CHAPTER 3

PRESCRIPTION DRUG PRICES

One of the charges of this study was to examine the differences in drug prices paid by people with and without prescription drug coverage. Prices and price differentials are important measures for understanding the market for pharmaceuticals in the United States. Analyses of pharmaceutical pricing, however, are complicated by the intricacies of this market: the process by which drug prices are determined is highly complex, involving numerous interactions and arrangements among manufacturers, wholesalers, retailers, insurers, pharmacy benefit managers (PBMs), and consumers.

In order to explain the complexity of the market for pharmaceuticals, this chapter begins with a description of the distribution channels for prescription drugs and how prices are established for different purchasers. The chapter then explores the question of whether prices paid for drugs at the point of purchase differ between cash customers and insurers, using data from the Medical Expenditure Panel Survey (MEPS) and from a widely used private sector data source, IMS Health.

A key limitation on the analysis of prescription drug prices in this study is our inability to incorporate the effect of rebates provided by manufacturers to insurers or PBMs. In many instances, a manufacturer will provide a cash rebate to an insurer or PBM if the manufacturer's drugs are used by the insurer's or PBM's enrollee. Unfortunately, information about the relative size, prevalence and characteristics of these rebate arrangements is quite limited – these are confidential, private arrangements negotiated between manufacturers and insurers or PBMs. Information from industry sources and the available literature indicate that rebate amounts vary considerably by type of arrangement and by drug. They are quite considerable in some instances and relatively modest in others. Because these rebates primarily affect the ultimate price paid for prescriptions of insured individuals, failure to account accurately for the value of such rebates tends to understate the price differences facing uninsured and insured individuals.

Although we were unable to obtain information on rebates, we were able to obtain specific data from two sources, MEPS and IMS Health, that enable us to examine differences in the prices paid by consumers at the retail pharmacy point of sale. These data compare the amount paid to the pharmacy by uninsured customers to the reimbursement received by the pharmacy for insured customers (i.e., reimbursement from an insurer or PBM plus the customer's cost sharing). Given the greater market leverage of third-party payers relative to individual consumers, it might be expected

that uninsured customers will pay more than insurers for the same drugs at the retail pharmacy level. Our results from both MEPS and IMS Health support this hypothesis.

Key findings include:

- At the retail pharmacy level:

  Individuals without drug coverage pay a higher price at the retail pharmacy than the total price paid on behalf of those with drug coverage (based on analysis of MEPS data that do not include rebates but look across all drug purchases holding drug type, form, strength, and quantity constant). The differences generally held up when examining the Medicare and non-Medicare populations.

  Cash customers (including those without coverage and those with indemnity coverage) pay more for a given drug than those with third-party payments at the point of sale (based on IMS Health data for over 90 percent of the most commonly prescribed drugs). In 1999, excluding the effect of rebates, the typical cash customer paid nearly 15 percent more than the customer with third-party coverage. For a quarter of the most common drugs, the price difference between cash and third parties was even higher – over 20 percent. For the most commonly prescribed drugs, the price difference between cash customers and those with third-party coverage grew substantially larger between 1996 and 1999.

  The pattern of differences in the price paid by cash customers and those with third-party payments is different for generic and brand name drugs (based on both MEPS and IMS Health data). Percentage differences in the price paid are often smaller for brand name drugs, but absolute differences may be larger because average prices for brand name drugs are considerably higher.

- Data on manufacturer rebates, if available, would reduce the total amount paid by the insurer or PBM on behalf of insured customers, increasing the difference in the total net price. Data on rebate arrangements, however, are confidential and unavailable to this study. In some instances, the amount of the rebate may be significantly more than the price differences observed at the retail pharmacy level. In other cases, the rebates may add only modestly to the observed differences.

- Various sources produce estimates of rebates ranging from 2 percent to 35 percent of drug sales prices. These rebates are not reflected in retail prices, but are instead paid directly to insurers and other organizations that manage drug benefits after they have already reimbursed the pharmacy.

DISTRIBUTION AND PRICING OF PRESCRIPTION DRUGS

Most noninstitutionalized people, regardless of their coverage status, obtain prescription drugs through some form of retail pharmacy, including independent pharmacies, chains, pharmacies in supermarkets or mass merchandisers, and mail-order pharmacies. In 1998, sales through retail outlets accounted for 90 percent of total outpatient prescription drug sales (excluding sales to hospitals and long-term care facilities or agencies).[1]

The following description of this system will begin with the simplest series of transactions, those that culminate in a retail purchase by a consumer who pays for a prescription in full at the point of sale. Some of these customers, referred to as cash customers in this chapter, may file a claim with their insurer for reimbursement after the transaction. This description will be followed by a summary of how prices are established for private insurers and PBMs, along with a review of the special pricing systems for Medicaid, the VA, and certain other favored purchasers.

The prices paid by these various types of customers are illustrated in Table 3-1, which portrays illustrative pricing for brand name drugs. The prices in the table are based on a composite of commonly prescribed brand name drugs and reflect documented relationships among the prices for different transactions.[2] Ranges of prices are included where more precise information, particularly on drug rebates, cannot be documented. Actual price relationships vary substantially by drug, and are quite different for generic drugs. Generic drugs, for example, have much lower prices on average and the fixed costs for the pharmacy of dispensing the prescription represent a much higher proportion of the final retail price. Furthermore, approaches to pricing generic drugs in the industry are different.

[1] National Association of Chain Drug Stores, *The Chain Pharmacy: Industry Profile*, Alexandria, VA, 1999.

[2] In general most of the relationships in this table have been established with at least two different sources of data.

Table 3-1. Illustrative Example of Pricing for Brand Name Prescription Drugs

	Cash Customers (No 3rd Party Payment at Point of Sale)	Insurers and PBMs	HMO **	Medicaid	Federal Supply Schedule
List price (AWP)	$50				
Manufacturer's price (manufacturer to wholesaler or other entity)	$40 (AWP-20%)	$40* (AWP-20%)	$34 (AWP-33%)	$40*	$24 (AWP-52%)
Acquisition price (wholesaler to pharmacy)	$41	$41	n/a	$41	n/a
Retail price at pharmacy (total of amounts paid by customer and reimbursed by 3rd party payer)	$52 (AWP+ 4%)	$46* (AWP-13% +$2.50)		$41 +$2.50	
Retail price, less typical manufacturer rebate	n/a	$30 to $44 (5% to 35% rebate)		$30 to $37 (15.1% to 30% rebate)	
Ultimate (net) amount paid by final purchaser and/or consumer	$52	$30 to $44	$34 (avg.)	$30 to $37 $34 (avg.)	$24

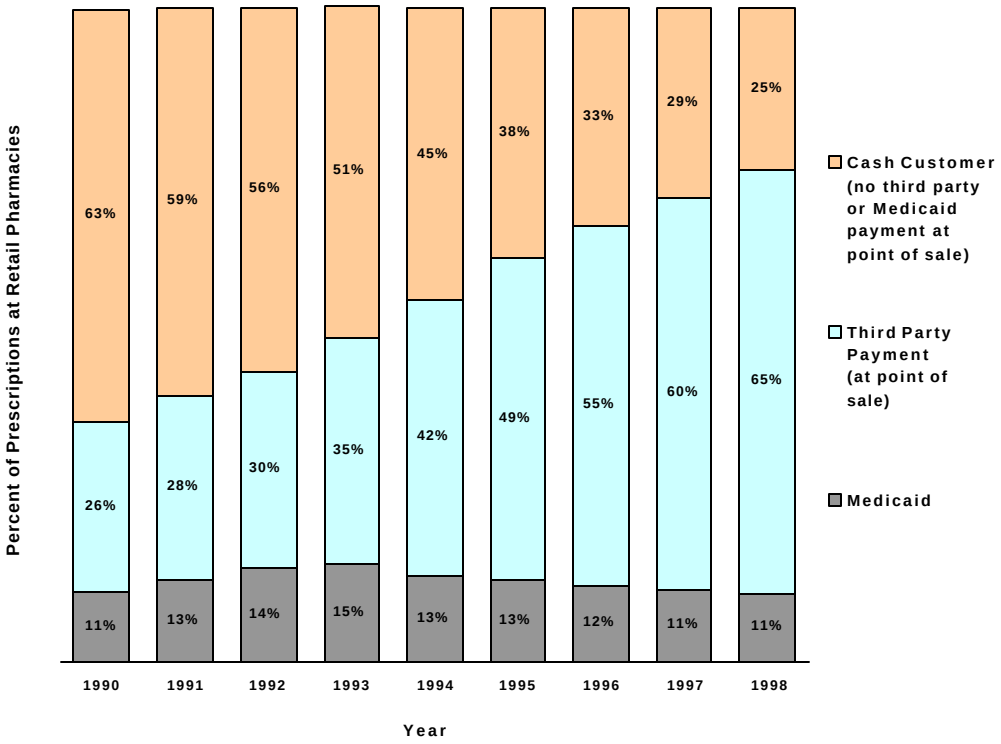
n / a = not applicable
* without rebate
** This column refers only to HMOs that buy directly from manufacturers.

Notes: (1) Prices are based on a composite of several commonly prescribed brand-name drugs for a typical quantity of pills. For some cells in the table, the relative relationships have been calculated based on relationships reported in *How Increased Competition from Generic Drugs Has Affected Prices and Returns in the Pharmaceutical Industry* (CBO, 1998) study and on other relationships widely reported by industry sources.
(2) These prices are used for illustrative purposes only and do not represent any type of overall average.
(3) Prices reported in this table include both amounts paid by third-party payers and amounts paid by the consumer as cost sharing.

The share of purchasers who pay in full at the time of the transaction (referred to as cash customers) has been steadily decreasing in recent years. This category includes both those with no insurance coverage for drugs and those with indemnity coverage who file claims after the retail transaction is complete. In 1990, 63 percent of retail prescriptions involved cash customers, while 37 percent involved billing by the

pharmacy to third-party payers or Medicaid (Figure 3-1). By 1998, only 25 percent of prescriptions were paid for by cash customers.[3]

Figure 3-1. Payment Sources for Prescription Drug Purchases, 1990-1998



Source: IMS Health Retail Method-of-Payment Report™, 1999.

