Prescription Drug Prices: Why Do Some Pay More Than Others Do?

An accurate understanding of price differences is essential to the crafting of sound prescription drug policies.

by Richard G. Frank

ABSTRACT: The fact that sick elderly people without prescription drug coverage pay far more for drugs than do people with private health insurance has created a call for state and federal governments to take action. Antitrust cases have been launched, state price control legislation has been enacted, and proposals for expansion of Medicare have been offered in response to price and spending levels for prescription drugs. This paper offers an analysis aimed at understanding pricing patterns of brand-name prescription drugs. I focus on the basic economic forces that enable differential pricing of products to exist and show how features of the prescription drug market promote such phenomena. The analysis directs policy attention toward how purchasing practices can be changed to better represent groups that pay the most and are most disadvantaged.

The pricing of prescription drugs in the United States has become a political “hot button” issue. Strong claims are made in Congress and before state legislatures about the motives of drug manufacturers and about the workings of the market. Growth in spending and the fact that people without drug coverage pay higher prices than do those with such coverage have ignited passions on this issue.

Participants in this policy debate sometimes draw conclusions about drug prices as if the “law of one price” prevails. For instance, U.S./international comparisons of drug prices typically rely on choosing a retail price in the United States and comparing it with one in Canada or Western Europe. Thus, the comparison and the resulting conclusions—typically, that prices are higher in the United States—commonly rely on the implicit assumption that there is a single price charged to all buyers.

Legislatures, insurers, and advocates for the elderly, among others, are alarmed by the fact that the law of one price does not seem to
hold. That is, people who buy retail and pay cash for prescriptions face the highest prices. These people are often among the least privileged in the nation. Hence, two analysts state that “discounts for some Americans means a domestic cost shift to others. People who lack coverage—many poor, sick citizens—pay the highest prices of all.” National antitrust litigation has been hard-fought over differential prices for prescription drugs. Examining data on prices for prescription drugs, one is faced with a bewildering range of prices that can exist for the exact same pill. These vary according to one’s insurance coverage, place of purchase (drugstore versus mail order), and the organizational arrangements under which a pharmacy benefit is administered.

In this paper I focus on the pricing of prescription drugs and how one might understand the dramatic variation in prices paid. Specifically, I attempt to explain why different types of buyers pay different prices, and I describe the mechanisms used to implement price concessions. I focus on the economic power of various purchasers in analyzing the price structure in the market. Finally, I draw implications for policy, especially for Medicare prescription drug coverage.

**The Context For Drug Pricing Today**

Price differentials across classes of purchasers of prescription drugs have repeatedly been documented. Most recently, a study by the U.S. Department of Health and Human Services (HHS) calculated the distribution of price differences between those paying cash and those covered by insurance (measured in full transaction price but ignoring rebates from manufacturers). One analysis estimated that in 1999 the median price difference between cash payers and third-party payers for the 200 most commonly prescribed drugs was 14.6 percent. This means that for half of the drugs studied, cash payers paid at least 14.6 percent more than third-party payers did. A similar analysis was applied to drugs used most often by Medicare beneficiaries, which showed that cash payers paid higher prices for nineteen of the twenty most frequently prescribed drugs for Medicare recipients in 1999. The HHS analysis is almost certain to understate the price differences because rebates are not included in the price estimates, and, as we discuss below, rebates are a common mechanism used for granting price concessions.

Exhibit 1 summarizes the findings from two earlier studies of the price structure for brand-name prescription drugs. Prices are reported on the basis of prices paid by cash payers, so that cash payer price is indexed at 100. The exhibit reports prices across six classes of purchasers. The entries reflect within-category averages, so there can be considerable variation within each group. Although some-
what dated, these data are consistent with more recent data in confidential documents filed in various lawsuits claiming conspiracies by manufacturers to keep prices to retail druggists high.

The results from the two studies offer a consistent picture of the patterns of prices across types of institutional purchasers. Cash payers pay the highest prices. The federal supply schedule and the prices negotiated off of that schedule by the Department of Veterans Affairs (VA) and the Defense Department tend to be the lowest prices in the land (58 percent of the cash/drugstore price). In between are a set of institutional buyers that realize price concessions from manufacturers of 5–30 percent of the amount paid by cash payers. The Boston Consulting Group study reports a range of price reductions for hospitals because it classifies hospitals according to whether or not the hospital pharmacy falls under managed care arrangements. Thus, the 75 percent figure represents hospital pharmacies tied to managed care, and the 95 percent figure, more traditional hospital pharmacies.

