



THE IMPACT OF PRESCRIPTION DRUG REBATES ON HEALTH PLANS AND CONSUMERS

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Executive Summary

This study examined the impact of prescription drug manufacturer rebates on health plans and consumers. Our approach combined a conceptual examination with quantitative comparisons based on the integration of multiple sources of data on the components of drug spending by payer type. We estimate that \$89 billion in rebates were paid to health insurers in 2016, split across private health plans (\$23 billion), Medicare Part D plans (\$31 billion), Medicaid (\$32 billion), and other payers (\$3 billion), reducing total retail drug spending by 21%.

Overall, we find that rebates have benefitted both payers and consumers. Rebate payments have lowered government costs and contributed to lower premiums for plan enrollees. Because health plans provide more favorable formulary placement in exchange for the rebates, consumers have seen reduced copays at the point of purchase. Consumer costs would be lowered further if rebates were routinely incorporated into retail prices, but this would likely raise premiums.

It has been suggested that the rebate system has led manufacturers to raise list prices above what they would be in the absence of rebates. If so, this would offset some of the gains we attribute to rebates. While not conclusive, available evidence suggests that any such offset is likely to be small.

One concern that is raised about the rebate system is the potential for pharmacy benefit managers (PBMs) to retain rebate payments without passing the savings on to plans or consumers. We find that while PBMs have undoubtedly gained financially from the rebate system, the notion that they divert a large share of rebates to excess profits is not supported by our analysis. We estimate total PBM profits (excluding mail order) of \$11 billion, compared to \$89 billion in rebates passed through to payers. Even if half this total profit was “excess,” such excess would represent a small share of rebates, and eliminating it would reduce premiums by only about 2%.

We find that rebates vary considerably by payer type. Medicare Part D plans achieved larger rebates than private plans (31% versus 16% for brand name drugs) and we attribute this, in part, to the Medicare ban on manufacturer coupons. These coupons, which private plan consumers use to offset their copay costs, reduce the value to manufacturers of improved formulary placement and, therefore, reduce the incentive to pay rebates. While coupons are beneficial to some consumers at the point of purchase, their net effect is to thwart formulary incentives and drive up health plan costs, leading to higher health plan premiums.

The largest rebates are achieved under Medicaid (61% for brand name drugs), where the government sets rebates using the leverage of access to the total federal government market. However, even Medicaid prices after rebates are higher than our rough estimate of brand name drug prices in peer nations, where governments play an even larger role.



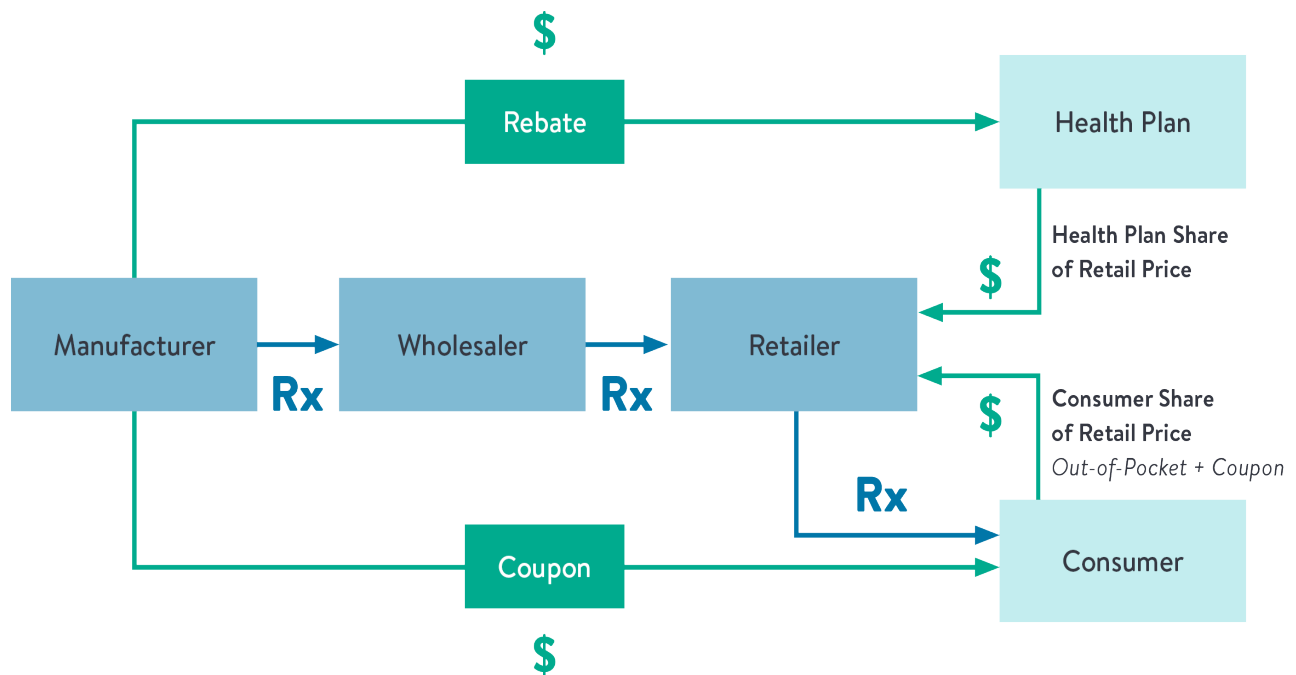
Background

In response to criticism over high drug prices, the pharmaceutical industry points to manufacturer rebates as a reason why published data may substantially overstate both the level and the growth of prescription drug prices. Drug prices cited in the literature are generally either list prices or prices paid at retail. As such, they ignore behind-the-scenes manufacturer rebates that do, indeed, offset some of what is paid at retail. However, because these rebates are held as confidential information, and flow through the system in mysterious ways, there is little information on their precise effects on plan sponsors or consumers. The purpose of this project is to shed light on the nature and order of magnitude of these effects.

Manufacturers sell their drugs, at wholesale, to various retail outlets such as chain drug stores and mail order pharmacies. Health plans negotiate list price discounts from these retail outlets. These discounted prices, known as transaction prices, are what is paid at the time of purchase and are often what is tracked in the literature. Manufacturer rebates are a separate transaction, paid directly from the manufacturer to the health plan (or health plan's representative), generally in exchange for preferred formulary status. This dynamic is illustrated in the diagram below.

EXHIBIT 1

Simplified flow of products (Rx) and payments (\$) in the prescription drug supply chain





The price charged by the retail pharmacy at the point-of-purchase is essentially the price paid to the manufacturer, marked up twice: first by the wholesaler and then by the retailer. Typically, the consumer is accountable for a portion of the retail price and the health plan is charged the remainder. In subsequent transactions, manufacturers act to reduce the cost to consumers via coupons, and to health plans via rebates.

The vast majority of prescription drug rebates are paid by brand manufacturers to health plans in exchange for making their drugs cheaper to patients on the plans' formularies, thereby boosting sales. At first blush, this mimics a simple volume discount in which a lower net price to the health plan is offered in anticipation of greater sales volume (in fact, rebate amounts are often computed based upon sales volume). As such, it has the potential to benefit both health plans (via rebate income) and consumers (via lower out of pocket costs at the point-of-purchase and via lower premiums due to lower net health plan costs).

Yet the practice has come under intense criticism, largely related to the role of pharmacy benefit managers (PBMs), who often negotiate and collect rebates on behalf of health plans with little transparency. The concern is that PBMs, in their role as intermediaries, have diverted much of the potential savings to their own bottom lines, a concern intensified by the lack of transparency around the proprietary rebate amounts. Examples include PBMs retaining more than their agreed upon share of rebates through re-labeling rebates as fees and PBMs pressuring manufacturers to increase their list prices with a commensurate increase in rebates. This benefits PBMs doubly since they are often paid a percentage of list price and also retain a share of rebates.

Another criticism of the current rebate system is that consumers tend to be overcharged at the point-of-purchase since the purchase price is typically not reduced to account for rebates. This increases out of pocket costs for those who pay a percentage of the price or those who are still under their deductible limit (though rebates still reduce consumer costs overall due to lower copays and coinsurance). For those with commercial insurance, manufacturer coupons are often available to pay a portion of out-of-pocket costs.¹

¹ Medicare and Medicaid ban the use of coupons.



Quantifying Rebates by Type of Insurer

In this study, we examined the current system of rebates and coupons for its effects on health plans and consumers. Beyond a conceptual examination, we sought to quantify the components of drug spending to better assess market dynamics and the scale of potential impacts.

A unified picture of drug spending quantifying rebates and coupons by payer type did not exist. We gathered, analyzed, and reconciled multiple sources of published and unpublished data, informed by consultation with data and industry experts, to populate the table in Exhibit 2. Data in the row labeled “Spending after Rebates and Coupons” closely match the official National Health Expenditure Account estimates for 2016.

