Comparison of Retail Drug Prices in the MEPS and MarketScan: Implications for MEPS Editing Rules

Marc W. Zodet and Steven C. Hill and Edward Miller

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ABSTRACT

The Medical Expenditure Panel Survey (MEPS) is a national probability sample survey designed to provide nationally representative estimates of health care use, expenditures, and insurance coverage for the U.S. civilian noninstitutionalized population. An important component of MEPS is the prescribed medicines (PMED) use and expenditures data. One quality control check in the PMED editing process involves an examination of the ratio of the retail unit price (RUP) paid for each drug to its average wholesale unit price (AWUP). We refer to this ratio as the PRATIO. Drug price outliers are identified as those whose PRATIO is outside of a specified range (i.e., the RUP is too far from the AWUP). To correct potential errors in reporting by pharmacies, drug purchases with outlier RUPs are edited by adjusting either the reported prices or quantities so that the edited RUP=AWUP. This research proceeds in three major steps: 1) determine whether the editing rules, which were originally implemented for the 1996 MEPS data, are still valid for 2006 and future years of MEPS data; 2) if not, provide guidance for modifying the editing; and 3) examine the impact of any proposed rule modifications on the distribution of retail prices. Specifically, the 2006 MEPS PMED data are compared with prescription medicine claims for those with private insurance coverage through large employers from the same year.

Data for this research come from the 2006 MEPS PMED production file and from the 2006 MarketScan Outpatient Drug Claims file. PRATIOs were derived for drug purchases from the MEPS among persons with private insurance and for a 10% sample of events from the MarketScan file. Distributions of PRATIO for MEPS and MarketScan were compared for all drugs, and by drug patent status. These distributions reveal a clear need to revise the rules for editing the MEPS PMED prices. New editing rules were developed and applied to the 2006 MEPS, resulting in much better benchmarking on price per acquisition overall and by patent status. As a result of these findings, the 2007 MEPS will use the revised editing rules.

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I. Introduction

The Medical Expenditure Panel Survey (MEPS) Prescribed Medicines (PMED) file is a unique data resource that provides detailed information on prescription drug use and expenditures for a nationally representative sample of persons in the U.S. civilian, noninstitutionalized population. In 1996, when it was initially fielded, MEPS was the first national survey to collect detailed information on drug purchases from pharmacy providers frequented by household sampled persons. This information, which is collected by a linked survey of pharmacy providers, includes the quantity purchased, the total retail price, the total amount paid by source of payment and the pharmacology of each drug, as summarized by the National Drug Code (NDC). Constructing MEPS PMED files using both household- and pharmacy-reported data involves many complex data editing and matching tasks (Moeller et al. 2001). In this study, we undertake a detailed examination of one of these tasks: identifying and editing outliers in the retail prices reported by pharmacy providers.

Outlier prices may be caused by transcription errors in reported prices or quantities, by incomplete reporting of payments, or by other reporting errors. The goal of editing drug prices in the MEPS PMED files is to increase the overall quality of the data while maintaining the dispersion in prices that typically occurs in the retail market for drugs. The benchmark which was adopted to identify outlier prices in the MEPS is the average wholesale price (AWP). The AWP is an NDC-level list price for drugs sold by wholesalers to retail pharmacies. Although in practice the AWP does not necessarily reflect what pharmacists pay for drugs, it has been used as a basis for payments to retail pharmacy providers by both public and private insurers (Congressional Budget Office 2007). To screen for price outliers, each retail unit price (RUP) in the pharmacy data is compared with the average wholesale unit price (AWUP) for

that NDC. Outlier prices are then edited by adjusting the reported price, or quantity (Moeller et al. 2001).

The central motivation for reexamining the MEPS price editing approach is that the relationship between RUP and AWUP may have changed since the editing rules were adopted for the 1996 MEPS. Changes in this relationship may have occurred for many reasons, but we are aware of two specific reasons for concern. First, since the AWP is a list price (not an average of transaction prices) it may be subject to manipulation and strategic behavior that could alter the AWUP-RUP relationship. In the last decade several lawsuits have alleged that AWPs have been inflated in an attempt to increase profits for drug manufacturers and pharmacy providers (Gencarelli 2002, Medical News Today 2006). It is uncertain, however, to what extent private and public insurers may have adjusted their payment methods in response to changes in the AWP. Second, recent studies show the relationship between RUP and AWUP varies by the patent status of the drug. In particular, for single source drugs, AWP is a good predictor of pharmacy acquisition costs, and ultimately of retail prices. Pharmacy acquisition costs average about 80 percent of AWP for single source drugs and this percentage shows relatively little variation across drugs. By contrast, pharmacy acquisition costs for generic drugs average about 30 to 40 percent of AWP and there is substantial variation in this percentage across drugs (Congressional Budget Office 2007, Levinson 2005, Sugerman-Broznan A and Woolman 2009). These differences by patent status were not incorporated into the editing rules adopted for the 1996 MEPS.

The purpose of this study is to determine whether the editing rules implemented for the 1996 MEPS data are still valid for the 2006 and subsequent years of MEPS prescribed medicines data. The central strategy of this exercise is to compare distributions of RUPs in the 2006 MEPS data to distributions of

RUPs reported in the 2006 MarketScan data. An underlying assumption of this analysis is that the MarketScan data, which contains private insurance claims data for 16 million persons, provides an accurate and valid benchmark for the MEPS pharmacy-reported drug pricing data. As a benchmarking exercise, these MEPS-MarketScan price comparisons represent an extension of ongoing quality control efforts in the editing of the MEPS PMED data.[1] In light of these price comparisons our study takes two additional steps. First, we propose modifications to the MEPS price editing rules that more accurately reflect the current RUP-AWUP relationship overall, and by patent status, while continuing to benchmark to other national data sources. Second, we examine the potential impact of rule modifications on average retail prices and on the distribution of retail prices for drugs in the MEPS data.

II. Methods

We perform a descriptive analysis to evaluate whether or not the rules for identifying and editing outlier drug prices, first implemented for the 1996 MEPS PMED data, are still valid for current data. Since its inception in 1996 outlier drug prices have been identified by examining the distribution of the ratio of retail unit price (RUP) and the average wholesale unit price (AWUP). For simplicity we label this ratio, RUP/AWUP, as the PRATIO. Unit drug prices are considered to be outliers if their PRATIO is less than 0.80 or greater than 10.0. These thresholds were originally established in consultation with a group of pharmacy experts. To assess whether or not these thresholds still seem reasonable for the MEPS data, we compare data from the MEPS Pharmacy Component (PC) to prescription medicine claims for persons with private insurance coverage through large employers from the same year.

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[1] Each year, the editing process includes a number of benchmarking exercises: MEPS estimates of aggregate drug expenditures are benchmarked to estimates from the National Health Expenditure Accounts (NHEA) and the IMS National Prescription Audit (IMS); lists of top-selling drugs in the MEPS are compared with the IMS; MEPS estimates of per capita use and expenditures for Medicare beneficiaries are compared with estimates from the Medicare Current Beneficiary Survey (MCBS).

A. Data

MEPS data for this project come from the 2006 MEPS Pharmacy Component. The PC is a survey of pharmacy providers identified by household respondents during the series of MEPS Household Component (HC) interviews. For each round of the HC, respondents are asked to provide the name(s) of any prescribed medication that they or their family members purchased or obtained during that round. Various information regarding reported medications is collected: 1) whether or not any free samples of the medication were obtained, 2) the name(s) of any health problem(s) for which the medication was prescribed, 3) the number of times the medication was obtained/purchased, 4) when the person first used the medication, and 5) the names, addresses, and types of pharmacies that filled the prescriptions. During the final round interview, respondents are asked to sign permission forms authorizing contact with these pharmacies and the release of their pharmacy records. The pharmacies for sample members who grant this permission are then sent a followback mail survey.

The mailing sent to the pharmacies includes a cover letter from the Department of Health and Human Services briefly describing the scope of the study, a printed listing of the persons for whom information is requested as well as copies of their signed permission forms, and instructions on how to provide the data. The pharmacies are asked to provide information about each prescription filled or refilled for each listed patient.

The pharmacies can provide the data by either submitting a detailed computer printout for each drug acquisition or by completing a questionnaire booklet for each acquisition. The requested data include: 1) the date the prescription was filled or refilled, 2) the NDC, 3) the medication name, 4) the strength of

the medicine, 5) the quantity dispensed, 6) sources of payment, and 7) the payment amount made by each source.

