Independent Pharmacies in the U.S. are More on the Rise than on the Decline

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Executive Summary:

The independent pharmacy lobby is urging state legislatures to enact new legislation targeting pharmacy benefit managers (PBMs) that would increase fees and/or add surcharges to transactions with pharmacies. This is based upon two arguments: 1) that independent pharmacies are becoming less profitable and 2) that their store numbers are decreasing. Regarding the first argument, new research suggests the opposite. Prescription profit margins for independent pharmacies increased slightly between 2017 and 2018 and the overall gross margin from all products remained the same.[1] In this report we provide an initial look at independent pharmacy data to verify the veracity of the second argument, specifically focusing on the claim that the number of independent pharmacies are in decline over the last decade and are uniquely suffering relative to chain pharmacies. Relying on pharmacy count data from the National Council for Prescription Drug Programs (NCPDP),[2] we identify the growth (or decline rate) of independent pharmacies over the last decade.

Findings:

1. In terms of the absolute change in the number of stores, independent pharmacies are faring better than chain pharmacies. Between 2010 and 2019, the number of independent pharmacies increased by more than 2,600 stores (12.9%), whereas chains lost around 80 stores (0.2%) on average.

2. There has been a slight decrease in *all pharmacies* in the last three years (2016 to 2019). For independents the net loss in the number of stores from 2016 to 2019 was -83 (-0.3%). In comparison, chain stores witnessed a net loss of 1,583 stores, (-4.0%). Focusing on only one or two years, however, and not the entire previous decade, gives the impression of decline in the number of independents instead of fluctuations over a longer period.

3. Longitudinal analyses (linear fixed-effects estimates) find that on average, states are enjoying an increase of six independent stores per year from 2010-2019.

4. The relative growth in the number of independent stores at the state level is positively correlated to chain pharmacies. When chain pharmacies grow within a state, independent pharmacies also increase.

Research Questions:

Question 1. Are the number of independent pharmacies increasing or decreasing?

Based upon NCPDP data,[3] Table 1 provides the difference in pharmacies by type and total over the last decade (2010-2019). This data includes only the total number of stores on January 1 of

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[1] Adam Fein. Drug Channels: "The State of Retail Pharmacy: Independent Pharmacy Economics Stabilize—But Dropping, Owner Salaries Are." December 3, 2019.
[2] For a description of data see Appendix A.
[3] Description of all data sources used in this report are available in Appendix A. For a discussion of the pharmacy count data cleaning and processing as well as definitions of chain and independent pharmacies see Appendix B.

a given year, and does not differentiate between stores that opened or closed during a year. Independent pharmacies have enjoyed a 12.9% increase in the total number of stores between 2010 and 2019. Chain stores in comparison have experienced a 0.2% decrease. Simply put, in comparing trends (Figure 1), independent pharmacies are faring better than chain pharmacies from 2010-2019.

Table 1. NCPDP Rate of Increase/Decrease for Pharmacies from 2010-2019

Pharmacy Type	Year 2010	Year 2019	Absolute Increase/Decrease	Relative Increase/Decrease
Chain Pharmacies	39,156	39,084	-72	-0.2%
Independent Pharmacies	20,427	23,061	+2,634	+12.9%
Total	59,583	62,145	+2,562	+4.3%

Our findings are consistent with a recent paper in *JAMA,* by Guadamuz et al (2019), which also relied on NCPDP data found that from 2009 to 2015 the total number of U.S. pharmacies increased by 7.8%. The findings, however, stand in contrast to reports from independent pharmacy advocates who claim the number of independent pharmacies in the United States is in steep decline or those that imply that independent pharmacies are at a unique disadvantage compared to chain pharmacies. For example, Appold (2019) cites the National Community Pharmacists Association (NCPA) Digest and writes, "In 2011 there were 23,106 Independent pharmacies; by 2017 that number dipped to 21,909." In a recent *Washington Post* article, Firozi (2018) states "The NCPA released a digest last October that estimated the number of Independent community pharmacists was at 22,041 (2017), down from the previous year's total of 22,160 (2016)." *These reports tend to focus on only one or two years and not the last decade, giving the impression of decline instead of annual fluctuations within a longer more positive trend.*

