

How Much for Marlboro? Change in Price From a Cohort of Retailers in 30 Major US Cities During the Covid-19 Pandemic

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BACKGROUND

- While the COVID-19 pandemic disrupted/deferred tobacco marketing surveillance in brick-and-mortar stores, we telephoned stores to assess change over time in Marlboro price in 30 US cities. We assessed feasibility and validity of this approach.
- Feasibility: We established a cohort of 1800 in 30 cities to assess price of Marlboro red or whether it was out-of-stock.
- Validity: We compared increase in price relative to Core Inflation and tested whether price increase was significantly greater in cities where cigarette excise tax increased.

METHODS

Setting: ASPiRE cities include 27 members of the Big Cities Health Coalition, two cities added for representation in the southeast (Memphis, New Orleans), and Providence, RI, for early adoption of novel retail policies.

Sample: We created a sampling frame from tobacco retail licensing data in 27 cities (n=36,186) and commercial data sources in 3 cities (n=3,230).

Data Collection: Marlboro price was obtained by telephone in 2020 (Apr-Dec) and 2022 (Mar-July) in randomly selected cigarette retailers (n=1,800; 60 per city) with replacement at follow-up.

Measures: Using Rotator telephone survey software, retailers were asked whether the store sold cigarettes and to report price of Marlboro red.

Analyses: Descriptive statistics assessed mean city-level price of Marlboro in 2020 and 2022, and examined whether price increase kept pace with inflation. Using SAS v9.4, a three-level General Linear Mixed Model (repeated price, nested in stores, nested in cities/states) with a random intercept and slope for time point (baseline=0, follow-up=1) assessed change in price, and a cross-level interaction with slope for time point tested if change in price was greater where cigarette excise tax increased.