The data collected from the pharmacies are ultimately matched to the prescribed medicines listed by respondents in the HC. The payment data obtained in the PC are the source of price information for the matched HC acquisitions. The PC data are also used to impute payment data for HC acquisitions not matched to PC acquisitions. Detailed documentation on how the HC and PC data are matched, as well as imputation strategies, is provided in Moeller et al. (2001).

We utilize a production version of the 2006 Pharmacy Component file. This is an acquisition-level file (i.e., one record for each fill/refill of a prescription from the pharmacy). This file includes the retail unit price variable (RUP), constructed as the sum of payments for the prescription divided by the quantity dispensed (e.g., number of pills or milliliters). The file also includes the average wholesale unit price (AWUP) which is merged on from Wolters Kluwer Health Medi-Span's Master Drug Database (MDDB). As defined above, the PRATIO is simply the RUP/AWUP.

Our comparison data source is the 2006 MarketScan Outpatient Pharmaceutical Claims data. The 2006 data contain 120 million adjudicated drug claims for 16 million people. As such, we assume these data to be accurate and valid data that reliably capture retail drug price. These data come from a larger set of databases collectively referred to as the MarketScan Databases. The MarketScan databases capture from private insurance claims records person specific information for multiple dimensions of health care services (e.g., clinical utilization, expenditures, insurance plan enrollment, etc.). The data comprise people with private, employment-related insurance coverage, predominantly from large employers. The

employers are, however, a convenience sample. For this analysis we selected a 10% sample of the outpatient pharmacy claims. These acquisition-level data include the price paid for the medication and the quantity dispensed as well as the drug's average wholesale price. These are final claims, reflecting any adjustments to payments by the insurers to the pharmacies. The recorded prices are the retail prices paid to pharmacies, which is the same price concept sought by the MEPS PC. This information was sufficient for us to compute a PRATIO analogous to that created in the MEPS data. Patent status for the drugs reflected in these claims was obtained by MarketScan from the RED BOOK[TM].

To increase the comparability of the two data sources, MEPS PC data were limited to pharmacy acquisitions for the privately insured (N=135,543).

B. Editing Rules

The editing rules have two outlier concepts: outliers in RUP and outliers in price per acquisition. All the records are inspected for outliers in RUP. Only records on which price is edited (to correct for outliers in RUP) are inspected for outliers in edited price per acquisition.

The PRATIO is used to identify outliers in RUP relative to the AWUP. Since 1996, upper outliers have been defined as PRATIO≥10, and lower outliers have been defined as PRATIO<0.8. For both types of outliers, the price or quantity is edited to obtain PRATIO≈1, that is, RUP≈AWUP. This decision was based on tabulations, using the 1996 MEPS data, which showed that the modal value of the PRATIO distribution for non-outlier acquisitions was 1 (Moeller et. al. 2001).

Outlier acquisitions are grouped into three broad categories: 1) upper outliers are all acquisitions with PRATIO > 10, 2) "likely copayment cases" are acquisitions with PRATIO < 0.8, the only reported source of payment is out of pocket payments and the total amount paid is < \$30,[2], and 3) other lower outliers are all acquisitions with PRATIO < 0.8 which are not likely copayment cases.   For likely copayment cases and upper outliers, first, the price per acquisition is replaced with quantity×AWUP. But if this new price per acquisition is deemed an outlier in price per acquisition (<\$2 or >\$200), then the price is returned to its original value and the quantity is replaced instead. For other lower outliers, quantity, rather than price per acquisition, is edited. When quantity is edited it is set to the nearest positive integer to price÷AWUP, which is equivalent to setting RUP≈AWUP. If the edited quantity is 1 or 2, the price per acquisition is set to edited quantity×AWUP.

This set of rules has at least six potential drawbacks. First, the lower and upper bounds on PRATIO may be inconsistent with changes since 1996 in the relationship between RUP and AWUP, as discussed in the introduction. Second, setting edited RUP to the AWUP may ignore variation in discounts across medications. Third, prohibiting the edited price per acquisition from exceeding \$200 was reasonable in 1996, but prices for drugs have increased considerably since then. Fourth, likely copayment cases may not be accurately identified, because copayment amounts have increased since 1996, especially for brand name drugs, and some people have coinsurance, which can be substantial for expensive drugs. Fifth, seemingly valid quantities may be unnecessarily edited. Sixth, for each NDC, variation in RUPs is compressed, because all edits result in RUP≈AWUP. Our study does not address the issue of compressed prices within NDCs.

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[2] These acquisitions are treated as if they are missing a third party payment, even if the pharmacy did not report that it was waiting for such a payment

C. Visualizing the data

The analysis for this project was purely descriptive in nature. Histograms were constructed to compare distributions of PRATIO observed in the MEPS PC to those observed in the MarketScan data.

To verify that the MEPS PC data indeed require some data quality editing, we first contrast the distribution of PRATIO using the unedited file with the PRATIO distribution observed for the MarketScan. Then, given that the primary objective of this exercise is to evaluate MEPS' previously established rules for editing drug price outliers, we focus attention on the MEPS PRATIO that is derived *after* the application of the original (1996) outlier editing rules and how this distribution compares to MarketScan data.. Distributions of the MEPS PRATIOs were examined by drug patent status (i.e., single source, originator, generic) and compared with the analogous distributions from the MarketScan data.

Based on these observations, the MEPS outlier editing rules were revised and re-applied to the data. We then assessed the similarities between the PRATIO distributions from the updated MEPS PC data and the MarketScan distributions.

In addition to the table and figures on the privately insured, we present in the appendix the distributions of PRATIO for people with Medicare or Medicaid coverage. These figures are stratified by patent status for both the original and revised outlier editing rules.

III. Results

Table 1 shows summary measures of retail prices for prescribed medicines observed in the privately insured MEPS PC and MarketScan data. The distributions of purchases across patent type for the MEPS PC private payer source and MarketScan data are similar with generic drugs accounting for approximately 54% of acquisitions and single source drugs accounting for about 39% of acquisitions in both data sets. Due to very large sample sizes all comparisons between MEPS and MarketScan estimates mentioned below are statistically significant at the α=0.05 level or better.

A. Unedited MEPS PC and MarketScan

Compared with the unedited MEPS PC, the mean retail prices for MarketScan are consistently higher across patent status: $153 vs. $95 (single source), $68 vs. $50 (originator), and $27 vs. $17 (generic). Standard deviations suggest that retail prices for single source drugs are more variable in the MEPS PC than in the MarketScan data, but originator and generic drug prices are more variable in MarketScan. Median prices are consistently higher in MarketScan compared with the unedited MEPS PC: $97 vs. $56 (single source), $36 vs. $25 (originator), $14 vs. $10 (generic).

Figure 1 illustrates in greater detail the distributions of PRATIO by drug patent status in the unedited MEPS PC data, and Figure 2 shows the same information for MarketScan. The histograms for the MEPS PC data exhibit modes at the left of the distributions, and these modes are not found in the MarketScan histograms. The 1996 editing rules were devised to edit these lower outliers, and indeed data editing is necessary.

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B. Edited MEPS PC and MarketScan

Returning to Table 1, mean retail prices remain lower in the edited MEPS PC compared with MarketScan, except for generic drugs where the mean price becomes higher: $34 (post-edited MEPS) vs. $27 (MarketScan). The largest difference in mean retail price remains among single source drugs: $153 (MarketScan) vs. $112 (edited MEPS). The median retail price remained higher for MarketScan compared with the edited MEPS PC ($97 vs. $75) for single source drugs, while the median retail prices for edited MEPS PC edged ahead of those from the MarketScan for originator and generic drugs ($40 vs. $36 and $22 vs. $14 respectively).

Figure 3 shows the distributions of PRATIO after applying the 1996 editing rules. Comparing Figures 2 and 3, we can see in greater detail the poor benchmarking between the 2006 MEPS PC and MarketScan data. For example, the left tail of the distribution of PRATIO for each patent status extends below .8 in the MarketScan data, but not in the edited MEPS PC data. The poor benchmarking can be traced to some specific parameters used to edit the MEPS data.

First, the distribution of edited PRATIOs, especially for generic drugs, is systematically higher than that observed in MarketScan suggesting that the old editing rules over adjust retail prices where the retail unit price is observed to be 80% or less of the average wholesale unit price. This results in artificially inflated expenditure estimates for prescription medicines. Under the MEPS editing rules, 73 percent of generic purchases reported by the pharmacies were labeled lower outliers, and, as a result, prices were increased in 41 percent of the PC data on acquisitions of generics.