Differential pricing across segments of the market has long been a feature of the pharmaceutical industry. Cash payers (the vast majority) who purchased their prescription drugs at retail pharmacies have paid higher prices than institutional purchasers since the 1950s. During the late 1950s the Senate Antitrust Subcommittee studied differences between prices of brand-name prescription drugs in the United States and abroad. In attempting to make price comparisons, the subcommittee observed that institutional buyers frequently paid less for prescription drugs than did retail outlets. The subcommittee examined competition for sales to institutional buyers such as the Military Supply Agency and found that when drugs were competitively procured by an institutional buyer, the resulting price depended in important ways on the number of sellers competing to supply the institutional buyer. The report cites the
case of Upjohn’s bid for cortisone acetate tablets. In the presence of ten competitors, the military paid only 28 percent of the price paid by retail drug stores. The report explicitly connected the buying power of the purchaser to the price paid.

Subsequent congressional investigations reported that public clinics in New York City purchased drugs from brand-name drug manufacturers at levels well below those in private drug stores. For example, Benadryl was purchased at roughly 20 percent of the price paid by private pharmacies. The subcommittee reported a number of other examples making the same point. A complex array of institutional discounts, annual volume-based discounts, and other negotiated prices have been in place in the pharmaceutical industry for at least twenty-five years.

The evidence clearly shows that the law of one price does not hold and has not been a feature of the prescription drug market for many years. One implication of this is that when one makes international price comparisons it is critical to consider whether list or transaction prices are being compared; which buyers’ prices are being examined; the number of people in the buying groups under study; and which drugs are being examined. One can obtain very different answers depending on exactly how the comparisons are made. Given that differential prices exist, how are we to understand them, and what does this imply for public policy measures being debated in Congress and during the 2000 election?

The Economics Of Differential Pricing

In economics, when prices for the same product are observed to differ without any clear differences in the costs of production or distribution, the phenomenon is referred to as price discrimination. Differential pricing or price discrimination is well known to students of the health sector. Physicians have long been known to charge poor patients lower fees than they charge rich patients. Likewise, hospitals have long charged health maintenance organizations (HMOs) lower prices than they charge indemnity insurers. In the area of prescription drugs, the existence of differential pricing has been objected to on grounds of fairness.

Economic theory notes that price discrimination is linked to three market conditions: the possession of market power by sellers, markets that are segmented according to price-responsiveness, and
the potential for arbitrage. The existence of market power simply means that a seller can profitably raise its price above that charged by rivals in the market. In the case of brand-name prescription drugs, market power is conveyed upon their manufacturers by patents. A patent gives a manufacturer the exclusive right to sell a particular product for a defined period of time. Hence, as a matter of law, there is no perfect substitute available for that product as long as a patent is valid.

The second condition is that a market be made up of distinct segments that respond differently to changes in the price of a product. This means that a seller will face a number of distinct demand curves for a given product. The seller of the product will maximize profits by selling the product at a different price to each segment according to its responsiveness to price. In fact, profit-maximizing firms will charge the most to market segments that are the least responsive to price, or, in the language of economics, price will be highest to market segments with the lowest price elasticity of demand. This explains why movie theaters offer discounts to the elderly. The elderly typically have lower incomes than adults under age sixty-five and as a result tend to be more responsive to the price of a movie ticket. They display a higher elasticity of demand.

Offering different prices to different market segments can be sustained only if it is difficult (high-cost) to resell the product in question. That is, if a low-price buyer can easily resell the product to a high-price buyer, a differential pricing scheme will collapse. This is known as arbitrage. Markets where differential pricing persists are characterized by features that make arbitrage either impossible or very costly. For example, take a physician service such as psychotherapy. Psychiatrists have been known to charge lower-income patients less than they charge more affluent clients. The fact that there is no physical exchange of a commodity makes reselling the service nearly impossible. Therefore, differential pricing of psychotherapy services might be expected to persist.

In considering the differential pricing of brand-name prescription drugs, I examine the institutions that underpin the formation of market segments with differing responses to the prices of prescription drugs and those that render arbitrage difficult or costly.

