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Price Changes in Washington following the 2012 Liquor Privatization: An Update Through 2016 with Comparisons to California, Idaho, and Oregon

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Abstract

Background: Washington State ended their wholesale and retail monopoly on liquor on June 1, 2012, resulting in a five-fold increase in liquor outlets in diverse store types. The legislation also included taxes at the wholesale and retail levels. This study seeks to investigate whether prices have changed from 2014 through 2016, as a follow up to a previous study finding increases in prices from 2012 to 2014, compared to prices in other states.

Methods: We developed an index of 68 brands that were popular in Washington in early 2012. Data on final liquor prices (including taxes) in Washington and California were obtained through store visits and online sources between November 2013 and March 2014, and again between April and May 2016 for Washington only. Pricing data for Idaho and Oregon were obtained from the Statistics for Alcohol Management Database over both sampling periods. Primary analyses were conducted on the utmost brands available in the majority of the stores sampled.

Results: Liquor prices in Washington rose an average of 3.9% for 750 mL and 6.5% for 1.75 L containers overall from 2014 to 2016; while bordering states Idaho (+2.9%) and Oregon (+1.5%) experienced smaller increases for 750 mL and declines for 1.75 L containers (Idaho: –2.9%, Oregon: –4.9%). In the analyses of spirits prices in Washington compared to California, prices in California were 24.1% lower for 750 mL containers and 29.6% lower for 1.75 L containers.

Conclusion: Our findings indicate liquor prices in Washington have increased since our 2014 assessment at a larger percentage than prices in the neighboring control states Oregon and Idaho, with varying effects on brands, container sizes, and store types. We demonstrate privatization is associated with a different pattern of prices across store types than seen in California.

Keywords

price; liquor; privatization; monopoly; taxes

Introduction

Prior to prohibition, alcohol retailers could purchase directly from producers (i.e. distillers, brewers, winegrowers). This exclusive supply and purchase arrangement between an alcoholic beverage producer and retailer was known as a tied-house or tied saloon (Levine, 1985). Tied-houses were viewed as especially problematic because they often resulted in lower prices and excessive consumption. Prohibition was repealed by the 21st Amendment on December 5, 1933. In response to concerns about tied-houses, federal and state laws such as the Federal Alcohol Administration Act of 1935, were established to prevent aggressive pricing policies and unfair competition believed to be facilitated by vertical integration. Furthermore, state governments took control of the wholesale and retail availability of alcoholic beverages throughout the United States. Washington, along with many other states, created a monopoly system on the distribution and/or retailing of alcohol, while the majority of states established a licensing system for private retailers. Under state monopolies, distilled spirits and in some cases wine, for off-premise consumption, are sold only at state controlled stores. In licensed states and all states for beer, a three-tier system consisting of laws to regulate the ownership of production, distribution, and retailing operations of alcoholic beverages was developed to ensure these sectors remained separate (Elias, 2016). Alcohol is a habit forming, addictive and potentially harmful product, where temporary low prices can be used to increase demand. Alcoholic beverages can also be used as loss leaders to drive customers to supermarkets or other stores, as has become common in the United Kingdom and Australia. The three-tier system, or having government control, appears to prevent these kinds of activities.

The approval of the state of Washington Initiative 1183 (I-1183) ended the state monopoly of spirits sales on June 1, 2012, thus removing state regulations on the distribution and pricing of spirits, instituted additional taxes on spirits, and changed the licensing requirements for spirit retail outlets. Washington is the first state to fully privatize both the distribution and retailing of spirits; and the first to allow a market without a three-tier system for spirits (National Alcohol Beverage Control Association (NABCA), 2011). Under this new system in Washington, producers are allowed to sell directly to retailers, bypassing the wholesale tier and potentially allowing large retailers to heavily discount particular brands. Per the initiative, new spirits taxes were engendered that mirrored mark-up procedures under the state system to insure state revenues were maintained. These taxes can be summarized as 10% of the wholesale price paid by the distributor and 17% of the retail price paid by the retailer, both of which are passed to the consumer through the retail price. In addition to these new taxes, Washington has maintained its spirits sales tax rate of 20.5% and spirits liter tax of \$3.7708 applied on top of the retail price. According to the Tax Foundation (Drenkard, 2016), Washington's spirits excise tax rate was estimated at \$33.54 per gallon in 2016, the highest in the country, with the next highest rate being \$22.74 per gallon in Oregon. As required by the initiative, both the spirits sales tax and spirits liter tax are now listed on each price label.

Additional provisions of I-1183 required what is now known as the Washington State Liquor and Cannabis Board to auction the former state liquor stores for the exclusive right to apply for a spirits retail license and operate a liquor store of less than 10,000 square feet either at

the same location or within one mile of the current location. Before privatization liquor stores had an average size of 5,000 square feet. However, new off-premise retailers must have a store premise of at least 10,000 square feet of fully enclosed retail space. Former contract stores—stores operated by small business owners, located in less populated areas of Washington—were allowed to continue operations under the privatized system. The change in licensing requirements for spirits retailers has made it possible for spirits to be purchased when shopping for other commodities such as at grocery stores and drug stores.