Second, for brand name drugs the edited MEPS PC prices are too low, on average: the average price per acquisition for single source drugs is $112 for the MEPS and $153 for MarketScan (Table 1). As discussed above, when the prices on lower outliers were edited, there was a very low limit ($200) on the new price. The limit on the edited price has a much larger impact than the countervailing problem of labeling too many brand name drugs as lower outliers.

Third, in the edited MEPS PC the distribution of PRATIOs, especially for generics, is highly compressed around the value of 1 (Figure 3). This compression is not found in the MarketScan data (Figure 2). The pattern in the MEPS occurs because the lower outlier limits are too high and because for both lower and upper outliers, the price or quantity is edited to obtain PRATIO≈1.0. Specifically, for 28 percent of purchases reported by the household, the quantities reported by the pharmacy were decreased in the editing process. The proportion of records with quantity decreases ranged from 14 percent of single source drugs to 32 percent of generics.

IV. Evidence-Based Modifications to the Editing Rules

A. New Editing Rules

We developed new editing rules so that 1) the distribution of prices in the MEPS would better benchmark to MarketScan overall and by patent status, 2) MEPS prices would continue to benchmark to the IMS National Prescription audit (IMS), 3) fewer pharmacy-reported quantities would be edited, and 4) imputed prices would reflect prices paid, rather than AWUPs. The new rules vary by the patent status and dose form. Dose form is separated between pills (tablets, capsules, lozenges, and suppositories), which account for about 80 percent of acquisitions, and others, such as inhalers, injections, solutions,

patches, powders, and vials. Pharmacies sometimes report quantities for nonpill forms in units that differ from the MDDB, which creates errors in determining whether the acquisition is a PRATIO outlier.

The new editing rules, which are summarized in Table 2, modify the original rules in a number of ways. First, much lower PRATIOs are allowed, reflecting the wide range of PRATIOs found in MarketScan, and hence fewer lower outliers are identified. Second, the definition of "likely copayment cases" is expanded to include all lower-outlier cases with an out-of-pocket amount but no third party payment so that the price is always increased, rather than the quantity decreased, in these cases. Third, because the distributions in MarketScan, especially for generics, are not completely truncated at our new lower thresholds, even lower PRATIOs are allowed for generics and pills. In particular, when a third party payment is reported for lower outliers, the quantity is edited only if it is a brand name drug and the dose form is not a pill, because these outliers may reflect mismatches in reported quantity units. Fourth, the maximum upper PRATIO is also lower, but very few fills exceed the new upper thresholds, because we allow inexpensive drugs (< $15) to exceed the thresholds. Prices of $15 or less are consistent with pharmacies' one-price generic programs, and dispensing fees may greatly exceed the wholesale costs of some drugs. For example, one chain pharmacy will fill a 90-day supply of selected generics for $15, while other chains charge less (e-MedTools 2008).

When outliers are detected under these new rules, the imputed price is based on the RUPs reported for the records that do not have outliers, rather than the AWUP. Specifically, among the nonoutliers, mean RUPs are calculated for each NDC, and the mean RUP is imputed to the outliers.[3] Thus, the imputed

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[3] When there are insufficient nonoutlier observations to calculate the mean for an NDC, then the mean is calculated as (mean PRATIO for the therapeutic class) × AWUP for the NDC.

prices are now based on the prices actually paid for the medication, rather than the AWUP, and there will not be a large spike in prices per unit at the AWUP.

The new rules also allow imputed prices to be much higher than before (Table 2). For example, the price limit for single source pills was raised from $200 to $3,000. These limits were selected after reviewing the acquisitions for which prices would exceed various dollar thresholds. As under the old rules, when raising the price so that the RUP equals the mean would increase price beyond the dollar threshold, then the quantity is decreased and the price is not changed.

B. Simulation Methods

We applied the new editing rules to the unedited 2006 MEPS PC data. We used these rules for all acquisitions, regardless of the insurance status of the person. Even though the rules were developed by benchmarking people with private insurance, we found in the MEPS PC that the distributions of PRATIOs for people with Medicaid and Medicare drug coverage were very similar to the distributions of PRATIOs for people with private insurance (see Appendix figures). We plan future studies to assess the validity of the using the same rules for all sources of insurance.

To obtain nationally representative estimates, the PC data were matched to medications reported by the household respondents.[4] This linkage is necessary because some household sample members did not have pharmacy data due to their not signing permission forms or nonresponse by pharmacies. The full data editing process imputes matches of pharmacy data to household-reported acquisitions for these sample members.

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[4] See Moeller et al. (2001) for details of the matching process.

C. Impact of New Rules on 2006 Data

Under the new rules, most of the PC records with seemingly complete data are not edited: 68 percent of single source brand name acquisitions and 85 percent of generic acquisitions. Prices are increased for nearly all the remaining cases, and quantity is edited for less than one percent of all acquisitions with complete data.

MEPS data edited using the new rules better benchmark to the MarketScan data (Figure 4). For example, the differences in means are much smaller for generics and single source brand name drugs and the MEPS data better capture the dispersion in prices across these types of drugs. The difference in means is larger for originators, but these drugs account for a small share of the market. The distributions of PRATIO for the MEPS PC data edited using the new rules are shown in Figure 5. With the new editing rules, the distributions in the MEPS PC more closely match those found in MarketScan (Figure 2).

Using these new editing rules results in total expenditures that were 9.9% higher in 2006 than previously estimated from the MEPS ($245.4 billion compared with $223.3 billion). As in previous years, both MEPS estimates are between those in the National Health Expenditure Accounts (NHEA) ($216.7 billion) and IMS ($274.9). Major differences between estimates from the three sources result from differences in the covered population and the inclusion of manufacturer rebates. The military and institutionalized populations are in the NHEA and IMS estimates, but not the MEPS. Removing sales to long-term care facilities reduces the IMS total to $263.4 billion, but this does not account for all sales to institutionalized populations. The NHEA is lower because it subtracts rebates to payers, but the MEPS and IMS do not.

V. Conclusion

In this paper we used 2006 MarketScan prescription drug data to benchmark 2006 MEPS prescription drug data for persons with private insurance. We found that the prices per acquisition for generic medications were about 44 percent higher, on average, in the MEPS than in MarketScan, and prices per acquisition for single source brand name drugs were about 23 percent lower in the MEPS than in MarketScan. These problems were traced to editing rules used to identify outliers in the MEPS PC. New editing rules were developed and applied to the 2006 MEPS, resulting in much better benchmarking on price per acquisition, as well as somewhat higher estimated expenditures on prescriptions among the civilian noninstitutionalized population. As a result of these findings, the 2007 MEPS will use the revised editing rules.

Additional data quality assessments are planned for the future. CFACT staff plan to ascertain whether it was appropriate to apply the same editing rules for Medicare and private plans. Specifically, we plan to compare the prices for MEPS drugs paid for by Medicare Part D plans with the prices reported by Medicare Part D plans. CFACT staff plan to assess the accuracy of medication use reported by MEPS household respondents and the accuracy of the payment data reported by pharmacies. For this analysis, we plan to link the MEPS sample members with Medicare to the prescription drug data maintained the Center for Medicare and Medicaid Services. We also plan to investigate the feasibility of generating more variation in imputed RUPs within NDCs.

The quality improvement processes undertaken by CFACT staff enhance the quality of the data for research and policy. The new editing rules for 2007 will improve the capacity of the MEPS to support

studies of price differences between drugs by patent status, therapeutic class, or NDC. The new rules may also enhance the analytic utility of the quantity variable.

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Table 1. Characteristics of prescription pharmacy purchases.

	Summary of retail prices								
	MEPS Pharmacy Component (Privately Insured), 2006						MarketScan, 2006		
	Unedited			Old Editing					
Patent Status	Mean	SD	Median	Mean	SD	Median	Mean	SD	Median
Any	$50	$469	$20	$66	$469	$40	$79	$210	$38
Single Source	$95	$750	$56	$112	$751	$75	$153	$297	$97
Originator	$50	$80	$25	$63	$80	$40	$68	$189	$36
Generic	$17	$30	$10	$34	$36	$22	$27	$54	$14
	Distribution of purchases across patent status[1]								
Single Source		38.6%			38.6%				38.5%
Originator		7.7%			7.7%				4.2%
Generic		53.7%			53.7%				54.6%

Sources: Authors' calculations from Medical Expenditure Panel Survey Pharmacy Component, 2006, and MarketScan Outpatient Pharmaceutical Claims, 2006
[1]Approximately 3% of MarketScan purchases could not be classified as Single Source, Originator, or Generic.