**Institutional change in the health sector.** Market segmentation among buyers of prescription drugs has come as a consequence of institutional change in health care generally and in the market for prescription drugs specifically. One indication of the change in the manner in which drugs are bought and paid for is reflected in the changing responsibility for final payments for drugs. In 1990 private third-party payers plus Medicaid accounted for about 31 percent of
payments for prescription drugs in the United States; in 1999 they accounted for an estimated 69.8 percent. These figures reflect an expansion not only in the share of the population with insurance coverage for prescription drugs but also in the level of coverage.

Over the past fifteen years insured persons have poured into managed care plans. In 1985 approximately 25 percent of the insured population was enrolled in a managed care plan; today that share exceeds 75 percent. The corresponding figure for the population under age sixty-five was 91 percent in 1998. Prescription drug spending has grown at rates in excess of 15 percent in recent years. This has meant that the impulse to control drug costs has been even more pronounced and has resulted in the application of managed care techniques to prescription drugs even when they have been associated with a fee-for-service (FFS) indemnity health plan (via prescription drug carve-out programs). Pharmacy benefit managers (PBMs), private firms that specialize in insuring and managing prescription drug use and spending, have become increasingly important forces. They contract directly with employers or enter into subcontracts with health plans. Some HMOs own their own PBM companies. It has been estimated that in 1999, 70 percent of private health plan prescriptions were managed by a PBM.

PBMs and health plans that administer their own drug benefit use formularies to steer prescribing toward cost-effective products. Formularies (lists of drugs that identify preferred drugs for treatment of specific illnesses) often contain summaries of scientific information about specific drugs that inform clinicians about their use. About three-fourths of employers report contracting with health plans and PBMs that use formularies. Formularies are typically tied to a set of administrative processes and financial incentives aimed at encouraging adherence to the formulary by clinicians. Formularies have long been part of the management of care in hospitals but are relatively new features of health insurance.

The most direct method for encouraging use of formulary drugs is to “close” the formulary, which means that use of drugs not listed will not be covered unless prior approval is obtained from the health plan or PBM. It is estimated that about 10 percent of all health plans and 27 percent of HMOs use closed formularies. However, payers are often reluctant to use closed formularies, and, as a result, a number of other mechanisms are used to steer patients toward formulary drugs. Copayments are increasingly being used to encourage adherence to a formulary. One popular approach is to create three tiers of copayments. In the first tier generic drugs carry a copayment of say, $5. A second tier might consist of “on-formulary” brand-name drugs with a copayment of $15. The third tier is for “off-formulary”
drugs with a $30 copayment.

Therapeutic substitution programs involve utilization review and physician contacts to increase and maintain use of formulary products. About half of health plans use such methods.14 Physician education programs (sometimes known as academic detailing) represent another method of encouraging use of formulary drugs. Finally, designing physician payment systems that have physicians bear some risk for prescription drug costs serves to encourage use of lower-price, on-formulary products.

Market segments and price response. As noted above, congressional investigators long ago recognized the role of institutional structure, buying power, and market forces in explaining the price structure for prescription drugs. Formularies enhance a buyer’s bargaining power, enabling a purchaser such as a health plan or PBM to be more aggressive in negotiating prices with manufacturers. By being able to redirect the flow of drug sales within a therapeutic category such as proton pump inhibitors or selective serotonin reuptake inhibitor (SSRI) antidepressants, a buyer presents a seller—in this case, drug manufacturers—with more price-elastic demand. In drug classes with multiple products that are therapeutically equivalent for most patients, a buyer can use the threat of redirecting sales to a competing product to stimulate price competition. Manufacturers wish to have their products be a preferred drug listed on the formulary. As a result, buyers can negotiate a lower price. The implication is that buyers that can present profit-maximizing manufacturers with the greatest price-sensitivity in sales through strong management and high adherence to their formulary will realize the largest price concessions. Thus, the price concessions are responses by profit-maximizing manufacturers to demands by price-sensitive buyers. Hence, price differentials are not related to recouping losses by shifting costs. Rather, they represent unequal bargaining power across different classes of purchasers reflected by their ability to shift purchases in response to price.