This trend does not represent a growth of coverage as much as it represents a shift in how drug coverage works. During the 1990s, the common approach has shifted from indemnity coverage to coverage that is managed at the point of sale.

With indemnity insurance, a customer typically pays cash for the full cost of the prescription at the pharmacy and then files a claim for reimbursement from the insurer. As noted in Chapter 1, most people with private group coverage for prescription drugs have some form of managed drug benefit, administered by a PBM or sometimes directly by an HMO or other insurer. Under PBM administration, point of sale transactions are now the norm. Under such a transaction, the pharmacist uses a computer system to determine the deductible, copayment, or coinsurance, which the customer pays at the retail counter.

[3] IMS Health Retail Method-of-Payment Report™ 1999.

Management of drug benefits has become the norm for group coverage. For nongroup coverage, including Medigap, it is much less common. In the case of Medigap, for example, the insurer's liability is limited to half of total spending between a deductible and a cap; insurers generally have not seen enough potential for savings to invest in benefit management.

As noted previously, the ultimate prices paid for prescription drugs by or on behalf of consumers are established through an intricate system involving pharmaceutical manufacturers, wholesalers, retailers, and insurers or other managers of drug benefits. Accordingly, the descriptions below, despite the apparent level of detail provided, are necessarily simplified in order to convey the key characteristics of this system.

Pricing for Cash Customers

Cash customers at retail pharmacies include people without coverage and people with indemnity coverage who pay for their own prescriptions and are later reimbursed by their insurer.[4] Prices are set by a series of transactions linking the manufacturer to the cash customer through the wholesaler and the retail pharmacy, as shown in Table 3-1.

Sale by Manufacturer to Wholesaler

In the first transaction, the manufacturer sells the drug to a wholesaler. The manufacturer establishes a price that varies by the form and strength of the product; for example, a 500 milligram tablet of a given drug will have a different price from a 250 milligram tablet of the same drug. Price may also vary by packaging; for example, a package containing 1,000 tablets of a given medication might have a lower price per tablet than a package of 500 tablets. When there is only a single manufacturer of a drug, as is often the case with a brand-name drug, there is only one price for a specific product and package size. Once generic versions of the drug become available, the equivalent medication (in form, strength, and package) may be offered at different prices by different manufacturers.[5]

Wholesalers may sometimes receive discounts from manufacturers, based on volume or prompt payment. A manufacturer of a multi-source drug (i.e., one that is produced by more than one manufacturer) may offer a discount to induce wholesalers to promote its

[4] Cash customers may also include customers with prescription drug coverage who decide to pay full price for a prescription that would cost less than their copay amount or pay full price for a prescription not covered by their insurance.

[5] There are cases in which the holder of a patent licenses other manufacturers to make or market the drug; in this case there can be several brand names and prices for a single drug that is not yet available in generic form.

particular version of the drug. Thus the manufacturer's price is only a guideline, and may not represent the price that all wholesalers ultimately pay for the drug. The manufacturer's price itself represents both the cost of producing the drug and a share of the manufacturer's research and development costs, taxes, and profits. For any particular drug, the price may reflect the market position of the drug more than the cost of its production; for example, a company may set a higher price for an innovator drug than for one which has several competitors. Further breakdown of these components of the manufacturer's price is outside the scope of this study.

Sale by Wholesaler to Retail Pharmacy

In the second transaction, the wholesaler sells the drug to a retail pharmacy at a price reflecting its cost of acquiring the drug plus a markup. This price may be referred to as the wholesale price or acquisition price. A price that is commonly cited in the industry is the "average wholesale price," or AWP. Despite what this name would suggest, the AWP is not the average of the amounts actually paid by retail pharmacies to wholesalers for a particular drug. Instead it is a published wholesale price or "list price" suggested by the manufacturer of the drug. A wholesaler may sell specific drugs to all pharmacies at prices below the AWP, or may grant a general discount to certain pharmacies. Thus, although the AWP is often used by pharmacies as a cost basis for pricing purposes, it does not represent the actual cost to a retail pharmacy of acquiring the drug. It is merely a wholesale list price that can be used as a benchmark in comparing retail and wholesale prices.[6]

Industry sources suggest that the price charged by the manufacturer to the wholesaler typically runs about 20 percent below the list price or AWP. In the example in Table 3-1, the acquisition price (paid by the pharmacy to the wholesaler) is $9 below the AWP. The markup added by the wholesaler is generally small, perhaps 2 percent to 4 percent.

Sale by Retail Pharmacy to the Consumer

In the third transaction, the pharmacy sells the drug to a consumer at a price that includes its cost for acquiring the drug from the wholesaler plus a retail markup. Part of this markup is a fixed cost that is not related to the cost of acquiring a specific drug. This is because the cost to the pharmacy of filling a prescription for a low-price drug is likely to be the same as for a high-price drug. As a result, the fixed cost is a higher percentage markup over acquisition cost for a low-price drug than for a high-price one. Different pharmacies have different fixed costs. Because of economies of scale, a large chain pharmacy may have lower costs than a small independent one.

[6] In establishing upper payment limits for state Medicaid programs, HCFA assumes that AWP overstates actual acquisition costs by 10 to 20 percent. (State Medicaid Manual, sec. 6305.1)

Part of the markup varies by drug. Pharmacies employ a variety of pricing strategies when determining this markup for their sales to cash customers. For example, they may set a lower markup for maintenance medications and a higher markup for acute medications, or may routinely discount certain commonly used medications as "loss leaders," in order to attract cash customers who will then buy other medications or other merchandise.

Some industry sources have suggested that retail markups in the range of 20 percent to 25 percent over the pharmacy's acquisition price are typical. This markup includes both the fixed operating costs of the pharmacy as well as taxes and profits. These same sources also suggest that the fixed costs represent most of this markup amount. In the example in Table 3-1, the $52 cash price is 4 percent above the AWP. The pharmacy in this example includes a retail markup of about 25 percent over its acquisition cost in the price charged to its cash customers.

Pharmacies may also offer across-the-board discounts on drugs to certain groups of cash customers, such as senior citizens. In addition, some organizations negotiate discounts on behalf of people without drug coverage or people who pay cash because their coverage is an indemnity plan. For example, AARP offers its members a Member Choice Program operated by RPS, Inc. In return for a $15 annual fee, members receive access to discounts negotiated with pharmacies by RPS. AARP reports that members receive average discounts of $7.26 per prescription or about $160 per year. Some insurers that sell both indemnity coverage and coverage that pays pharmacies directly may offer their indemnity purchasers access to the discounts they have negotiated on behalf of their other enrollees. This is true of United Health Care, which sells Medigap coverage through AARP, and of some Blue Cross/Blue Shield Medigap plans. These various discounts are part of the average prices cited later in this chapter.

Pricing for Insurers and Pharmacy Benefit Managers

The simple pricing model just described applies to cash transactions but not to those in which the retail pharmacy is paid by a group insurer, employer, or other third party at the point of sale. This section will describe mechanisms affecting the prices paid by private third parties that manage drug benefits. Again, because management by a PBM is most common, this term will be used as a shorthand for all private entities managing drug benefits.[7]

[7] A recent study by Mathematica Policy Research reviews the variety of measures used by PBMs to manage utilization of prescription drugs. Anna Cook, Thomas Kornfeld, and Marsha Gold, *The Role of PBMs in Managing Drug Costs: Implications for a Medicare Drug Benefit*, Mathematica Policy Research, prepared for the Henry J. Kaiser Family Foundation, January 2000.

Because a PBM may manage the drug benefit for a large number of individuals, it can negotiate discounts at both ends of the pricing chain: from the manufacturer and from the retail pharmacy. There is little published data about the size of the discounts obtained by PBMs and private insurers, either from manufacturers or from retailers. Discounts from retailers will be estimated later in this chapter, using the MEPS and IMS Health data. Manufacturer rebates are not reflected in these data sources. Rebate agreements are highly confidential and most information about them derives from anecdotes.

Retail Discounts

The price paid to a retail pharmacy for a given drug is negotiated by the PBM and the pharmacy or pharmacy chain. Typically the PBM will take into account its estimate of the cost to the pharmacy of acquiring the drug (usually assuming that the pharmacy has paid something less than the AWP) and offer a dispensing fee above that amount. This dispensing fee is commonly a fixed dollar add-on (in the range of $2.50) that is not related to the cost of acquiring a specific drug.[8] Because some PBMs cover a large share of the market, a pharmacy will often accept a price that is less than it would charge to cash customers. The PBM's negotiating power may be offset, however, by its need to assure that its enrollees have access to convenient pharmacies. It might offer a higher price to a large chain than to scattered independent pharmacies.[9]

Discussions with industry experts conducted during the preparation of this report have provided current information on typical PBM payments to retailers. These experts estimate that payments for brand-name drugs are in the range of AWP minus 13 to 15 percent, plus a $2.50 dispensing fee. (The range from 13 to 15 percent depends primarily on how restricted the pharmacy network is.) The example in Table 3-1 illustrates this type of discount, resulting in a price that is lower than that faced by cash customers but in this case still offers a 12 percent markup over the pharmacy's acquisition price. For some drugs, however, a pharmacy may be forced to accept reimbursement from the PBM that does not cover the pharmacy's cost of acquiring the drug (let alone its operating costs). The PBM has considerable leverage in this relationship, especially as the proportion of drugs sold through PBM-managed arrangements grows (Figure 3-1). The pharmacy is left with an option of refusing the large share of business, raising its prices for cash customers, or reducing its operating margin.

[8] Although the dispensing fee was originally intended to cover the professional services of the pharmacist, recent information suggests that it is not longer sufficient to cover this cost. Rather it is simply an additional fixed amount that pharmacies collect for each prescription dispensed (*Wyeth-Ayerst Prescription Drug Benefit Cost and Plan Design Survey Report*, 1999 edition).