Table 2 New Editing Parameters

| | Patent Status | | |
	Single Source	Originators	Generic
Lower PRATIO	0.5	0.3	0.15
Upper PRATIO	2.0	2.0	3.0
Exception to upper PRATIO	Price < $15	Price < $15	Price < $15
Edited prices for pills cannot exceed	$8000	$3000	$1400
Edited prices for drugs other than pills and pills with imputed quantity of NDC cannot exceed	$2000	$1000	$1000

Figure 1. Distributions of PRATIO by drug patent status; unedited MEPS with private insurance
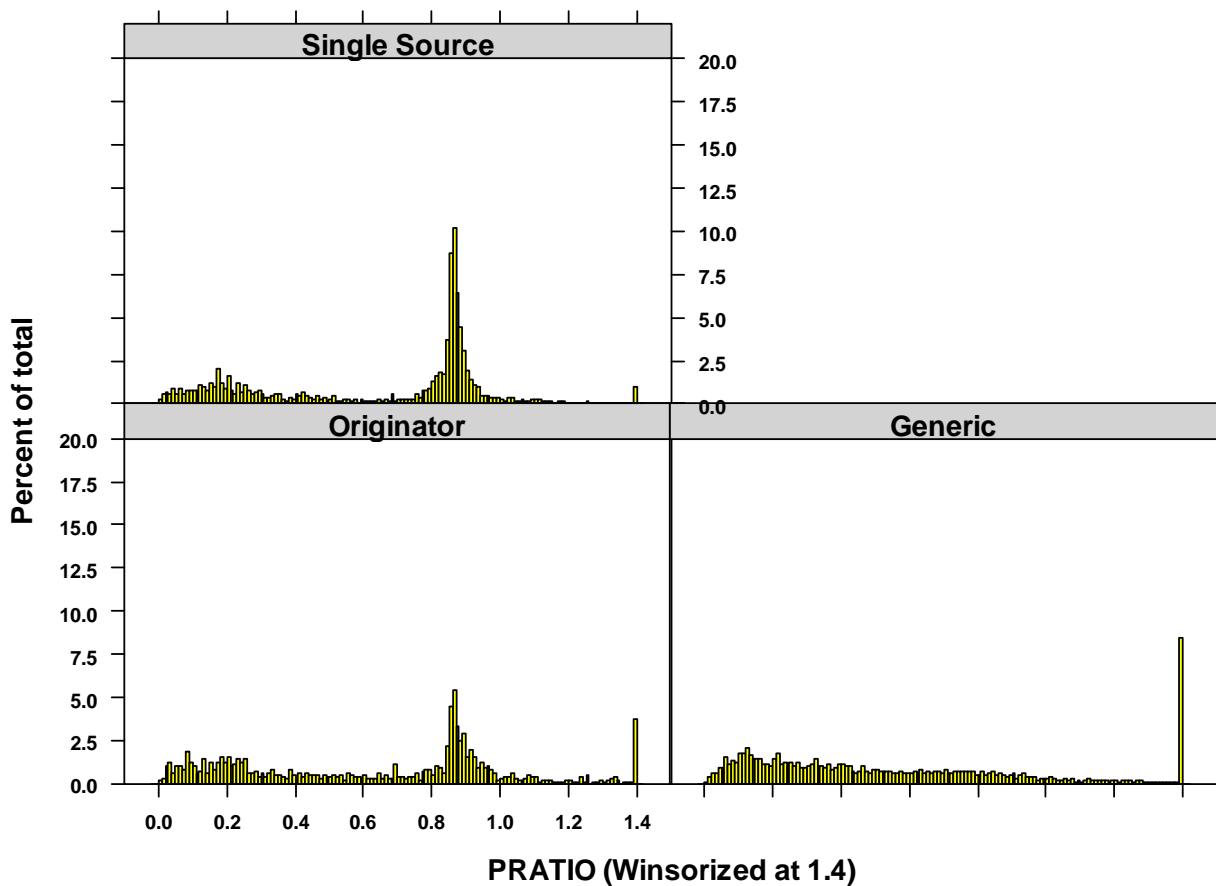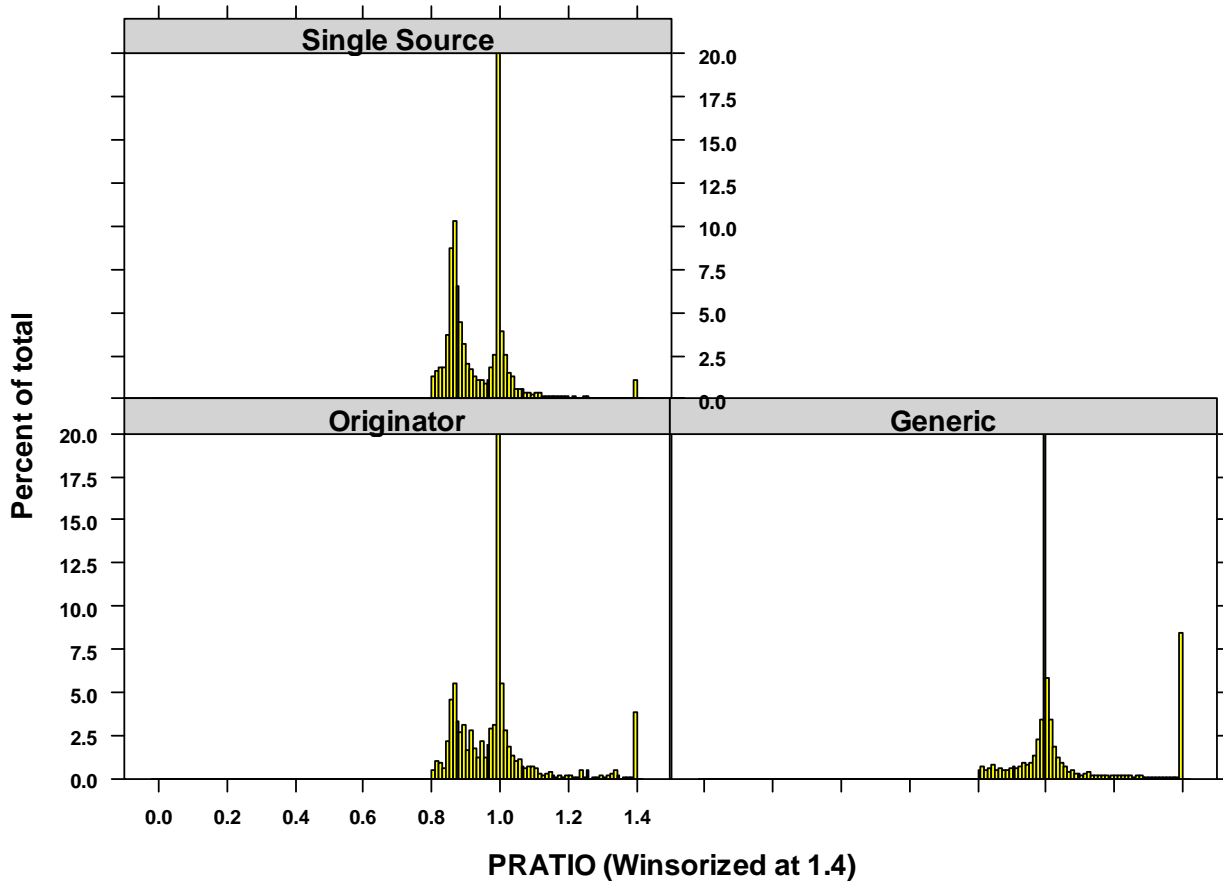

Source: Authors' calculations for the privately insured from Medical Expenditure Panel Survey Pharmacy Component, 2006.
PRATIO = retail unit price divided by average wholesale unit price