Spirits privatization has resulted in several changes to the retail market in Washington. First, spirits availability has increased as the outlet density has also increased. Prior to privatization there were 333 off-premise retailers (167 state stores and 166 contract stores); by 2013 there were approximately 1,400 retailers and 1,600 retailers in 2015 (Washington State Liquor and Cannabis Board, 2015; Washington State Liquor Control Board, 2014). News outlets in the Washington area have reported on the struggles for independent liquor stores (the former state and contract stores), which were lucrative businesses under the state monopoly, to remain operational (González, 2014; Markovich, 2013; Sowa, 2013). Out of the 333 legacy licenses, 235 remain open (98 former state stores and 137 contract stores) as of July 2016.

Second, spirits prices have increased significantly since switching to a privatized system. In our previous study examining price changes from 2012 to 2014 in Washington, we found, an increase of 15% for 750 mL containers and 4.7% for 1.75 L containers, while small and non-significant increases were observed in neighboring control states Idaho and Oregon (Kerr et al., 2015). The Washington Department of Revenue provides further evidence of rising spirits prices. Based on reports of monthly spirits sales to consumers, the average price per liter was \$21.89 for the partial fiscal year (July 2011 – May 2012) before privatization (Department of Revenue Washington State). By the 2014 fiscal year (July 2013 – June 2014) the mean prices increased by approximately 11.6% to \$24.44/L, and again by 6.0% to \$25.90/L for the 2016 fiscal year.

Also of importance, two policy changes occurred in Washington during the transition period to a privatized system. In 2010, the beer excise tax temporarily increased from \$8.08 per barrel to \$23.56 per barrel (\$0.26/gal to \$0.76/gal respectively) until 2013, after which the tax was reduced to its original rate of \$8.08 per barrel. In November 2012, Washington residents approved Initiative 502, legalizing recreational marijuana at the state level on December 6, 2012. Although the effects of alcohol consumption and marijuana use are not assessed in this study, these changes in alcohol and marijuana policies have important implications as there is mixed evidence of either a complementarity or substitution effect between alcohol and marijuana use. For example, using data from the 1979 cohort of the National Longitudinal Survey of Youth, Pacula found a complementary effect between alcohol and marijuana where doubling the beer tax reduced the probability of marijuana use (Pacula, 1998). Whereas authors using the Australian National Drug Strategy Household Survey report a substitution effect of higher alcohol prices being positively associated with marijuana use (Cameron and Williams, 2001).

This paper has three major aims and is part of a larger study examining the impacts of spirits privatization in Washington. First, to estimate the overall change in spirit prices since the 2014 analysis, following the privatization of the government controlled system in 2012. Second, we will evaluate the pricing structure of spirits in Washington compared to California, where the store types selling spirits are similar, to address the generalizability of findings to other states. Lastly, we will examine the structure of beer prices in Washington to determine if the pattern we previously observed for spirits prices across store types is similar for beer, addressing the generalizability of findings to beer, the more popular beverage type in the U.S. (Martinez et al., 2019).

The literature on the privatization of alcohol systems has rarely addressed spirits prices. One study considered prices in private and government stores after a partial privatization in British Columbia, Canada where they found an association between increased densities of privatized stores and lower mean prices for alcohol (Treno et al., 2013). Documenting how prices have changed since 2014, taken together with our previous study (Kerr et al., 2015) describing price changes from 2012 to 2014, provides evidence on how prices have changed over several years following Washington's unprecedented privatization. Washington's privatization included several major aspects affecting both prices and availability, making impacts on consumption and harms difficult to predict. The effect of these policy changes on prices specifically, in addition to availability and consumption, provides a fuller picture of the overall impact of the policy on businesses and consumers; and provides context to studies evaluating the effects of Washington's privatization on health outcomes. This information is also useful to other states considering privatization. Furthermore, our study is also the first to compare spirits prices between a newly privatized state and longstanding licensed state by store type; and to compare beer prices across store type to spirits prices across store type.

Materials and Methods

Brand Selection

To evaluate changes in spirits prices a spirits brand index was developed consisting of 68 brands of the most popular spirits in Washington during early 2012. Spirits popularity was determined using the Statistics for Alcohol Management Database (SAM) provided by NABCA. Initially, the index consisted of 86 brands selling 5,000 or more 9L cases from June 2011 through May 2012. The brand index was reduced to 68 brands based on a preliminary online search of stores in Washington. The final index consists of the most common container sizes (750 mL and 1.75 L), popular spirits brands, and a few local brands, with attention to spirits categories (e.g., gin, vodka, whiskey) and price levels. Similarly, a beer index was developed to evaluate beer prices across store types in Washington. The index consisted of six brands from the following categories ice beers (e.g., Busch Ice and Natural Ice), premium beers (e.g., Budweiser and Coors), and super premium/craft beers (e.g., Sierra Nevada and Red Hook) as defined by The Beverage Information Group (2018). Beer packaging was available for a variety of container sizes therefore we focused on the most common retail packaging of 6–12oz bottles and 12–12oz bottles.