[9] The literature cited in Appendix A suggests that pharmacy margins have been falling in recent years.

For generic drugs, about three-fourths are reimbursed using limits known as maximum allowable cost (MAC). These limits are established by PBMs, based on the lowest estimated acquisition cost for any of the generic equivalents of a given drug. The MAC tends to be 50 to 60 percent below AWP. The remaining one-fourth of generics are reportedly reimbursed, like brand-name drugs, at AWP minus 13 to 15 percent. The dispensing fee for generics tends to be the same as for brand drugs, but sometimes it is 25 or 50 cents higher, to encourage generic substitution by pharmacies.

Manufacturer Rebates

The second type of discount that the PBM gets is a negotiated rebate paid directly from the manufacturer to the PBM. This rebate does not affect the price paid by a wholesaler to a manufacturer for the drug, the price paid by a retail pharmacy to the wholesaler, or the price paid by the PBM to the pharmacy. It is a separate transaction between the PBM and the manufacturer and thus affects the total amount spent by the PBM. To the extent that a portion of the rebate is passed along, the insurer, employer, or beneficiary may realize a part of these savings.

A key tool in determining whether rebates are available and how large they are is the use of a restrictive formulary, a list of drugs that the PBM has established as preferred for its enrollees. If there are multiple brand-name drugs available for a given condition, the PBM may include some on its formulary and not others. Enrollees who obtain a non-formulary drug may pay higher copayments, or the drug may not be covered at all. Pharmacies dealing with the PBM may be encouraged to contact physicians who have prescribed non-formulary drugs and suggest a formulary alternative.[10] Physicians affiliated with the health plan using the PBM may also face pressure to prescribe formulary drugs. In addition, PBMs will commonly require or encourage substitution of generic equivalents for brand-name drugs when these are available. Again, they may charge higher copayments for brand name drugs, or limit reimbursement to the generic price even when the brand-name drug has been dispensed.

Manufacturers of brand-name drugs that treat conditions for which an alternative brand-name treatment is available thus have a strong incentive to grant discounts to the PBM in return for the inclusion of their drugs in the formulary. If generic equivalents are available, the manufacturer may also grant a discount to make the price of its brand-name product more competitive. These discounts usually take the form of direct rebates from the manufacturer to the PBM. For example, in the simplest rebate arrangement, the PBM may report periodically to a manufacturer the number of

[10] A pharmacy can usually substitute a generic equivalent for a brand-name drug on its own, although some state laws restrict this. However, the prescribing physician's permission is always needed to substitute one brand-name drug for another.

prescriptions for a given drug that the PBM's enrollees have filled; the manufacturer then pays the PBM an agreed-upon amount for each prescription. In addition or as an alternative to a per-prescription rebate, manufacturers and PBMs also negotiate arrangements where the PBM is reimbursed for moving market share — causing a significant increase in the number of prescriptions for the manufacturer's drug.

One study by the General Accounting Office attempted to quantify the value of rebates obtained by PBMs contracting with plans participating in the Federal Employees Health Benefits Program (FEHBP). Blue Cross/Blue Shield paid about $1.4 billion for FEHBP pharmacy benefits in 1995 and estimated that its PBM had saved $505 million, of which 21.2 percent was attributable to manufacturer discounts or rebates and 52.3 percent to discounts from retail and mail-order pharmacies.[11] If costs in the absence of the PBM would have been $1.9 billion, this suggests retail or mail-order discounts of 14 percent (consistent with the estimates cited above) and manufacturer rebates of 5 to 6 percent (or slightly more, assuming the PBM did not pass all rebates fully to Blue Cross). Overall FEHBP plans estimated that their savings from manufacturer rebates ranged from 2 to 21 percent of total savings. Industry representatives report that rebate savings can be much higher (35 percent) on selected drugs.[12]

Table 3-1 uses a range of rebate amounts to show the net effect on the price if the unmeasured rebates were taken into account. This amounts to a hypothetical retail price of $30 to $44 (compared to the total $46 price that the pharmacy receives from the customer and the insurer) if the discounts were applied at the pharmacy instead of through rebates to the PBMs. An alternative way to display this discount would be to reduce the manufacturer's price by the rebate or by some portion of it. Because rebates cannot be measured, the analysis reported later in the chapter does not reflect this additional discount.

PBMs that operate under contract to an insurer or self-insured employer are required to pass on most of the rebates. Industry sources report that the insurer or employer typically receives 70 to 90 percent of the rebates. In addition, the PBM will often guarantee a minimum per-prescription rebate, in case actual rebates received from manufacturers are lower than expected. While estimates differ, industry experts report

[11] Most of the remaining savings were attributed to maximum allowable cost limits for drugs with generic equivalents and to preauthorization and utilization review. U.S. General Accounting Office, *Pharmacy Benefit Managers: FEHBP Plans Satisfied with Savings and Services, but Retail Pharmacies Have Concerns*, Washington, Feb. 1997 [GAO/HEHS-97-47].

[12] HCFA's Office of the Actuary, in estimating net 1997 private insurer drug expenditures for the National Health Expenditure series, assumes average rebates from manufacturers in the range of 7 percent.

that the value of rebates passed on to insurers or employers may average about $1.00 per claim.[13]

In addition to cash rebates, industry analysts have reported that PBMs may receive noncash benefits from manufacturers or cash rebates that are not tied to a particular drug. For example, PBMs may receive rebates from manufacturers in return for agreements with regard to the content of their communications with physicians about the use of certain drugs (sometimes called counter-detailing). PBMs that operate their own mail-order pharmacies may receive extra discounts on drugs purchased by those pharmacies. Other PBMs may receive support for development of disease management systems or other research activities. Some industry analysts believe that the value of these other considerations may exceed the amount of cash rebates. The PBM may not be obligated to pass these benefits on to plan sponsors.

Finally, a PBM can realize further savings by encouraging enrollees to use a mail-order pharmacy. (Some PBMs operate their own mail-order pharmacies.) Enrollees may pay a lower copayment when using a mail-order pharmacy or may be required to use mail-order for drugs to be taken over a long period, such as maintenance drugs for chronic conditions. Mail-order pharmacies can operate with a smaller markup than other retail pharmacies, because of economies of scale and lower overhead. They may also be more successful in encouraging prescribing physicians to agree to substitute formulary for non-formulary drugs, because they have more time to contact a physician before filling a prescription.

Pricing for Favored Private Purchasers (HMOs and Hospitals)

Not all drugs dispensed by pharmacies are purchased from wholesalers. Institutions that operate their own outpatient pharmacies, such as hospitals and clinics, may deal directly with manufacturers, either individually or through buying groups. They typically save the wholesaler markup. In addition, they may receive a price lower than that offered by the manufacturer to wholesalers. Table 3-2 shows estimates by the Congressional Budget Office, based on IMS data, of the discounts received by these purchasers, which represent a total of about 14 percent of the market. These discounts are reported relative to the average acquisition price paid by retail pharmacies, excluding mail order, in 1994.

[13] Peter D. Fox, *Pharmacy Benefits Management-101.* Paper presented at The National Health Policy Forum, October 27, 1999.

Table 3-2. Average Invoice Price Paid for 100 Top-Selling Brand Name Drugs, 1994

	Percent of average invoice price to retail pharmacies
Retail pharmacies	100%
Hospitals	91%
Long-term care facilities	95%
Health maintenance organizations	82%
Federal facilities*	58%
Clinics	91%

* Federal facilities include the Department of Veterans Affairs, the Defense Department, the Indian Health Service, and the Public Health Service. Similar prices are available to state pharmaceutical assistance programs.

Source: Congressional Budget Office, *How Increased Competition from Generic Drugs Has Affected Prices and Returns in the Pharmaceutical Industry*, Washington, July 1998.

Rebates and other discounts that do not appear on an invoice are not included in the price relationships reported in this analysis. Because of their direct purchasing relationship with manufacturers, however, these entities are less dependent on rebates based on the amount of a particular drug dispensed. It appears that rebates play a smaller role for these purchasers than for PBMs that do not purchase drugs directly. More complete pricing data are unavailable.

The estimate for HMOs in Table 3-2 reflects discounts to the relatively few HMOs, such as some of the Kaiser Permanente plans and other staff or group-model HMOs, that operate their own pharmacies and buy drugs directly from manufacturers. This is *not* an estimate of the size of rebates that are received by the majority of HMOs, which manage drug costs and utilization through PBMs and whose enrollees obtain their prescriptions through retail outlets.

In Table 3-1, the HMO price is $34, based on the relationship reported by CBO (Table 3-2) and confirmed by other information obtained from industry sources. There is evidence that some HMOs obtain at least some drugs at prices substantially below the price in this illustration. Recently, the HHS Inspector General reported on two HMOs that were able to purchase a drug at prices considerably below the reported best price for that drug.[14]

[14] Letter from Inspector General June Gibbs Brown to Representative Henry Waxman, November 22, 1999.

Pricing for Federal Facilities and Agencies

Prices paid to manufacturers by the VA, other federal agencies, and certain other entities, such as Indian tribal governments, are set by the Federal Supply Schedule (FSS). Under the Veterans Health Care Act of 1992, manufacturers must make drugs available to covered entities at the FSS price as a condition of eligibility for Medicaid reimbursement.

FSS prices are negotiated with manufacturers by the VA.[15] In general, the FSS price may be no higher than the lowest contractual price charged by the manufacturer to any nonfederal purchaser under similar terms and conditions. In order to determine this price, manufacturers supply the VA with information on price discounts and rebates offered to different customers and the terms and conditions involved. Under certain conditions, the VA may accept an FSS price that is higher than the price offered to some nonfederal customers. According to the GAO, average FSS prices are more than 50 percent below the nonfederal average manufacturer's price.[16] This result is somewhat lower than the relationship shown in Table 3-2 based on the CBO study.