EXHIBIT 2

Estimates of Prescription Drug Spending, Rebates, and Coupons, by Primary Insurer: 2016

	Medicare Part D	Medicaid*	Private	No Coverage	Total
Spending at Purchase (\$billions)	\$142	\$62	\$194	\$27	\$425
Paid by Insurers/Other	\$127	\$62	\$167	\$13	\$369
Paid by Consumer	\$16	-	\$27	\$14	\$57
Rebate percentages	22%	51%	12%	22%	21%
Rebates to Insurers/Other (\$billions)	\$31	\$32	\$23	\$3	\$89
Coupons to Consumers (\$billions)	-	-	\$9	\$1	\$10
Spending After Rebates & Coupons	\$111	\$30	\$161	\$23	\$326
Paid by Insurers/Other	\$95	\$30	\$143	\$10	\$279
Paid by Consumer	\$16	-	\$18	\$13	\$47
Persons Covered (millions)	41	60	187	34	322
Per Capita Spending at Purchase	\$3,468	\$1,040	\$1,037	\$797	\$1,322
Paid by Insurers/Other	\$3,090	\$1,040	\$892	\$391	\$1,146
Paid by Consumer	\$379	-	\$145	\$407	\$176
Per Capita Spending After Rebates & Coupons	\$2,705	\$508	\$864	\$680	\$1,013
Paid by Insurers/Other	\$2,327	\$508	\$767	\$303	\$869
Paid by Consumer	\$379	-	\$97	\$377	\$145

*excludes those also enrolled in Medicare (“duals”) **Source:** Altarum (as detailed in Appendix A)



Overall, we estimate \$425 billion dollars of retail spending on prescription drugs, with consumers paying \$57 billion dollars and insurers paying the remainder. Of the \$57 billion in consumer costs, about \$10 billion were covered by manufacturer coupons, reducing actual out of pocket costs to \$47 billion. We estimate that \$89 billion in rebates flowed through to insurers, reducing their costs to \$279 billion (this excludes rebates retained by PBMs). Thus, coupons and rebates reduced the cost of prescription drugs purchased at retail from \$425 billion to \$326 billion, a 23% reduction.

REBATES UNDER THE MEDICARE PROGRAM

There were 41 million people enrolled in the Medicare Part D prescription drug program in 2016.² They spent \$142 billion on retail drugs at the point of purchase (prior to rebates). Medicare enrollees include almost everyone aged 65 and older, a smaller number of younger disabled persons, and those with end stage renal disease. Medicare enrollees use prescription drugs at more than three times the rate of the rest of the U.S. population and account for a disproportionate share of drug spending; Medicare Part D enrollees represent 13% of the population and 33% of point-of-purchase retail drug spending.

Under Medicare Part D, private health plans provide prescription drug coverage funded by premiums that are partially subsidized by the government. Manufacturer rebates are negotiated and collected by the health plans without government involvement, but totals must be reported to the government. This rebate income reduces net health plan costs which, in turn, results in lower enrollee premiums and reduced government subsidies. In 2016, Part D rebates amounted to \$31 billion, or about 22% of prescription drug costs at the point of purchase. All else equal, this implies that rebates reduced enrollee premiums and government premium subsidies by about 22%. Manufacturer coupons are not discussed here as Medicare does not permit their use.

REBATES UNDER THE MEDICAID PROGRAM

There were 60 million enrollees in Medicaid in 2016, not counting those with dual enrollment in Medicare and Medicaid.³ They spent \$62 billion on prescription drugs, at the point-of-purchase. The Medicaid program serves low income individuals, and includes the many children enrolled in Children's Health Insurance Program (CHIP). There are virtually no out of pocket costs, and in contrast to Medicare, rebates are set by government policy. In 2016, Medicaid rebates totaled \$32

² About 73 percent of Medicare enrollees signed up for Part D coverage. Some of the remaining 27 percent were covered from other sources (such as VA and DoD), some had private coverage, and some had no coverage (see Appendix A)

³ For dual enrollees, prescription drug coverage is governed by Medicare.



billion, or 51% of point-of-purchase spending. This is substantially greater than the 22% of rebates achieved by Medicare. Rebates are returned directly to the government, and directly reduce government costs.

REBATES AND COUPONS UNDER PRIVATE INSURANCE

There were 187 million persons with prescription drug coverage under private health plans in 2016. They spent \$194 billion on prescription drugs at the point of purchase, with \$167 billion paid by the insurer and \$27 billion paid by the consumer. Private health plans received manufacturer rebates of \$23 billion, which is 12% of point-of-purchase spending. In general, these rebates reduce the net cost of the health benefit and should be reflected in lower health care premiums. Those with private coverage made use of \$9 billion in manufacturer coupons, reducing their net out-of-pocket costs to \$18 billion, a reduction of 33% (we estimated \$1 billion in coupons were used by those with no coverage).

Rebates and the Role of PBMs

The preceding analysis shows that billions of dollars in prescription drug rebates have flowed through to insurers, and these have been used to lower beneficiary premiums in private health plans and reduce the net cost to the government of the Medicare and Medicaid programs, thus benefitting taxpayers. Yet the current rebate system has been heavily criticized, often in conjunction with the role of PBMs.

PBMs are hired by health plans to help manage their prescription drug benefit. In this role, PBMs generally assist health plans with designing the benefit (copays, deductibles, and formulary specifics), setting up retail pharmacy networks and pricing arrangements, processing claims, and negotiating rebates with manufacturers.⁴ Note that manufacturer rebates are generally granted in exchange for making a drug cheaper to the patient in the formulary, thereby boosting sales. Thus, the PBM activities of designing health plan formularies and negotiating manufacturer rebates are highly inter-related.

DYNAMICS OF THE MARKET FOR PBM SERVICES

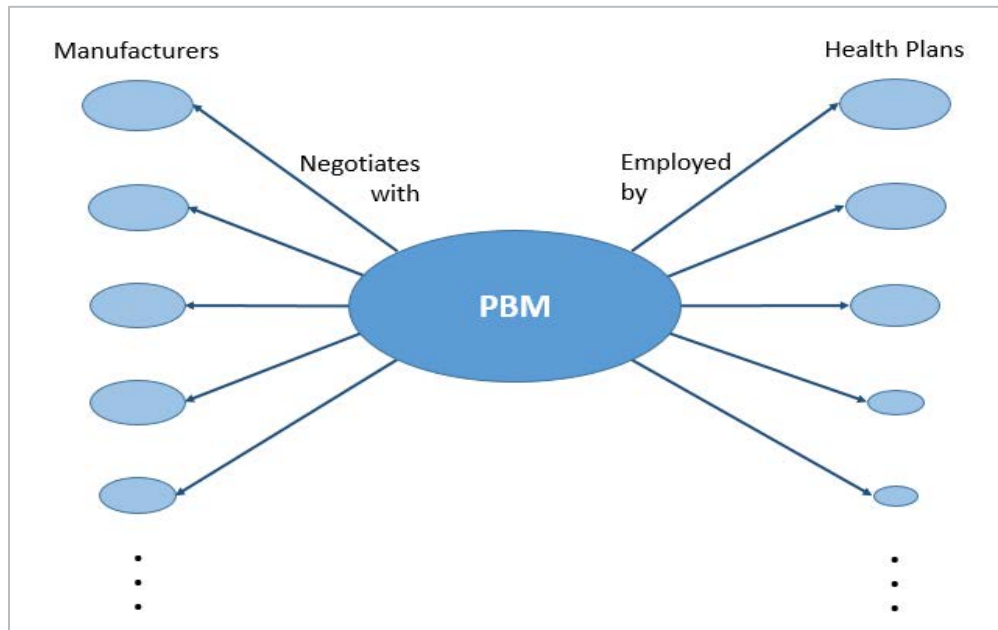
In the world of drug price negotiation, market power is most highly concentrated among PBMs, followed by pharmaceutical companies, then health plans. As of 2015, the three largest PBMs accounted for about two-thirds of PBM business, with Express Scripts alone accounting for 29% of

⁴ The large PBMs also operate their own mail order pharmacies and integrate them into to overall plan they help design for the health plan.



the market, CVS Health at 24% of the market, and Optum Rx at 13% of the market.⁵ The market for health plans is much less concentrated, with the 25 largest companies accounting for less than two-thirds of the business.⁶ For brand name drug manufacturers, 13 companies account for 90% of the U.S. market.⁷ Thus, it is typical to have a large PBM negotiating with 13 or more drug manufacturers on behalf of a large number of relatively small health plans (see diagram).

EXHIBIT 3 Conceptual Diagram of the PBM Marketplace



These large PBMs wield substantial power in negotiating with drug manufacturers as they have influence over how favorably a manufacturer’s drug will be placed in a large number of health plan formularies. Rather than negotiating separate agreements on behalf of each of their health plan customers, PBMs more typically negotiate a master agreement with each manufacturer using their combined clout. The resulting rebates flow back to the individual health plan customers based upon each plan’s particular arrangement with the PBM.