Store Sampling

The location of retail stores licensed to sell spirits was determined from the Washington State Liquor and Cannabis Board list of off-premise licensees. In 2014, there were a total of 1,427 active spirits licenses in Washington. Retail locations were randomly selected for sampling in the following counties: Clark, King, Kitsap, Pierce, Snohomish, Thurston, and Whatcom. These counties represent the most populous counties in Washington, which are located in the western region; and were geographically accessible to the research team. Out of the 916 active licenses amongst the counties selected for sampling, 45 stores were sampled (Kerr et al., 2015). In the current analysis, data were drawn from the same stores sampled in 2014, with the following exceptions. We conducted a sensitivity analysis of the 2014 price change without Clark County and found negligible differences. Therefore, Clark County was excluded to conserve study resources which allowed for other study extensions. Additionally, four new liquor stores were sampled when previously sampled liquor stores were no longer in business. For the 2016 sampling period there were 1,694 active licenses throughout Washington; of which 35 stores sampled out of the 978 active licenses identified amongst the six counties.

To address our second aim, we chose California as the comparison state because it has a license system for off-premise liquor sales similar to Washington and many large chain stores including BevMo, Costco, RiteAid, and Safeway are licensed to sell spirits in both states. California also has the best geographic proximity to Washington, given that both Oregon and Idaho are spirits control states. Sampling in California was limited to Alameda County—the seventh most populous county and where our offices are located—due to the large geographic area of California. For the cross-state comparison, store sampling methods were replicated in California during the same period as the 2014 Washington sampling. A total of 10 stores out of the 991 active licenses identified were sampled through random selection in California. Together the stores sampled consisted of a variety of store types (liquor stores, liquor super stores, grocery stores, drug store, department stores, and wholesalers) including former state-operated liquor stores and contract stores in Washington. Retail stores that sold groceries and general merchandise (electronics, health and beauty products, clothing, etc.) were categorized as department stores; examples include Target, Walmart and Fred Meyer.

Data Collection

Data on spirits prices in Washington before privatization were drawn the SAM database; it contains pricing and sales data on spirits and wine for each control state. After privatization, pricing data was collected through store visits and online sources between November 2013 and March 2014, and again between April and May 2016. Photographs of the brands and price labels were taken, capturing the lowest advertised price. Informed consent of the storeowners and employees was not required, because the subject of interest consisted of spirits prices not human subjects, per the institutional review board (IRB) at the Public Health Institute. All appropriate state taxes were applied to the advertised list price when necessary to calculate the final price to the consumer; these taxes include the Washington spirits sales tax (20.5%) which includes the general sales tax, Washington spirits liter tax

(\$3.7708/liter), and California sales tax (9.0%). Spirits pricing data for Idaho and Oregon were drawn from the SAM database across the 2014 and 2016 sampling periods.

Analysis

To account for missing brands across the stores sampled, several indices were developed to make valid comparisons across stores. The names of the brands in each index are listed in Tables 1–4. The first index (Table 1) consisted of six 750 mL brands that were available in 33 stores in 2014 and 26 stores in 2016. The second index (Table 2) consisted of five 1.75 L brands that were available in 31 stores in 2014 and 22 stores in 2016. The change in average price from 2014 to 2016 was determined for each index and store type comparison in Tables 1 and 2.

We developed a third spirits index (Table 3) to evaluate price variation (for both 750 mL and 1.75 L containers) across store type in Washington compared to California, in 2014. For 750 mL containers, the index consisted of six brands that were available in 22 of the stores sampled in Washington and eight of stores sampled in California. For 1.75 L containers, the index consisted of three brands that were available in 24 stores in Washington and 7 stores in California. The average price difference between Washington and California was determined for both indices and store type comparison. Several spirits retailers sampled in this study are considered chain stores (retail outlets with a shared central management and standardized business methods) located in both Washington and California. We conducted a direct store comparison, examining the difference in average price between Washington and California for each of the following stores: BevMo, Safeway, Target, Trader Joe's (750 mL only) and Costco (1.75 L only). A new brand index (Table 4) was developed to include brands that were available in both container sizes for each store listed.

The final index (Table 5) consisted of four brands of beer for six and 12-packs of 12oz bottles in 2016. The beer index presents the average, minimum and maximum prices for each brand and across store type. Significant changes at the $p < 0.05$ level in prices, price indices, and price differences were estimated using t-tests in Stata 15 (StataCorp., 2017).

Results

Changes in Spirits Prices

Equal-weighted indices of brands available in the most stores were used in the analyses of changes in spirits prices after privatization. Overall, results indicate prices in Washington have increased since 2014 and at a larger percentage than bordering states Idaho and Oregon. Results also suggest liquor superstores have maintained the lowest spirits prices compared to other store types.

Table 1 presents results for the 750 mL index. Among the 26 stores, the 6-brand index shows there was a significant price increase of 3.9% overall from 2014 to 2016. The price increase for 750 mL containers observed in Washington was higher than the non-significant increase observed for bordering control states Idaho (+2.9%) and Oregon (+1.5%) from 2014 to 2016. Price changes across brands varied from a low of 1.3% for Bacardi Rum to a high of 6.9% for Jack Daniel's Whiskey. Examination of prices by store type revealed some

differing results. Liquor super stores (i.e. BevMo and Total Wine) and liquor stores had a non-significant decrease in prices from 2014 to 2016 while grocery stores experienced a significant increase in price at 7.1%.

