeutics, Kaiser and CarelonRx. This paper finds that Prime Therapeutics, Kaiser and CarelonRx are bigger than in the Drug Channels data. However, Kaiser and CarelonRx, which are the fifth and sixth largest PBMs in this study don't even appear among the six largest PBMs in Drug Channels. Interestingly, Kaiser and CarelonRx's owner—Elevance Health—are among the largest PDP insurers in the U.S.

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