

How much will the 25/25/25 tax scheme actually impact the price of
cannabis?
Supplement: Retail and Processor Markup

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BOTEC Analysis Corp.
I-502 Project #430-8a
Final
June 28, 2013

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Introduction

A key component in determining the expected tax revenue from marijuana sales in Washington is how much processors and retailers will each mark up the product. Will they mark it up by 50%? 100%? Even 200%? It is difficult to forecast what the markup rate will be because there are no direct historical precedents for this industry in a modern industrial country and, hence, no data on legalized marijuana markup rates.

Thus, this memo draws on various types of evidence that can indirectly inform estimates of the processor and retailer's markup:

1. Cannabis markups in the Netherlands and Denmark
2. Retail marijuana markups at medical marijuana dispensaries
3. Markups in U.S. black markets for marijuana
4. Retailer markups generally in the U.S.
5. Retailer markups in states with a liquor control board
6. Retailer markups for particular products that might be seen as comparable to marijuana
7. Processor markups for particular comparables

The following table summarizes the findings elaborated below:

RETAIL MARKUPS			
Category	Source	Notes	Markup
Price in the Netherlands and Denmark	Kilmer et al. (2013) Resin Prices	Wholesale kilogram to retail kilogram	160-170%
	UNODC World Drug Report (2008), Herbal Cannabis	Kilogram to gram	47%
	Christiania, Copenhagen (2012)	Resin (by the gram) - Wholesale to retail	276%
	Christiania, Copenhagen (2012)	Joint (per joint) - Wholesale to retail	132%
U.S. Medical Dispensaries Retail Markups	Knowledgeable Team Members	Wholesale pounds to retail pounds (premium grade)	100%
	Trip to Medical Marijuana Dispensaries (2013)	Ounce to gram level	30%
	Marijuana Business Factbook (2013)	Wholesale gram to retail gram	50-114%
Black Market Marijuana Retail Markups	Caulkins et al. (2004), Useable marijuana	More than 100 grams to between 10-100 grams	30-160%
	Fries et al. (2008), Useable marijuana	From 10-100 grams to 0.1-10 gram level	55-60%
	Caulkins and Bond (2012), Useable Marijuana	Pound to ounce level	60%
	PriceOfWeed.com (2012-2013)	Retail ounce to retail gram	60-81%
	Federal & Washington State Data (2002)	Wholesale ounce to Retail ounce	50%
	Washington State Law Enforcement Data (2013)	Ounce to gram level	33%
General Retail Markups	Beer, wine, liquor stores		31%
	Prescription medication		377-399%
	Food supplements		80%
	Fruits and Vegetables		40%
	Coffee and Tea	In a restaurant setting	300%
	Wine by the Glass	In a restaurant setting	400%
Liquor Control Board Retail Markups	Washington State Liquor Control Board (2011)	Based on typical bottle sold; LCB is a monopolist	68%
	Pennsylvania State Liquor Control Board (2011)	Based on financial statements; LCB is a monopolist	45%
Retail Markup of Particular Comparables	William Powell Guns (2013)	Single Pittsburgh, PA gun store	9%
	Caviar (2013)	Based on wholesale price list of CaviarExpress.com	95%
	Cigarettes, CDC (2009)	Minimum required retail markup on cigarettes in 25 states with minimum price laws	8%

Category	Source	Notes	Markup
Agricultural Products	Welch's (2009)	Processing of grapes	55%
	Doles (2012)	Processing of fresh fruit and vegetables	9%
	Pilgrims Pride (2012)	Processing of chicken for sale to retailers	6%
	Dean Foods (2012)	Processing of raw milk into fluid milk	34%
	Dongwon (2010)	Selling recently caught tuna	86%
	Dongwon (2010)	Processing of tuna into canned tuna	43%
	New York Greenhouses (2001)	Wholesale and retail markup for 45 greenhouses in NY	62%
	Oklahoma Greenhouses - Tomatoes		115%
	Oklahoma Greenhouses - Cucumbers		91%
Alcohol	Beers	Average of selected beer processors	96%
	Spirits	Average of selected spirit distillers	137%
Other	Gun Manufactures (2010)	Based on financial statements of Smith and Wesson and Sturm Ruger	50%

Cannabis markups in the Netherlands

The Netherlands has not legalized the entire cannabis supply chain, but it has de facto legalized retail sale, originally of up to one ounce, now of up to 5 grams (MacCoun and Reuter, 2001). Its coffee shops are not entirely comparable to the retail stores contemplated by WA-502 because WA-502 does not allow consumption on the retail premises. Nevertheless, they are probably the closest referent available.

Kilmer, Trautmann, and Turnbull (2013) estimated cannabis resin prices along the supply chain from Morocco to Spain and finally to the Netherlands. The raw cannabis in Morocco could be purchased at \$111-222 per kilogram.¹ After produced into resin, it was sold at \$173-494. Upon leaving Morocco bound for Spain the resin was worth \$142-1,425. The wholesale price in Spain was \$1,713-1,865 and once exported to the Netherlands the wholesale price was \$2,690-4,944 per kilogram. The final retail coffee shop price was \$9,613-10,179 (Kilmer, Trautmann, and Turnbull p.390-392).

In the table below are the markup amounts between each stage as well as the total markup for all previous stages. The means and markup percentages have been calculated using the data from Kilmer, Trautmann, and Turnbull (2013). The arithmetic and geometric mean are used because the range was rather large in some stages. The total markup overall

¹ Prices were given in Euros, but have been converted to US\$ using an average 2012 exchange rate. (1 US\$ = 0.809 Euros) Precision in exchange rates is not essential because our focus is on percentage increases in price when moving from one market level to the next.

from raw cannabis in Morocco to resin sold in coffee shops in the Netherlands is around 4,000-5,800%, depending on the arithmetic or geometric mean. Although this markup is very large, the retail markup is only between 160-170%.

Stage	Location	Price Range per Kilogram	Arithmetic Mean	Geometric Mean	Markup Between Stages		Total Markup	
					Arithmetic	Geometric	Arithmetic	Geometric
Raw Cannabis	Morocco	\$111 - 222	\$ 167	\$ 157	-	-	-	-
Resin	Morocco	\$173 - 494	\$ 334	\$ 292	100%	86%	100%	86%
Resin - export price	Morocco	\$142 - 1,425	\$ 784	\$ 450	135%	54%	371%	100%
Resin - wholesale	Spain	\$1,713 - 1,865	\$ 1,789	\$ 1,787	128%	297%	974%	852%
Resin - wholesale	Netherlands	\$2,690 - 4,944	\$ 3,817	\$ 3,647	113%	104%	2192%	1185%
Resin - retail	Netherlands	\$9,613 - 10,179	\$ 9,896	\$ 9,892	159%	171%	5844%	3978%
From Kilmer, et al (2013)				Computed				

The UNODC World Drug Report 2012 Statistical Annex on Prices lists the wholesale price of *herbal* cannabis in the Netherlands as 5,093 USD per kilogram (\$5.09 per gram), and the retail price as \$7.50 per gram, although that retail price is presumably the black market price. This represents a retail markup of 47%. This is not a contradiction to Kilmer, Trautmann, and Turnbull (2013) because the 160-170% markup is on resin, not on loose marijuana.