The market dominance of PBMs also places them in a strong position when negotiating terms and conditions with the individual health plans they represent. Thus, while the PBM may be “hired by” and “working for” a particular health plan, it is the PBM that is generally in the driver’s seat.

⁵ Sood, N., Shih, T., Van Nuys, K., & Goldman, D. (2017). The flow of money through the pharmaceutical distribution system. University of Southern California Schaeffer Center.

⁶ <https://www.zanebenefits.com/blog/top-25-health-insurance-companies-in-the-u.s>

⁷ Sood, N., Shih, T., Van Nuys, K., & Goldman, D. (2017). The flow of money through the pharmaceutical distribution system. University of Southern California Schaeffer Center.



Contractual agreements often leave health plans with little idea what the PBM is actually “charging” them for their services. While direct fees to health plans are one source of PBM revenue, there are many others that can be shrouded in secrecy or difficult to track. Among these are the withholding of a share of rebates, or having manufacturers pay fees to PBMs in lieu of rebates. Health plans have fought back by hiring consultants to help them negotiate more favorable terms in their PBM contracts. Some health plans have banded together in group purchasing organizations to increase bargaining power with PBMs and centralize expertise in contract negotiations.

Thus, the large size of PBMs is a double-edged sword. On the one hand, it likely extracts greater rebates from manufacturers while, on the other hand, it likely results in PBMs withholding more of the resulting savings. Indeed, critiques of PBMs and rebates focus not upon the size of the rebates negotiated, but upon how PBMs may be diverting potential savings to their own benefit, at the expense of health plans and consumers. The presumptions that PBMs do an effective job of negotiating rebates, but keep too much for themselves, are each assessed below.

ASSESSING GOVERNMENT AND PBM-NEGOTIATED REBATES

In data presented earlier (Exhibit 1), rebates as a percentage of point-of-purchase costs were estimated to be about 51% under the Medicaid program, 22% for Medicare Part D, and 12% for private insurers.⁸ PBMs are not involved in Medicaid rebates, which are set by government policy. Thus, the government has “negotiated” much larger rebates for the Medicaid program than PBMs have negotiated for Medicare Part D and private insurers. And PBMs have negotiated higher rebates for Medicare Part D plans than for private health plans.

Medicaid rebates

It is instructive to consider how the government has achieved such high rebates for the Medicaid program. This cannot be explained by market power alone. In 2015, Medicaid covered prescription drugs for about 60 million persons and with point-of-purchase spending of \$62 billion. By comparison, the Medicare and privately insured populations totaled 228 million persons with point of service spending of \$336 billion. The largest PBM, Express Scripts, represented approximately 30% of this population (just under 70 million persons) with point-of-service spending of over \$100 billion. CVS Caremark, the next largest PBM, was not far behind.⁹ Why were these PBMs, each

⁸ Private insurers, in this context, refer to private coverage of those not enrolled in Medicare or Medicaid. Strictly speaking, many Medicaid beneficiaries are enrolled in privately run managed care plans and all Medicare prescription drug coverage is provided through private plans.

⁹ These figures are rough estimates based upon the data presented in Exhibit 1 and the PBM market shares in 2015 presented in the USC study.



representing populations and spending levels of the same rough size as Medicaid, unable to match rebate levels achieved by the government?

It is difficult to provide a complete answer to this question, but one aspect is that Medicaid covers a low-income population that could not afford to purchase prescription drug coverage on their own. Thus, any coverage that provides some profit margin could be viewed as a net gain to manufacturers. In addition, the current prohibition against government involvement in prescription drug price setting for the Medicare program could be a significant government bargaining chip in discussions over Medicaid rebates. Medicare represents a much larger share of the market for prescription drugs than Medicaid and manufacturers who refuse to participate in Medicaid are excluded from Medicare and other federal programs by law. One key provision under Medicaid that has been credited for their large rebates is known as “price protection.” Under this provision, manufacturers who increase their list prices faster than the cost of living must increase their rebates by enough to hold the net price growth to the cost of living. Of course it is not so much the particular provision that explains high Medicaid rebates as it is the government’s power to gain manufacturer acceptance of such provisions.

Under the Medicaid requirements, the government receives rebates for both brand name and generic drugs. This contrasts with Medicare Part D and private health insurers whose rebates are virtually all for brand name drugs. This reflects the basis of the negotiations. For Medicaid, the government dictates the overall terms, while for Medicare and private insurers, PBMs negotiate rebates based upon the advantages they have to offer in formulary treatment, which accrue mainly to branded drugs. Manufacturers of generic drugs also pay rebates associated with Medicare and private insurers, but these tend to go to retail pharmacies because pharmacists have the power to choose which specific generic, among equivalents, to provide at point of purchase.

Medicare Part D and private insurer rebates

Total rebates reported by Medicare Part D plans amounted to 22% of point-of-service spending in 2016. For private insurers, this figure was 12%. Virtually all of these reported rebates are for branded drugs. For Medicare Part D, about 70% of point-of-service spending was for branded drugs, while this figure was 75% for private insurers. Thus, the rebate share of branded drugs is roughly 31% for Medicare Part D and 16% for private insurers.¹⁰

This differential in rebate percentages between Medicare Part D and private insurers has been attributed to various factors, most notably a “wider use of utilization management and multi-tiered

¹⁰ These estimates are formed by dividing the estimate from Exhibit 1 (22% and 14%) by the branded drug share of spending. For more details, see Appendix A.



and exclusionary formularies” under Medicare plans.¹¹ In simpler terms, Medicare Part D plans have more leeway in negotiating with manufacturers and, therefore, achieve greater rebates. This more aggressive negotiating stance is likely due to differences in the market places for Part D plans and private plans.

Private plans are predominately employer-sponsored insurance plans in which benefit packages are designed to attract and retain talent. Prescription drugs are a relatively small component of what is covered and employees are largely insulated from premiums.¹² Under these conditions, restrictive drug formularies are more likely to be a source of complaint from employees who may be unaware of any impact on premiums. This leads to less restrictive formularies (for example, fewer drugs excluded) and a weaker bargaining position with manufacturers.

In contrast, 60% of those with Medicare Part D coverage are enrolled in stand-alone prescription drug plans. These individuals shop for coverage based, in large part, on premiums, and are more likely to see a restrictive formulary as a good deal rather than a sign that their employer is being stingy with them. This creates a competitive advantage for Medicare Part D plans to trade more restrictive formularies for larger manufacturer rebates, hence lower premiums.

Another potential factor is that Medicare Part D does not permit the use of manufacturer coupons. Private plans generally do permit coupons and these tend to reduce the impact of formulary placement on sales, thereby reducing what manufacturers are willing to pay in rebates.

The Medicaid “best price” policy has also been cited as a reason for higher rebates under Medicare Part D compared to private plans. Under this policy, manufacturers must provide Medicaid a price at least as low as the price they offer private plans after rebates. Thus, a large rebate to a private insurer could require a price reduction to Medicaid as well. This policy does not apply to Medicare Part D so higher rebates can be offered without requiring cuts to Medicaid prices.

Summary of net prices with a comparison to international drug prices

The differences in rebate percentages achieved by Medicaid, Medicare Part D, and private insurers reflect differing negotiating positions. The strongest negotiating position is for Medicaid where the government is the sole insurer and has the larger Medicare program as a bargaining chip. For Medicare Part D plans and private insurers, PBMs negotiate based on their ability to influence formularies which, in turn, influences sales volumes. PBMs have a bit more leeway with formulary design under Medicare Part D, and hence have a somewhat stronger negotiating position.

¹¹ QuintilesIMS 2016, Estimate of Medicare Part D Costs After Accounting for Manufacturer Rebates.

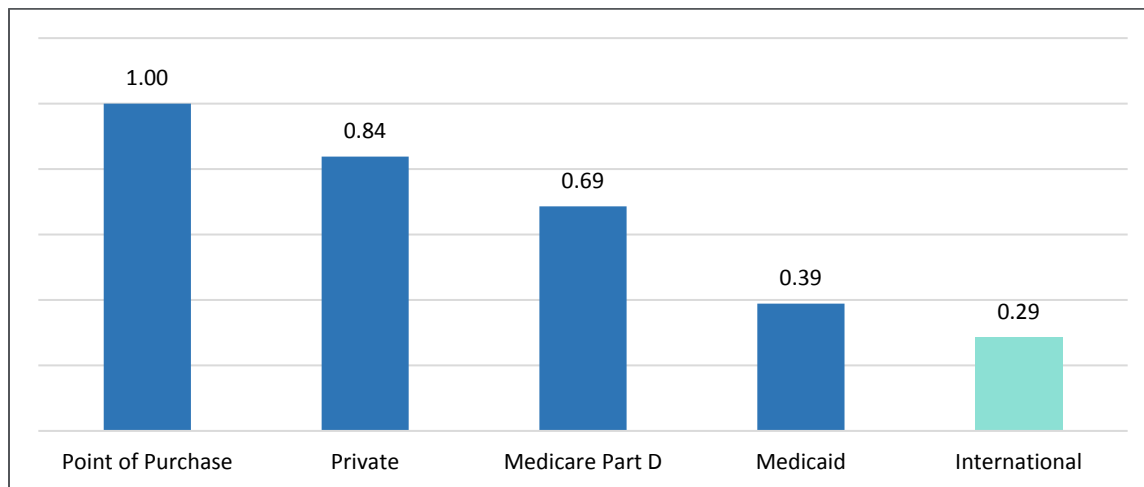
¹² Prescription drugs represent about 20% of health care costs under private insurance.