The recent implementation of a national formulary by the VA illustrates the buying power of formularies. Under the national formulary, several drug classes were closed. In each closed class, only a subset of available drugs were considered to be eligible for reimbursement without resorting to an exceptions process. Using off-formulary drugs obtained at a higher price would exert extra pres-
sure on fixed VA health care budgets at the national and local levels. As a result of closing those classes, the VA could convincingly “move market share” from one manufacturer’s product to another. The ability to redirect sales in exchange for lower prices led to price concessions of 16–41 percent below the federal price that already was among the lowest in the nation.\textsuperscript{15}

All of this implies that buyers that can make a credible threat to drug manufacturers that they will shift their purchases to another drug in a therapeutic class will be able to command the largest price concessions. Organizations such as HMOs and mail-order pharmacies that can exert managerial control and create financial incentives to affect prescribing decisions are most likely to realize price concessions. In contrast, individuals buying drugs through a retail pharmacy that must deal with hundreds of physicians and dozens of health plans cannot steer prescriptions to specific brand-name products enough to create meaningful bargaining power. Cash payers buying through retail drug stores therefore cannot claim large price reductions. For this reason, cash payers buying retail face the highest prices for brand-name prescription drugs.

This point has recently been made clearly in connection with national antitrust litigation concerning the pricing of brand-name prescription drugs. Judge Richard Posner stated that the least elastic demanders are pharmacies because they must stock a full range of drugs to be able to fill prescriptions. They can therefore be expected to be charged the highest prices. In contrast, a hospital, nursing home, or HMO or other managed care enterprise has a more elastic demand because it can influence...the physician’s choice of which brand...to prescribe. A slight increase in the price of one brand to such a purchaser might cause the manufacturer’s sales to plummet. That manufacturers of brand name prescription drugs grant discounts to the enterprises we have listed but refuse discounts to pharmacies is thus consistent with unilateral profit maximizing behavior by the manufacturers.\textsuperscript{16}

\textbf{Arbitrage And The Delivery Of Price Concessions}

A variety of institutions in prescription drug markets affect the possibility for different buyers to engage in arbitrage. These include federal statutes governing the resale of prescription drugs, the mechanisms by which prices are implemented, and the nature of contractual relations that have evolved in the industry. Here I describe the main factors affecting arbitrage in the market for brand-name prescription drugs.

All purchasers of prescription drugs that enjoy discounted prices (such as HMOs and hospitals) have an incentive to resell those drugs to buyers facing higher price offers (independent and chain drug stores). Yet very little reselling occurs, and, as a consequence, differential pricing is a stable feature of the market. One important constraint on many purchasers’ ability to engage in arbitrage is a
federal statute that serves to regulate the distribution of prescription drugs. The Prescription Drug Marketing Act (PDMA) was enacted in 1987 and signed into law by President Ronald Reagan. Passage of this act was justified on the basis of preserving the integrity and the safety of the nation’s supply of prescription drugs. It serves to set rules for reselling of drugs and directs States to establish regulations that define wholesalers of prescription drugs, record-keeping requirements for wholesalers, and licensing standards for wholesale distributors.

Among the PDMA’s key provisions is that it forbids nonprofit providers from reselling prescription drugs. Thus, most hospitals, many nursing homes, and some HMOs are precluded from engaging in arbitrage. In addition, there are clear standards on what constitutes a wholesale distributor of prescription drugs, and only these organizations can engage in distribution. Thus, the PDMA serves to make a great deal of arbitrage illegal and further limits the parties that can be involved in reselling by regulating distribution.

Opportunities for arbitrage also are affected by how price concessions are administered. The distribution of prescription drugs is complicated, and there are a number of intricate methods of administering price concessions. To best understand these methods, one needs a sense of how money and goods flow in the market for prescription drugs (Exhibit 2).

Several important characteristics of the distribution system merit mention. Perhaps most striking is that about 92 percent of sales

---

**EXHIBIT 2**

*Flow Of Funds From Pharmaceutical Manufacturers, As A Percentage Of Total Sales, 1998*

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholesaler</td>
<td>58%</td>
</tr>
<tr>
<td>Warehouse</td>
<td>34%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>8%</td>
</tr>
<tr>
<td>Chain</td>
<td>28.6%</td>
</tr>
<tr>
<td>Independent</td>
<td>19.6%</td>
</tr>
<tr>
<td>Hospital</td>
<td>13.7%</td>
</tr>
<tr>
<td>HMO</td>
<td>1.7%</td>
</tr>
<tr>
<td>Mail order</td>
<td>10.6%</td>
</tr>
<tr>
<td>Other</td>
<td>25.8%</td>
</tr>
</tbody>
</table>

**SOURCE:** Author’s estimates based on data from National Health Accounts, IMS, and National Wholesale Druggists Association (NWDA).