The UNODC number from 2007 was \$7 per gram, but was revised by Pijlman et al. and the Euro per-gram price in 2004 was 4.9 (\$6.50) for imported marijuana, 6.6 (\$8.70) for imported hashish, and 12.5 (\$16.40) for hashish produced in the Netherlands (MacCoun. p.8-9).

Cannabis markups in Denmark

For many years marijuana selling was de facto legal in the area known as The Free Town of Christiania in Copenhagen, Denmark (Moeller, 2012). That market was shut down by police after 2004. Their crackdown was preceded by nine months of extensive undercover investigation that included systematic videotaping of transactions at three outdoor and four indoor selling points. Moeller used those tapes and associated records detailing 3,333 transactions to model the economics of cannabis selling in that market.

The analysis distinguished resin from “joints.” The midpoints of the purchase and selling prices of those two products were as follows:

Product	Purchase Price Midpoint	Retail price Midpoint	Markup Ratio
Resin (by the gram)	2.6	9.8	3.7
Joint (per joint)	2.3	6.5	2.8

It is worth noting that the retail sales prices in the organized and quasi-legal Christiania markets were the same or effectively the same as in another illegal market that Moeller analyzed in parallel. That is circumstantial evidence that legal and illegal cannabis suppliers can be strong substitutes for each other, and that the retail prices from those two sources will converge.

It is also perhaps worth noting the scale of the operations. Moeller report (p.42) “The average number of daily sales in Christiania was 240 ... [but] One of the tables in Christiania had a daily number of sales averaging 765, that is, three times higher than the final average for all seven observation points.” And (p.43) “Hourly net revenue in Christiania ranged from 215 to 436 Euros with a midpoint of 325.” The stores were open fewer hours per day than is envisioned in Washington. Nevertheless, they operated on a substantial scale, with gross revenue per day varying from 4,876 to 7,593 Euros per booth per day.

Markups at US medical dispensaries

According to a team member who is knowledgeable about the industry, medical dispensaries typically seek to double their money. For example, the dispensary might purchase a premium grade of medical marijuana for \$3,600/lb and then sell it for \$7200-7600/lb, a markup of over 100%. For less premium grades, the markup can actually be higher because the dispensary can buy it at a lower cost, for example at \$2,000-3000/lb and then sell it for \$6000/lb, a markup of 100-200%.

Access points also report a 100% markup rule of thumb and charge about \$10 per gram. Since there are 453.6 grams per pound, that corresponds to purchase and sales prices of \$2,268 and \$4,536 per pound, respectively, which is broadly consistent with the figures in the previous paragraph.

Individuals associated with the project visited four medical marijuana dispensaries in Washington State. Provided below are the average prices for useable marijuana from the locations as well as the overall average. Based on this data, the markup from ounce to gram is 30%, once the prices are all converted to price per gram.

		Gram	1/8 oz	1/4 oz	1/2 oz	1 oz	1/4 lb	1/2 lb
Medical Market	Location #1 Average	\$ 10.0						
	Location #2 Average	\$ 10.1	\$ 34.0	\$ 67.5	\$ 134.8	\$ 235.7		
	Location #3 Average	\$ 12.2	\$ 30.0					
	Location #4 Average							\$ 1,225.0
	Overall Average	\$ 10.8	\$ 32.0	\$ 67.5	\$ 134.8	\$ 235.7		\$ 1,225.0

News reports about the profits of marijuana dispensaries offer broadly similar numbers. In January 2010, the Los Angeles Police Department had a search warrant for three marijuana stores. Based on documents found in the stores, there were heavy markups from wholesale to retail. Of the three different strains being sold, the markups ranged from 250-265% (Pelisek).

The Marijuana Business Factbook 2013 estimates medical cannabis markup rates for Michigan, California, Washington and Colorado. There is wide variation because there are significant differences in the final retail price among states. The average overall markup is around 75% (98).

	Markup Percentage
Michigan	114%
California	57%
Washington	80%
Colorado	50%

Markups in the US black market for marijuana

The black market for marijuana differs from what is contemplated in Washington in many ways. Employers don't withhold income tax, pay payroll tax or workers comp, etc. There are no brick and mortar retail stores whose rent and utilities need to be recovered by marking up the product, etc. Nevertheless, given the paucity of direct data, triangulating from all perspectives seems warranted.

Caulkins et al. (2004) estimated national marijuana prices at three different market levels using data from the Drug Enforcement Administration's System To Retrieve Information from Drug Evidence (STRIDE). The three quantity levels were

- 0.1 to 10.0 grams, unadjusted for purity (Q1)
- 10.0 to 100.0 grams, unadjusted for purity (Q2)
- More than 100.0 grams, unadjusted for purity (Q3)

Caulkins et al. (2004) observe that: "roughly speaking, marijuana prices at level Q1 are about three times those at Q3 plus \$3/gram, not just three times the Q3 prices. On the other hand, Q2 prices are roughly 1.3 to 2.6 times the Q3 prices" (14). Since STRIDE includes observations with very large quantities, the markup between the 2nd and 3rd market levels is probably of the greatest interest, for which markups were 30% - 160%.

Fries et al. (2008) updated the analysis, using very similar methods (the "EPH" method) and another method (the "Medians" method). Their figures for the last two years of their analysis are as follows:

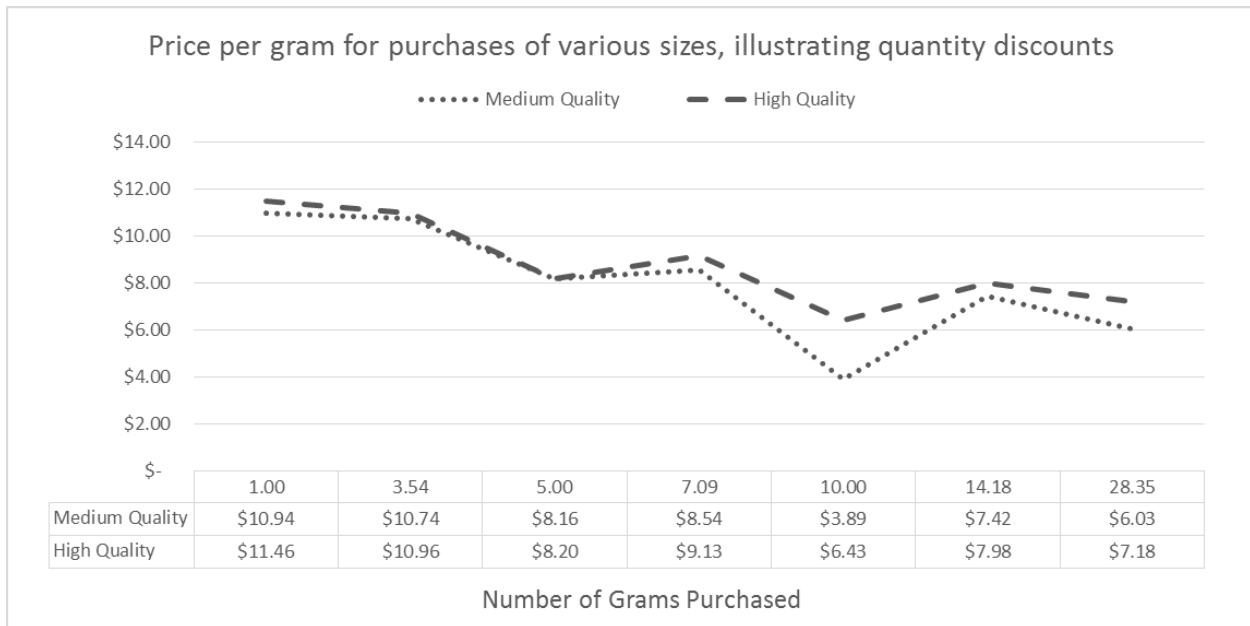
Time	0.1 - 10 grams			10-100 grams			>100 grams		
	Num	Median	EPH	Num	Median	EPH	Num	Median	EPH
2006Q1	37	\$10.42	\$15.27	10	\$7.82	\$10.92	24	\$2.09	\$2.32
2006Q2	41	\$10.01	\$15.46	13	\$6.37	\$9.87	18	\$2.42	\$2.13
2006Q3	32	\$9.27	\$14.74	13	\$13.69	\$10.08	17	\$2.13	\$2.16
2006Q4	36	\$14.69	\$15.79	14	\$8.74	\$10.24	8	\$2.10	\$2.29
2007Q1	28	\$18.01	\$15.69	19	\$4.43	\$10.31	22	\$2.75	\$2.38
2007Q2	20	\$14.47	\$15.88	23	\$8.36	\$9.33	28	\$1.69	\$2.18
2007Q3	37	\$10.48	\$15.14	21	\$7.38	\$9.52	57	\$1.75	\$2.22
2007Q4	22	\$13.54	\$16.22	22	\$6.07	\$9.67	24	\$2.76	\$2.35
Average		\$12.61	\$15.52		\$7.86	\$9.99		\$2.21	\$2.25

The markups from the 10-100 to the 0.1-10 gram market levels were about 55%-60%.

Caulkins and Bond (2012) analyzed spatial variation in U.S. marijuana prices, drawing in seven different data sets. No one data set gave comprehensive information about price markups in Washington, but comparing across them, Washington appeared to follow the rule-of-thumb that a pound costs 10 times as much as an ounce, which means the price per unit weight at the ounce level is 60% higher than price per unit weight at the pound level. For example, the Narcotics News website and HIDTA reports placed the price of a pound of high quality marijuana at \$3,700 and \$3,750, respectively, whereas the High Times Price Index and PriceofWeed.com gave ounce prices of about \$305 per ounce.

Prices have fallen sharply since those data were collected. The average price for a high-quality ounce reported on PriceofWeed.com in Washington State between May 25, 2012 and May 24, 2013 was only \$203, based on 1,694 observations. (About 400 observations were deleted from the dataset because they are outliers. Since PriceOfWeed.com allows anyone to submit information, it is not surprising that a number of observations are abnormal.) But the markups within the Price of Weed data between ounce and sub-ounce transactions do not seem inconsistent with those from earlier years.

The figure below illustrates this by showing the number of observations, mean and standard deviations of prices at the 1/8, 1/4, 1/2, and 1 ounce levels, as well as 1, 5, and 10 grams transactions, and the corresponding prices per gram. There is a markup if one buys small quantities, as opposed to larger quantities. (The prices from 5 and 10 grams are lower than the ounce prices. There is some question as to whether or not gram prices should be used; the 15 and 20 gram data had already been excluded because they were so much lower than expected.)



Based on this data, the markup is 60% and 81% for high and medium quality, respectively. There are many possible explanations for why the markup on high quality is less than medium quality. One reason could be that since high quality is already more expensive, so a very high markup may result in prices that are too high for many marijuana users.

Federal & WA State data sources say that price varies according to the quality of marijuana on the market. In 2002, the DEA Seattle Division reported prices for wholesale quantities of high-quality Canadian grown "BC Bud" of \$2500-\$5000 per pound, \$1500-\$5000 per pound for domestically grown sinsemilla, and \$250-\$2000 per pound for Mexican-sourced commercial-grade marijuana. Retail prices for 2002 were \$125 to \$3000 per ounce for BC Bud, around \$300 per ounce for domestic sinsemilla and approximately \$50 per ounce for commercial-grade marijuana (US National Drug Intelligence Center 13).

It is hard to work with ranges so broad, but if one expressed the midpoint of the pound prices for sinsemilla on a per ounce basis (Average [$\$1500, \5000] / 16) and compare the result (roughly \$200) to the reported price of an ounce (\$300), it suggests a 50% markup between the pound and ounce levels.

Law enforcement officials from Washington State provided us with the (black market) prices of marijuana based on their experience. Sergeant Mark Hazard from the Seattle Police Narcotics Section, Squad B, provided information about Seattle, and Detective Sergeant Chris Coglizer from the Skagit County Interlocal Drug Enforcement Unit provided the rest of the information. (Coglizer, 2013 and Hazard, 2013).

The price per gram at each purchase size shows the discounts that sellers provide to customers buying large quantities. There is a general trend towards cheaper prices per ounce when larger quantities are purchased. However, in some cases the quoted prices suggest minimal, if any, quantity discounts. For example in Grant County the per gram price

range for an ounce is \$8.80 to \$10.60 while the gram price is only \$10. It seems odd that people would pay \$10.60 per gram when buying an ounce if it is cheaper to buy 28 one-gram packages separately, suggesting that perhaps there are quality differences between the sorts of marijuana typically purchased a gram at a time as opposed to that which is customarily purchased in ounces.

Based on the law enforcement data the markup is 33% from ounce to a gram, and 116% from a pound to a gram.

Price Per Gram Based on Purchase Amount					
County/City	1 gram	1 ounce	1/4 pound	1/2 pound	1 pound
Bellingham	\$10				\$5.30
Grant	\$10	\$8.80-10.60	\$7.05-8.80	\$7.05-7.95	\$5.50-6.60
Olympia	\$8-15				
Seattle	\$10	\$8.82-12.35			\$3.30-6.60
Skagit		\$6.35-7.75	\$4.40-5.70	\$4.40-5.30	\$4.85
Spokane		\$8.45-9.90			\$5.30-6.20
Whitman	\$15-20	\$7.75	\$5.70	\$5.30	\$5.30
Yakima		\$8.80-10.60	\$4.40-6.20	\$6.60-8.80	\$5.50-7.70

Retail markups in the U.S. generally

Markups for marijuana products might seem particularly relevant, but inasmuch as marijuana is currently illegal and illegality can have a dramatic effect on prices, it may be that some legal products are actually better guides as to what to expect of markups for *legal* marijuana.