Analysis of the 5-brand index for 1.75 L containers are presented in Table 2. Results show a significant increase of 6.5% from 2014 to 2016 among 22 stores sampled. Diverging results were found between Washington and its bordering control states. Spirits prices in Idaho and Oregon experienced a non-significant decrease of 4.9% and 2.9%, respectively, averaging a decrease of 3.9%. Results suggest the increase in price observed in Washington is related to ongoing effects of privatization. Across store types, non-significant increases were found with the following exceptions. Prices amongst grocery stores were found to have increased significantly by 13.1%, while a non-significant decrease in prices of 1.5% was found among department stores.

California Price Comparison

Focusing on 750 mL containers, the analyses of spirits prices in Washington compared to California (Table 3) revealed, on average, prices in California were significantly lower by 24.1%. Examination across store types indicates on average spirits prices in California were significantly less at liquor stores, grocery stores, and drug stores (−21.0%, −26.2%, −31.7%, respectively) compared to Washington stores of the same type. Relatively similar results between Washington and California were found when ranking the store types by expensiveness. In Washington, liquor super stores had the smallest average price of \$25.81 compared to liquor stores with the largest average price of \$31.56. In California, drug stores had the lowest average price of \$19.43 compared to liquor stores with the highest average of \$24.92.

Similar to the results for 750 mL containers, spirits prices in California were significantly less by 29.6% for 1.75 L containers compared to Washington (Table 3). Across store types, significant differences in average price were found for liquor stores (−34.5%), grocery stores (−34.0%), department stores (−22.9%), and wholesale stores (−35.2%) in California, compared to Washington. Of interest, variation in store type rankings of expensiveness was also observed between Washington and California. Once again, liquor stores in Washington were most expensive with an average price of \$51.54 for 1.75 L spirits compared to liquor super stores with an average of price of \$39.82. Conversely, in California drug stores were most expensive (\$38.14 on average) and wholesale stores were least expensive (\$26.88 on average) for 1.75 L spirits. Although liquor stores in California were more expensive than wholesale stores for 1.75 L spirits, results indicate Californian liquor stores are able to offer competitive prices similar to the other store types unlike liquor stores in Washington.

Results for the direct store comparison in Table 4 show Trader Joe's had the smallest price difference for 750 mL containers, with prices in California being less than Washington by 15.7%. The largest difference for 750 mL containers was found at Safeway with prices being less in California by an average of 26.2%. Amongst 1.75 L containers, BevMo had the smallest price difference of 26.4% in favor of California. On average, spirits prices at Safeway were found to have the largest price difference of 34.1%, although Costco and Target had a similar difference for 1.75 L spirits.

Beer Prices

The final index (Table 5) presents a 4-brand beer index for 6 and 12 packs of 12oz beer in Washington only. For this index wholesales stores such as Costco were not included because 6 or 12 packs of beer were not available. The pattern of beer prices across store types was akin to that of spirits prices, although no significant differences were found. Liquor super stores had the lowest price at \$7.98 on average for 6-packs and \$13.43 for 12-packs. Liquor stores had the highest price at \$8.84 and \$15.56 on average for 6 and 12 packs of beer respectively. Price variability across store types was about 10% for 6-packs of beer, ranging from \$0.44 to \$0.86 on average. There was more variability for 12-packs of beer, ranging from \$0.77 to \$2.13 on average, a 16% difference between the liquor stores and Liquor super stores.

Discussion

Our current 2014 to 2016 analysis of changes in liquor prices in Washington indicates the new system created through privatization continues to have varying effects across brands, container sizes, and store types. Significant continued price increases were found compared to our previous 2014 analysis for both 750 mL (2014 vs 2012: +15.5%; 2016 vs. 2014: +3.9%) and 1.75 L (2014 vs. 2012: +4.7%; 2016 vs 2014: +6.5%) containers (Kerr et al., 2015). Although prices have increased since the 2014 analysis as expected, the varying price changes across store types was surprising. Only grocery stores had significant price increase from 2014 to 2016, and this was found for both 750 mL and 1.75 L containers. Other store types varied showing both non-significant increases and decreases. Importantly, a larger increase was observed for 1.75 L containers vs 750 mL containers in Washington; and a 3.9% *decline* in bordering states for 1.75 L containers. These results shows that over time the impact of privatization on prices for 750 mL and 1.75 L sizes has become more similar.

The results of the current study are consistent with the official Washington state statistics on changes in mean spirits price. In this study, we utilized a basket of goods approach—where samples were drawn from multiple outlets and the same brands, container sizes, and store types in each state were compared—to assess changes in spirits prices because of the limitations imposed when only considering the mean price of weighted sales. For example, the weighted average approach assumes equal values are equivalent in proportion. However, spirits are sold in a variety of container sizes with varying quantities of ethanol. In addition, the new taxes created under I-1183 were a tax on spirits and not pure ethanol, as they were designed to make-up for the state revenues that would be lost when switching to a privatized system. In sum, the weighted sales approach does not account for the new spirits taxes and variability of ethanol in spirits products, nor shifts in the quality of products purchased when assessing changes in spirits prices over time.