For certain drugs sold to the VA, the Department of Defense, the Public Health Service, and the Coast Guard, the manufacturer must charge the lesser of the FSS or a "federal ceiling price."[17] The federal ceiling price is set at 76 percent of the average manufacturer's price; this limit may be higher or lower than the FSS. The rule applies only to brand name drugs without competition or innovator multiple-source drugs.[18]

In the example in Table 3-1, the federal supply schedule price of $24 is about 60 percent of the manufacturer's price and well under the various retail prices charged to different types of customers. Not surprisingly, it is fairly close to the $30 that represents the lowest price that might be achieved by insurers and PBMs (and Medicaid) in cases where they get the largest manufacturer rebates. This makes sense for a "best contractual price" standard. If the table could represent the full range of prices achieved by some buyers for some drugs, there would probably be cases where other third parties achieved prices below this FSS price.

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[15] In some instances the VA has separately negotiated a contractual price that is lower than the FSS established for other federal purchasers.

[16] U.S. General Accounting Office, *Drug Prices: Effects of Opening Federal Supply Schedule for Pharmaceuticals Are Uncertain*, Washington, June 1997 [GAO / HEHS-97-60].

[17] This "big four" price is not available to other agencies using the FSS.

[18] An innovator multiple-source drug is the version of a drug, for which competition exists, that is sold by the manufacturer that originally obtained FDA approval for the drug.

More generally, the fact the FSS price is generally lower than other prices may have a variety of explanations. These include the small share of the market that federal purchasers represent (less than 2 percent), the effectiveness of the VA as a price negotiator, and the interest that manufacturers may have in making sure their drugs are available to federal facilities and agencies (including VA hospitals that train a large number of physicians).

Pricing for Medicaid Programs

Medicaid programs pay retail pharmacies using fixed cost limits and fixed dispensing fees. For single-source drugs (brand-name drugs without generic equivalents), the cost limit is set at the estimated pharmacy acquisition cost for the drug. For multiple-source drugs (with brand name or generic competitors), the limit is based on a MAC. These are similar in concept to the MACs used by PBMs; some PBMs may simply use the Medicaid MACs, while others develop their own. The Medicaid MACs are published by HCFA every six months and are set at 150 percent of the lowest published price for any equivalent drug, plus a dispensing fee.[19]

Under provisions of the Omnibus Budget Reconciliation Act of 1990, Medicaid programs receive rebates from manufacturers.[20] Participation is generally required for a manufacturer's drugs to be eligible for Medicaid reimbursement. For single source drugs and innovator multiple-source drugs, the rebate must equal the difference between the average manufacturer price (AMP) – the average paid by wholesalers – and the manufacturer's "best price." The best price is the lowest price offered by the manufacturer to any purchaser at any time during the year, excluding the special prices for federal purchasers and certain other covered entities.[21] The minimum rebate must be 15.1 percent of the AMP. For non-innovator multiple source drugs, the rebate is 11 percent of the AMP; the best price concept does not apply.

In Table 3-1, Medicaid reimburses the retail pharmacy for its acquisition price plus a dispensing fee. As noted, states obtain a minimum 15.1 percent rebate, corresponding

[19] This limit does not apply when a physician specifies that a brand-name version of the drug is to be dispensed.

[20] Congressional Budget Office, *How the Medicaid Rebate on Prescription Drugs Affects Pricing in the Pharmaceutical Industry* (January 1996).

[21] This exclusion was not originally part of OBRA 1990; the best price could be the price charged to the VA and other federal facilities. Some manufacturers raised their price to the VA in order to reduce their required Medicaid rebates. In response, Congress added the exclusion and set separate pricing rules for federal purchasers.

to a net effective price of $37. Average rebates are in the range of 21 percent, which would yield an ultimate price of $34, but may range higher for certain drugs.

SOURCES AND USES OF PRICE DATA FOR THIS CHAPTER

As described in the previous section, both the processes by which prices are determined and the ultimate price paid for drugs by various purchasers varies considerably. Other factors also lead to wide differences, such as different pricing strategies between generic and brand name drugs and between single-source and multiple-source drugs. In the remainder of the chapter, the focus is primarily on one facet of pricing – the variation in prices faced by different types of consumers at the retail pharmacy. For reasons of data availability, rebates cannot be incorporated into the prices discussed below.

Price data reported in this chapter are derived from the Agency for Healthcare Research and Quality's Medical Expenditure Panel Survey (MEPS) pharmacy component for 1996 and from IMS Health pharmacy audits for 1996 through 1999. The MEPS data include prices for all drugs furnished to participants on an outpatient basis, including prescriptions filled by retail pharmacies, mail-order pharmacies, and pharmacies within outpatient facilities (such as hospitals, some HMOs, and VA facilities). The IMS data used for this report include prices only for prescriptions filled by retail pharmacies. The two data sets complement each other because MEPS allows for comparisons by more precise definitions of coverage status and collects prescription price information across a broader array of pharmacy outlets, while the IMS Health sample size allows more direct drug by drug comparisons of prices paid by cash versus third-party payers. In addition, the 1996 MEPS data are newly released (December, 1999) and have not yet been widely used. The IMS data are a commonly accepted data source on prices, are widely used by industry, and are the most recent data available.

For the purpose of the discussion below, the *price* of a prescription drug is the total amount paid by all payers to the pharmacy that filled the prescription. For example, if the pharmacy received a $15.00 payment from a third-party payer and a $5.00 copayment from the consumer, the price of the drug is $20.00. Because rebates from manufacturers to PBMs, insurers, or Medicaid programs do not directly affect the amount paid by the third party to the retail pharmacy, the price measured at the retail pharmacy level is often not the true "price" paid by third-party payers. In most cases, the true price is less than the amount paid in the pharmacy transaction. Finally, for the purposes of price comparisons in this chapter, variants of the same drug sold by different manufacturers are each considered as distinct drugs.

Because this analysis focuses on retail price differences and is unable to incorporate rebates, our approach is different from that of the studies by the Minority Staff of the House Committee on Government Reform (*Prescription Drug Pricing in the United States: Drug Companies Profit at the Expense of Older Americans*, November 9, 1999). The Committee study focused on the difference between best prices obtained in the market by third-party payers and the higher retail prices paid by cash customers. By contrast, our analysis of MEPS and IMS Health data focuses on differences in retail prices at the retail pharmacy level faced by customers with and without access to the discounts negotiated by third-party payers. Data on manufacturer rebates, if available to this study, would have allowed a more complete analysis of price variation within the market.[22] Without access to that information, our analysis tends to understate the ultimate price differences for insured and uninsured customers. Rebates paid by manufacturers to insurers or PBMs increase the difference between the total net price ultimately paid for drugs on behalf of those with some type of third-party drug coverage and the price paid by those who pay totally out of pocket at the retail point of sale.

MEPS Data

The 1996 MEPS includes a pharmacy survey to validate prescription drug utilization reported by respondents, and to obtain direct measures of retail prices paid for drugs. For each prescription drug "event" reported by respondents MEPS endeavors to ascertain the price through the pharmacy survey. The pharmacy data, in combination with the comprehensive respondent data, enables pricing analyses with detailed definitions of coverage status.

However, information was collected from pharmacies in only about half the instances in which a household survey participant mentioned using a specific pharmacy. Overall, of the drug events used to estimate utilization and spending in Chapter 2, about 40 percent have data derived directly from a household / pharmacy match for the same person. Prices were imputed for 60 percent of the remaining events using statistically matched pharmacy events for comparable individuals. To avoid introducing measurement error that could bias comparisons, only non-imputed price data – cases in which there was a direct match of information from a household and a pharmacy – are used in this

[22] Because of these differences in methodology, the findings of this report on price variation at the retail pharmacy level should not be interpreted as inconsistent with findings of the Minority Staff of the House Committee on Government Reform on price variations that were based on differences between observed cash prices in retail pharmacies and prices published in the federal supply schedule.

chapter.[23] However, sensitivity analyses (not shown) using the imputed data are very consistent with the data reported here.[24]

One consequence of this exclusion is that, for any single drug (defined by name, manufacturer, form, and strength), the available sample from MEPS is too small to allow reliable comparison of prices paid by different purchasers. Price comparisons for specific drugs will be made using the IMS data, which have a much larger sample size.[25]

IMS Health Data

IMS data used in this chapter are drawn from the IMS Health Retail Method-of-Payment Report ™ and Price Trak Report™. IMS collects data from a panel of 34,000 retail pharmacies, including independents, chains, and pharmacies within food stores or mass merchandisers. The IMS sample for these products accounts for over 60 percent of retail outlets and over 70 percent of prescriptions filled in the US, but it omits mail-order pharmacies and pharmacies within facilities, such as outpatient hospital pharmacies, VA pharmacies, and those operated by the few HMOs that have their own pharmacies. Through a variety of electronic media, IMS collects acquisition cost, retail price, and payment source for every new and refilled prescription. Three payment sources are identified: cash, Medicaid, and other third party (essentially private insurance). Note that the IMS data would class an individual who paid cash and was later reimbursed by an indemnity policy in the cash category.[26]

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[23] When statistically matching a MEPS pharmacy drug event to a household drug event between different persons, it was not possible to require that potential payment sources for the two people be exactly matched. This created the possibility that the price of a specific drug paid by a covered person could be statistically matched to a drug mentioned by another person who might not have had drug coverage, or vice versa. The decision to restrict the sample to only matches that were between drugs for the same person, and to eliminate drugs with any price imputations to fill in missing data, or replace outliers in the pharmacy component, was to reduce the potential bias from these measurement error sources.

[24] When all the MEPS data are used— including both imputed and non-imputed prices— significant differences remain between the prices paid by the covered and noncovered groups. The full MEPS data therefore demonstrate price differences using a nationally representative sample.