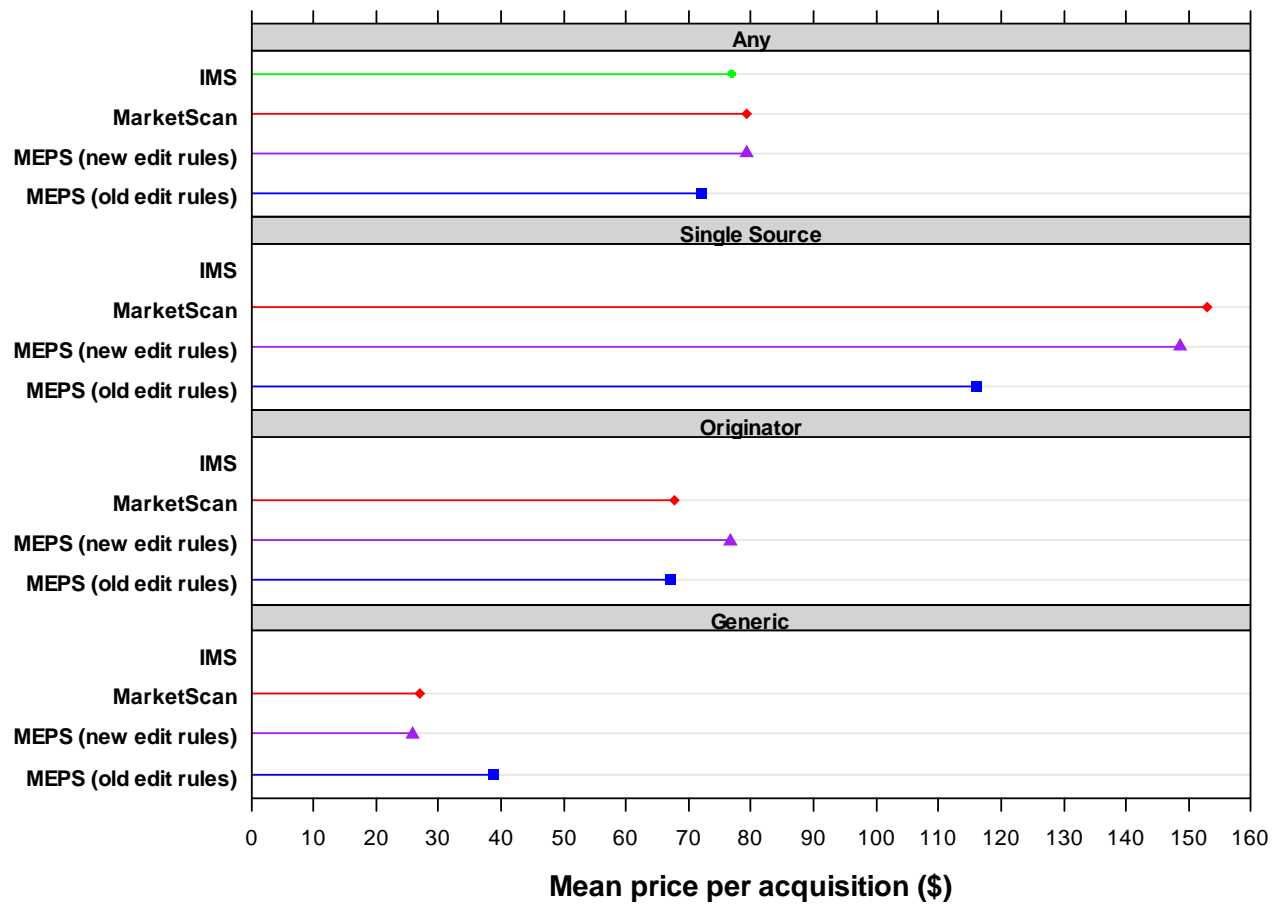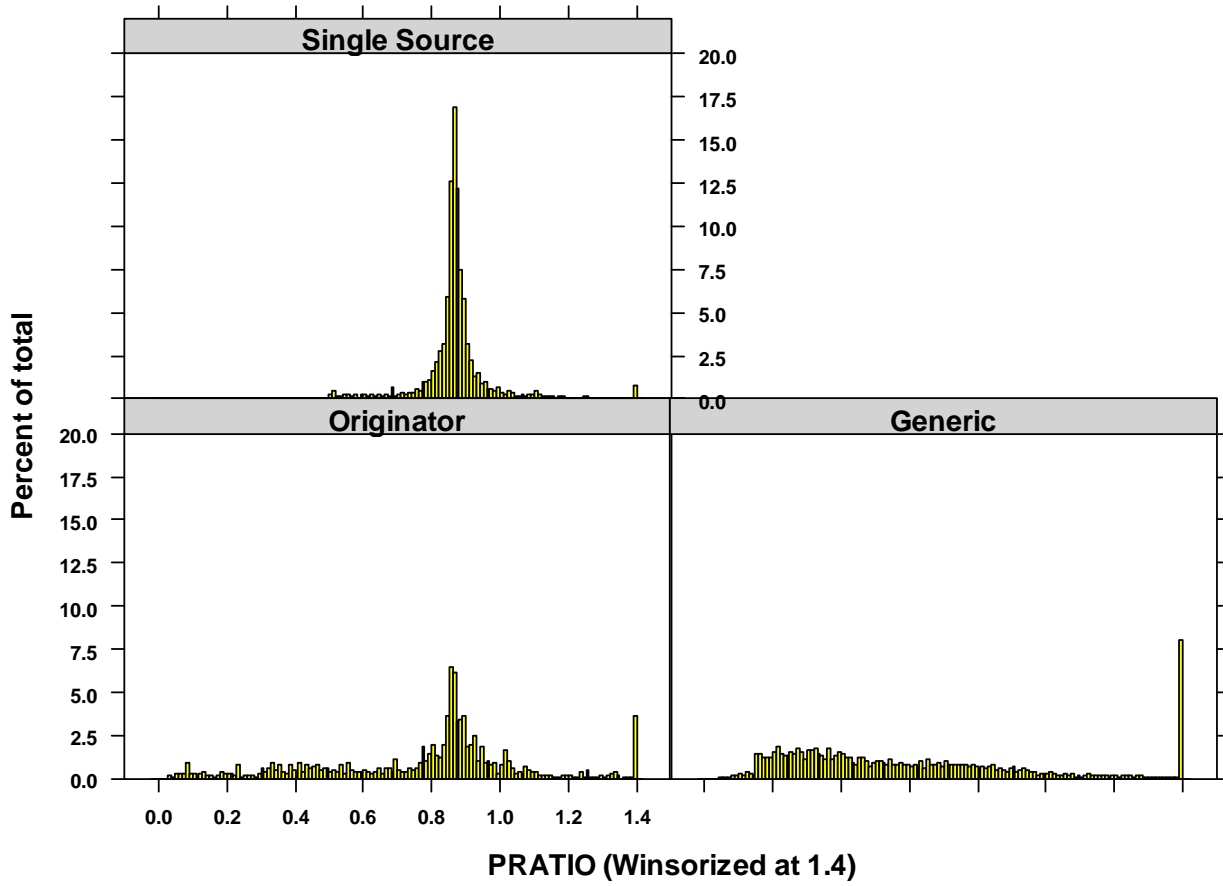**Figure 2. Distributions of PRATIO by drug patent status; MarketScan**
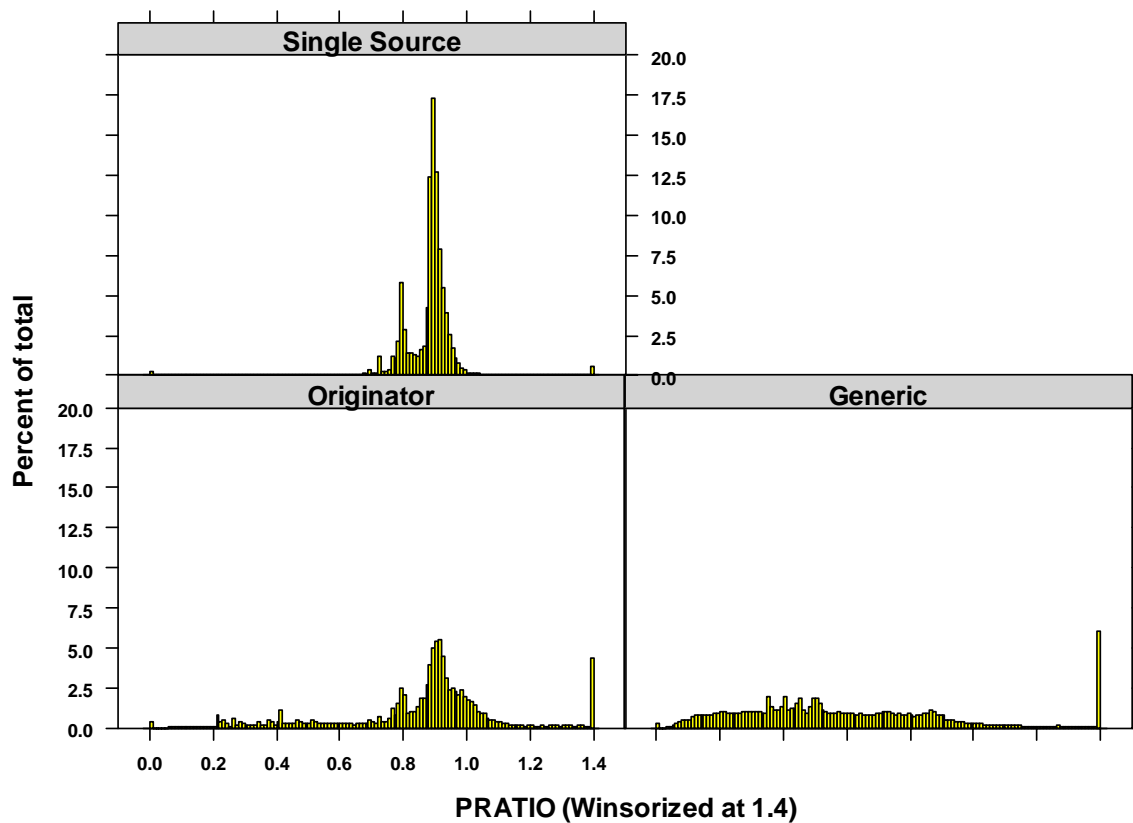
Source: Authors' calculations from MarketScan Outpatient Pharmaceutical Claims, 2006.