The question then becomes, *which* legal products, because markups on legal products vary enormously. This point is amply made by considering data from the Retail Owners Institute, which provides financial benchmarks for 53 retail segments, ranging from candy and nut stores to boat dealers. The benchmarks provided include per-tax profit percent, gross margin, inventory turnover, debt-to-worth ratio, current ratio, and the return on assets. The Retail Owners Institute does not provide the markup rate, but the markup rate can be calculated from the gross margin using the following equation:

$$\text{Mark Up Percentage} = \frac{\text{Gross Margin Percent}}{(1 - \text{Gross Margin Percent})} = \frac{\text{Gross Margin Percent}}{\text{Cost of Goods Sold (\%)}}$$

A table at the end of this document lists all 53 retail segments along with select financial figures. (Pre-tax profit percent for both 2011 and 2012 is recorded, because profits vary widely from year to year.) Below are the segments with the five highest and five lowest markup percentages to illustrate how broad is the range of markups observed.

Retail Segment	Pre-Tax Profit (2011)	Pre-Tax Profit (2012)	Gross Margin	Inventory Turnover	Markup Percentage
Used Merchandise Stores	6.0%	6.3%	58.9%	4.5	143%
Optical Goods Stores	5.7%	5.8%	58.1%	4.9	139%
Baked Goods Stores	3.6%	4.9%	55.4%	52.2	124%
Florists	0.8%	1.5%	53.2%	9.3	114%
Candy & Nut Stores	3.7%	2.3%	50.2%	11.0	101%
Used Car Dealers	1.8%	1.9%	21.3%	5.5	27%
Recreational Vehicle Dealers	1.2%	1.3%	20.8%	2.6	26%
Convenience Stores	1.9%	1.3%	18.1%	23.3	22%
New Car Dealers	1.3%	1.5%	12.5%	5.7	14%
Gasoline Stations with Convenience Stores	1.0%	0.8%	11.9%	48.5	14%

It is not surprising that baked goods and flowers have very high markups; they are perishable and workers at the establishment process or improve the product. A bouquet is not just a pile of flowers, and a doughnut is not just a pile of dough. Likewise, when one buys a pair of glasses from an optical store, one is typically also buying a fair amount of skilled professional help with fitting and adjusting the glasses.

The segments with the lowest markups are either selling individual items that are quite expensive (cars and RV's) or are tied to gasoline (gas stations and convenience stores) that is a commodity whose price is often advertised visibly.

Legal marijuana is not likely to share any of those characteristics, but it does have other distinctive features that suggest its markups may be toward the low end of the range. Marijuana requires little floor area or shelf space compared to other products, since it has a very high ratios of value to weight or volume. It is also a relatively simple product; there are no moving parts or embedded circuits, so sales personnel do not need extensive training. And the recent proliferation of brands and products forms notwithstanding, marijuana remains a relatively simple market segment; even a well-stocked dispensary sells fewer varieties of marijuana than Target stocks varieties of shampoo and conditioner.

Among these 53 retail segments, the obvious comparison would be to beer, wine, and liquor stores, which have a markup of 31%. This is a good comparable because both alcohol and marijuana are drugs used mostly in a social setting for personal enjoyment.

Superficially one might think pharmacy and drug stores would be a relevant comparable, since marijuana is a drug. They have a markup of 35%, the same as grocery stores. That may be because pharmacies sell many other products besides prescription medication, which is presumably a much closer comparable to marijuana than Kool-Aid is. Indeed, an article published in 2009 on DailyFinance.com listed the markups for several over the counter medications (Crowe). Products included were acne treatment, antacids, nasal decongestants, and vitamins, which all had mark ups between 377- 399%. This markup is much higher than the 35% for all pharmacy and drug store goods, but it is not clear whether it is a good markup rate to use for marijuana. One thing to consider is that the over-the-counter drugs may be so expensive because of the large sums that go into research and development, which is not necessarily true for marijuana sales. Arguably, food supplements (markup of 80%) or even fruits and vegetables (markup 40%) are

equally relevant inasmuch as marijuana is a semi-refined agricultural product, not a chemical-based pharmaceutical.

There is other markup information from articles urging the general consumer to avoid items like bottled water or movie theater food, which have extremely high markups. One has to treat these estimates with caution since the authors' sources are not well documented and they are searching for the most egregiously high examples. Nevertheless, a table at the end of this document summarizes markup ranges based on several different articles. It suggests that the retail structure envisioned under I-502 may produce lower markups than one that allowed sale for on premise consumption. For example, coffee and tea (300% markup) as well as wine by the glass (400% markup) being sold at either a coffee shop or restaurant have very high markups.

Retail markups in select states with a liquor control board

Since alcohol is a relevant comparable and is sold in single-purpose stores in some states, including Washington until recently, it is worth looking at their financial statements. Of course a very significant limitation of these data is that the state stores were monopolies, whereas the legal marijuana retail sector will likely be highly competitive.

The table below provides key data from Washington State Liquor Board Annual Reports from 2008 to 2011, the last full year of the state controlled system. (The prices were the same in 2008 and 2009, as well as in 2010 and 2011.) These numbers presented are based on a standard retail 750 ml bottle of liquor.

WSLCB	2008/2009	2010/2011
Price at Register	\$ 13.65	\$ 15.95
State Tax	\$ 4.67	\$ 5.06
Markup	\$ 3.13	\$ 4.39
Bottle Cost	\$ 5.85	\$ 6.50
Federal Tax	\$ 2.14	\$ 2.14
Distillery Price	\$ 3.71	\$ 4.36
Markup Before State Tax	54%	68%
Markup Percentage After State Tax	133%	145%

The markup before the state tax is only the markup after the bottle cost. The markup percentage after state tax is the total markup from when the WSLCB purchases the bottle of alcohol to when the customer buys it. This markup percentage before state tax, 54-68%, is higher than the industry average.

Below is the estimated markup based on the WSLCB's financial statements, in millions of dollars. This markup percentage is similar to the markup percentage after state tax reported above. The reason why this markup is so much higher than the industry average is that private companies do not include taxes when reporting total revenues from sales.

WSLCB	FY 2008	FY 2009	FY 2010	FY 2011
Gross Liquor Sales	\$ 825	\$ 849	\$ 871	\$ 888
Cost of Goods Sold	\$ 387	\$ 399	\$ 388	\$ 383
Gross Income	\$ 438	\$ 450	\$ 483	\$ 505
Markup Percentage	113%	113%	124%	132%

Pennsylvania, another state that controls the sale of alcohol, provides financial information, presented below in millions of dollars. The average markup percentage from 2008 to 2011 is 45%, which does not include state taxes (Pennsylvania Liquor Control Board). This number is closer to the industry average, but still a bit higher.

