APPENDIX C

STATE AND REGIONAL VARIATIONS

One area of inquiry that is not discussed in the main report is regional and state variation. Preliminary analysis from several different sources suggests that there are substantial regional and state variations in spending and utilization of prescription drugs and in prices faced by consumers. At this point, we can observe some differences, but within the limited time available for this report, it has not been possible to investigate those differences systematically or to offer explanations for them. This appendix describes some of the variation observed. All of the information presented on price variation is limited to the pharmacy level–no information was available on state and regional variation in rebates or discounts to large volume direct purchasers. Tests of statistical significance were not performed on observed differences. Further research is needed to draw informed conclusions on the factors influencing the observed geographic variation.

The discussion below uses data from several different sources. Drug coverage, use rates, and expenditure estimates are from MEPS and are only available at the regional level for 1996. The MCBS cannot be used for regional or state analysis because the sample was not drawn to be representative at the regional or state level. Data from IMS Health are used to compare price differences between cash and third party payers across states and regions in 1998. State-level data were obtained from IMS Health for 25 drugs at their most common form and strength. The drugs were chosen by combining the 20 most frequently prescribed drugs for the Medicare population based on 1996 MCBS data and the top 10 most frequently prescribed drugs for the total population in 1998 based on IMS Health data. Because there was some overlap in the two lists, the final number of drugs compared was 25.[1] Among the 25 drugs, seventeen are brand name drugs and 8 are generic drugs. Comparisons between cash and third party payers across states and regions are based on the difference in price paid per unit at the retail pharmacy for each drug on the list. As with the analysis in Chapter 3, this analysis excludes the effect of rebates from manufacturers to PBMs or insurers – for which data were unavailable. While this list includes many common drugs, it is a relatively small sample of drugs to use for state comparisons. Thus, results using a different or larger number of drugs might be different than those shown here.

[1] Claritin, Premarin, Zantac, Prozac, Trimox, Prilosec, Lanoxin, Hydrocodone w/APAP, Norvasc, Lipitor, Furosemide, Synthroid, Coumadin, Vasotec, Atenolol, Lasix, Triamterene/HCTZ, Cardizem CD, Hydrochlorothiazide, Zestril, Prednisone, K-Dur, Zocor, Procardia XL, and Glyburide.

Coverage

Table C-1 shows variation in coverage levels by region using MEPS data on drug coverage for the civilian, noninstitutionalized population. The highest coverage rates are in the Midwest and Northeast with the lowest coverage rate in the South. The pattern observed is similar to analyses of general health insurance coverage elsewhere.

Table C-1: Percent of Total Population with Drug Coverage, by Region, 1996

Region	Percent with drug coverage
National	77.0%
Northeast	78.6%
Midwest	80.6%
South	73.7%
West	76.9%

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

Utilization and Spending

In Chapter 2, various data were presented that showed spending differences between individuals with and without insurance coverage for prescription drugs. Here we consider those same comparisons within regions. Because size of prescription may vary due to differences in local medical practice patterns and variations in state Medicaid regulations on prescription size, neither average number of prescriptions nor average prescription prices are particularly good measures for regional comparisons. Rather, we compare spending and use rates by region using MEPS data.

Table C-2 shows that expenditures on prescription drugs vary somewhat between geographic regions. Residents of the Midwest and South appear to have the highest average drug spending per person while spending for residents in the West and Northeast appears somewhat lower. Generally, we would expect average spending to be higher where coverage is higher, yet the South has the lowest coverage rate and relatively higher spending than two other regions. Use rates – percent of people with at least one prescription – vary in a similar pattern to average drug spending.

Table C-2: Prescription Drug Utilization and Spending, Total Population, by Region, 1996

Region	Average Rx Spending per Capita	Average Spending for Those With Coverage	Average Spending for Those Without Coverage	Percent With at Least One Prescription	Average Rx Spending per User	Average Health Spending
National	$265	$315	$103	65.2%	$406	$2081
Northeast	$232	$284	$74	64.5%	$360	$2228
Midwest	$305	$341	$120	68.0%	$448	$2435
South	$285	$333	$132	66.2%	$431	$1947
West	$220	$282	$61	61.3%	$358	$1795

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

The difference in average total spending on drugs for those with and without coverage varies by region as well. Nationally, the uncovered spend about a third as much as those with coverage for prescription drugs. In each region, a similar relationship persists. But the magnitude of the difference varies. In the South, those without coverage spend about 40 percent as much as those with coverage, while in the West, those without coverage spend only 22 percent as much as those with coverage.

Interestingly, drug spending seems to vary somewhat differently across regions than total health spending. Although the West is the lowest on both measures and the Midwest is the highest, the average total health spending in the South is relatively lower while average drug spending is relatively higher and the opposite is true for the Northeast.