PRATIO = retail unit price divided by average wholesale unit price
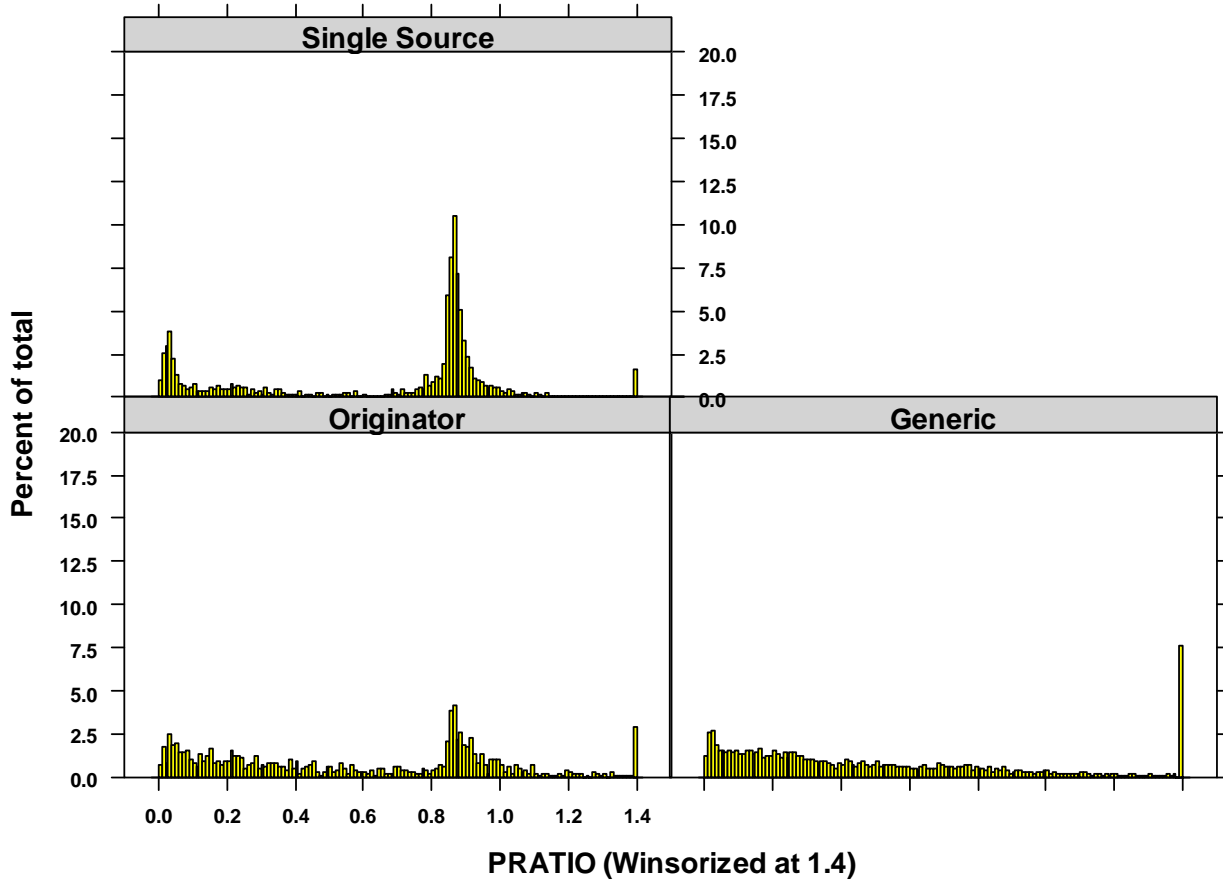
Figure 3. Distributions of PRATIO by drug patent status; MEPS with private insurance edited under old rules