PA LCB	FY 2008/2009	FY 2009/2010	FY 2010/2011	FY 2011/12
Liquor Sales	\$ 1,491	\$ 1,511	\$ 1,571	\$ 1,657
Cost of Goods Sold	\$ 1,014	\$ 1,058	\$ 1,080	\$ 1,145
Gross Income	\$ 477	\$ 453	\$ 491	\$ 512
Markup Percentage	47%	43%	45%	45%

Retail markups from particular comparables

The data above primarily pertained to industry segments or establishments, but one can also look at markups for particular items. Three we explore here are guns, caviar, and cigarettes. Guns are an interesting comparable because of heavy federal regulation, which results in black markets. A local gun store, William Powell Guns, Inc., near Pittsburgh, Pennsylvania provided the wholesale and retail price for a Smith and Wesson M&P Shield (0.40 caliber). The wholesale price is \$459 and the retail price is \$499, a markup of 8.7%. This one data point is obviously not representative of overall gun market because the source says that this gun is popular now, in May 2013, but prices change all the time.

One of the distinctive characteristics of marijuana is its very high value to weight ratio as compared to most other consumer goods. We expect prices to fall after legalization, but even after a substantial decline, they would still have a higher value to weight ratio than most consumer goods. That means the physical costs of transporting are quite low, and one needs relatively little shelf space to display inventory. So another possible comparable good is caviar, because it is a discretionary purchase that is very expensive per unit weight, as well as the fact that international trade of caviar was banned from 2006 to 2007 by the Convention on International Trade in Endangered Species (CITES). Caviar demand was so high that it led to overfishing and a decline in the sturgeon population in the Caspian Sea, the origin of approximately 90% of wild caviar (International caviar trade banned: UN lifts embargo on caviar trade). In May 2006, the EU required a labeling system on caviar to help determine if the caviar being sold was legal or illegal. The labels had to be non-reusable and placed on the seal of the container, to determine if the product had been opened or not.

Several caviar websites cite that if serving caviar alone then 1-2oz is a typical serving size, and if served with other hors d'oeuvres, 0.5-1oz is appropriate. If an ounce of osetra caviar ranges from \$90-140, and sevruga caviar ranges from \$95 to \$125, it is reasonable that a serving could be between \$100 and \$200. (Jones) An average price for marijuana is \$300 per ounce, which is more expensive than caviar per unit weight, but in a typical setting, one would smoke only ½ gram, or \$5 worth of product, so it is much less expensive per “dose” or per day of use.

One can purchase caviar online both in small quantities, such as one ounce, or in larger wholesale quantities. One such website, CaviarExpress.com, provided its wholesale price list. Of the nine caviars sold, there is an average of a 95% markup from the wholesale price (50-100 two-ounce tins) to the retail price (one two-ounce tin). (Of course, this is just one caviar company, and may not be indicative of the market as a whole.)

Cigarette sales may provide insight as another comparable good. One retailer, Walgreens Pharmacy, reported wholesale prices ranging from \$51.26-\$68.70 per carton and retail prices of \$53.45-\$76.20 per carton (Walgreens customer representative). This results in a markup of only 4-11%. The representative stated that the price per pack did not vary whether the cigarettes were sold by the carton or by the pack. This markup may be greater (or less) for different types of retailers, such as convenience stores. A CVS Pharmacy manager in Pittsburgh, PA told us that the markup on cigarettes is minimal, if not negative, because cigarettes are used to get people into the stores (CVS Manager). Therefore, there could be cross-price subsidies in many retail locations that sell cigarettes because the stores sell many other products.

Based on the CDC, twenty-five states, in 2009, require minimum cigarette prices, including Washington State. Of those 25 states, the median required wholesale markup was 4% and the median required retail markup was 8%. Washington does not require a minimum markup, but the minimum price is the actual price paid by the wholesaler or retailer. (State Cigarette Minimum Price Laws).

Processor markups

Processor markups are another key parameter for estimating tax revenues and how taxes will affect legal marijuana prices. Ideal comparables for marijuana processors would be companies that stand between farms and grocery stores including those that do relatively little to alter the product (since we expect usable marijuana to account for a larger share of consumption than infused products). Examples of goods that have identifiable companies filling that role are grapes, peanuts, apples, other fresh fruit, milk, and chicken. The challenge is that relatively few companies specialize in just one type of product. For example, one might like to understand the markup for JIF peanut butter, but that brand is owned by The J.M. Smucker Company which also owns Folgers, Smucker's, Dunkin' Donuts, Crisco and Pillsbury among others. On the parent company's financial statements, numbers are not broken down by brand, so any markup rate that is calculated cannot be attributed to a specific product. Therefore, only brands that are not grouped into a parent company with many brands are considered here.

Below is a table providing the markup information for several companies that fit the above criteria and are fairly specialized in a limited range of products.²

Company and Year	Net Sales	Cost of Goods Sold	Gross Profit	Markup Percentage
Welch's (2007)	\$ 673,111	\$ 435,233	\$ 237,878	55%
Welch's (2008)	\$ 685,001	\$ 483,118	\$ 201,883	42%
Welch's (2009)	\$ 653,614	\$ 455,231	\$ 198,383	44%
Dean Foods (2010)	\$ 11,462,277	\$ 8,562,279	\$ 2,899,998	34%
Dean Foods (2011)	\$ 11,641,191	\$ 8,861,574	\$ 2,779,617	31%
Dean Foods (2012)	\$ 10,820,237	\$ 8,063,932	\$ 2,756,305	34%
Dole (2010)	\$ 4,246,708	\$ 3,878,942	\$ 367,766	9%
Dole (2011)	\$ 4,778,424	\$ 4,375,760	\$ 402,664	9%
Dole (2012)	\$ 4,686,858	\$ 4,331,336	\$ 355,522	8%
Pilgrim's Pride (2010)	\$ 8,121,382	\$ 7,685,550	\$ 435,832	6%
Pilgrim's Pride (2011)	\$ 7,535,698	\$ 7,675,277	\$ (139,579)	-2%
Pilgrim's Pride (2012)	\$ 6,881,629	\$ 6,416,318	\$ 465,311	7%
Dongwon - Fish (2009)	347,479,524	151,821,563	195,657,961	129%
Dongwon - Finished Goods (2009)	195,083,776	155,753,026	39,330,750	25%
Dongwon - Fish (2010)	267,226,842	143,893,164	123,333,678	86%
Dongwon - Finished Goods (2010)	129,430,658	90,669,738	38,760,920	43%

Welch's, a major processor of grapes, is a subsidiary of the National Grape Cooperative Association, Inc. Based on financial statements the most recent markup rate is 55% (Welch's International). Although Welch's and National Grape are not fully integrated, this relationship may reflect a vertically integrated marijuana producer and processor.