Exhibit 4 shows the extent to which rebates pull the net price of branded drugs below the point-of-purchase price for Medicaid, Medicare Part D, and private insurers respectively.¹³ Private plans pay the highest share of retail at 84 cents on the dollar, followed by Medicare Part D (.69), and Medicaid (.39). For comparison purposes, we used published figures for seven high-selling brand name drugs to approximate what other advanced countries pay relative to U.S. retail prices. This estimate of the relative price of branded drugs internationally compared to the U.S. (which is very rough, due to the small sample size) was .29, which is even less than Medicaid.

EXHIBIT 4

Relative price of branded drugs by payer type after rebates, with international comparison



Source: Altarum (see Appendix A for details)

PBM PROFITS AND THE COST OF THE DRUG BENEFIT

While PBMs have applied their market power to achieve substantial rebates from manufacturers, they have also used this power to negotiate advantageous agreements with the health plans that employ them. Interestingly, health plan complaints about these PBM agreements are less about high fees than about a multitude of practices that create hard-to-track PBM revenue streams.¹⁴ These practices leave health plans unsure of what they are being charged, but suspicious that they are being overcharged. Many plans employ consultants to help them write tighter contracts with PBMs or band together as group purchasers to increase the leverage. As discussed below, PBM charges are part of the administrative cost of the prescription drug benefit and have a direct impact on premiums.

¹³ These results are not comparable to the rebate percentages in Exhibit 2 which have all drug spending as their denominators rather than spending on brand names alone.

¹⁴ For a recent overview, see “Pharmacy Benefit Managers: Can They Return to Their Client-Centered Origins?” Research Brief NO.23, *Altarum Healthcare Value Hub*, January 2018.



The prescription drug benefit is ultimately funded by premiums, which are expected to cover: (1) the health plan's share of drug costs;¹⁵ and (2) the cost of administering the benefit. PBMs are hired by health plans to assist with administering the benefit in areas such as claims processing, pharmacy network creation, formulary design, and rebate negotiation and collection.¹⁶ PBMs incur their own costs in carrying out these services and seek reimbursement that will cover these costs plus some profit. As noted, PBMs are reimbursed for their services in various ways including by withholding a portion of manufacturer rebates. This does not necessarily mean that PBMs are double-dipping. Some retention of rebates is explicit in many contractual agreements with PBMs and, presumably, is made in lieu of direct fees (such arrangements may help health plans meet government minimum loss ratio requirements, as discussed later). But because various PBM revenue flows are shrouded in secrecy, there is a strong presumption of large excess profits.

Estimating PBM profits

Express Scripts and CVS Caremark are the two largest PBMs, and accounted for 53% of the PBM market in 2015.¹⁷ Data from their 2016 annual reports show combined annual revenues of \$217 billion, of which \$86 billion is from their mail order pharmacies. The reports show operating profit of \$10 billion, but do not provide the portion derived from mail order. The mail order component is not relevant to the current analysis and, thus, it is necessary to estimate associated profits so they can be excluded.¹⁸ We estimate CVS Caremark and Express Scripts mail order profits totaled \$4 billion. This leaves \$6 billion in profits from the non-mail order activities of these two largest PBMs. Since these two PBMs represent 53% of the PBM market, we estimate total PBM profits of \$11 billion for their non-mail order activities. These calculations are summarized in Exhibit 5.

¹⁵ Computed as the cost of the drugs at the point-of-purchase minus what the consumer pays (including coupons, if any) minus what the health plan receives in rebates.

¹⁶ PBMs also provide mail order pharmacy services but their fees for this service are built into the prices they charge for the drugs and are not part of health plan administrative costs.

¹⁷ Sood, N., Shih, T., Van Nuys, K., & Goldman, D. (2017). "The flow of money through the pharmaceutical distribution system," University of Southern California Schaeffer Center.

¹⁸ Owning and operating mail order pharmacies is a distinctly different line of business from that of assisting health plans with administering the prescription drug benefit. The PBM revenues and profits associated with mail order pharmacy are already accounted for in the cost of drugs purchased at retail.



EXHIBIT 5

Calculation of PBM Non-Mail Order Profits from Express Scripts and CVS Caremark: 2016

Company Report Data for Express Scripts and CVS Caremark	Billions of dollars
Net Revenues	217
Mail Order Revenue Component	87
Operating Profit	10
Calculations:	
Estimated Mail-Order Operating Profit	4
Estimated Non-Mail Order Operating Profit	6
Express Scripts and CVS CareMark Market Share	53%
Estimated Operating Profit for all PBMs without mail order	11

Source: Altarum (see Appendix A for details)

Assessment of PBM profits

The suspicion that a large share of rebates are being diverted to excess PBM profits is not supported by our data. PBMs do often retain a share of rebates which is a common arrangement in their contracts with health plans. The question is whether these retained rebates are primarily an alternative method for covering PBM costs (in lieu of direct fees) or are an unearned source of revenues flowing directly into excess PBM profits. We estimate a total of \$11 billion in PBM profits (about 4.5% of their revenues) and have no basis for estimating what share is fairly earned and what share might be deemed excessive.¹⁹ But the grand total of PBM profits is relatively small compared to the \$55 billion in rebates that have flowed through to Medicare Part D and private plans (we exclude Medicaid rebates here since these are set by the government). Even if half of PBM profits were deemed excessive, this would represent about 10% of rebates to Medicare Part D and private plans.

Another way to assess PBM profits is in terms of what they contribute to the overall cost of the prescription drug benefit as measured by premiums. Medicare data on the cost of the prescription drug benefit show that health plan administrative costs plus profits were 12% of total premiums in 2016, which translates to about 14% of health plan drug costs.²⁰ For Medicare Part D and private plans combined, the health plan share of drug costs was \$239 billion. Adding 14% to approximate premiums yields \$272 billion. The \$11 billion in PBM profits are 4% of this figure.²¹ PBMs are entitled to some amount of profit and it is not clear how much of the \$11 billion, if any, represents

¹⁹ Both profits and revenues exclude mail order business. The 4.5% of revenues can be computed from the data in Exhibit 5.

²⁰ The Medicare Trustees Report 2017 provides the 12% figure.

²¹ This is a bit of an overstatement since some portion of PBM profits are derived from Medicaid.



excess profits. But it is clear that the elimination of excess profits would have a small impact on premiums; for example, cutting PBM profits in half would reduce premiums by only about 2%.

Manufacturer Coupons

Manufacturer coupons are made available to consumers to lower their out-of-pocket cost for prescription drugs at the point of purchase. It is worth noting that rebates, though they flow to health plans rather than consumers, have the same intended effect—lowering the cost to the consumer at point of purchase—in this case, by causing health plans to offer their product at a lower copay tier in their formulary. The benefit to the manufacturers is the same in either case which is increased retail sales due to lower consumer costs.

However, the impact on health plans differs substantially. A highly rebated drug is, effectively, a lower cost drug to health plans. Thus, when they move such a drug into a lower copay tier, they are encouraging consumers to use more of a lower cost drug. Coupons, on the other hand, are generally not focused on lower cost drugs, and tend to drive up health plan costs with no offset. In the most egregious cases, coupons may make an expensive branded drug less expensive to the consumer than a low-cost generic equivalent.²²

Tiered formularies provide carefully-designed financial incentives to guide consumers toward more cost effective drug choices. Because coupons tend to thwart these incentives, they are banned under Medicare Part D and Medicaid, where they are characterized as illegal “kickbacks.” Thus, coupons are limited to private health plans.²³

According to recent research, virtually all coupons were for brand name drugs.²⁴ Of these couponed brand name drugs, 21% had a generic equivalent and another 28% had a potential generic substitute. Another 39% had branded substitutes, and only 12% had no substitute. For branded drugs with potential generic substitutes, coupons will result in a shift from generics to brands. The average point-of-purchase price for brand name drugs is nearly 20 times that of generics, so the shift to brands has a major impact on health plan costs.²⁵ When there is no generic competitor, but there is a brand name competitor, coupons are intended to shift consumers away

²² Imagine a \$400 branded drug with a formulary copay of \$50 versus a \$20 generic equivalent with a \$5 formulary copay. If a \$50 dollar coupon is offered for the branded drug, it becomes free to the consumer. Thus consumers will prefer the branded drug that costs the health plan \$350 net compared to the generic equivalent that would have cost \$5 net.