**NOTES:** HMO is health maintenance organization. “Other” includes nursing homes, clinics, and other health care organizations.
flow through either full-line wholesalers or warehouses owned by chain drug stores, buying groups, or other distributors. This means that very few sales are made directly from manufacturers to drug retailers or end users (such as hospitals). Thus, price negotiations between manufacturers and end users must involve other parties. A second point is that only a very small share of sales flow through pharmacies owned and operated by health plans. The implication of that is that most managed care enrollees obtain their prescription drugs from chain and independent retail pharmacies or mail-order pharmacies. This means that the preferred mechanism for granting health plans price concessions must involve rebates that are not made at the point of purchase and do not involve the drugstore but rather involve health plans and manufacturers’ reconciliation of sales at the end of a contract period.

There are three major mechanisms for implementing price concessions in the prescription drug market: chargebacks, rebates, and discounts. Chargebacks are a mechanism that arises between buyers that are negotiating different prices with manufacturers and want to take advantage of efficiencies in distribution offered by drug wholesalers. Wholesalers purchase a wide range of products from a large number of manufacturers. These products, stored and distributed across the nation, represent the objects of thousands of contracts between buyers and makers of prescription drugs.

Wholesalers purchase prescription drugs at a relatively uniform price for each product. They obtain products for the wholesale acquisition cost (WAC), which is typically expressed as the average wholesale price (AWP) minus some negotiated volume discount. The wholesaler in turn charges the retailer the WAC plus a distribution fee—an amount that is sometimes referred to as the actual acquisition cost. Chargebacks allow wholesalers to carry products destined for customers paying very different prices to manufacturers. Thus, it is common for a wholesaler to deliver drugs to a hospital where the negotiated price between the manufacturer and the hospital is less than the WAC. The wholesaler keeps track of sales to various customers under prices negotiated between the manufacturers and the customer (for example, chain drugstore or hospital pharmacy). The wholesaler then “charges back” the manufacturer for any difference between the negotiated prices paid by the customer and the wholesaler’s cost of goods (WAC). Thus, the chargeback system allows buyers, who have negotiated very different sets of prices with manufacturers, to take advantage of the efficiencies in distribution offered by wholesalers. The chargeback is necessary because if the wholesaler could not charge back the manufacturers, it would be forced to sell goods for prices below their acquisition
cost. Arbitrage is limited through the contract between a manufacturer and the end user that is typically very specific about prices and quantities bought and the nature of their uses.

A second common approach to granting price concessions is to specify a set of rebates based on the volume of a specific drug or on the volume of all drugs purchased from a manufacturer. A rebate is a retrospective form of price concession. It works equally well regardless of how drugs are distributed. This is because the rebates are made directly to the organization with which the manufacturer contracts based on actual sales and does not involve price adjustments at the time and place of purchase. Thus, a manufacturer can grant an HMO a price reduction for the purchases made to its enrollees without involving wholesalers and retail pharmacies in administering discounts. Since the payment is retrospective, rebates are only granted if the buyer “moves market share.” Since the purchaser never takes physical possession of the products and payments are made retrospectively, arbitrage possibilities are limited.

The third method is the direct discount made to purchasers. This would occur most frequently in the case of organizations that buy prescription drugs directly from manufacturers. Some chain drugstores and hospitals purchase pharmaceutical products in this fashion. Price concessions in those cases are granted by directly reducing the price paid to manufacturers. There is nothing that inherently limits arbitrage in this mechanism except the contracts between manufacturer and end user.

Thus far I have primarily addressed pricing by manufacturers. The manufacturer’s price accounts for an estimated 74 percent of a prescription’s retail price. Retail pharmacy dispensing fees account for about 23 percent, and wholesaler costs make up the remaining 3 percent. Two features of dispensing fees are significant. First, the dispensing fees paid by insurers are typically higher for generic products than for brand-name products, creating an incentive to dispense generics. Second, managed care organizations such as PBMs typically establish networks of pharmacies and negotiate dispensing fees. As in the case of purchaser-manufacturer dealings, these negotiations involve promises of increased volume in exchange for price concessions. Thus, there is variability in dispensing fees paid, depending on the ability of a managed care organization or PBM to deliver market share to retailers. This too contributes to the observed price variation across classes of buyers.