During the months prior to privatization (January – May 2012), spirits prices for the brands we tracked were marginally different in Washington compared to those in Idaho and Oregon. According to the SAM database, spirits prices in Washington averaged \$20.81 for 750 mL sizes and \$41.14 for 1.75 L sizes (results not shown), which in comparison were approximately \$2 – \$3 higher for 750 mL sizes (ID: \$17.85, OR: \$18.76) and \$5 – \$7 higher for 1.75 L sizes (ID: \$34.42, OR: \$35.82) than the bordering states. Since the closing of

government operated liquor stores, spirits prices between Washington and its neighboring control states have diverged. At the 2014 assessment on average, spirits prices in Idaho and Oregon were lower by approximately \$5–\$8 compared to Washington for both container sizes (Kerr et al., 2015). The current analysis shows the price difference has nearly doubled, with spirits prices in Idaho and Oregon being \$6 - \$7 less for 750 mL containers and \$8 - \$12 less for 1.75 L containers compared to Washington.

Despite the rise of liquor prices in Washington, liquor super stores (750 mL) and wholesale stores (1.75 L) have maintained their low prices compared to other store types with varying implications on alcohol purchasing behaviors. Using survey data of Washington residents, Kerr and colleagues show that younger and more frequent drinkers took advantage of increased convenience after privatization by shopping at grocery and drug stores, while older drinkers actually travelled further on average to shop at the lower priced wholesale stores, liquor superstores and government stores in bordering states (Kerr et al., 2019a). This lack of correspondence of lower prices and convenience in the same store types may partly explain why the large increase in spirits outlets did not increase spirits intake. Additionally, results from another study of Washington residents found risky drinkers were more likely to be spirits drinkers, whom purchase larger container sizes more frequently, and spend less per liter (Kerr et al., 2019b). The authors also report risky drinker were more likely to use marijuana, providing evidence of complementarity between risky drinking and marijuana use. Collectively, these findings on price variations by container size and store type as they relate to purchasing patterns are relevant to understanding the effect of alcohol policies, especially for jurisdictions considering privatizing spirits.

As previously noted, off-premise alcohol availability increased substantially post-privatization; therefore, cross-border sales were expected to decrease in Oregon and Idaho relative to a situation where only prices changed. However, several studies report an increase in spirits sales for stores and counties in Oregon and Idaho that border Washington post privatization (LoPiccalo, 2014; Winfree and Watson, 2015; Ye and Kerr, 2016). In Oregon, liquor stores near the Washington border had a 21% increase in sales (LoPiccalo, 2014); and Idaho counties near the Washington border had a 10% increase in liquor store sales post privatization (Winfree and Watson, 2015). In the analysis by Ye and Kerr, they examined the effects of cross-border sales on consumption estimates and revenues in Washington. Using monthly sales data from January 2009 through October 2014 they found liquor sales increased 10.4% and 11.7%, respectively for bordering counties in Oregon and Idaho, compared to an increase of 2.3% and 3.4% for non-bordering counties (Ye and Kerr, 2016). Washington lost an estimated 0.226% of total sales to Oregon and Idaho during the 2013 fiscal year (Ye and Kerr, 2016). Accounting for these lost sales, the estimated per capita (all ages) consumption in Washington was relatively flat at 5.80 L in 2012, 5.80 L in 2013, and 5.76 L in 2014 (Ye and Kerr, 2016; Zhao et al., 2014). Higher alcohol prices are associated with reduced consumption, but they may also encourage cross-border purchasing or quality downgrading in an attempt to avoid reducing consumption (Fitzgerald and Mulford, 1993; Ruhm et al., 2012; Xu and Chaloupka, 2011). The results of the current study provides further evidence of rising spirits prices in Washington, which may explain the increase in cross-border sales and flat consumption observed in the aforementioned studies.

In the U.S., earlier studies on the privatization of spirits (Holder and Wagenaar, 1990) and wine (Macdonald, 1986) found consumption increased significantly after privatization. In Alberta, Canada, a significant increase in spirits sales was also found after privatization at the retail level (Trolldal, 2005). Previous studies have also reported positive associations between outlet density and consumption (Campbell et al., 2009; Macdonald, 1986) with outlet density increasing after privatization (Flanagan, 2003; Stockwell et al., 2009; Wagenaar and Holder, 1991). However, privatization in Washington was more complicated with increased outlet density working against higher prices such that per capita spirits consumption remained flat (Kerr et al., 2018). Specifically, the analysis conducted by Kerr on changes in alcohol use patterns after privatization found no significant change in alcohol (spirits, wine, and beer) volume defined as drinks per month, a significant decrease in spirits volume, and a reduction of heavy drinking (5+ drinks) days compared to consumption prior to privatization. The decrease in beer taxes in 2013, after a temporary 3-year increase led to an increased consumption of beer, whereas the decline in spirits volume can be attributed to a reduction of reported spirits drinking days. The shift from spirits to beer is consistent with the increase in spirits prices and decrease in beer prices, despite the increase in alcohol availability.

Store Type Differences between Spirits and Beer

New analyses of beer prices for 2016 show that the pattern of pricing across store types is similar for both beverage types with the lowest prices in liquor super stores; followed by department stores and grocery stores and with liquor stores having the highest prices. However, the range is larger for spirits, with 24% higher prices in the liquor stores for both sizes, while beer prices were 11–16% higher in the liquor stores. These findings indicate that the factors influencing store type differences for spirits also apply for beer, though to a lesser degree.