Perhaps more importantly the NCPDP[4] data show different and far greater numbers of independent pharmacies than what NCPA claims. NCPDP data report 22,989 independent pharmacies in 2017 and 23,144 in 2016; these numbers are almost 1,000 more than what NCPA reports for 2016 and 2017.[5] In addition, data from IQVIA also does not show a decline in the number of independent pharmacies.[6] Reconciling these discrepancies is problematic as transparency in this area is inconsistent and different organizations have different standards,

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[4] Clarifying the trustworthiness of the NCPDP data is important. NCPDP is a not-for-profit, ANSI-accredited Standards Development Organization with a mission to develop and promote industry standards to improve patient safety and health outcomes, and decrease costs. Their primary focus is on information exchange for prescribing, dispensing, monitoring, managing and paying for medications and pharmacy services essential to quality healthcare. NCPDP standards are named in federal legislation, including HIPAA, MMA, HITECH and Meaningful Use (MU).

[5] This inconsistency in reporting of independent pharmacy numbers appears widespread. For example, a recent peer-reviewed paper in the academic journal PLoSOne by Qato et al (2017) reports that for 2011 the number of Independent pharmacies is 21,165.

[6] "However, IQVIA data show much more stability in overall independent pharmacy numbers. I can't figure out the discrepancy." Adam Fein. Drug Channels: "The State of Retail Pharmacy: Independent Pharmacy Economics Stabilize—But Dropping, Owner Salaries Are." December 3, 2019.

goals, and constituents. NCPA does not allow full access to their dataset or methods to researchers, making a detailed comparison impossible. Furthermore, the NCPA relies on a survey with a limited sampling frame consisting of "Independent community pharmacy owners who have completed at least one full year of operations were invited to participate in this study." The NCPA does not give completion percentages or any details of their methods.[7]

A look at the trend by year over the last decade shows both chains and independents saw a steady rise of pharmacy growth from 2010-2015 (Figure 1). *From 2016 forward, however, growth declined for chains while it plateaued for independents.*

Figure 1. Growth Trend of Pharmacies from 2010-2019
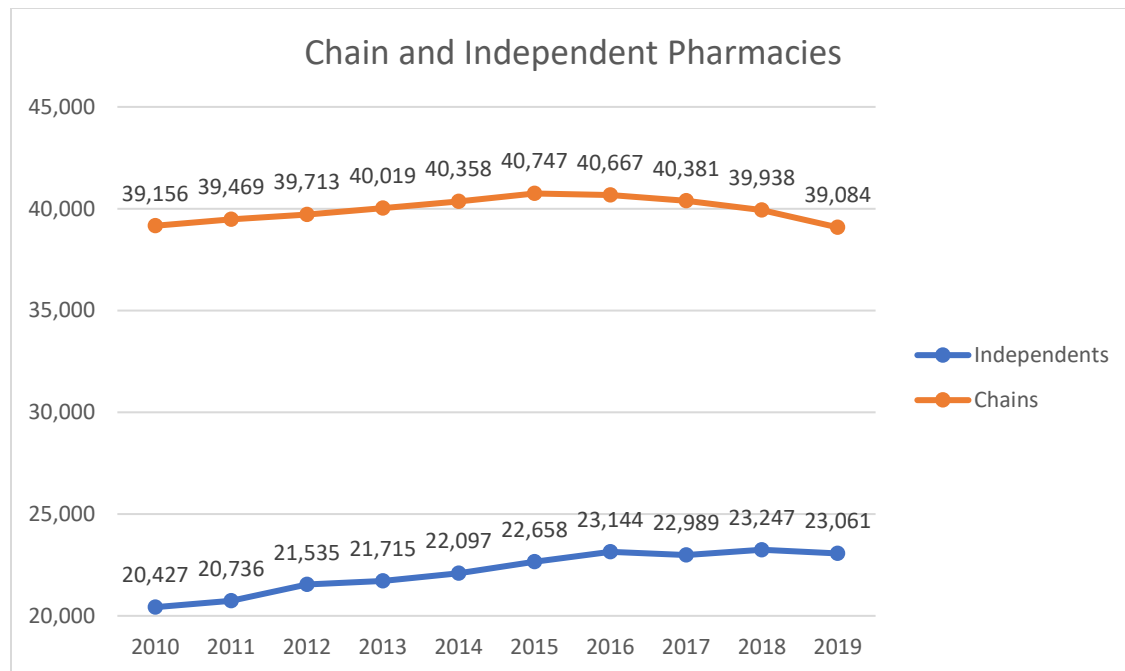
In sum, the total number of independent pharmacies nationally steadily rose from 2010, and appeared to have plateaued (around 2016), rather than declined. Indeed, when focusing only on the last few years, the net change in the number of independent stores from 2016 to 2019 is a total of -83, or a -0.3% change. Chains, on the other hand, in 2019 numbered fewer than in 2010, and from 2016-2019 witnessed a net decline of -1,583 or a -4.0% change. Combined the data signal that independent pharmacies did not decline over the last decade but have enjoyed steady growth, and this growth has slowed only recently as the entire industry has slowed.