Dole Food Company, a processor of fresh fruit, provides fresh fruit along with fresh and frozen juices (Dole Food Company). The financial information shows a very low markup percentage when compared to Welch's, which may have a stronger brand identity and loyalty.

Protein products like chicken also require processing. Pilgrim's Pride produces, processes, markets and distributes fresh and frozen chicken to retailers and distributors. The markups are low for this company, possibly because chicken is not a product that can be easily differentiated. The main customers of Pilgrim's Pride include Chick-fil-A, Costco, Sam's Club, Publix, and Burger King. These companies could purchase chicken elsewhere, forcing markups to decrease. (There is a negative markup rate in 2011 for Pilgrim's Pride which is explained by large increases in cost of goods sold along with a \$7.9 million recall expense. The negative markup rate is not included in any formulations for parameters.) (Pilgrim's Pride).

Milk is another product that is not easily differentiated. Dean Foods has two business segments – Fresh Dairy Direct and The WhiteWave Foods Company. Fresh Dairy Direct processes and distributes fluid milk whereas WhiteWave sells packaged dairy

² Note that Dongwon financial data is in millions of won because it is a South Korea company. The other financial data is in thousands of dollars.

products, such as beverages and coffee creamers. Fresh Dairy Direct contributes around 80% to the net sales of Dean Foods and sells to retailers, convenience stores, distributors, the government, and schools (Dean Foods). Although fluid milk from various companies probably is very similar, the markup rate is higher than for Dole or Pilgrim’s Pride.

The markup rates on milk processing from Dean Foods are consistent with estimates from the U.S. Department of Agriculture, Economic Research Service on commodity costs and returns. The estimated markup percentage for milk in 2012, based on their data, is 36% (US Department of Agriculture).

Canned tuna is another product that has to be processed before being sold to grocery stores or other retailers and is expensive per pound. Starkist, Chicken of the Sea and Bumble Bee are all well-known tuna brands but are not publicly traded companies. Starkist was previously owned by Del Monte Foods, but was acquired by Dongwon Industries, a South Korean company, in 2008. On its financial statements, fish and finished goods are separated into categories, so markups can be calculated for each (Dongwon Industries). The canned and otherwise packaged tuna, or finished goods, are probably more applicable to marijuana than fresh fish, because useable marijuana is not perishable. The markups for fresh fish may be applicable to perishable infused goods, such as brownies or cupcakes, but are not included below as we assume that the majority of goods will be non-perishable, such as chocolates or cookies with preservatives.

Greenhouse-based businesses for conventional crops are another relevant comparable. The New York Greenhouse Business Summary and Financial Analysis summarizes information from 45 greenhouse businesses. (It is unclear what products are being produced but they are presumably not marijuana.) The cost of goods sold is not given, only expenses – including direct variable cost, indirect variable costs, and overhead costs. Not all of these costs should be included in cost of goods sold. For our purposes, we only include the direct variable costs (direct labor, seeds and plants, fertilizer, soil mix, and packaging materials). The receipts include revenue from both wholesale and retail sales, with wholesale contributing to 64% of revenues. The markup percentage is 61.9%, but that is for both wholesale and retail items (Uva and Richards, 2003).

New York Greenhouses	2001
Receipts	\$ 575,029
Direct Variable Costs	\$ 355,217
Gross Margin	\$ 219,812
Markup Percentage	61.9%

A study performed by the Oklahoma State University Department of Agricultural Studies estimates financial information for tomato and cucumber product for ether bed or bag greenhouse production. (Bag production is growing plants in a plastic bag with soil, whereas bed production is plants and soil in constructed plant beds.) Note that these data are not based on an actual business – only estimated costs and revenues. The markups on

tomatoes are greater than on cucumbers, and the markups on bag culture are higher than on bed culture. (Schatzer, Al-Abdulkader, and Mapp, 1994).

Tomato - Oklahoma Greenhouses	Bed Culture	Bag Culture
Total Revenue	\$ 46,408	\$ 52,194
Variable Costs	\$ 22,530	\$ 23,297
Gross Margin	\$ 23,878	\$ 28,897
Markup Percentage	106%	124%
Cucumber - Oklahoma Greenhouses	Bed Culture	Bag Culture
Total Revenue	\$ 46,656	\$ 59,616
Variable Costs	\$ 26,603	\$ 28,746
Gross Margin	\$ 20,053	\$ 30,870
Markup Percentage	75%	107%

In addition to the processor markups for the goods analyzed above, processors of alcohol are also important to analyze. First, consider major brewing companies, including Anheuser Bush, Heineken, Molson Coors, Modelo, Craft Brew Alliance and Boston Beer.

These companies take hops, water and other ingredients to produce beer. Financial information is presented below in millions of dollars, except Heineken is in Euros and Modelo is in Pesos. The markup percentages vary greatly. A possible explanation is that some companies are more well-established and more efficiently produce beer, lowering the cost of goods sold, while keeping revenues the same. Craft Brew Alliance and Boston Beers (the producer of Samuel Adams) are the two publicly traded craft beer companies in the U.S. but are not systematically different than non-craft beer companies.

Company and Year	Revenue	Cost of Goods Sold	Gross Profit	Markup Percentage
Anheuser Bush (2011)	\$ 39,046	\$ 16,634	\$ 22,412	135%
Anheuser Bush (2012)	\$ 39,758	\$ 16,447	\$ 23,311	142%
Boston Beer (2011)	\$ 558	\$ 228	\$ 330	144%
Boston Beer (2012)	\$ 629	\$ 265	\$ 364	137%
Craft Brew Alliance (2011)	\$ 149	\$ 104	\$ 45	43%
Craft Brew Alliance (2012)	\$ 169	\$ 119	\$ 50	42%
Heineken (2011)	€ 17,123	€ 10,966	€ 6,157	56%
Heineken (2012)	€ 18,383	€ 11,849	€ 6,534	55%
Modelo (2010)	MEX\$ 85,019	MEX\$ 39,467	MEX\$ 45,552	115%
Modelo (2011)	MEX\$ 91,203	MEX\$ 41,777	MEX\$ 49,426	118%
Molson Coors (2011)	\$ 2,067	\$ 1,088	\$ 980	90%
Molson Coors (2012)	\$ 2,037	\$ 1,121	\$ 916	82%
(Anheuser Bush, Heineken, Molson Coors, Modelo, Craft Brew Alliance, Boston Beer)				

Spirit producers have high markup percentages. Diageo, Brown-Forman, Remy Cointreau, and Beam are all major companies that distill spirits. The markup percentages are over 100%. Below is financial information in millions of dollars, pounds, or euros, depending on the company.