California Comparison

There were two important findings from the spirits price comparison between Washington and California. First, Washington was found to have higher prices for both container sizes across all store types, probably due to the substantial difference in taxes. Tax rates for spirits in Washington are the highest of any U.S. state (Kerr et al., 2014). The degree to which tax changes are passed on to the consumer, the tax pass-through rate, may also be a factor. An analysis (Siegel et al., 2013) found a pass through rate of 0.93, suggesting sellers are able to pass the majority of taxes through to retail prices. Furthermore, differences in off-premise outlet density may provide an explanation for the price differences between Washington and California. Previous studies have provided evidence of an association between greater alcohol outlet density and lower prices (Treno et al., 2013). Although, there has been a substantial increase in spirits outlets following privatization, off-premise outlet density remains substantially higher in California than in Washington. Off-premise spirits outlet density in 2015 was 65 per 100,000 people in Alameda County, while Whatcom County had the highest outlet density of the counties sampled in Washington at 25 per 100,000 people (California Department of Alcoholic Beverage Control, 2015; Washington State Liquor and Cannabis Board, 2015).

The second key finding from the Washington and California comparison is the price variation between stores. Focusing on liquor stores specifically, we found them to have the highest prices for 750 mL containers in both states, compared to other outlets. We did not find a similar pattern for 1.75 L containers; Washington liquor stores had the highest prices, whereas liquor stores in California had mid-range prices compared to larger outlets. The price variation and competitiveness of liquor stores in Washington versus California may be due to several key differences between the two states. In Washington, former state-owned liquor stores were auctioned to private licensees, with prices ranging from \$49,600 - \$750,000, while new retail stores, were required to have a location of 10,000 square feet or more and pay an annual license fee of only \$177. Therefore, we expect liquor stores to be more expensive than other retail outlets in order to recover the considerable cost associated with the store purchase at auction. In comparison, off-premise outlets in California require an initial fee of \$13,800 with an annual renewal fee of \$582 regardless of store type or size of retail location. It is also possible that larger stores with wider selection of products are able to offset the higher price of liquor by raising the price of commodity items such as produce and home goods (Hess and Gerstner, 1987; Ludbrook, 2009; Record and Record, 2009).

In regards to retail performance or sales, higher prices and increased outlet density may have had negative implications for smaller liquor stores in Washington. For example, before privatization state-owned and contract liquor stores did not have competition with other retail outlets. Since privatization, outlet density has increased, and these now private liquor stores in the same locations may no longer be the most convenient place to purchase spirits. However, in California the more prevalent liquor stores may be more conveniently located as California has fewer restrictions on where liquor stores may be located and on the number of such stores, enabling easier access to spirits than grocery or drug stores. Additionally, liquor stores in California have average prices that are similar to or lower than prices at other store types for the larger 1.75 L containers.

Limitations

There are several limitations to this study. Data collection on spirits prices represents a snapshot of the retail market. We chose to present indices inclusive of a variety of brands, reflecting a range of quality, as well as store types. This basket of goods approach allows us to evaluate how prices across brands and stores respond to the new policy environment over time. Alternatively, estimates of price change based on the weighted sales mean has the advantage of including of all brands and stores; as well as the drawback of masking the variation in prices across brands and stores. Nonetheless, our results show that liquor prices have continued to increase from 2014 to 2016, and are consistent with the changes found in mean liquor prices weighted by sales.

The cross-sectional design of this study does not address all temporal changes in pricing that occurred in Washington and California over the period, such as the temporary reduction in price for specific brands. However, the “shelf prices” provided by the SAM database, averages these prices over time, providing a stable comparison. Another limitation of the study is that of our store sampling and focus on spirits. In Washington, stores in populous

counties were sampled and Eastern Washington was excluded due to the added time and cost, although we would expect similar results if this region was included. Additionally, the California sample consisted of stores from a single county. The most common container sizes were included, with varying yet somewhat consistent cross-state results; inclusion of other container sizes might yield different results.

Finally, it is possible differences in state economies such as cost of living, minimum wage, real estate, etc., may have an influence on alcohol prices. However, California has a higher cost of living than Washington, such that potential biases would work in the opposite direction and prices would be expected to be lower in Washington. Furthermore, we compared prices between states that were located in the Pacific region with a more similar geography, climate, and economy than other states.

Conclusion

Spirits privatization is the most fundamental state-wide policy change since prohibition. Washington is the first state to fully privatize both the distribution and retailing of spirits; allowing spirits producers in Washington to sell directly to retailers. Furthermore, the legislation included tax increases and fees set with the aim of maintaining revenue to the state at the previous level under state controlled spirits. A major outcome of privatization in Washington has been increased availability and increased spirits prices, which has influenced changes in consumption, cross-border sales, and spirits purchasing behaviors as demonstrated in other studies by our research team. This study builds on previous work by examining the structure of spirits pricing across multiple retail outlets after privatization in comparison with a more established spirits market comprised of similar store types in a long-term license state. Results have revealed Washington does not simply have higher prices but also a different pattern of prices across the range of store types, with negative implications for smaller businesses. This study has also shown that the smaller increase in prices for 1.75 L containers following privatization has eroded over time such that the price index is now 14.4% higher than the 2012 price index, compared to 19.9% higher for the 750 mL size.