A look at differences in the number of independent pharmacies by state provides further insight. Table 2 displays the absolute and percent change in the number of independent pharmacies by state between 2010 and 2019.

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[7] The NCPA Digest is available online here http://www.ncpa.co/pdf/digest/2019/2019-digest.pdf.

Table 2. Growth (or Loss) Rate of Independent Pharmacies by State, 2010-2019

State	Percent Change	Absolute Change	Total Number in 2019
Total US	13%	2,634	23,061
Delaware	95%	18	37
District of Columbia	62%	21	55
Nevada	55%	30	85
Arizona	46%	58	183
Texas	38%	539	1,944
Maryland	36%	113	426
Florida	32%	377	1,541
New York	29%	628	2,813
Connecticut	26%	34	164
Michigan	25%	218	1,095
New Jersey	23%	169	896
West Virginia	18%	37	242
Maine	16%	9	64
Colorado	16%	22	158
North Carolina	14%	93	747
Pennsylvania	14%	126	1,058
Alabama	12%	69	644
Kentucky	12%	59	557
Idaho	11%	12	117
Georgia	10%	68	750
Montana	8%	9	119
Virginia	8%	29	385
California	8%	154	2,136
Indiana	5%	11	213
Louisiana	5%	25	530
Massachusetts	5%	8	178
Missouri	4%	20	502
South Carolina	4%	14	355
Ohio	2%	12	527
Utah	2%	4	184
Hawaii	1%	1	73
Tennessee	0%	0	533
New Mexico	-1%	-1	80
Arkansas	-1%	-5	370
Wyoming	-2%	-1	44
Oklahoma	-3%	-11	402
Alaska	-3%	-1	32
Mississippi	-4%	-17	381
Wisconsin	-5%	-14	279
Nebraska	-7%	-13	172
Illinois	-8%	-51	608
North Dakota	-8%	-10	115
Washington	-9%	-27	271
Vermont	-10%	-4	38
Oregon	-10%	-13	118
South Dakota	-10%	-9	80
Kansas	-12%	-36	257
New Hampshire	-13%	-5	33
Iowa	-16%	-49	261
Rhode Island	-21%	-6	22
Minnesota	-30%	-80	187

Among the 50 states and District of Columbia, 19 saw the number of independent pharmacies decrease over the time period, and eight of those saw declines of fewer than 10 pharmacies over the decade. The majority of states, 32, saw increases in the number of independent pharmacies. In 26 of those states the increase was greater than 10, while it was greater than 50 in 13 states. Delaware saw an almost 100% increase in the number of independent pharmacies from 2010 to 2019. The District of Columbia had a 62% increase in the number of independent pharmacies to 55 in 2019, which equates to nearly one independent pharmacy per square mile. Figure 2 provides a graphical depiction of the number of independent pharmacies per one million population in 2019.

Figure 2. Independent Pharmacies Per One Million Population (2019)
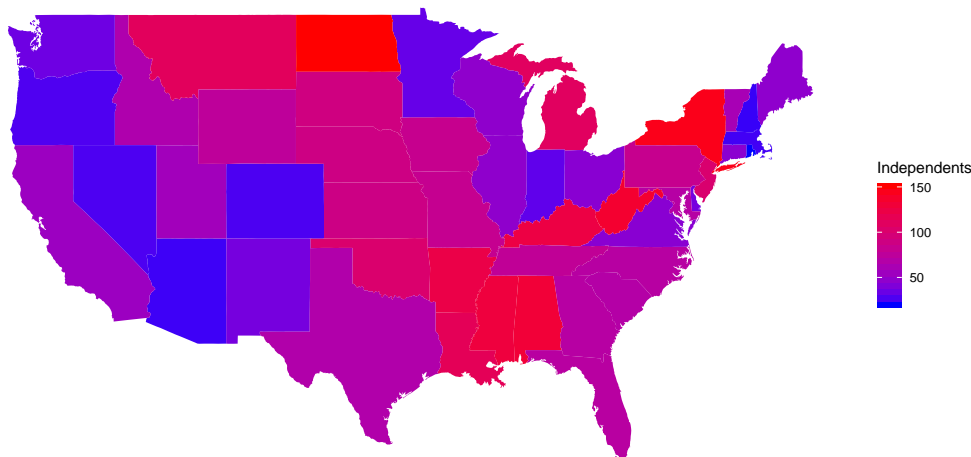
Longitudinal Analyses – linear fixed-effects estimates of statewide annual counts of independent pharmacies (2010-2019)