As discussed in Chapter 2, total drug spending is a combination of the price, volume and mix of drugs used. Further analysis will be needed to determine the role these factors play in regional differences in prescription drug spending.

Prescription Drug Prices

Given the national nature of many of the major players in the prescription drug market—drugs are produced by national manufacturers, distributed through mostly national PBMs and in many cases through national pharmacy chains—we might not expect to see large price differences by region. We would expect to see small differences based on local price variations. But in fact, we see a fairly substantial price variation across the country.

The key research question for Chapter 3 was the extent and direction of retail price differences between cash customers and those with third party coverage. Here we focus again on that distinction and we find some striking state and regional differences. As in Chapter 3, this analysis considers only differences between retail prices and does not consider manufacturer rebates that PBMs typically receive. Because rebate information is proprietary, no information is available on whether rebate amounts vary by region or state. Retail price differences also do not capture discounts that other large volume direct purchasers may receive. If these rebates and other discounts were included in this analysis, the differences observed would be larger.

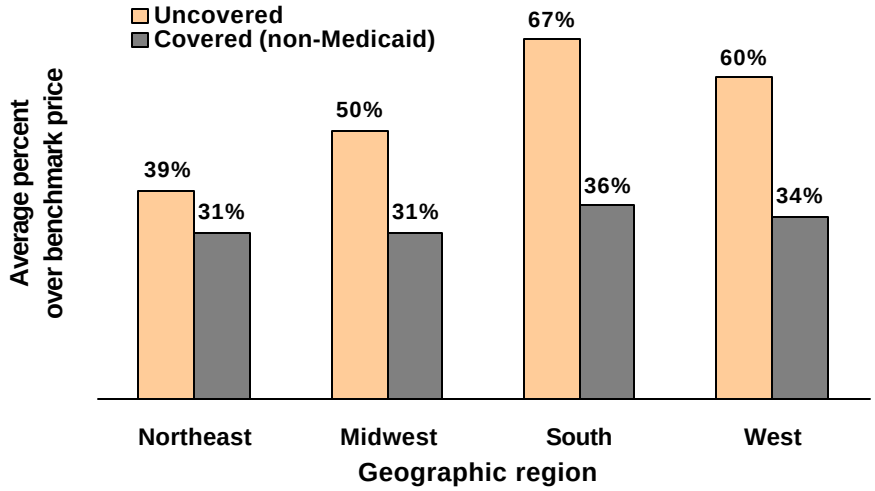
Table C-3 shows the median price differential between cash customers and third party payers across states and regions based on IMS Health data for the 25 drugs described above. As in Chapter 3, the term cash customer refers to those paying in full for their prescriptions at the retail counter and includes those with indemnity insurance coverage who file claims at a later time. Median retail price differences for the 25 listed drugs are nearly twice as large in the Northeast and West as in the Midwest or South. The District of Columbia (21.6%) and New York (17.7%) had the highest median retail price difference (excluding rebates) among the states. Nebraska (-0.9%) was the only state where the retail price for third party payers was typically lower than that for cash payers. Wisconsin (0.3%), New Mexico (0.7%), and Florida (1.3%) were the next lowest states. Table C-3 also shows the number of drugs that fall into four ranges of price differentials: less than 0 (third party greater than cash), 0 to 9.9 percent, 10 to 19.9 percent and 20 percent or above. Looking at the differences in numbers of drugs falling in the four ranges shows substantial variation in price differentials within states as well as across states.[2]

The reasons for the substantial geographic variations have not been determined. Analysis of systematic sources of variation based on simple measures of managed care penetration and other variables showed no obvious relationships. In addition, the relationship between the share of the retail market attributable to cash customers (discussed below) and price differences is not clear. One hint may come in limited evidence that there is greater state variation in the prices charged to cash customers than in the prices charged to third party payers (data not shown). Further study of these differences, however, will be needed to understand state and regional variations.

[2] Analysis using a different set of drugs might yield different results at the state level.

MEPS data comparing average percent over benchmark price across all drug purchases in 1996 for those with and without drug coverage are shown by region in Figure C-1.[3] The difference in average percent over benchmark price appears to be lowest in the Northeast where the average percent over benchmark price for those without coverage is 39 percent compared to 31 percent for those with coverage. The difference in prices relative to the benchmark price is much greater in the other three regions. This contrasts with the IMS results where the data show larger differences in the Northeast. Interestingly, the average percent over benchmark price is similar for Medicaid recipients and those with other non-Medicaid coverage in the Northeast and West, but in the Midwest and South average percent over benchmark price for Medicaid recipients is much closer to the higher levels shown for those without coverage (Medicaid data not shown). As discussed in Chapter 3, rebates from manufacturers to the states are not included in these data.

Figure C-1. Average Percent Over Benchmark Price, By Region



Note: (1) 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.
(2) Data exclude the effect of rebates for those with drug coverage.