**Interpreting The Data And The Claims**

Data from a variety of sources, some systematic and some not, show differences in the purchase price of drugs. How one interprets those
“Many brand-name drugs have market power conferred upon them via the patent system.”

differences will serve as an underpinning to policy measures aimed at fairness and efficiency in the prescription drug market. Two of the most common interpretations that appear in the popular and the academic literatures are that (1) the different prices charged for brand-name drugs to various classes of buyers reflects cost shifting by manufacturers; and (2) the price differences reflect market failures such as the exertion of monopoly power.

As noted above, the phenomenon that appears to produce a price differential involves differing responsiveness to price by various types of buyers. The differing responses to price are a direct result of institutional change in the health sector. That is, as managed care and PBMs have become common fixtures of the health care delivery system, the use of formularies and related devices to redirect prescribing in a price-responsive manner has enhanced the bargaining power of these organizations. The result is that organizations with the greatest ability to affect prescribing get the best prices. Unfortunately, organizations that represent cash payers—retail drugstores—are not well equipped to influence prescribing of brand-name drugs and thus have limited bargaining power.

Many brand-name drugs have market power conferred upon them via the patent system. In earlier eras, when there were fewer buyers obtaining discounts, this was a reflection of the relatively greater strength of manufacturers in the price negotiation. One can view the proliferation of price concessions in the pharmaceutical market as an indication that competitive forces have weakened the market power of sellers of prescription drugs. The enhanced economic power of buyers at the expense of manufacturers is expanding the part of the brand-name drug market that is subject to price competition. Viewed in this way, recent trends suggest that there is greater balance in bargaining power today than in earlier periods. However, issues of fairness have become more pronounced. A key concern then becomes how should some of our most needy and vulnerable citizens (low-income elderly persons with no insurance coverage for drugs) be protected against the financial consequences of needing medications. A number of states have recently begun to pursue policies based on a similar view of the problem by proposing the development of purchasing groups that are equipped to bargain hard with pharmaceutical manufacturers alongside plans to offer insurance for prescription drugs to low-income citizens.20
The view of drug pricing advanced above is not universally held, and reasonable people may view the data and institutions in a different light. If accepted, the view I have advanced does have implications for public policy. One implied policy question is, Why do some buyers get such good deals, and how can government health insurance programs participate in markets so they can get similar prices for drugs? The Medicaid program has taken the approach of requiring manufacturers to offer Medicaid programs prices (using rebates) that match the best private-sector price. This has raised the private price, since such rules change the economics of offering price concessions to all buyers.21

A second approach is to impose price controls. The underlying view of the market of advocates for this position is that the price mechanism is broken and that efficiency and fairness can be restored only through direct public intervention. The view of the market I have presented above suggests that it is premature (if not incorrect) to arrive at such a conclusion. If one interprets recent history as reflecting a market that is becoming more efficient and offering increasingly large segments of the population significant price reductions, then it is not the time to conclude that the market is irreparably broken.

Finally, my analysis implies that one could use organizations that are equipped with modern bargaining tools to provide coverage to those with public insurance. The Medicare+Choice program takes such an approach. Another proposal would have traditional Medicare enrollees covered by private organizations that would be well equipped to bargain with drug manufacturers.22 This permits government to mirror successful strategies of the private sector. Although it is unlikely that having very restrictive or closed formularies is politically feasible, incentive formularies appear to be effective in allowing health plans to obtain price concessions. Both the Clinton administration plan and the House Republicans counted on such mechanisms to control costs under a Medicare prescription drug benefit. The differences lie not in their perceptions of how to get price concessions but rather in how to create an institutional structure that protects against market failure stemming from adverse selection (the Clinton administration) or government’s inability to restrain itself from intervening in the price-setting arrangements (the House Republicans). It remains to be seen how a new administration and Congress will approach these complicated issues.
The author is grateful to Ernst Berndt, Ray Hartman, Haiden Huskamp, Tom McGuire, Don Metz, and two referees for discussion and critiques of earlier versions of this paper. Financial support from the Alfred P. Sloan Foundation is gratefully acknowledged.

NOTES

5. Ibid., 88–97 and 262.
9. DHHS, Report to the President, Table 2-30.
15. Ibid.
16. Brand Name Prescription Drugs Antitrust Litigation, 186 F. 3d 781 (CA 7, 1999).
19. The Pharmaceutical Research and Manufacturers of America (PhRMA) has estimated that manufacturers account for 80 percent of the value of sales, retailers about 18 percent, and wholesalers a bit above 2 percent.
20. Several New England states are actively discussing such an approach.