The pharmacy data include annual counts of each pharmacy type by year, from 2010 to 2019, resulting in 10 data points per state, per type of pharmacy. We conducted analyses returning linear fixed-effects estimates of the statewide annual counts of independent pharmacies (2010-2019). The use of state-level fixed effects allows us to control for state-level differences in both baseline levels of independent pharmacy penetration, including things like state population and long-standing differences in states' medical and business environments.

Results of the regression analysis are presented in Table 3. First, to account for generalized growth or decline in the number of independent pharmacies, we include a linear *trend* (with the year 2010=1) – this is presented in Model 1. Second, we include a control variable that measures the number of non-independent / chain pharmacies in each state in each year – this is presented in Model 2. This serves as a useful proxy for general differences in demand for pharmaceutical services across states (e.g., state-level differences in population age, health, and so forth), and which could confound potentially observable relationships between policy change and independent pharmacies' growth or decline. We combine both the trend and control in our final model (Model 3).

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Table 3. Analysis of Independent Pharmacy Growth			
Variable	**Model 1 (Trend only)**	**Model 2 (Chain Pharmacies as proxy for all other local environmental conditions)**	**Model 3 (Both Trend and Chain)**
Linear Trend	6.35* (0.76)		6.08* (0.75)
Chain Pharmacies		0.33* (0.07)	.27* (0.07)
R^2	0.13	0.04	0.16

The *trend* variable suggests that, on average, states saw a within-state increase of roughly six independent stores per year over the period studied. Similarly, the estimate associated with the proxy variable measuring demand (*Chain Pharmacies*) indicates that, on average, we would expect to observe an in-state increase of about one independent pharmacy for every three chain stores present.[8]

Discussion

First, the data show that independent pharmacies are not in decline. Second the growth is consistent even when controlling for chain pharmacies. It is important to note, however, these analyses do not include any sociodemographic, economic factors, or other factors, and it is likely the relationships between pharmacy growth over time may differ once additional covariates are introduced. Indeed, preliminary analyses on U.S. Census data hint that there are likely a number of conditions worth investigating that may differentially influence the growth of independent pharmacies at the state and substate levels. It is also important for future studies to explore log-linear specifications and measures of elasticity. Nevertheless, the dire messages proposed by some that independent pharmacies are at a unique disadvantage or are in major decline are not supported by the data over the last decade.

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[8] Note that, because the model includes state-level intercepts, the finding of within-state increases in independent pharmacies is not inconsistent with the slight nationwide decline in the total number of independent pharmacies during the period studied.

Author Biographies

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Appendix A: Data

National Council for Prescription Drug Programs (NCPDP). Counts of Independent and Chain pharmacies by year by location 2010-2019. Data are annual data on community pharmacies in the U.S. from master files provided by the NCPDP for February 2007 through February 2015. An NCPDP number is a unique identifier assigned to every licensed pharmacy for processing prescription claims. These data provide detailed information on an annual basis regarding each active community pharmacy in the United States, including location and pharmacy type, which was internally validated by NCPDP. Quest Analytics cleaned and processed this data to PCMA (see Appendix B for details).

Appendix B: Methodology for Pharmacy Count Data Cleaning

PCMA's pharmacy count data comes from NCPDP and is cleaned and processed by Quest Analytics. NCPDP provides raw data files to Quest and Quest provides final counts of the number of community retail chain and independent pharmacies by state and by year to PCMA. Quest's methodology standardizes each pharmacy's information to identify and eliminate invalid pharmacy records, for example duplicate entries. Quest also limits the counts to pharmacies that are "community/retail" pharmacies, removing other types of pharmacies such as long-term care and military pharmacies. Chain pharmacies are classified as part of a group with four or more pharmacy locations with common ownership. Independent pharmacies are classified as between one and three pharmacy locations under common ownership, or an independently-owned pharmacy that has a franchise agreement with a franchisor.