This study contributes to the literature on Washington's unique privatization. We demonstrate that the privatization created a different pattern of prices across store types than seen in California, resulting in greater challenges for smaller businesses. The results of our study also confirm the findings of our prior price analyses (Kerr et al., 2015), that the most convenient store types tend to have the highest prices, and extend this finding to beer in Washington and spirits in California.

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Table 1.

Spirits 750 mL container price index comparison of 2013–2014 prices with 2016 prices in Washington, Idaho, and Oregon

	Avg. Price			Min.			Max.		
	2014	2016	% change	2014	2016	% change	2014	2016	% change
Brand									
Bombay Sapphire Gin	\$31.21	\$32.94	5.6%	\$26.29	\$26.92	2.4%	\$39.15	\$37.76	−3.5%
Bacardi Superior Rum	\$16.71	\$16.93	1.3%	\$13.66	\$14.84	8.7%	\$21.85	\$19.69	−9.9%
Absolut Vodka	\$27.30	\$28.16	3.2%	\$22.10	\$20.89	−5.5%	\$38.25	\$34.15	−10.7%
Crown Royal	\$34.19	\$35.48	3.8%	\$20.87	\$26.92	29.0%	\$42.10	\$41.38	−1.7%
Jack Daniel's Whiskey	\$27.82	\$29.74	6.9%	\$24.51	\$24.51	0.0%	\$34.70	\$36.56	5.3%
Jameson Irish Whiskey	\$35.15	\$35.80	1.8%	\$30.53	\$29.33	−3.9%	\$43.25	\$44.99	4.0%
<i>Total</i>	<i>\$28.73</i>	<i>\$29.84</i>	<i>3.9%*</i>	<i>\$23.59</i>	<i>\$24.31</i>	<i>3.1%</i>	<i>\$36.55</i>	<i>\$34.55</i>	<i>−5.5%</i>
Store Type									
Liquor Super Store	\$25.86	\$25.31	−2.1%	\$25.10	\$24.31	−3.1%	\$26.92	\$26.31	−2.3%
Liquor Store	\$31.64	\$31.33	−1.0%	\$28.92	\$29.31	1.3%	\$36.55	\$32.79	−10.3%
Grocery Store	\$28.67	\$30.71	7.1%*	\$23.59	\$27.73	17.5%	\$31.94	\$34.55	8.2%
Drug Store	\$28.22	\$29.83	5.7%	\$26.72	\$29.33	9.8%	\$29.70	\$30.33	2.1%
Department Store	\$27.06	\$27.72	2.4%	\$24.59	\$27.12	10.3%	\$28.48	\$29.13	2.3%
State Stores									
ID State Liquor Store	\$22.05	\$22.68	2.9%	\$20.70	\$22.25	7.5%	\$22.94	\$23.15	0.9%
OR State Liquor Store	\$23.41	\$23.75	1.5%	\$21.62	\$22.62	4.6%	\$24.80	\$24.94	0.6%

Index consisted of 33 stores in 2014 and 26 stores in 2016.

* Test results indicate significant changes from 2014 prices at the $P < 0.05$ level.

Table 2.

Spirits 1.75 L container price index comparison of 2013–2014 prices with 2016 prices in Washington, Idaho, and Oregon

	Avg. Price			Min.			Max.		
	2014	2016	% change	2014	2016	% change	2014	2016	% change
Brand									
Captain Morgan's	\$42.78	\$44.84	4.8%	\$31.89	\$34.30	7.6%	\$52.38	\$52.38	0.0%
Smirnoff Vodka	\$31.59	\$34.76	10.0%	\$25.26	\$27.07	7.2%	\$39.12	\$43.99	12.4%
Jack Daniel's Whiskey	\$53.21	\$56.95	7.0%	\$40.33	\$46.35	14.9%	\$66.84	\$70.45	5.4%
Rich & Rare Whisky	\$24.60	\$27.02	9.9%	\$19.24	\$21.05	9.4%	\$28.28	\$30.69	8.5%
Seagram's 7 Crown	\$30.69	\$31.28	1.9%	\$23.46	\$24.66	5.1%	\$35.51	\$35.00	−1.4%
<i>Total</i>	<i>\$36.58</i>	<i>\$38.97</i>	<i>6.5%*</i>	<i>\$28.52</i>	<i>\$31.17</i>	<i>9.3%</i>	<i>\$44.42</i>	<i>\$44.91</i>	<i>1.1%</i>
Store Type									
Liquor Super Store	\$30.98	\$32.98	6.4%	\$28.52	\$31.17	9.3%	\$33.08	\$34.78	5.1%
Liquor Store	\$39.27	\$40.93	4.2%	\$37.26	\$38.64	3.7%	\$41.96	\$44.49	6.0%
Grocery Store	\$36.77	\$41.58	13.1%*	\$34.06	\$38.64	13.5%	\$41.72	\$44.91	7.6%
Drug Store	\$38.01	\$38.40	1.0%	\$36.11	\$37.68	4.3%	\$40.69	\$39.60	−2.7%
Department Store	\$37.42	\$36.86	−1.5%	\$34.23	\$35.84	4.7%	\$44.42	\$39.12	−11.9%
Wholesale	\$32.08	\$34.37	7.2%	\$29.22			\$34.41		
State Stores									
ID State Liquor Store	\$28.44	\$27.05	−4.9%	\$27.20	\$27.05	−0.5%	\$29.60	\$27.05	−8.6%
OR State Liquor Store	\$31.36	\$30.45	−2.9%	\$29.95	\$29.35	−2.0%	\$32.57	\$31.55	−3.1%

Index consisted of 31 stores in 2014 and 24 stores in 2016.