Company and Year	Revenue	Cost of Goods Sold	Gross Profit	Markup Percentage
Beam (2011)	\$ 2,311	\$ 987	\$ 1,324	134%
Beam (2012)	\$ 2,465	\$ 1,027	\$ 1,438	140%
Brown-Forman (2011)	\$ 3,404	\$ 1,680	\$ 1,724	103%
Brown-Forman (2012)	\$ 3,614	\$ 1,819	\$ 1,795	99%
Diageo (2011)	£ 9,780	£ 4,099	£ 5,681	139%
Diageo (2012)	£ 9,936	£ 4,010	£ 5,926	148%
Remy Cointreau (2011)	€ 907	€ 389	€ 518	133%
Remy Cointreau (2012)	€ 1,026	€ 396	€ 630	159%
(Diageo, Brown-Forman, Remy Cointreau, Beam)				

Above, we have estimated the retail markups for guns, although the data is not very reliable. Instead, we can analyze the markup from gun manufacturers to distributors. It is difficult to estimate this markup from aggregate financial statements because there are only three publicly traded gun manufacturers – Smith and Wesson, Sturm Ruger, and Alliant Techsystems Inc., and the last is not really relevant because it focuses on aerospace and defense weapon systems. (Publicly traded firms’ financial statements are accessible so their markup rates can be estimated.) The first two sell to gun distributors. For Smith and Wesson and Sturm Ruger the average markup rate, between producer and distributor (broadly analogous to the processor in the marijuana industry), for the past three years was 46% and 52%, respectively (Smith and Wesson Holding Corp., Ruger Corporate). Below is financial information presented in thousands of dollars.

Smith and Wesson				
	FY 2012	FY 2011	FY 2010	
Net Sales	\$ 411,997	\$ 342,233	\$ 357,926	
Cost of Goods Sold	\$ 284,008	\$ 237,545	\$ 238,463	
Gross Profit	\$ 127,989	\$ 104,688	\$ 119,463	
Makup Percentage	45%	44%	50%	

Sturm Ruger				
	FY 2012	FY 2011	FY 2010	
Net Sales	\$ 491,824	\$ 328,816	\$ 255,206	
Cost of Goods Sold	\$ 312,871	\$ 217,058	\$ 171,224	
Gross Profit	\$ 178,953	\$ 111,758	\$ 83,982	
Makup Percentage	57%	51%	49%	

Averages of estimates corresponding to parameters in the richer model

In the richer model, there are seven parameters for which the above analysis can provide some insight.

- Oil Extractors Markup
- Processor Markup By Type of Product and Brand
 - Standard Brand – Usable Marijuana
 - Prestige Brand – Useable Marijuana
 - Standard Brand – Infused Products
 - Prestige Brand – Infused Products
- Retail Markup by Retailer Type
 - Price
 - Touch

The estimates of these parameters should combine judgment with the data reviewed above. To facilitate that process, here we provide simple averages of the most recent markups that seem most relevant to each of these seven parameters. Some of the resulting averages strike us as implausibly high or low, but we defer any judgmental adjustment to others and to sensitivity analysis.

The oil extractor markup is not very similar to any of the products described above. The closest comparable would be of the markup from raw cannabis to resin in Morocco, which was around a 90-95% markup.

We visited a cannabis oil processor in Washington that charged about \$12 per gram of high quality (65% THC) oil produced, which was then sold to stores for \$25 per gram, with the stores selling for more like \$60 per gram. (Those prices are per gram of oil. If a batch converts 2.5 pounds (1134 gram) of material into 150 grams of oil, all those prices should be scaled down by a factor of 7.5 to think in terms of prices per unit of marijuana.)

The team visited another oil extractor in Washington that sold a variety of products including disposable vaporizing pens and dabbing oil. The pens were sold at retail for \$45-50 and at \$25 wholesale. The pens would typically get 120 pulls. The dabbing oil had a THC content of 60%. A ½ gram of dabbing oil had a retail price of \$35 and a wholesale price of \$18-20, resulting in a markup of 75%.

If the extraction started with shake or other byproduct that had little market value in and of itself, that suggests a wholesale selling price that is marked up by about 100% over the production cost (the \$12 per gram processing cost). If it started with standard marijuana valued at \$2 per gram, that would mean \$15 in raw materials were consumed along with the \$12 per gram processing cost to create something that sold for only \$25, or essentially no additional markup. The truth is presumably intermediate between those extremes.

At present, this parameter has a rather Spartan information base. We may be able to gather further information from other comparables (olive oil, soybean and peanut oil extraction), but at this time we are setting the markup at 50% in task 430 8(a) analysis.

The processor markups reviewed above can be classified into the four parameters of interest, although we grant that some may not consider Welch's or Dongwon as prestige brands. The markups from New York and Oklahoma greenhouses are not included because the items do not have a brand.

	Useable Marijuana	Infused Products
Standard Brand	Dole (9%), Pilgrim's Pride (6%), Dean Foods (34%)	Anheuser Bush (142%), Heineken (55%), Molson Coors (82%), Modelo (118%), Craft Brew Alliance (42%), Boston Beer (137%)
Prestige Brand	Welch's (55%), Dongwon (43%)	Diageo (148%), Brown-Forman (99%), Remy Cointreau (159%), Beam (140%), Smith and Wesson (50%), Sturm Ruger (49%)

The large variability in markups across the different brands of beer, which is a very specific industry segment, serves as a sharp warning about the limits of precision when trying to estimate the markups for another product, particularly one for an industry that has yet to form.

Furthermore, it seems inappropriate to simply average the numbers in each cell of this 2X2 table, because the resulting average for infused products will be heavily influenced by a more or less arbitrary decision concerning how many brands of beer or how many brands of liquor to consider.

So instead of an average we use as a summary the range of markups (below). For useable marijuana the ranges are relatively narrow, whereas the ranges are very broad for infused products. For useable marijuana, 25% for standard brand and 50% for prestige brand are roughly in the middle of the ranges of the data reviewed, but we round down to 20% and 40% respectively since processing of usable marijuana is such a simple activity with low capital requirements and few barriers to entry. For infused products, it is entirely unclear what value should be used. For similar reasons, we lean toward the low end of the ranges observed in the data reviewed, choosing figures of 60% for standard and 80% for prestige brands. But the real conclusion may be that the markups for infused marijuana products will be determined by market pressures and cannot reliably be predicted in advance.

	Useable Marijuana	Infused Products
Standard Brand	9 - 34%	42 - 142%
Prestige Brand	43 - 55%	49 - 159%

Finally, the retail markups in the Task 430 8(a) and 8(b) model are differentiated between stores that sell to consumers who are price sensitive, for example the K-marts, and “high-touch” stores that sell to less price sensitive customers, like the Nordstrom’s. It is not clear what products correspond to one category or another, but we do have a wide variety of retailer markups, shown below in rank order.