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

[3] Recall from Chapter 3 that the 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.

Cash Share of the Market

Cash payments have accounted for a declining share of the retail market for prescription drugs, as noted in Chapter 3. The share of prescriptions for which the purchaser pays in cash at the time of the transaction has declined from 63 percent in 1990 to 25 percent in 1998.[4] One possible explanation for some of the differences just observed could be state and regional variation in the shares of the market attributed to cash payment (which here includes those with indemnity coverage where payment is not made at the point of sale).

Table C-3 also shows cash shares by state for 1998 from IMS data published by the National Association of Chain Drug Stores.[5] States in the Northeast have relatively lower shares of cash payments – including two of the three lowest cash-share states: Rhode Island (13.4%) and New York (14.8%). Among the other three regions, the share of cash transactions averages about 26 percent. There is a great deal of variation across states in these regions, however. For example, the two states with the highest share of cash payments–North Dakota (44%) and South Dakota (42%)–are both in the Midwest as is Michigan (14.3%), the state with the second lowest cash share. It is likely that differences in cash share are related to differences in levels of insurance coverage and penetration of PBMs and other types of managed pharmacy benefits.

[4] The National Association of Chain Drug Stores, "The Chain Pharmacy Industry Profile." 1999. Based on data from IMS Health.

[5] Ibid.

Table C-3: State and Regional Price Differences

State and Region	Median Price Difference	Distribution of Price Differences				Cash Share
		<0	0-9.9	10-19.9	>=20	
National	7.4%	6	12	4	3	
Northeast	11.4%	2	7	13	3	
Connecticut	14.6%	2	7	11	5	21.2%
Maine	8.2%	0	16	3	6	21.0%
Massachusetts	12.8%	8	4	5	8	15.1%
New Hampshire	10.6%	1	9	8	7	21.8%
New Jersey	9.6%	2	13	7	3	16.6%
New York	17.7%	0	1	14	10	14.8%
Pennsylvania	7.6%	4	14	3	4	14.6%
Rhode Island	8.8%	2	11	8	4	13.4%
Vermont	10.7%	1	9	9	6	23.6%
Midwest	4.5%	6	13	3	3	
Illinois	4.1%	8	10	4	3	24.6%
Indiana	5.4%	6	13	3	3	25.2%
Iowa	2.5%	5	15	1	4	31.8%
Kansas	4.3%	4	14	2	5	34.7%
Michigan	11.2%	1	9	10	5	14.3%
Minnesota	6.1%	4	14	4	3	20.1%
Missouri	3.0%	6	13	3	3	23.4%
Nebraska	-0.9%	15	6	2	2	28.1%
North Dakota	6.1%	1	17	2	5	43.8%
Ohio	5.8%	5	14	4	2	18.8%
South Dakota	5.0%	2	16	3	4	41.5%
Wisconsin	0.3%	12	9	2	2	22.0%
South	5.1%	5	13	4	3	
Alabama	5.9%	2	16	2	5	26.0%
Arkansas	5.3%	3	16	2	4	34.2%
District of Columbia	21.6%	0	1	10	14	20.0%
Delaware	11.1%	0	9	10	6	18.7%
Florida	1.3%	11	10	3	1	24.3%
Georgia	8.5%	0	14	5	6	26.1%
Kentucky	4.9%	5	14	3	3	22.3%
Louisiana	4.3%	4	16	3	2	25.0%
Maryland	10.8%	1	10	9	5	15.9%
Mississippi	6.2%	1	18	2	4	27.6%
North Carolina	9.9%	0	13	9	3	28.5%
Oklahoma	4.4%	3	16	2	4	28.7%
South Carolina	8.3%	0	15	5	5	26.1%
Tennessee	5.5%	5	14	3	3	23.9%
Texas	3.8%	6	14	3	2	23.8%
Virginia	7.9%	4	14	4	3	19.9%
West Virginia	4.8%	7	12	3	3	19.1%
West	11.4%	2	9	9	5	
Alaska	7.5%	0	16	6	3	30.2%
Arizona	9.9%	5	8	4	8	23.0%
California	15.6%	2	4	10	9	20.2%
Colorado	7.9%	5	9	6	5	22.4%
Hawaii	11.3%	2	9	10	4	18.6%
Idaho	6.6%	2	16	3	4	28.3%
Montana	5.8%	2	15	6	2	40.0%
Nevada	10.7%	2	9	9	5	21.6%
New Mexico	0.7%	12	8	3	2	23.2%
Oregon	8.2%	2	14	3	6	24.4%
Utah	10.6%	1	11	6	7	21.3%
Washington	5.5%	4	14	5	2	24.5%
Wyoming	6.0%	4	14	2	5	38.3%

Note: Data exclude the effect of rebates for those with drug coverage.

Source: IMS Health,1998