[25] Preliminary efforts using MEPS data were made to estimate price differences for groups of drugs most frequently used by Medicare beneficiaries. Although this method required merging together drugs from different manufacturers or with different forms and strengths with potentially different price differentials, the results were generally consistent with the IMS data for individual drugs in the same groups.

[26] MEPS would treat the same individual as covered. Thus the cash / third-party distinction and the covered / noncovered distinction in the IMS and MEPS results (respectively) cannot be taken as identical. If some individuals with indemnity plans pay the cash price at the point of service, the price differences for people with and without coverage would appear smaller than the price differences faced by cash payers and people whose insurance pays the pharmacy directly.

For this study, 1996 and 1999 price data were obtained for 39 Uniform System of Classification (USC) categories of drugs that together included the 100 most commonly prescribed individual drugs in 1996.[27] These categories also included 177 of the 200 most commonly prescribed drugs in 1998. These drugs represent a substantial portion of the total market for pharmaceuticals: the 200 most commonly prescribed drugs in 1998 made up 57 percent of the total prescriptions filled at retail pharmacies, and also 57 percent of the total dollar volume of prescriptions in 1998.[28] Not all of these drugs were on the market in 1996; price data for that year were obtained for 166 drugs. Nineteen of the 20 drugs most frequently received by Medicare beneficiaries in 1996 are also included.[29] We chose to use the most commonly prescribed drugs instead of those drugs with the highest dollar volume. This decision allowed us to focus our analysis on the drugs most used by consumers instead of the highest-cost drugs.

IMS provides data on price for each specific drug name, form (e.g., tablet or capsule), and strength (e.g., 500 milligrams) from each manufacturer. This study uses the most common form and strength in 1999 for each drug name and manufacturer, which is generally representative of the aggregate results across all forms and strength for a given drug.[30]

The next section presents results from both of these data sources that explore the question of whether individuals without prescription drug insurance coverage and individuals paying cash for prescription drugs pay more for the same drugs than insurers buying drugs on behalf of covered individuals. In general, we use the IMS Health data to compare directly the prices paid on a drug-by-drug basis, which cannot be done with the MEPS data. We use the MEPS data to compare prices paid by Medicare enrollees with and without coverage, and to aggregate across all drugs, neither of which can be done easily with the IMS data.

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[27] The USC, or Uniform System of Classification, is a coding system that assigns drugs to broad and then narrower categories, using increasing numbers of digits as the categories become more specific. The 39 categories identified for this study are at the USC3 (3-digit) level: for example, they included 31100, antihypertensives, and 52100, sex hormones.

[28] IMS Health

[29] Prednisone, the 16th most commonly prescribed drug for Medicare beneficiaries was not in the original list of USC categories for which data were obtained from IMS.

[30] In order to assure that cash / third-party price differentials for the most common form and strength were representative of the differentials for other forms and strengths of the same drug, the results for the top 50 drugs were compared to average results for all forms and strengths (weighted either by dollar volume or by number of prescriptions). For the vast majority of the drugs, the results were very similar.

Unless otherwise noted, all results reported based on MEPS data are statistically significant (at the 0.05 level, based on a two-tailed test). The unique nature of the way IMS collects and reports its data does not allow for statistical testing of results from these audits. However, given the large sample sizes used by IMS (over 70 percent of US prescriptions filled at retail pharmacies), all results reported based on IMS data are highly likely to be statistically significant. See the Introduction of this report for details.

PRICE DIFFERENCES FROM MEPS DATA

MEPS data for 1996 show that people with prescription drug coverage received more costly drugs than people without coverage. However, for any specific drug, the total price paid for people with coverage tended to be lower than the price paid by people without coverage.[31]

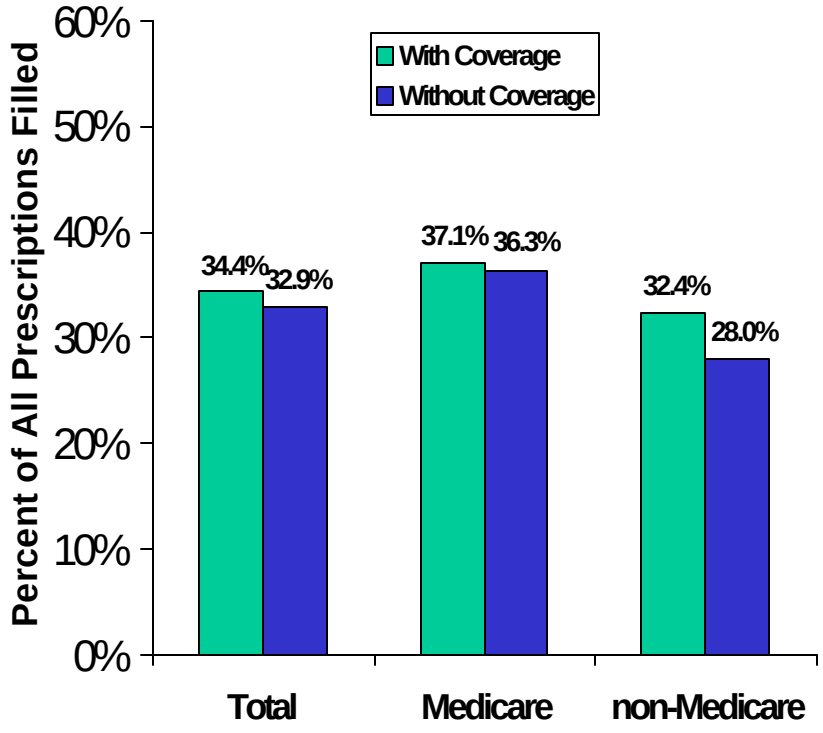
This section gives considerable emphasis to analyzing brand name and generic drugs separately for several reasons. First, there are substantial price differences between brands and generics. Second, as mentioned earlier in the chapter, the general approach to pricing is quite different for the two categories of drugs. For example, the difference between a pharmacy's acquisition price and what it gets paid is greater in percentage terms for generics than for brand name drugs.

Both insured and uninsured consumers have incentives to use generic drugs. One widely held notion is that generic substitution may be more common for people with coverage, because insurers or PBMs often require it or charge higher copayments when enrollees receive a brand-name drug for which a generic equivalent is available. On the other hand, it is possible that use of generic drugs will be higher among uncovered individuals, as they have the most incentive to seek less expensive therapy. As shown in Figure 3-2, the MEPS data suggest that there are no real differences in percent of total prescriptions filled with a generic drug between covered and uncovered individuals.[32]

[31] As noted previously, for all analyses in this chapter, the *price* of a prescription drug is the total amount paid by all payers to the pharmacy that filled the prescription. For example, if the pharmacy received a $15.00 payment from a third-party payer and a $5.00 copayment from the consumer, the price of the drug is $20.00.

[32] A different result was reported in Chapter 2. With regard to hypertension drugs, those with coverage were more likely to use generics. Further research is needed to understand how the use of generics varies by insurance coverage and specific health conditions.

Figure 3-2. Percent of Prescriptions Filled with Generic Drugs by Coverage Status and Source of Insurance, 1996



*Approximately 4 percent of drugs could not be classified as brand or generic.

Source: Center for Cost and Financing Studies, Agency for Healthcare Research and Quality: Medical Expenditure Panel Survey Household Component, 1996.

Table 3-3 presents results from MEPS on the average retail unit prices paid for brand name, generic, and all prescriptions in 1996, by people with and without prescription drug coverage.[33] The retail unit price accounts for prescription size by dividing the

[33] Since the MEPS data are composed of every "drug event" (individual prescription) for the responding individuals, these averages are, in effect, weighted by the volume of prescriptions (i.e., drugs that are more commonly used will be more heavily represented in the average). A different approach would have weighted the averages by drug expenditures. For the tables that show brand name and generic drugs combined, this would have given more importance to brand name drugs. It would have given more weight to extremely high cost drugs and thus would have been less reflective of typical drug use by consumers. The Medicare category in this and other MEPS tables in this chapter includes a small number of elderly individuals—only 10 survey respondents—who did not report having Medicare.

price per prescription by the total number of units.[34] It is important to take prescription size into account when comparing average drug prices because there may be differences in the quantity of drugs prescribed for people with different insurance coverage. For example, Chapter 2 noted that among hypertensive patients, those with drug coverage receive more pills per prescription than those without drug coverage.

The results in Table 3-3 show clearly the wide differences between the unit prices of brand name medications compared to generic drugs. For all categories of consumers, brand name drugs are priced at least three times higher on average than generic drugs. The results in this table can also be used to see whether individuals with or without coverage for drugs buy more expensive drugs. The first column of Table 3-3 shows that the average unit price per brand name prescription is $1.65 for people with coverage other than Medicaid, as compared to $1.54 for persons without coverage. The second column shows that, for generic drugs, the average unit price per prescription is $0.53 for people with coverage other than Medicaid, as compared to $0.43 for persons without coverage. For all drugs, the average unit price per prescription is $1.53 for people with drug coverage other than Medicaid, as compared to $1.16 for people without drug coverage.[35] These price differences reflect the fact that covered individuals buy a more expensive mix of drugs.

[34] For most drugs, a "unit" is a pill. However, with liquid drugs and inhalers, the unit is the measured and metered dose, respectively.

[35] The comparisons between unit prices for covered and uncovered individuals are not statistically significant for brand name and all drugs. The comparable results for generic drugs are significant on a one-tail test only.

Table 3-3. Average Retail Unit Price per Prescription by Type of Drug, Drug Coverage Status, and Source of Insurance, 1996

Coverage Status, Source of Insurance	Average retail unit price per prescription		
	Brand Name	Generic	All Drugs
Total	$1.73	$0.49	$1.46
Drug coverage other than Medicaid	1.65	0.53	1.53
Medicaid	2.47	0.41	1.35
Without drug coverage	1.54	0.43	1.16
Medicare	1.76	0.5	1.32
Drug coverage other than Medicaid	1.65	0.53	1.32
Medicaid	3.1	0.51	1.7
Without coverage	1.31	0.38	0.97
Non-Medicare	1.71	0.48	1.55
Drug coverage other than Medicaid	1.65	0.53	1.65
Medicaid	2.04	0.35	1.11
Without coverage	1.83	0.52	1.45

Note: Prices shown are point of sale prices and do not include manufacturer rebates.