The markup for marijuana coffee shops in the table is based on the average in the Netherlands and Denmark. The markup for medical marijuana dispensaries is based on information from team members and the Marijuana Business Factbook. Although there are news articles about medical marijuana markups, they are not very reliable. The black market markup is based on the average of five sources described in the summary table. The 31% markup for beer, wine, and liquor stores generally falls in the lower markup range, that markup was larger in states with an LCB, perhaps because the LCB was a monopolist. Information about coffee and tea, as well as wine by the glass, was not included because the markup is in a restaurant setting. The retail markup on guns was not included because it is from on a single gun store.

Comparable Products	Markup	Average
Cigarettes	8%	
Beer, wine, and liquor stores	31%	34%
Fruits and Vegetables	41%	
Alcohol - LCB	57%	
Food Supplements	80%	
Caviar	95%	
Black Market Marijuana	96%	105%
Medical Marijuana Dispensaries	98%	
Legal Marijuana in the Netherlands and Denmark	154%	

Perhaps it could be argued that products with a low markup are indicative to what one might expect of retailers selling marijuana to price-sensitive consumers, whereas products with higher markups may be better comparable for high-touch retailers. So the task 430 8(a) analysis uses markups of 30% and 100%, respectively. However, while these point estimates reflect information from a wide variety of sources, they should not be seen as being in any way definitive. Obviously, the true markup rates could be very different

from these point estimates, so when modeling how taxes affect prices, a sensitivity analysis can be performed to see how these point estimates affect the results.

Retail Segment	Pre-Tax Profit (2011)	Pre-Tax Profit (2012)	Gross Margin	Inventory Turnover	Markup Percentage
Used Merchandise Stores	6.0%	6.3%	58.9%	4.5	143%
Optical Goods Stores	5.7%	5.8%	58.1%	4.9	139%
Baked Goods Stores	3.6%	4.9%	55.4%	52.2	124%
Florists	0.8%	1.5%	53.2%	9.3	114%
Candy & Nut Stores	3.7%	2.3%	50.2%	11.0	101%
Gift, Novelty, and Souvenir Stores	2.9%	3.4%	48.6%	3.2	95%
Women's Clothing Stores	3.9%	3.3%	48.4%	3.6	94%
Men's Clothing Stores	5.5%	3.8%	48.3%	2.4	93%
Clothing Accessories Stores	3.5%	2.8%	46.8%	3.7	88%
Art Dealers	4.0%	8.6%	46.2%	1.8	86%
Food (Health) Supplement Stores	4.4%	5.8%	44.4%	6.7	80%
Bookstores	1.1%	1.4%	44.1%	3.5	79%
Kiosks	3.8%	6.3%	43.9%	8.7	78%
Musical Instrument & Supplies Stores	1.7%	1.7%	43.8%	1.9	78%
Home Furnishing Stores	2.2%	3.1%	42.9%	3.4	75%
Mail Order Houses	4.1%	3.4%	42.9%	4.7	75%
Furniture Stores	1.9%	2.6%	42.8%	3.4	75%
Family Clothing Stores	3.8%	4.3%	42.6%	3.2	74%
Shoe Stores	3.7%	4.1%	42.3%	2.6	73%
Jewelry Stores	3.3%	5.3%	42.2%	1.5	73%
Cosmetics, Beauty Supplies & Perfume Stores	5.7%	5.7%	42.0%	3.0	72%
Hobby, Toy & Game Stores	1.4%	2.8%	41.7%	3.1	72%
Pet & Pet Supplies Stores	3.3%	3.5%	41.7%	6.0	72%
Variety Stores	3.8%	4.5%	39.7%	4.0	66%
Office Supplies & Stationery Stores	1.7%	2.7%	39.4%	9.3	65%
Hardware Stores	1.8%	2.0%	38.1%	2.6	62%
Nursery, Garden Center & Farm Supply Stores	1.6%	1.1%	37.4%	4.5	60%
Sporting Goods Stores	2.0%	2.5%	37.3%	2.5	59%
Auto Parts & Accessories Stores	2.9%	3.3%	37.3%	3.8	59%
Online Shopping	2.9%	2.7%	37.2%	6.2	59%
Department Stores	5.3%	4.6%	36.6%	4.6	58%
Tire Dealers	2.9%	3.0%	36.4%	5.8	57%
Computer & Software Stores	3.1%	4.0%	36.3%	28.9	57%
Floor Covering Stores	1.0%	0.8%	35.5%	7.2	55%
Audio/Video & Consumer Electronics Stores	4.3%	3.0%	35.0%	8.3	54%
Household Appliances	1.0%	1.2%	34.3%	4.3	52%
Paint & Wallpaper Stores	0.2%	2.2%	34.0%	5.9	52%
Camera & Phone Supplies Stores	2.3%	0.0%	33.7%	4.4	51%
Meat Markets	3.4%	2.6%	32.9%	27.9	49%
Lumber & Building Materials Dealers	0.2%	1.9%	31.9%	5.9	47%
Outdoor Power Equipment Stores	1.0%	2.7%	31.3%	2.8	46%
Boat Dealers	1.5%	2.9%	30.2%	2.1	43%
Fruit & Vegetable Markets	2.3%	1.5%	29.1%	32.5	41%
Home Centers	0.1%	0.5%	26.2%	5.2	36%
Supermarkets & Grocery Stores	1.6%	1.4%	26.1%	14.7	35%
Pharmacies & Drug Stores	2.2%	2.8%	26.1%	11.9	35%
Motorcycle Dealers	0.3%	1.8%	24.4%	3.2	32%
Beer, Wine & Liquor Stores	2.0%	1.2%	23.7%	5.5	31%
Used Car Dealers	1.8%	1.9%	21.3%	5.5	27%
Recreational Vehicle Dealers	1.2%	1.3%	20.8%	2.6	26%
Convenience Stores	1.9%	1.3%	18.1%	23.3	22%
New Car Dealers	1.3%	1.5%	12.5%	5.7	14%
Gasoline Stations with Convenience Stores	1.0%	0.8%	11.9%	48.5	14%

	Item	Markup	Source
Food	Bakery Goods	100%	1
	Bottled Water	4,000%	1,4
	Coffee and Tea	300%	1
	Fountain Soda	300-600%	1,4
	Grocery	5-25%	3
	Hotel Minibars	400%	1
	Movie Theater Food	1,275%	1
	Produce	75%	1
	Salad Bars	350%	1
	Wine by the Glass	400%	1
Durable Goods	Art Sold in Galleries	50-500%	4
	Cell Phones	8-10%	3
	Clothing	100-350%	3
	Diamonds	50 - 400%	1
	Eyeglasses	800-1,000%	1,3
	Furniture	80-400%	1,3
	Jewelry	100%	4
	New Cars	8-10%	3
	Shoes	100-500%	3
Other	Condoms	354%	2
	Cosmetics	50-80%	1,3,4
	Greeting Cards	150-200%	1,2
	Prescription Medication	200-5,600%	1,3,4
	Razorblades	1,000-5,000%	4
	Text Messages	6,000-10,000%	1

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