²³ California has banned coupons for private health plans when there is a generic equivalent and other states are considering similar bans.

²⁴ <https://www.healthaffairs.org/doi/10.1377/hblog20180215.988517/full/>

²⁵ Health Care Cost Institute. “2015 Health Care Cost and Utilization Report,” November 2016, Table 3.



from a competitor, often one that had paid rebates in exchange for a more favorable formulary placement. In this case, the coupons tend to blunt the impact of the formulary placement and shift consumers toward the non-rebated drug. This will generally increase health plan costs, though not nearly as much as when there are generic competitors. It also reduces the effectiveness of rebates, hence reducing the rebate negotiating power of PBMs.

We estimate point-of-purchase retail spending of \$194 billion on prescription drugs in 2016 by those with private coverage (Exhibit 2). Of this, we estimate \$27 billion was charged to the consumer, with \$9 billion, or one-third, covered by coupons.²⁶ Of the \$27 billion in out-of-pocket costs, about \$12 billion was for brand name drugs.²⁷ Since coupons are focused on brand name drugs, this suggests that coupons covered over 70% of consumer brand name drug costs among the privately insured. Currently, manufacturers have opted to spend more on rebates (\$23 billion for the privately insured) than coupons (\$9 billion), but this could be changing as the perceived value of rebates may be declining.²⁸

Impacts on Health Plans and Consumers

This section delves more deeply into the implications of rebates and coupons for health plans and consumers. It begins with a simple case in which there are no coupons, and where PBMs pass all rebates back to health plans. Next, the analysis is extended to cases where PBMs retain a share of rebates. Lastly, coupons are incorporated into the analysis.

IMPACTS OF REBATES ON HEALTH PLANS

Health plans compete for customers on the basis of the premiums they charge for a given level of benefits. The premiums they charge must be sufficient to cover health care costs accruing to the plan plus administrative costs and profit. Thus, health plans that are successful in controlling health care costs and streamlining administrative costs have the potential to charge competitive premiums while earning higher profits.

²⁶ This is based upon a “conservative high estimate” of \$10 billion in total coupon spending (personal communication with Michael Kleinrock from IQVIA) and an assumption that only a small proportion of coupons are used by the uninsured (coupons are not sufficient to make high-cost branded drugs affordable to those without insurance).

²⁷ HCCI 2016 Appendix table A2 shows that 46% of out of pocket spending was for brand name drugs.

²⁸ The Declining Value of Payer Access: How to Improve Rebate Efficiency, Luke Greenwalt, Amundsen Consulting, <https://www.iqvia.com/locations/united-states/market-access/market-access-strategy-and-analytics/amundsen-consulting>



PBMs are hired by health plans to help administer their prescription drug benefit. Suppose, for the moment, that the PBM simply charges a fee to the health plan for these services and all rebates collected by the PBMs are returned to the health plan. In this world, PBM fees are a component of health plan administrative costs, and rebates are an offset to health care costs.

The most successful health plan will hire a PBM that negotiates higher rebates than the competition, giving them an advantage in terms of net health care costs. PBMs that are capable of negotiating higher rebates will be sought after, however, so some of the advantage would likely be lost to higher PBM fees. Thus, the most likely outcome is that the health plan and PBM will share the benefits from the superior negotiating power of PBMs. The health plan in this example is in a position to share its advantages with its enrollees, either through lower premiums or a more generous formulary, each of which also improves the plan's ability to gain market share.

In summary, higher rebates provide opportunities for higher health plan profits, higher PBM profits, lower enrollee premiums, and a more generous formulary. However, because rebates are not generally reflected in the price of the drug at the point of purchase, and may even contribute to higher point-of-purchase prices, some consumers could be disadvantaged by rebates.

IMPACTS OF REBATES ON CONSUMERS

The purpose of rebates is to boost sales by *lowering* consumer costs at the point of purchase. If consumer costs were not lowered, sales would not increase, and the manufacturer would have no motivation to pay a rebate.²⁹ Thus, the net effect of rebates is to lower consumer costs at the point of purchase, although there will be some individual consumers who do not benefit.³⁰

The lingering impression that consumers do not share in the benefits of rebates stems from the fact that the price charged at the point of purchase is typically not reduced to reflect rebates. To illustrate, consider a drug that costs \$100 at the point of purchase, with a rebate of \$30. A consumer who has not met their deductible will have to pay \$100 for this prescription, despite the fact that the net price is only \$70. If this is a one-time-only purchase, the consumer does not benefit from the rebate. However, this represents only one out of many possible cases, and most of the time, consumers do benefit. Consumers with no deductible, or with multiple refills that push them beyond their deductible, will incur a smaller copayment (say \$20, rather than \$40) or smaller co-insurance share (say, 10% rather than 20%) due to the rebate, because the drug will

²⁹ An alternate approach would be to pay a rebate in exchange for making the competitor's product more expensive on the formulary. This, too, would boost sales. However, this is not the basis for rebate negotiations that have been described in the literature.

³⁰ Follow the Dollar, Understanding How the Pharmaceutical Distribution and Payment System Shapes the Price of Brand Medicines, PhRMA, November 2017.



have been placed in a more favorable tier of the formulary. As argued in the preceding paragraph, the cases where consumers benefit must dominate, otherwise rebates would not boost sales and would be discontinued.

Rebates would be even more beneficial to consumers at the point of purchase if rebates were routinely reflected in the point-of-purchase price. However, if rebates were factored into the point-of-purchase price, health plans would, in effect, be donating a share of the rebates back to the consumer. All else equal, this would come out of health plan profits. However, health plans might decide to raise premiums enough to replace the lost rebate revenue. In this case, the enrollees would, in effect, be financing the change in policy. Another response would be to change the formulary so that the consumer ended up paying roughly the same amount as before.³¹ The most likely outcome would be some benefit to those purchasing the rebated drugs at the expense of enrollees as a whole (higher premiums) and health plans (lower profits).

In summary, while there may be exceptions for some individual consumers, the net overall impact of rebates is decisively beneficial to consumers at the point of purchase. Some consumers would benefit even more if rebates were reflected in the point-of-purchase price, but this would come at the expense of higher premiums and/or lower health plan profits.

IMPACTS OF PBMS WITHHOLDING A SHARE OF REBATES

The preceding analysis assumed that reimbursement for PBM services was entirely via fees charged to health plans, with no retained rebates. In this section, the analysis is extended to cases where PBMs withhold a share of rebates. This arrangement is often built explicitly into PBM contracts with the presumption that it would partially cover PBM expenses and reduce PBM fees to health plans.

Consider first the case where rebates retained by PBMs are fully offset by reduced PBM fees to health plans. This results in an apparent decline in health plan administrative costs since PBM fees are part of such costs. It also results in an apparent increase in the net cost of prescription drugs since rebates received by health plans are reduced. In the case we are considering, these effects perfectly cancel one another, and the sum of health care and administrative costs remains unchanged. The net result would appear to be an innocuous shift of costs from the administrative category into the health care category.

However, this cost shift is not always innocuous. Under the Affordable Care Act (ACA), health plans are required to report on their medical loss ratio (MLR) which represents the percentage of

³¹ For example, they could raise the required copay amounts or coinsurance percentages to increase consumer payments.



premiums that are spent on health care claims and quality improvement activities. The ACA requires health plans to achieve an MLR of at least 80 percent in their individual and small group markets and at least 85 percent in their large group markets. Put another way, the maximum allowable share of premiums going to health plan administration and profits is 20% in individual and small group markets, and 15% in large group markets. Plans that exceed these percentages are viewed as either being extremely inefficient (wasteful administrative costs) or earning excess profits, and are required to return a portion of premium payments back to the plan sponsor.

When PBMs retain rebates in exchange for lower fees, the MLR appears to increase as costs are shifted out of the administrative category and into health care cost category. This boosting of the MLR will benefit health plans struggling to meet the required MLR thresholds.³²

In summary, when PBMs use retained rebates or fees to manufacturers as a source of income and reduce their fees to health plans by the same amount, health plans whose MLRs are below required thresholds will benefit. For health plans with adequate MLRs, there is no effect. Thus, in the case being considered, health plans should be either indifferent, or in favor, of PBMs retaining rebates and charging fees to manufacturers.

Next, consider the case where retained rebates are not accompanied by a reduction in PBM fees and flow directly to the PBM bottom line. The health plan will experience no change in its administrative costs since the PBM fee is unchanged. However, the net prescription drug cost will increase because the health plan will receive less in rebates. The result is an increase in health plan costs that will be reflected in some combination of lower profits, higher premiums, or a less generous formulary.