Source: Authors' calculations for the privately insured from Medical Expenditure Panel Survey Pharmacy Component, 2006.
PRATIO = retail unit price divided by average wholesale unit price

Figure 4. Mean acquisition prices observed among various data source by patent status

Mean price per acquisition ($)

Sources: Authors' calculations from Medical Expenditure Panel Survey prescription drug file and Pharmacy Component, 2006; MarketScan Outpatient Pharmaceutical Claims, 2006; and IMS National Sales Perspective™ and IMS National Prescription Audit™. IMS estimate excludes sales to long-term facilities' pharmacies.

Figure 5. Distributions of PRATIO by drug patent status; MEPS with private insurance edited under new rules

Source: Authors' calculations for the privately insured from Medical Expenditure Panel Survey Pharmacy Component, 2006.
PRATIO = retail unit price divided by average wholesale unit price

Appendix

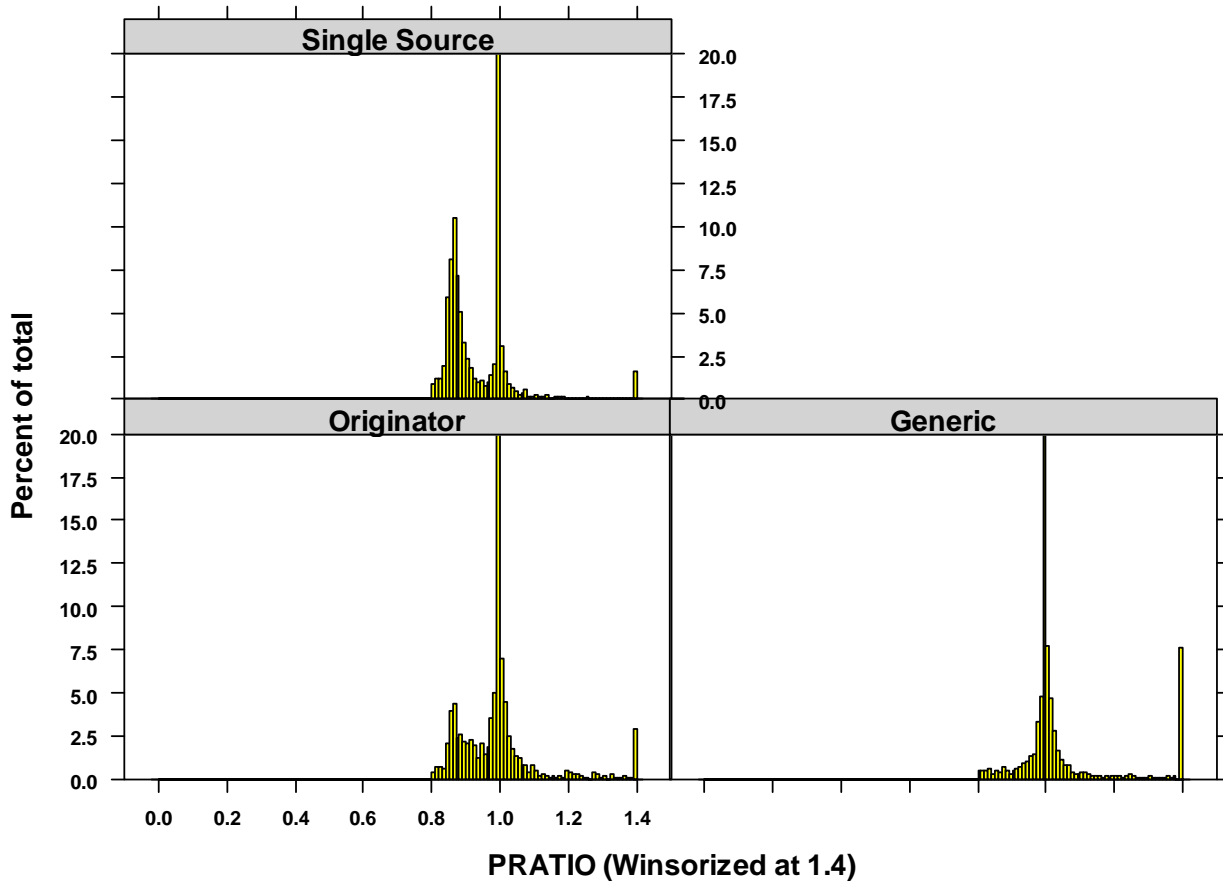**Figure 1a. Distributions of PRATIO by drug patent status; unedited MEPS with Medicare**
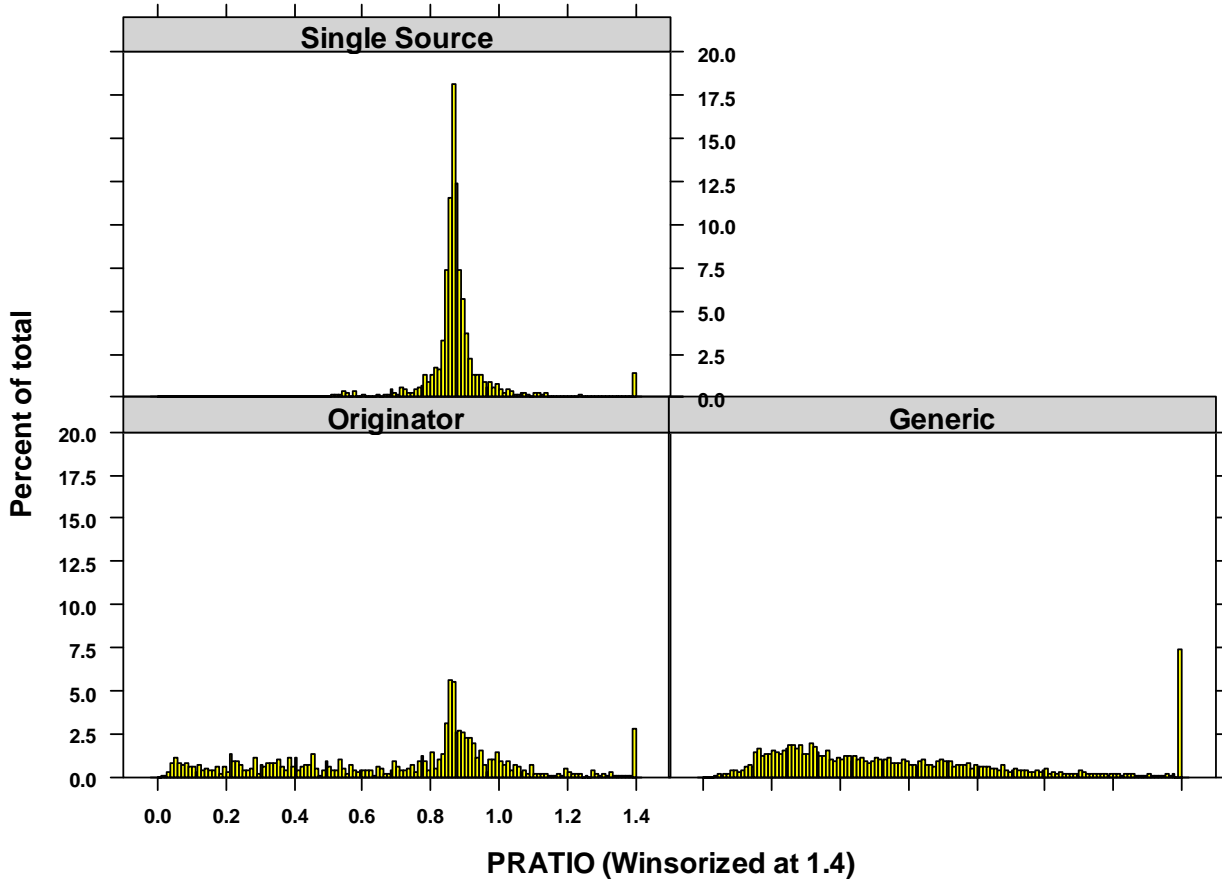

Source: Authors' calculations for people with Medicare coverage from Medical Expenditure Panel Survey Pharmacy Component, 2006.
PRATIO = retail unit price divided by average wholesale unit price

Figure 1b. Distributions of PRATIO by drug patent status; MEPS with Medicare edited under old rules
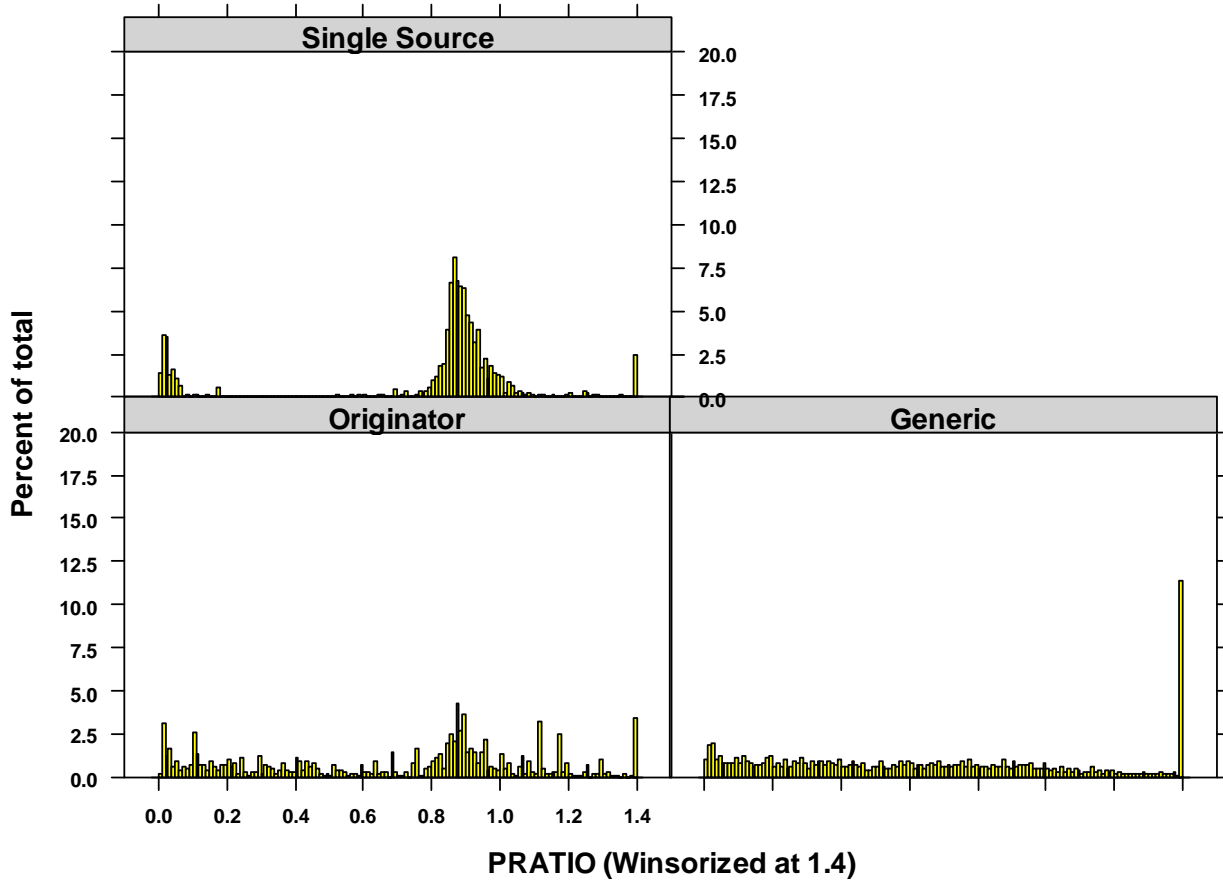