* Test results indicate significant changes from 2014 prices at the $P < 0.05$ level.

Table 3.

Spirits 750 mL and 1.75 L container price index comparison of 2013–2014 prices in Washington and California

	Average Price		
	Washington	California	% Difference
750mL Index[†]			
Brand			
Bombay Sapphire Gin	\$31.17	\$24.79	−20.5%
Jameson Irish Whiskey	\$34.58	\$25.60	−26.0%
Jim Beam	\$20.09	\$15.04	−25.1%
Johnnie Walker Black	\$49.56	\$36.92	−25.5%
Skyy Vodka	\$21.53	\$17.27	−19.8%
Smirnoff Vodka	\$17.49	\$13.06	−25.3%
<i>Total</i>	<i>\$29.13</i>	<i>\$22.12</i>	<i>−24.1%*</i>
Store Type			
Liquor Super Store	\$25.81	\$19.79	−23.3%
Liquor Store	\$31.56	\$24.92	−21.0%*
Grocery Store	\$29.67	\$21.90	−26.2%*
Drug Store	\$28.45	\$19.43	−31.7%*
Department Store	\$29.13	\$22.15	−24.0%
1.75L Index^{††}			
3 Brand			
Absolut Vodka	\$50.03	\$34.40	−31.2%
Skyy Vodka	\$38.36	\$24.73	−35.5%
Jack Daniel's Whiskey	\$52.73	\$40.16	−23.8%
<i>Total</i>	<i>\$47.04</i>	<i>\$33.10</i>	<i>−29.6%*</i>
Store Type			
Liquor Super Store	\$39.82	\$30.15	−24.3%
Liquor Store	\$51.54	\$33.78	−34.5%*
Grocery Store	\$49.18	\$32.48	−34.0%*
Drug Store	\$49.23	\$38.14	−22.5%
Department Store	\$49.03	\$37.78	−22.9%*
Wholesale	\$41.51	\$26.88	−35.2%*

[†] Index consisted of 22 stores in Washington and 8 stores in California;

^{††} Index consisted of 24 stores in Washington and 7 stores in California.

* Test results indicate significant differences between prices at the * $P < .05$ level.

Table 4.

Spirits 750 mL and 1.75 L container price and store index comparison of 2013–2014 prices in Washington and California

4 Brand Mean Index	750 mL			1.75 L		
	Washington	California	% Difference	Washington	California	% Difference
Bacardi Superior Rum	\$16.37	\$12.11	−26.0%	\$29.72	\$20.97	−29.4%
Absolut Vodka	\$28.50	\$22.61	−20.7%	\$50.05	\$32.14	−35.8%
Skyy Vodka	\$22.25	\$16.75	−24.7%	\$37.45	\$24.78	−33.8%
Jack Daniels Whiskey	\$27.41	\$21.52	−21.5%	\$53.57	\$38.14	−28.8%
<i>Total</i>	<i>\$23.63</i>	<i>\$18.24*</i>	<i>−22.8%</i>	<i>\$42.70</i>	<i>\$29.01*</i>	<i>−32.1%</i>
Store Mean Index						
BevMo	\$21.49	\$16.06	−25.3%	\$37.75	\$27.78	−26.4%
Safeway	\$22.52	\$16.61	−26.2%	\$44.64	\$29.42 *	−34.1%
Target	\$26.61	\$20.15	−24.3%	\$50.87	\$34.05 *	−33.1%
Trader Joes	\$23.90	\$20.15	−15.7%			
Costco				\$37.54	\$24.78 *	−34.0%

* Test results indicate significant differences between prices at the $P<.05$ level.

Table 5.

Beer 12oz container price index comparison of 6 and 12-pack 2016 prices in Washington

Brand	6–12oz bottles [†]			12–12oz bottles ^{††}		
	Avg.	Min.	Max.	Avg.	Min.	Max.
Budweiser	\$7.73	\$6.38	\$8.51	\$12.30	\$10.64	\$14.90
Coors Light	\$7.67	\$6.38	\$8.51	\$12.74	\$10.64	\$15.41
Red Hook	\$9.36	\$7.98	\$10.64	\$15.88	\$14.90	\$20.22
Sierra Nevada	\$9.60	\$8.79	\$10.64	\$17.30	\$14.90	\$19.16
<i>Total</i>	<i>\$8.59</i>	<i>\$7.45</i>	<i>\$9.58</i>	<i>\$14.56</i>	<i>\$12.77</i>	<i>\$16.50</i>
Store Type						
Liquor Super Store	\$7.98	\$7.45	\$8.51	\$13.43	\$12.77	\$14.10
Liquor Store	\$8.84	\$7.98	\$10.64	\$15.56	\$14.63	\$16.50
Grocery Store	\$8.72	\$7.44	\$10.11	\$14.83	\$14.46	\$14.93
Department Store	\$8.42	\$7.19	\$10.64	\$14.20	\$13.34	\$15.70

[†] Index consisted of 13 stores;^{††} Index consisted of 14 stores