IMPACTS OF COUPONS

As discussed earlier, manufacturer coupons benefit consumers at the point of purchase by covering some or all of their costs. On the plus side, coupons reduce financial stress on consumers and improve their adherence to prescribed regimens. On the negative side, they often thwart the intent of tiered formularies by eliminating financial incentives to choose lower cost drugs. Drugs that are high cost to health plans become low cost to consumers because of coupons. Consumers choose these drugs at the point of purchase, driving up health plan costs. These higher costs result in some combination of higher enrollee premiums and reduced health plan profits.

³² A similar effect occurs if PBMs charge fees to manufacturers and reduce fees to health plans by the corresponding amount.



Conclusions

The overriding conclusion of this study is that manufacturer rebates benefit both health plans and consumers. Health plans are the recipients of billions of dollars in rebates and most consumers experience lower costs at the point of purchase due to more favorable formulary placement. Consumer costs would be lowered further if rebates were routinely incorporated into retail prices, but this would adversely affect premiums and/or health plan profits.

It has been suggested that the rebate system has led manufacturers to raise list prices above what they would be in the absence of rebates. If so, this would offset some of the gains we attribute to rebates. While not conclusive, available evidence suggests that any such offset is likely to be small. A recent PBM-sponsored study shows no correlation between rebates and list price increases.³³ In addition, the prescription drug price index included in the National Health Expenditure Accounts, which is adjusted for rebates in recent years, shows growth of 2.1% in 2015 and 1.4% in 2016.³⁴ These modest growth rates are further evidence that rebates have dominated over retail price growth during this time.

The notion that PBMs have diverted a large share of rebates to excess profits is not supported by our data, which show \$11 billion in total PBM profits and \$55 billion in rebates flowing to Medicare Part D and private health plans. If half of PBM profits were deemed to be excess, this would represent only about 10% of rebates passed along to health plans.

This is not to say that PBMs are being unfairly targeted for some of their practices. The largest PBMs have substantial market power and they use it not only to extract larger rebates from manufacturers, but also to write contracts with health plans that obscure what is actually being charged for their services and open the door to excess profits. Efforts to address these issues are well-founded and would likely lower premiums. However, according to our findings, the resulting savings would be relatively small. For example, cutting PBM profits in half would reduce premiums by about 2%.

A second conclusion is that manufacturer copay coupons simultaneously drive up health plan costs and drive down rebates. Consumers pay less at the point of purchase but higher health plan costs

³³ Increasing Prices Set by Drugmakers Not Correlated With Rebates, Visante on behalf of PCMA, June 2017 <https://www.pcmamet.org/wp-content/uploads/2017/06/Visante-Study-on-Prices-vs.-Rebates-FINAL.pdf>

³⁴ Health Sector Trend Report, March 2018, Altarum <https://altarum.org/publications/health-sector-trend-report-march-2018>



combined with lower rebates will be passed along in higher premiums. In effect, coupons thwart the financial incentives built into formularies to guide consumers toward lower cost drugs.

There are many proposals being put forth to improve the current system of rebates and, in the case of private insurers, coupons. One that is gaining momentum is to lower retail prices to reflect rebates. As noted above, this will benefit some individual consumers while raising health plan costs and, therefore, premiums. Another proposal is to ban copay coupons, at least under certain circumstances, for private health plans. This would disadvantage consumers using coupons at the point of purchase, but would put health plans in a stronger position to create the desired financial incentives in their formularies and achieve larger rebates. Banning copay coupons would almost certainly reduce the overall cost of the prescription drug benefit, but at the expense of many consumers at the point of purchase.



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Appendix A: Data and Methods

This appendix documents the data sources and calculations underlying each element of the data tables and charts presented in the report; specifically, Exhibit 2, Exhibit 4, and Exhibit 5.

DATA AND METHODS FOR EXHIBIT 2

Exhibit 2 in this report presents estimates of point-of-service spending by primary source of insurance, divided into the amount paid by the insurer and the amount paid by the consumer. It also presents, for each insurance category, the percent and amount of rebates passed through to the insurer and the amount of coupons used by consumers. From this information, spending by insurers and consumers after rebates and coupons can be computed. The key data elements from Exhibit 2 in the body of the report are repeated below. The remainder of this section describes the data and methods used to estimate each element in this table.

Key Data Elements from Exhibit 2

	Medicare Part D	Medicaid*	Private	No Coverage	Total
Spending at Purchase (\$billions)	\$142	\$62	\$194	\$27	\$425
Paid by Insurers/Other	\$127	\$62	\$167	\$13	\$369
Paid by Consumer	\$16	-	\$27	\$14	\$57
Rebate percentages	22%	51%	12%	22%	21%
Rebates to Insurers/Other (\$billions)	\$31	\$32	\$23	\$3	\$89
Coupons to Consumers (\$billions)	-	-	\$9	\$1	\$10
Spending After Rebates & Coupons	\$111	\$30	\$161	\$23	\$326
Paid by Insurers/Other	\$95	\$30	\$143	\$10	\$279
Paid by Consumer	\$16	-	\$18	\$13	\$47
Persons Covered (millions)	41	60	187	34	322

Column 1: Medicare Part D

DATA SOURCES

- MedPAC, March 2017 Report to the Congress: Medicare Payment Policy, Chapter 14, Status report on the Medicare prescription drug program (Part D)
- NHEA (1): National Health Expenditures by type of service and source of funds, CY 1960-2016
- NHEA (2): NHE Tables: Table 22: Health Insurance Enrollment and Uninsured; Number of Enrollees and Annual Percent Change, Calendar Years 1987- 2016



- Medicare Trustees Report 2017: Table IV.B8
- Medicare Drug Spending Dashboard Fact Sheet: Table 1a³⁵

TABLE ENTRIES

Spending at Purchase: \$142 billion

Spending at purchase (SP) = {Medicare (M) + rebates (R)} + out of pocket (OOP)

- M = 95.4 from NHEA (1)
- R = 22% of SP from Medicare Trustees Report
- Out of pocket = 11% of spending at purchase
 - The 11% was calculated for 2015. In that year, cost sharing was \$15 billion (MedPAC chapter 14, page 387) and spending at purchase was \$137 billion (Medicare Drug Spending Dashboard).

This yields the following 4 equations

- $SP = M + R + OOP$
- $M = 95.4$
- $R = .22 * SP$
- $OOP = .11 * SP$

These equations can be solved for each of the 4 variables

- SP = \$142 billion
- M = \$95 billion
- R = \$31 billion
- OOP = \$16 billion

Paid by insurers /other: \$127 billion

At the point-of-purchase (which is prior to rebates), the insurer (Medicare) pays $M + R = 95 + 31 = 127$ (numbers don't add due to rounding)

Paid by consumer: \$16 billion

This is simply OOP

Rebate percentage: 22%

Taken from the Medicare Trustees Report.

Rebates to insurers: \$31 billion

Computed as 22% of spending at purchase = $.22 * 142$

Spending after rebates and coupons: \$111 billion

Computed as $SP - R - \text{Coupons} = 142 - 31 - 0$ (Medicare does not permit coupons)

³⁵ <https://www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets/2016-Fact-sheets-items/2016-11-14.html>



Paid by insurers / other: \$95 billion

This is M: what Medicare pays after rebates as reported in NHEA (1)

Paid by consumer: \$31 billion

This is OOP.

Persons covered: 41 million

Taken from MedPAC Chapter 14, Table 14-2.

Column 2: Medicaid

DATA SOURCES

- MACStats: Medicaid and CHIP data book (Dec 2017), Exhibit 27
- NHEA (1): National Health Expenditures by type of service and source of funds, CY 1960-2016
- NHEA (2): NHE Tables: Table 22: Health Insurance Enrollment and Uninsured; Number of Enrollees and Annual Percent Change, Calendar Years 1987- 2016
- MMCO Statistical and Analytical Reports; eleven year enrollment trends³⁶

TABLE ENTRIES

Spending at purchase: \$62 billion

MACStats Ex 27 showed \$61 billion in spending at purchase for fiscal year 2016. This was adjusted to \$62 billion to represent calendar year 2016

Paid by insurer: \$62 billion

Medicaid generally requires no out of pocket spending, or very small amounts, so insurer payments are essentially the same as total payments

Rebate percentage: 51%

From MACStats Ex 27 fiscal year 2016 data

Rebates to insurers: \$32 billion

51% of \$62 billion spent at purchase

Spending after rebates and coupons: \$30 billion³⁷

Subtract rebates from spend at purchase.

Persons covered: 60 million

There were 71.2 Medicaid enrollees in 2016 (NHE(2), Table 22). Of these, 11.7 million were also Medicare enrollees and not eligible for Medicaid prescription drug coverage (MMCO Statistical and Analytical Reports). This leaves 59.5 million with Medicaid prescription drug coverage

³⁶ <https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/Analytics.html>

³⁷ This figure is smaller than the NHEA (1) estimate of \$35 billion paid by Medicaid after rebates in 2016. We opted to use the MACStats data since it provides both total spending and rebates while NHEA does not publish rebate estimates.