Source: Center for Cost and Financing Studies, Agency for Healthcare Research and Quality: Medical Expenditure Panel Survey Household Component, 1996.

There exist a variety of other factors, such as form, strength, and mix, that must be taken into account – in addition to the quantity of drugs in a prescription – in order to produce meaningful comparisons of drug prices for those with and without coverage. There is some evidence that physicians may prescribe different, less expensive drugs for people without coverage.[36] Table 3-4 shows an illustrative example of how two Medicare beneficiaries – one with drug coverage and one without drug coverage – with the same medical conditions and the same number of prescriptions can receive different quantities, forms and strengths of the same drugs, and a different mix of drugs for the same conditions. These drug differences translate into substantial differences in the average price per prescription (higher for the beneficiary with drug coverage) and average prices paid for the same drugs (higher for the uncovered beneficiary). Thus, to determine whether people with coverage pay less than people without coverage for the same drug, we need to make a more direct comparison – one that holds form, strength, and type of drug, as well as quantity, constant.

[36] Mott, D.A., Kreling, D.H., "The Association of Insurance Type with Costs of Dispensed Drugs," *Inquiry* 35: 23-35, Spring 1998.

Table 3-4. Illustrative Example of Different Mix of Prescription Drugs Received by Two Beneficiaries with Identical Medical Conditions

		Beneficiary A (has Rx Coverage)		Beneficiary B (no Rx Coverage)	
	Drug	Dosage	Monthly Cost	Dosage	Monthly Cost
Same Drugs	Inhaler	2 puffs/day	$25	same	$33
	Blood Thinner	5mg, 3X day	$20	same	$25
	Pain Killer	20 Tabs/250 mg each	$10	15Tabs/125mg each	$7
Different Drugs	Anti-Hypertensive A	20 mg/day	$40	--	--
	AntiHypertensive B	--	--	5mg/day (equivalent)	$25
	Anti-Heartburn A	10mg/day	$90	--	--
	Anti-Heartburn B	--	--	2mg/2X day (equivalent)	$50
	Average Price Per Prescription		**$37**		**$28**
	Average Price Per Rx for Same Three Drugs		**$18**		**$22**

Consider two Medicare Beneficiaries, Beneficiary A and Beneficiary B, who suffer from the same conditions: high blood pressure, heartburn, chronic lower back pain, asthma, and atrial fibrillation - a condition which often requires the daily use of a blood thinner. This combination of illnesses is not unusual in the typical Medicare patient.

Both beneficiaries receive five prescriptions per month for their five conditions. However, Beneficiary A has drug coverage and Beneficiary B does not. As illustrated in the diagram above, some of the drugs Beneficiary A receives are the same as Beneficiary B and some are different. Beneficiary A receives discounts on the same drugs for which Beneficiary B pays full price, and pays more for the different drugs because people with coverage often receive newer drugs that are also more expensive. Lastly, in the case of the pain killer, Beneficiary A and B both receive the same drug but Beneficiary A, because he has drug coverage, receives a greater number of pills per month and a higher dosage strength. Thus, the price of the pain killer reflects the difference in total number of pills and any discount Beneficiary A may receive.

As shown, while the average price paid per prescription is higher for Beneficiary A, Beneficiary B still pays more for the same given drug. Moreover, in the case of the pain killer, he actually receives less of the same drug, and at a lower strength.

It should be noted that the prices listed, although used purely as examples, are realistic prices for these types of drugs.

The best way to make comparisons is to use data on the prices paid for a specific form and strength of a drug for different categories of consumers. Ideally, these data would include the effect of manufacturer rebates on the prices paid for those with third-party coverage. No available data set, however, includes these rebates. Although MEPS has insufficient sample size to allow estimates of price differences between covered and uncovered Medicare beneficiaries for any single drug, MEPS allows for the calculation of a powerful summary measure across drugs. To calculate this measure we compare the retail price for each drug to a benchmark price. This benchmark price is obtained from a private company.[37]

By comparing the retail price to a benchmark price, we can standardize prices across drugs. We calculate the ratio of the retail price to the benchmark price on a unit basis to control for differences in the dispensed quantity. A separate benchmark price is used for each form, strength, and package size (from which each drug was dispensed) of a drug. By calculating this measure separately for each prescription reported in MEPS, we obtain a measure of the relative amount over the benchmark price that the purchaser paid for that prescription.[38] We call this measure the percent over benchmark price. Taking the average of this ratio across all drug events gives us a measure that accounts for different forms, strengths, and quantities of medications, and differences in the mix of drugs prescribed, thereby allowing for price comparisons (excluding the effect of rebates) among different subgroups, such as people with and without drug coverage across all of their drug purchases.

Table 3-5 shows the average and median percent over benchmark price for all drugs, by coverage status and source of insurance. Overall, using averages, people without drug coverage paid more when they used the same drugs (57.9 percent over the benchmark) than did people with drug coverage other than Medicaid (33.3 percent over the benchmark). This same result is found using the median percent over benchmark instead of the average, even though the numbers reported are considerably smaller (14.6 percent versus 0.0 percent). In general, these relationships hold up when

[37] The private company reports the most common wholesale price charged to the retailer, which we use as our benchmark. It determines this price by a variety of methods. If a manufacturer has a suggested AWP, this value is used as the initial entry of this price. If a manufacturer does not provide a suggested AWP, then a statistical review of the actual wholesale price is conducted, and the price used is the mode (most common) price obtained from the wholesalers surveyed. When no clear mode price is evident, a statistical mean price is computed. The number is also indexed over time through a proprietary model designed by the company. It is important to note that this methodology produces a value different than the AWP (list) price described earlier in the chapter.

[38] This ratio is computed separately for each filled prescription, and then averaged across all drug events. The figure shown is the average of the ratios, not the ratio of the average of all retail prices to the average of all benchmark prices. Thus the differential between the covered and non-covered groups may be interpreted as the difference in percent over benchmark price on the average drug purchase.

examining the Medicare and non-Medicare populations separately. In this table, the percent over benchmark for Medicaid beneficiaries is generally closer to individuals without drug coverage than to individuals with coverage. This may be because the prices ultimately paid by Medicaid on behalf of patients are greatly reduced by rebates, which are not captured in these data, and because Medicaid generally pays higher dispensing fees than do PBMs and insurers.

The difference in the magnitude of the results when using medians versus averages suggests that the underlying distributions are skewed. One possible reason for such a skewed distribution is the different pricing patterns for brand name and generic drugs discussed above. In this situation, the median tends to offer a better overall measure of the relationship.

Table 3-5. Average and Median Retail Percent Over Benchmark Price* for All Drugs by Drug Coverage Status and Source of Insurance, 1996

Coverage Status and Source of Insurance	Average Retail Percent over Benchmark	Median Retail Percent over Benchmark
Total	40.5%	3.0%
Drug coverage other than Medicaid	33.3%	0.0%
Medicaid	61.8%	8.3%
Without drug coverage	57.9%	14.6%
Medicare	40.8%	3.7%
Drug coverage other than Medicaid	31.3%	0.1%
Medicaid	58.6%	7.8%
Without coverage	61.4%	10.1%
Non-Medicare	40.3%	2.6%
Drug coverage other than Medicaid	34.5%	0.0%
Medicaid	63.9%	9.1%
Without coverage	52.7%	19.2%

*Percent over benchmark price equals the ratio of the average retail unit price (ARUP) to the benchmark unit price (BUP) minus one, multiplied by 100: Percent over benchmark = ((ARUP / BUP) - 1)*100

Note: Data exclude the effect of rebates for those with Medicaid or with drug coverage other than Medicaid.

Source: Center for Cost and Financing Studies, Agency for Healthcare Research and Quality: Medical Expenditure Panel Survey Household Component, 1996.

To test further the robustness of these results, we looked at brand name and generic drugs separately. Table 3-6 shows the median percent over benchmark price for brand name and generic drugs by coverage status and source of insurance. For brand name

drugs, the median is 1.0 percent below the benchmark for those with drug coverage other than Medicaid and 10.0 percent above for those without drug coverage. This means that people pay more for brand name drugs, when using the same drugs, if they are not insured. The differences hold up for the Medicare population (-0.6 vs. 7.8 percent) and appear larger for the non-Medicare group (-1.2 vs. 18.6 percent).

Table 3-6. Median Retail Percent Over Benchmark Price* for Brand Name and Generic Drugs by Drug Coverage Status and Source of Insurance, 1996

Coverage Status and Source of Insurance	Median Retail Percent over Benchmark	
	Brand Name	**Generic**
Total	-0.1%	20.7%
Drug coverage other than Medicaid	-1.0%	15.6%
Medicaid	3.8%	28.1%
Without drug coverage	10.0%	45.8%
Medicare	0.2%	21.6%
Drug coverage other than Medicaid	-0.6%	15.5%
Medicaid	4.3%	29.3%
Without coverage	7.8%	44.5%
Non-Medicare	-0.3%	19.5%
Drug coverage other than Medicaid	-1.2%	15.2%
Medicaid	3.7%	26.0%
Without coverage	18.6%	49.0%

*Percent over benchmark price equals the ratio of the average retail unit price (ARUP) to the benchmark unit price (BUP) minus one, multiplied by 100: Percent over benchmark = ((ARUP / BUP) - 1)*100

Note: Data exclude the effect of rebates for those with Medicaid or with drug coverage other than Medicaid.

Source: Center for Cost and Financing Studies, Agency for Healthcare Research and Quality: Medical Expenditure Panel Survey Household Component, 1996.