Source: Authors' calculations for people with Medicare coverage from Medical Expenditure Panel Survey Pharmacy Component, 2006.
PRATIO = retail unit price divided by average wholesale unit price

Appendix

Figure 1c. Distributions of PRATIO by drug patent status; MEPS with Medicare edited under new rules
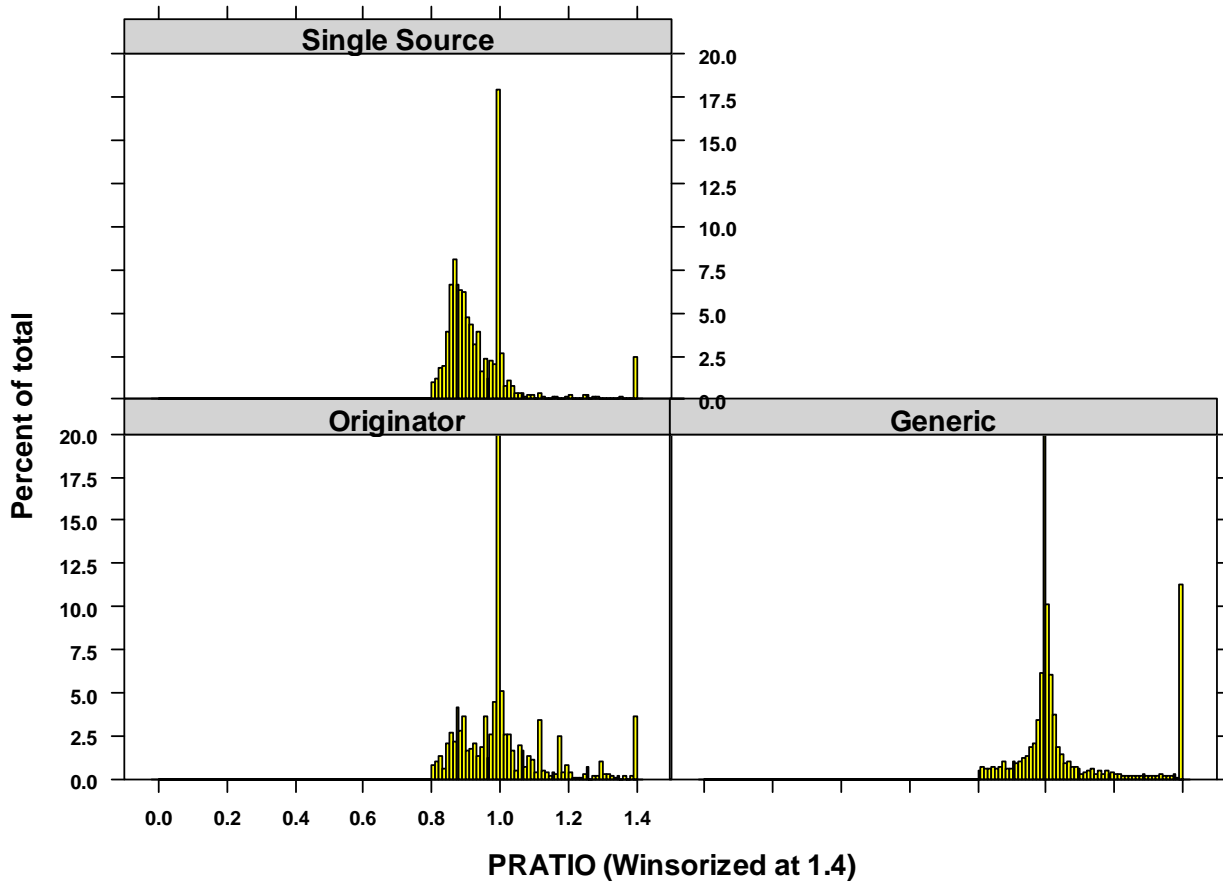

Source: Authors' calculations for people with Medicare coverage from Medical Expenditure Panel Survey Pharmacy Component, 2006.
PRATIO = retail unit price divided by average wholesale unit price

Appendix

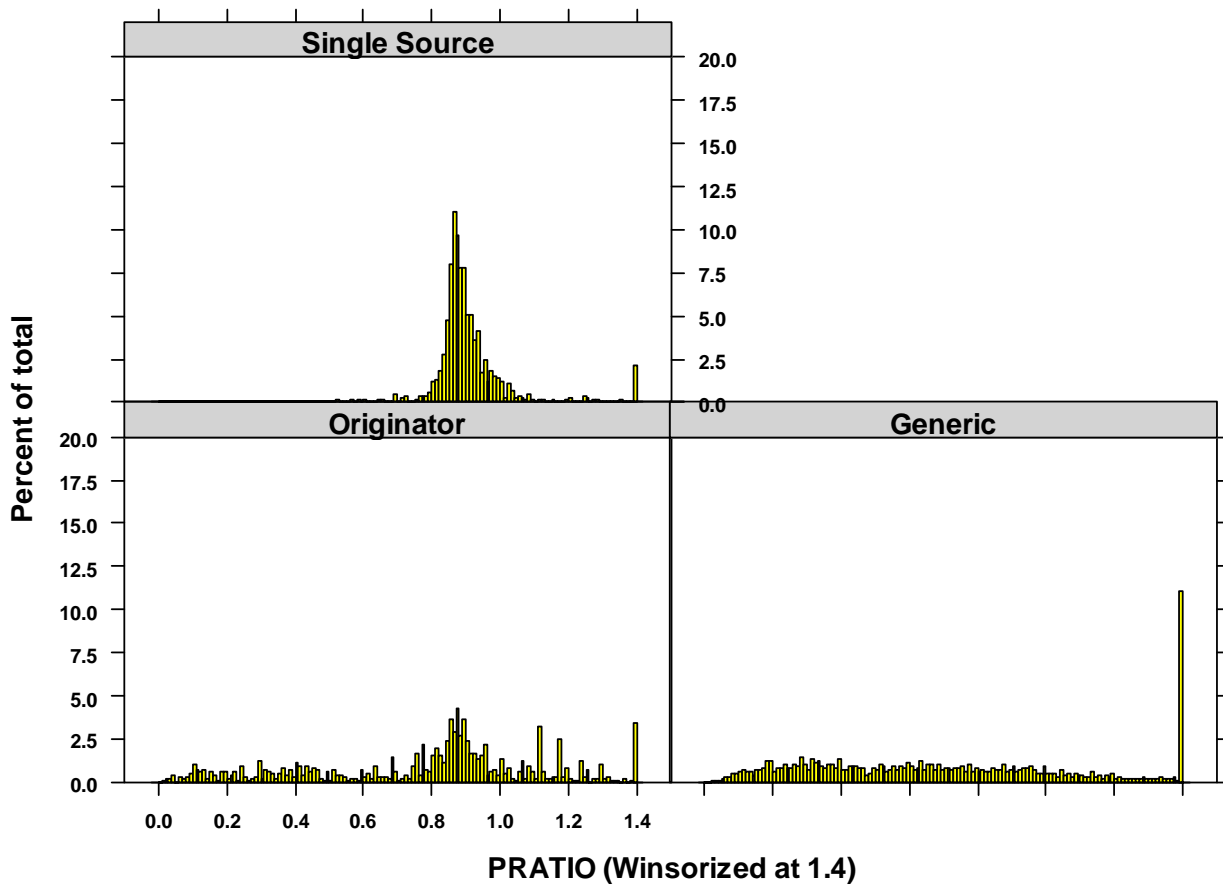**Figure 2a. Distributions of PRATIO by drug patent status; unedited MEPS with Medicaid**

Source: Authors' calculations for people with Medicaid coverage from Medical Expenditure Panel Survey Pharmacy Component, 2006.
PRATIO = retail unit price divided by average wholesale unit price

Figure 2b. Distributions of PRATIO by drug patent status; MEPS with Medicaid edited under old rules

Source: Authors' calculations for people with Medicaid coverage from Medical Expenditure Panel Survey Pharmacy Component, 2006.
PRATIO = retail unit price divided by average wholesale unit price

Appendix

Figure 2c. Distributions of PRATIO by drug patent status; MEPS with Medicaid edited under new rules

Source: Authors' calculations for people with Medicaid coverage from Medical Expenditure Panel Survey Pharmacy Component, 2006.
PRATIO = retail unit price divided by average wholesale unit price

ACKNOWLEDGEMENT