Column 3: Private

DATA SOURCES

- Medical Loss Ratio public use data file: 2016 reporting year³⁸
- NHEA (1): National Health Expenditures by type of service and source of funds, CY 1960-2016
- NHEA (2): NHE Tables: Table 22: Health Insurance Enrollment and Uninsured; Number of Enrollees and Annual Percent Change, Calendar Years 1987- 2016
- MedPAC Chapter 14, Status report on the Medicare prescription drug program (Part D), Report to the Congress: Medicare Payment Policy, March 2017
- Peterson-Kaiser Health System Tracker, Examining high prescription drug spending for people with employer sponsored health insurance, October 2016.³⁹
- HCCI 2016 Health Care Cost and Utilization Report
- Personal communication with Michael Kleinrock, IQVIA, January 2018

TABLE ENTRIES

Spending at purchase: \$194 billion

- The medical loss ratio (MLR) data set for 2016, summed across individual, small group, and large group plans showed:
 - Covered lives = 149 million
 - Health plan prescription drug spending = \$129 billion
 - Rebates to health plans = \$18 billion
- The Kaiser-Peterson Health System Tracker showed 14% of point-of-purchase prescription drug spending for those with employer sponsored insurance was paid by the consumer.
- Using this 14% figure, we estimate that total drug spending, including the consumer share, in the MLR data was $129/(1-.14) = \$150$ billion. This converts to \$1,006 per capita which is very close to the \$1,030 reported by HCCI for 2016.
- The number of covered lives in the MLR data (149 million) is less than the 187 million estimated above for everyone with private prescription drug coverage, for two reasons:
 - The 187 million includes persons in fully self-insured health plans that are not included in the MLR data.⁴⁰
 - The 187 million includes some portion of the estimated 9.2 million Medicare enrollees with private prescription drug coverage.⁴¹

³⁸ <https://www.cms.gov/CCIIO/Resources/Data-Resources/mlr.html>

³⁹ <https://www.healthsystemtracker.org/brief/examining-high-prescription-drug-spending-for-people-with-employer-sponsored-health-insurance/#item-start>

⁴⁰ Fully self-insured plans are not required to submit MLR data.

⁴¹ This figure is computed as total Medicare enrollees (55.8) minus those with Part D (41.0) minus those without coverage (5.8).



- As an initial estimate of spending at purchase for the entire privately insured population, we:
 - applied the Medicare spending per capita from Exhibit 2 (\$3,468) to the 9.2 Medicare enrollees with private coverage for an estimated spending at purchase of \$32 billion
 - applied the MLR spending per covered life (\$1,006) to the remaining covered lives (28 million) excluded from the MLR data for an estimated spending at purchase of \$28 billion
 - summed these estimates along with the MLR estimate of \$150 billion, yielding a first pass estimate of \$211 billion dollars in spending at purchase for the 187 million persons with private prescription drug coverage.
- In a later step, we reduced this number to \$194 billion (a decrease of 8%) as this brought our grand totals roughly in line with NHEA (1) data. This final step is described in more detail at the end of the Exhibit 2 discussion.

Paid by insurers: \$167 billion

- The amount paid by insurers is equal to total spending minus the amount paid by the consumer.
- The Kaiser-Peterson Health System Tracker showed 14% of point-of-purchase prescription drug spending for those with employer sponsored insurance was paid by the consumer.
- We subtracted 14% from the \$194 billion in spending, yielding \$167 as the insurer portion.

Paid by consumers: \$27 billion

- Computed as 14% of \$194 billion

Rebate percentage: 12%

- Computed from MLR data: \$18 billion in rebates divided by our estimate of spending at purchase (\$150 billion)
- In the MLR data, prescription drug spending was \$129 billion. We take this to be spending by the health plans and inflated it to \$150 billion to represent total spending including the consumer share.⁴²

Rebates to insurers: \$23 billion

Computed as 12% of \$194 billion in spending

Coupons to consumers: \$9 billion

- Michael Kleinrock of IQVIA provided a “conservative high estimate” of \$10 billion in coupons based upon proprietary IQVIA data.

⁴² As noted previously, we estimate the consumer share of spending at purchase to be 14% so our estimate of total spending at purchase is \$129 billion / (1-.14) = \$150 billion. We assume that the MLR prescription drug spending figure was the health plan’s share because: (1) the MLR data focuses on health plan costs and revenues; (2) prescription drug spending per capita was more in line with external estimates under this assumption; and (3) prescription drug spending as a share of total health plan cost was more in line with external estimates under this assumption.



- Coupons are not allowed by Medicare and are not needed for Medicaid. We assumed that the vast majority of their use would be for those with private insurance since those without insurance would have trouble affording the couponed drugs even with the coupon. Hence we assigned \$9 billion in coupon use to those with private insurance.

Spending after rebates and coupons: \$161 billion

Computed as \$194 billion spending at point-of-purchase minus \$23 billion in rebates minus \$9 billion in coupons.

Spending by insurer: \$143 billion

Spending by insurer at purchase (\$167) – rebates (\$23)

Spending by consumer: \$18 billion

Spending by consumer at purchase (\$27) minus coupons (\$9)

Persons covered: 187 million

Computed as a residual: total population – Medicare – Medicaid – no coverage

- Persons covered for Medicare and Medicaid were computed as described above.
- Total population was from NHEA (2) Table 22
- Population not covered was computed as the number of uninsured (28.6 million) from NHEA (2) Table 22 plus 5.6 million estimated Medicare enrollees with no prescription drug coverage = 34.2 million without prescription drug coverage.⁴³
- Privately covered = total pop (322) – Medicare (41) – Medicaid (60) – Not Covered (34) = 187 million persons.

Column 4: Not Covered

DATA SOURCES

- NHEA (1): National Health Expenditures by type of service and source of funds, CY 1960-2016
- NHEA (2): NHE Tables: Table 22: Health Insurance Enrollment and Uninsured; Number of Enrollees and Annual Percent Change, Calendar Years 1987- 2016
- MEPS: Medical Expenditure Panel Survey 2014
- MedPAC Chapter 14, Status report on the Medicare prescription drug program (Part D), Report to the Congress: Medicare Payment Policy, March 2017

⁴³ MedPAC Chapter 14 states that nearly 90% of Medicare enrollees have prescription drug coverage. This leaves about 10% with no coverage. NHEA (2) Table 22 shows 55.8 Medicare enrollees in 2016 so the estimate without prescription drug coverage is 10% of 55.8 = 5.8 million persons.



TABLE ENTRIES

Spending at purchase: \$27 billion

- MEPS 2014 data shows that those with no health insurance cover 51% of their prescription drug spending out of pocket with the remainder paid by “other” sources, such as the Department of Veterans Affairs (DVA) and the Department of Defense (DoD).
- NHEA (1) shows \$10.4 billion spent on prescription drugs by “other” sources (DVA, DoD, and a small amount of other third party payers). This figure is net of rebates.
- We roughly estimate \$3 billion in rebates to DVA and DoD. There is no direct data available but DVA is known to receive generous rebates, so we conservatively assume at least the Medicare part D rebate percentage of 22%.
- This brings “other” spending at point-of-purchase to \$13.4 billion
- We assume that all of this spending is on those with no prescription drug coverage and, according to MEPS data cited above, this constitutes 49% of their total spending with the remainder paid out-of-pocket.
- Thus, total spending at point-of-purchase is $13.4 / .49 = \$27$ billion

Paid by “other”: \$13 billion

Derived as described above

Paid by consumer: \$14 billion

Total minus “other”

Percent of spending rebated to “other”: 22%

Rough estimate based upon knowledge that DVA receives generous rebates

Rebates to “other”: \$3 billion

22% of \$13 billion

Coupons: \$1 billion

- We estimate that the vast majority of coupons are used by those with insurance to offset their copay expenses. Those with no coverage are less likely to use coupons because, even with coupons, the drugs would be unaffordable.
- Of the \$10 billion in estimated coupon use, we assigned \$1 billion to the uninsured and the remainder to the privately insured.