The absolute differences in the percent over the benchmark price for generics (about 20 percent for both Medicare and non-Medicare populations) are considerably higher than for the brand name drugs (about 0 percent) because the fixed cost of filling the prescription does not vary with the acquisition cost of the drug. This is consistent with the discussion earlier in the chapter that the fixed cost of filling a prescription – the dispensing fee – is a larger proportion of the total cost of lower generic priced drugs.

For generic drugs, the median percent over benchmark is 15.6 percent for those with drug coverage other than Medicaid and 45.8 percent for those without drug coverage. The differences are similar for the Medicare population and the non-Medicare group. The difference in medians reported for generic drugs, however, is not statistically significant for two of the coverage categories (total and Medicare). Because overall prices are lower, however, price differences tend to be less important to the consumer than for the more expensive brand name drugs. Overall, the results in this table appear consistent with those in Table 3-5, in that those without drug coverage appear to pay more above the benchmark price for their drugs. Further research is needed to understand the pricing of generic drugs.

Finally, Table 3-7 shows the median percent over benchmark price for all prescription drugs by duration of coverage over the year. For the total population, the median percent over benchmark for people who had coverage for only part of the year was 9.0 percent, which was higher than for those with full-year coverage (0.7 percent) and appears lower than for those who never had coverage (14.6 percent).[39] This is not unexpected, because people with part-year coverage would have paid cash prices if they purchased drugs during their period without coverage. However, an important implication of this result is that the inclusion of persons with part-year coverage in the simple "covered" group used for the analyses in Tables 3-5 and 3-6 has the effect of understating differences that would be observed if the analyses accounted for duration of coverage. These results are similar to the results on drug spending by duration of coverage reported in Chapter 2.

[39] In the total and non-Medicare categories, the difference between part-year coverage and no coverage is not statistically significant. In the Medicare category, only the difference between full-year and part-year coverage is not statistically significant.

Table 3-7. Median Percent over Benchmark Price* for All Drugs by Length of Coverage During the Year

Duration of coverage in 1996	Median Percent over Benchmark
Total	3.0%
Always	0.7%
Sometimes	9.0%
Never	14.6%
Medicare	3.7%
Always	0.2%
Sometimes	0.5%
Never	10.1%
Non-Medicare	2.6%
Always	0.8%
Sometimes	11.9%
Never	19.2%

*Percent over benchmark price equals the ratio of the average retail unit (ARUP) price to the benchmark unit price (BUP) price minus one, multiplied by 100: Percent over benchmark = ((ARUP / BUP) - 1)*100

Note: Data exclude the effect of rebates.

Source: Center for Cost and Financing Studies, Agency for Healthcare Research and Quality: Medical Expenditure Panel Survey Household Component, 1996.

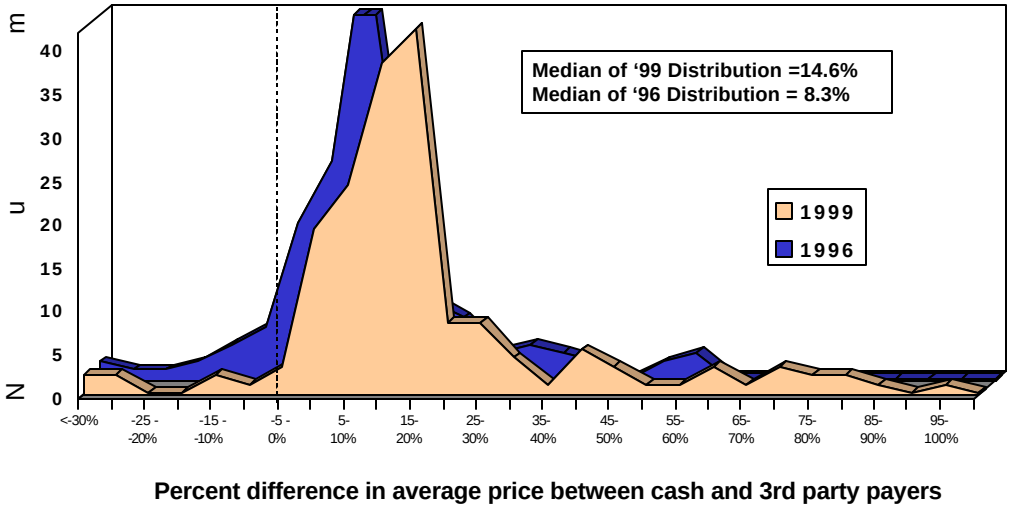
PRICE DIFFERENCES FROM IMS DATA

IMS data on retail prices for the most commonly filled prescription drugs for the total population show that cash payers usually paid higher prices for the same drug than people with third-party payment. The IMS price data for individual drugs are highly confidential and proprietary, and their use in this report is contingent on their not being directly displayed. Instead the report will show comparisons between prices paid by different purchasers, or prices at different points in time. Here and in the following results, the category of third-party payers does not include Medicaid and the category of cash payers includes people without coverage and people with indemnity coverage.[40]

[40] IMS retail pharmacy data classify indemnity insurance arrangements – in which a customer pays cash for a prescription and then submits a claim to an insurer for reimbursement – as cash payments. Although this type of insurance arrangement has been declining in recent years, the lack of data on these reimbursements means that analyses that use the IMS cash pay group as a proxy for people without prescription drug coverage will incorrectly state the true difference in prices paid between people with and without coverage. However, including indemnity insurance in the cash pay group is not entirely inappropriate. Persons with indemnity insurance bear a higher portion of drug prices directly, relative to

Figure 3-3 shows the distribution of differences in average cash-purchaser prices to average third-party prices (excluding the effect of rebates) for nearly 200 of the most commonly prescribed drugs.[41] The results reported are for December 1996 and September 1999 (the most recent period that price data were available from IMS). The figure shows a simple distribution of cash to third-party ratios for both years.[42] As shown later in this chapter, this distribution is somewhat different when we separate brand name and generic drugs. For the most part, the pattern displayed here reflects patterns for brand name drugs, while the generic drugs are most represented in the tails (especially the right-hand tail) of the distribution.

Figure 3-3. Percent Difference Between Average Price for Cash Purchasers and Average Price for Third Parties (Without Rebates) in 1996 and 1999, for the Most Commonly Prescribed Drugs



Note: Data exclude the effect of rebates for those with third-party coverage.

Source: IMS Price Trak Report™, 1996 and 1999.

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other insured groups, because indemnity style insurance more often entails a dollar cap on prescription drug coverage and co-insurance (payment of a percentage of the price) unlike the flat co-pays common with most types of prescription drug coverage.

[41] As discussed previously, to develop the list of the 200 most commonly purchased drugs we used the most recent full calendar year that IMS data were available, 1998. Results do not include 23 of these drugs for 1999 and 34 of these drugs for 1996, because data for these drugs were not included in the USC3 groupings that were obtained from IMS or the drugs were not on the market in 1996.

[42] These results and all those presented subsequently are based on unweighted distributions across the most commonly prescribed drugs. The distributions count each of the top 200 drugs equally, rather than (for example) placing greater weight on higher volume drugs.

The median (or midpoint) of the 1996 distribution was 8.3 percent, meaning that for half of the drugs, cash payers paid at least 8.3 percent more than those with a third-party payment, and half the drugs had a cash to third party difference of less than 8.3 percent. For a large majority of drugs (132 of 166, or 80 percent), the price paid is higher for cash purchasers (i.e., a difference of greater than zero, as shown in the figure). By 1999, the distribution has shifted to the right, meaning that the gap between cash and third-party prices has increased substantially. The median ratio has grown to 14.6 percent and cash purchasers are paying more than third parties for virtually all of the drugs (167 of 177 drugs, or 94 percent). For 25 percent of the drugs, the price difference in 1999 was more than 20 percent.

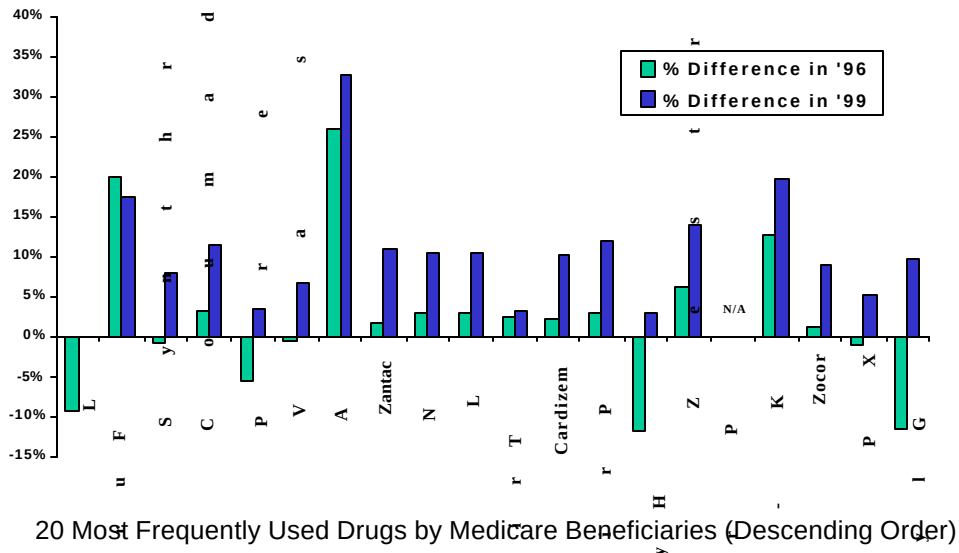
The growth in the price differentials has had a particular impact on Medicare beneficiaries. Figure 3-4 shows cash-purchaser to third-party price differentials (excluding the effect of rebates) for 19 of the 20 drugs most frequently used by Medicare beneficiaries in 1996, as determined by the number of prescriptions reported in MCBS.[43] In 1996, the cash price was higher than the third-party price for 12 of the 19 drugs.[44] By 1999, the cash price was equal to or higher than the third-party price for all of the 19 drugs.[45]

[43] The drug ranked 16, Prednisone, was not in the original list of USC categories for which data were obtained from IMS. In a separate IMS data set covering 1998, Prednisone had a 32 percent difference in prices between cash and third-party payers. MCBS, rather than MEPS, rankings were used because of the larger MCBS sample of Medicare beneficiaries. However, 8 of the top 10 MCBS drugs would also have been among the top 10 MEPS drugs.

[44] That the cash price for the most commonly used drugs – especially generic drugs – could be lower than the third-party price is not surprising. These are the drugs that retailers are most likely to discount for cash customers in order to attract their business; in effect, they are the "loss leaders."

[45] During this time period, the proportion of beneficiaries in Medicare risk plans increased substantially (in 1996, 11 percent of Medicare beneficiaries were in risk plans; by 1999, this proportion had increased to 16 percent), and these beneficiaries would be grouped in the IMS third-party payment group.

Figure 3-4. Percent Difference between Average Price for Cash Purchasers and Average Price for Third Parties (Without Rebates), 1999, for Drugs Most Frequently Used by Medicare Beneficiaries in 1996



Note: Data exclude the effect of rebates for those with third-party coverage.
1999 difference for Lanoxin = 0%.

Source: IMS Price Trak Report™, 1996 and 1999. Drug rankings based on 1996 Medicare Current Beneficiary Survey.

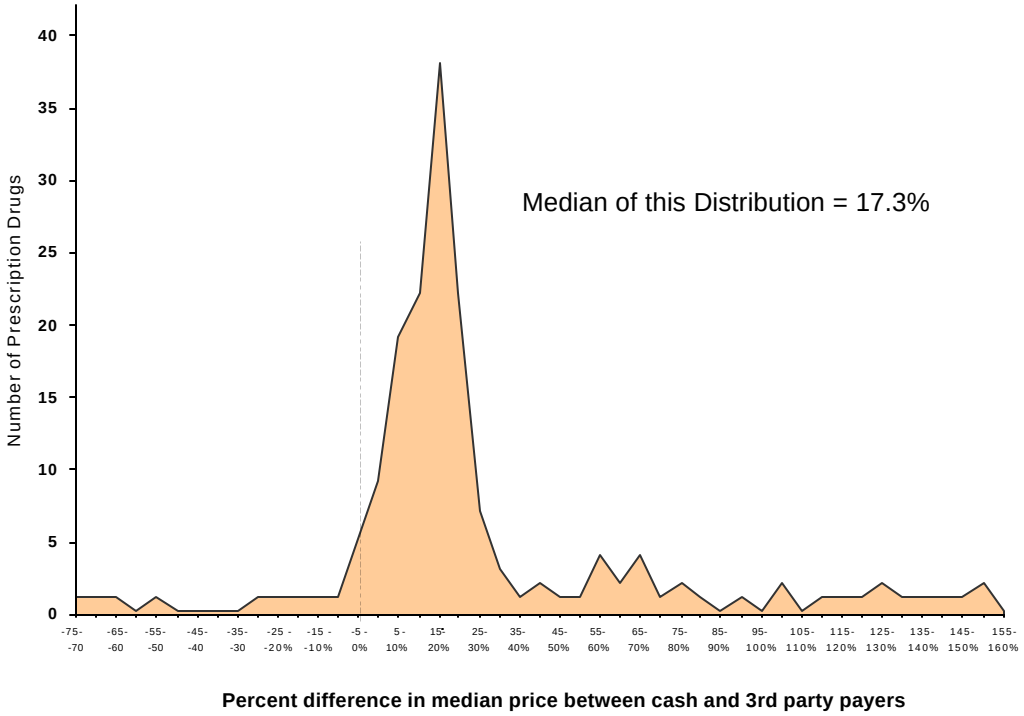
Prescription drugs exhibit a high level of price variability (the range in prices paid for a specific drug). All of the comparisons to this point have been based on average prices. Of course some cash purchasers pay more or less than the average, as do some third parties. In either case, however, the variability is considerable, and average prices are likely to be affected by extreme values. One would expect variation in prices to be somewhat greater for third parties than for cash purchasers, because not all insurers negotiate discounts on their own or through PBMs. This is true for the drugs in the IMS data: price variability was somewhat greater for third parties than for cash purchasers in 1999. The price variability percentage for third parties averaged 42.0 percent in 1999, as compared to 29.0 percent for cash payers.[46]

Median prices are less likely than average prices to be affected by extreme values. Figure 3-5 provides a comparison of the ratios of median cash prices to median third-

[46] This percentage is the interquartile range (the 75th percentile value minus the 25th percentile value) divided by the median. The figures cited are the unweighted average for the 166 of the 200 most prescribed drugs for which the data needed for the calculation were available.

party prices (excluding the effect of rebates) in 1999. When the medians are used for comparison, the previous results (based on average prices) are confirmed. There are somewhat more drugs for which cash purchasers pay less than third parties, 15 as opposed to 10 when using averages. There are 125 drugs, however, for which cash purchasers paid at least 10 percent more than third parties, and 13 for which cash purchasers paid over twice as much. The median of this distribution is actually somewhat higher at 17.3 percent than for the distribution based on averages (median of 14.6 percent).

Figure 3-5. Percent Difference between Median Price for Cash Purchasers and Median Price for Third Parties (Without Rebates), 1999, for the Most Commonly Prescribed Drugs



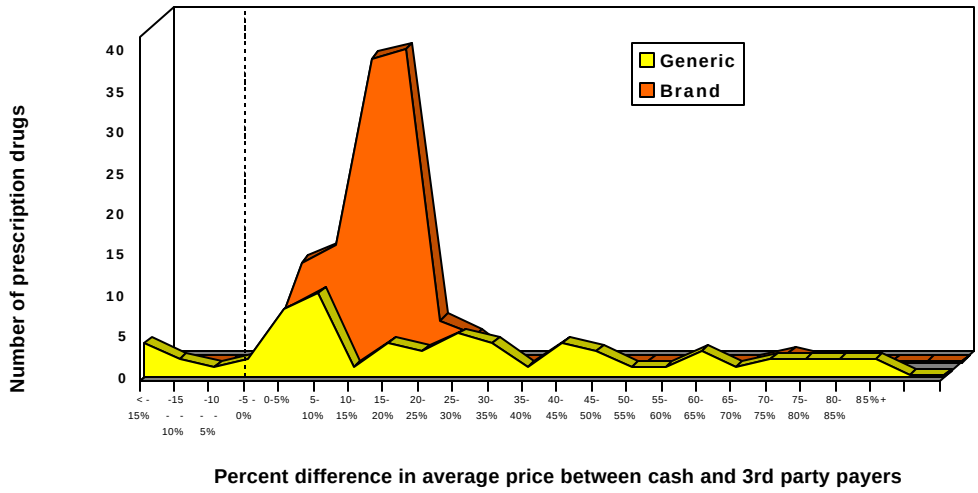
Note: Data exclude the effect of rebates for those with third-party coverage.

Source: IMS Price Trak Report™, 1999.

A final analysis focuses on the differences between brand name and generic drugs. Unit prices based on IMS data are four times higher for brand name drugs than for generic drugs, similar to the result reported earlier based on MEPS data (Table 3-3). As a result, it makes sense to reexamine the distribution of the differences in average price (excluding the effect of rebates) paid by cash purchaser versus third-party payer, shown in Figure 3-3, separately for brand name and generic drugs. For either category of drugs, cash customers pay higher prices than those with third-party payments at the

point of sale (Figure 3-6). For the 111 brand name drugs analyzed, the median of the differences was 14.1 percent.[47] The median of the differences was somewhat higher for the 66 generic drugs analyzed (22.1 percent).

Figure 3-6. Percent Difference Between Average Price for Cash Purchasers and Average Price for Third Parties (Without Rebates) in 1999, for the Most Commonly Prescribed Brand and Generic Drugs



Note: Data exclude the effect of rebates for those with third-party coverage.

Source: IMS Price Trak Report™, 1996 and 1999.

Figure 3-6 also shows that the differences in average price paid for brand name drugs are considerably more concentrated than for generic drugs. A large majority of the brand name drugs (75 of 111, or 68%) have a percent difference in price paid between 10 percent and 20 percent. In fact, no brand name drug in 1999 cost less for cash purchasers than it did for third-party payers (that is, all the price differences were greater than or equal to zero).

By contrast, the distribution for generic drugs is substantially less concentrated with only a slight peak in the zero to 10 percent range of the distribution. Many generic drugs are in the right-hand tail of the distribution with cash customers paying from 40

[47] When brand name drugs are further separated into the categories of "with generic competition" and "without generic competition," the drugs without competition have a fairly higher median cash and third-party unit price compared to the drugs with competition. However, the difference between the median of differences between drugs with competition and those without was not substantial. Moreover, a distribution of the 111 brand name drugs separated into the "with" and without competition" categories did not differ greatly from the general distribution of all brand name drugs.

percent higher to nearly double that paid by customers with third-party coverage. But, as described previously, the smaller percentage increase on the more expensive brand name drugs amounts to a larger number in absolute dollars paid.

In sum, the analyses from MEPS and IMS tell a consistent story: people without drug coverage and other cash customers generally pay more than insurers for the same drugs at the point of sale. These price differences, however, are not the result simply of differing markups by the retail pharmacy; instead, they contrast prices charged by the pharmacy to one set of customers to the reimbursement received by the pharmacy (plus customer cost sharing) for another set of customers. The story is clearest for brand name drugs, where the absolute price difference matters the most to the cash-paying customer. The IMS data, which are the most recent available, suggest that disparities between prices paid by insurers and by individual consumers appear to have been growing in recent years.

As noted previously, a key limitation on the empirical analysis of prescription drug prices in this study is our inability to incorporate the effect of rebates. The net costs of insurers or PBMs are often further reduced by discount or rebate arrangements with pharmaceutical manufacturers that are not captured in these data. Rebate data, if available, would allow a more complete analysis of the overall differences between the amount paid on behalf of insured customers with the retail price paid by customers 103who lack coverage. Such differences would be larger than the retail price differences observed in this study.