Number of persons: 34 million

- NHEA(2) Table 22 shows 28.6 million persons with no health insurance in 2016.
- MedPAC Chapter 14 suggests that about 10% of Medicare enrollees lack any prescription drug coverage. This amounts to 5.6 million persons
- The sum yields 34.2 million persons without prescription drug coverage

Spending after rebates and coupons

Self-explanatory



Final adjustment to point-of-purchase spending by the privately insured

- As noted in the discussion of Column 3 on the privately insured, the MLR data set represented 149 million of an estimated 187 million people with private prescription drug coverage.
- The 38 million persons with private coverage who are not represented in the MLR data consist of: (1) those enrolled in fully self-insured health plans who are not required to report MLR data; and (2) those enrolled in Medicare but have opted for private prescription drug coverage rather than Medicare sponsored Part D coverage.
- The average prescription drug spending per person in the MLR data is likely to be reasonably representative of spending per person in category (1) above. For category (2), Part D spending per person is likely to be more representative.
- To approximate total point-of-purchase spending by the 187 million persons with private coverage, we estimated spending for three components:
 - \$150 billion for the 149 million represented in the MLR
 - \$32 billion for the 5.2 million Medicare enrollees who opted for private coverage
 - \$28 billion for the other 28 million persons with private coverage (from fully self-insured programs)
- This resulted in an estimated total of \$211 billion in point-of-purchase spending for the privately insured.
- Based on this preliminary estimate, we computed the data elements for the privately insured in column 3 of Exhibit 2. We then compared the resulting estimates of spending, after coupons and rebates, to the corresponding NHEA estimates. As shown in the table below, our initial estimate of spending for those with private insurance resulted in an overestimate of spending by private insurers and of spending by consumers (OOP = out of pocket). To gain consistency, we reduced the point-of-purchase spending by the privately insured by 8% to \$194 billion. This produces the totals in the third column below labeled final.
- These final estimates match up very well with the NHEA. Spending, after rebates, by Medicare, Medicaid, and Other are identical. Spending by Medicaid is \$5 billion less than the NHEA estimate but this was a conscious choice as described above in the Medicaid section. Out of pocket spending is a bit higher than the NHEA estimate but close enough that we did not choose to make additional adjustments.

Spending, after coupons and rebates, by payer

Payer	NHEA 2016	Initial	Final
Medicare	95	95	95
Medicaid	35	30	30
Private	143	156	143
Other	10	10	10
Out of Pocket	45	49	47
TOTAL	329	341	326



DATA AND METHODS FOR EXHIBIT 4

The rebate percentages shown in Exhibit 2 are computed with respect to point-of-purchase spending for all drugs: brands plus generics. Since rebates are essentially all for branded drugs, we computed the rebate percentage for branded drugs only. We converted this into the measure of the net branded price relative to the point-of-purchase branded price.

DATA SOURCES

- Elements of Exhibit 2
- GAO 2014 Comparison of DOD, Medicaid, and Medicare Part D Retail Reimbursement Prices
- Express Scripts 2016 Drug Trend Report
- HCCI 2016 Health Care Cost and Utilization Report
- MACStats: Medicaid and CHIP data book (Dec 2017), Exhibit 26
- JAMA, Journal of the American Medical Association, The High Cost of Prescription Drugs in the United States Origins and Prospects for Reform, Aaron S. Kesselheim, MD, JD, MPH; Jerry Avorn, MD; Ameet Sarpatwari, JD, PhD, 2016

ESTIMATES OF POST REBATE PRICES OVER POINT-OF-PURCHASE PRICES FOR BRANDED DRUGS

For brand name drugs, point-of-purchase prices are similar across Medicare Part D and Medicaid (GAO 2014, figure 2, page 12). This seems likely to be true for private insurers as well (the average retail mark-up for brand name drugs is only 3% overall so there is not much room for pharmacies to discount). Therefore, net brand name price differentials across these three groups are largely determined by differences in rebates.

Privately insured

- Point-of-purchase spending: \$194 billion from Exhibit 2
- Branded share of spending: 75% from HCCI 2016
- Spending on branded drugs: \$144 billion = $.75 \times 194$
- Rebates to insurers: \$23 billion from Exhibit 2
- Branded rebate percentage: 16% = $23/144$
- Net price / purchase price: $.84 = 1 - .16$

Medicare Part D insurance

- Point-of-purchase spending: \$142 billion from Exhibit 2
- Branded share of spending: 70% from Express Scripts 2016
- Spending on branded drugs: \$100 billion = $.7 \times 142$
- Rebates to insurers: \$31 billion from Exhibit 2
- Branded rebate percentage: 31% = $31/100$
- Net price / purchase price: $.69 = 1 - .31$



Medicaid

- Point-of-purchase spending: \$62 billion from Exhibit 2
- Branded share of spending: 78% from MACStats 2016
- Spending on branded drugs: \$48 billion = $.78 * 62$
- Rebates to insurers: \$32 billion from Exhibit 2
- Estimate of branded component of rebates: \$30 billion
 - Medicaid requires a minimum of 13% rebates for generics
 - We estimated that they average 15%
 - 15% of \$30 billion is \$2 billion
- Percentage: $61\% = 29.6/48.5$
- Net price / purchase price: $.39 = 1 - .61$

International

- For comparison purposes, we developed a rough estimate of how prices paid for branded drugs in other advanced countries compared to point-of-purchase prices in the U.S.
- Our data source was a JAMA 2016 article which compared, for each of 7 high-selling drugs, the prices paid in Canada, France, Germany, and the U.S. (see table below). The U.S. prices were adjusted for rebates.
- As shown in the table, there is substantial variation in price differences across countries and drugs but, on average, the prices paid in the U.S., after accounting for rebates, were 2.5 times higher than the average prices paid in Canada, France, and Germany.
- The average net U.S. price (after rebates) as a share of the U.S. point-of-purchase price is .71
 - This is a weighted average of the private, Medicare Part D, and Medicaid indexes from Exhibit 4 using spending on branded drugs as the weights.
- The average “international” price relative to the U.S. price is estimated to be .29.
 - If the average U.S. price, after rebates, is .71 of the point-of-purchase price, and the international prices are 2.5 times the U.S. price after rebates, then the international prices are $.29 = .71/2.5$ of the U.S. point-of-purchase price.



Comparison of prices by country for 7 high-selling drugs (dollars)

Drug	U.S. net of rebates	Canada	France	Germany	International Average	U.S./International Average
Humira	2,504	1,164	982	1,749	1,298	1.9
Advair	155	74	35	38	49	3.2
Lantus	186	67	47	61	58	3.2
Crestor	86	32	20	41	31	2.8
Januvia	169	68	35	39	47	3.6
Sovaldi	17,700	14,943	16,088	17,094	16,042	1.1
Herceptin	4,754		2,528	3,186	2,857	1.7
						2.5

Source: JAMA 2016 as noted above

DATA AND METHODS FOR EXHIBIT 5

Results for Exhibit 5 were derived from 2016 company reports for Express Scripts⁴⁴ and CVS Health.⁴⁵ Some details are provided in the table below. Both companies report revenues and profits for their PBM business and include their mail order and specialty pharmacies in their PBM business. The reason for examining profits for these companies is to test the assertion that PBMs are diverting a large share of rebates to their bottom line. For this purpose, it is appropriate to exclude profits from the mail order and specialty pharmacy business which are generally unrelated to rebates.⁴⁶

While the company reports do provide data on the mail order/specialty components of PBM revenues, they do not provide a similar breakout of costs and profits. To approximate mail order/specialty profits, we applied the overall operating profit percentages to the mail order/specialty revenues.⁴⁷

Total operating profits for the two companies totaled \$9.8 billion in 2016. Of this, an estimated \$4 billion was generated by the mail order/specialty drug pharmacies owned and operated by these

⁴⁴ http://www.annualreports.com/HostedData/AnnualReports/PDF/NASDAQ_ESRX_2016.pdf

⁴⁵ http://investors.cvshealth.com/~/_media/Files/C/CVS-IR-v3/reports/annual-report-2016.pdf

⁴⁶ It is possible that PBMs earn excess profits in their mail order and specialty pharmacies but that is not the issue of concern in this section.

⁴⁷ The USC study showed 4% profit margins for the retail pharmacy industry as a whole and this is very close to the 3.9% operating profit margin shown by CVS Caremark for its PBM business as a whole. Thus this seems a reasonable rate to apply to estimate mail order / specialty profits. Express Scripts has a higher operating margin (5.3%) than CVS Caremark but also has a higher proportion of their PBM business in mail order. If we were to use 4.0% mail order margins for CVS Caremark, we would, in effect, be assuming much larger margins for their non-mail order business than for the Express Scripts non-mail order business which makes little sense. Therefore we assumed 5.3% operating margins for the CVS Caremark mail order business.



companies. This leaves \$5.8 billion in profits attributable to the remaining PBM activities. As noted in the body of the report, these two companies represented 53% of the PBM market in 2015. Assuming this share was the same in 2016, estimated profit from non-mail order/specialty PBM business for the nation as a whole was \$10.9 billion.

PBM revenues and profits: Express Scripts and CVS Caremark, 2016

	Express Scripts	CVS Caremark	Total
Revenue (\$billions)	96.5	120.0	216.5
Mail order component	43.7	42.8	86.5
Non-mail order component	52.8	77.2	130.0
Operating profit	5.1	4.7	9.8
Percent of revenue	5.3%	3.9%	4.5%
Operating profit from mail order	2.3	1.7	4.0
Operating profit from non-mail order	2.8	3.0	5.8
Percent of non-mail order revenue	5.3%	3.9%	4.5%

Source: First five rows of data are from 2016 annual reports for Express Scripts (page 42) and CVS Health (page 20). Operating profit from mail order applies company-specific operating profit percentages to mail order revenues.