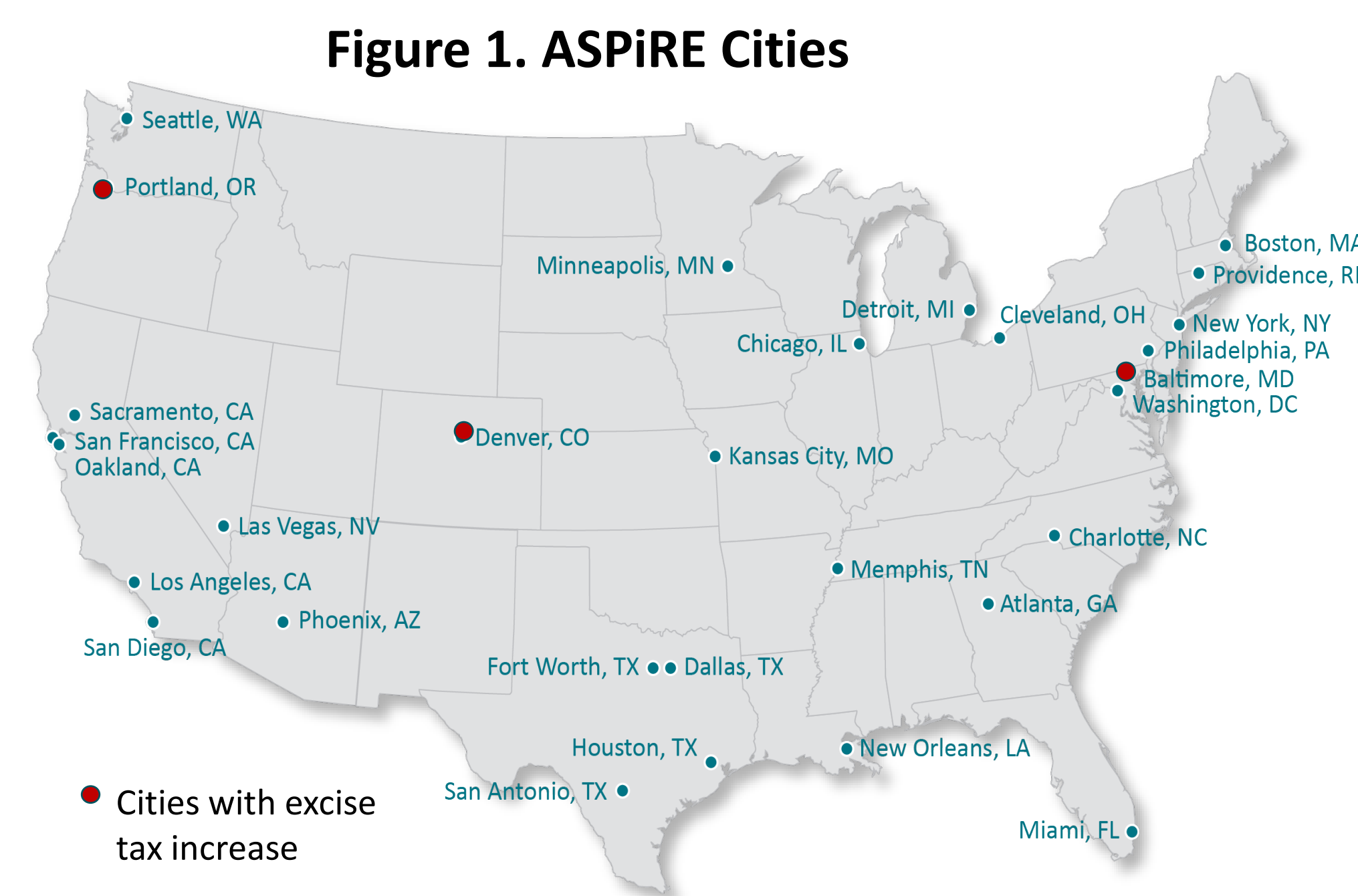


Figure 1. ASPiRE Cities

RESULTS

Feasibility

- We called 5,188 stores in 2020 and 3,067 in 2022 to reach 1,800 stores that sold cigarettes (60 per city, per wave); 33.5% of 2020 stores were replaced in 2022.
- Price was obtained in 78.6% of eligible stores in 2020 (n=1,415); 82.9% in 2022 (n=1,492); 855 stores of 2054 stores (41.6%) reported price at both waves.
- Marlboro was rarely out-of-stock: in 58 stores (3.2%) in 2020 and 17 (0.9%) in 2022.
- Pack prices collected by phone during the pandemic had face validity
- As expected, the estimated average increase in Marlboro price was significantly greater in cities with an excise tax increase than in cities without (p<0.001).

Figure 2. Mean price of Marlboro in 2020 and 2022, by city and overall

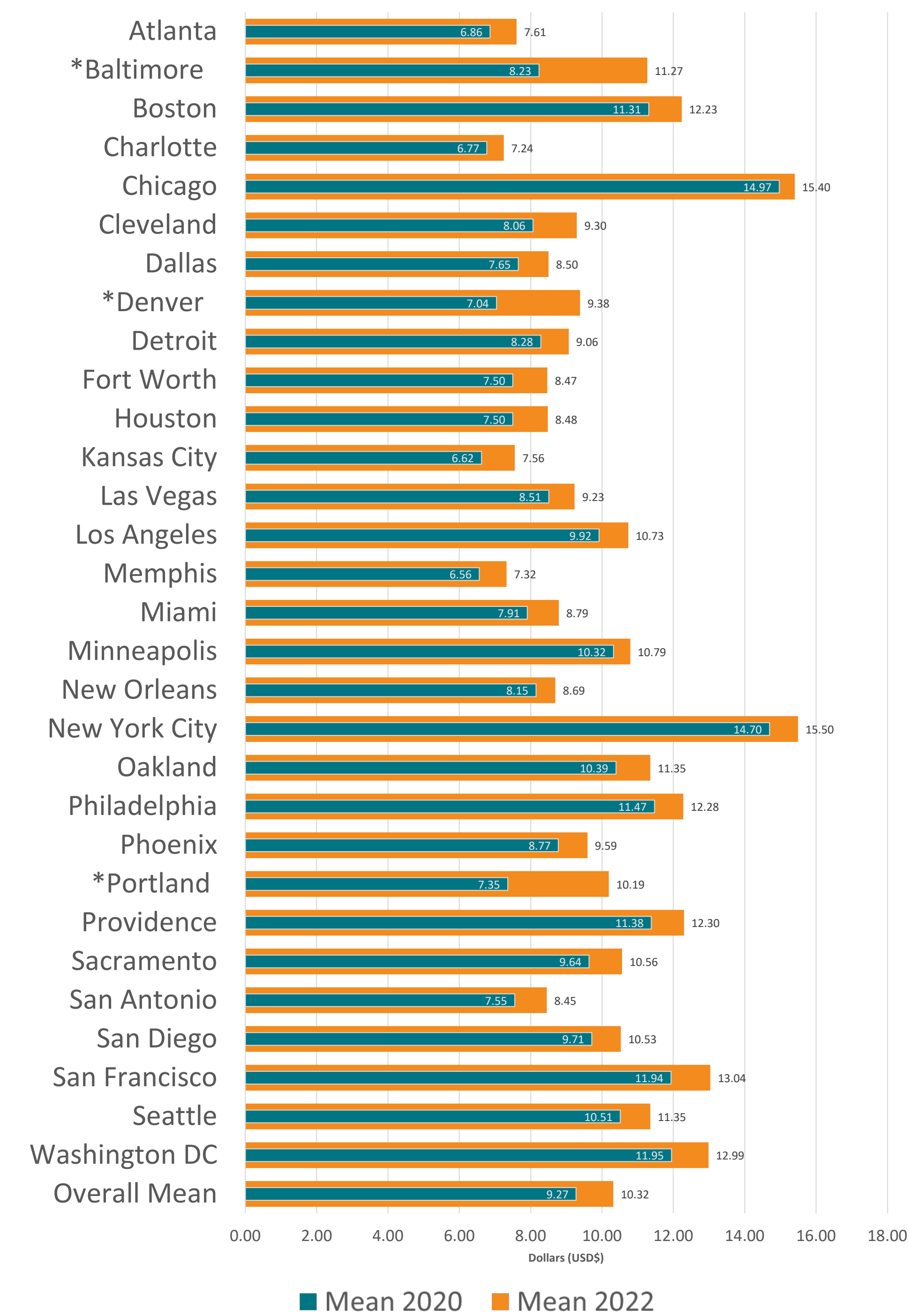
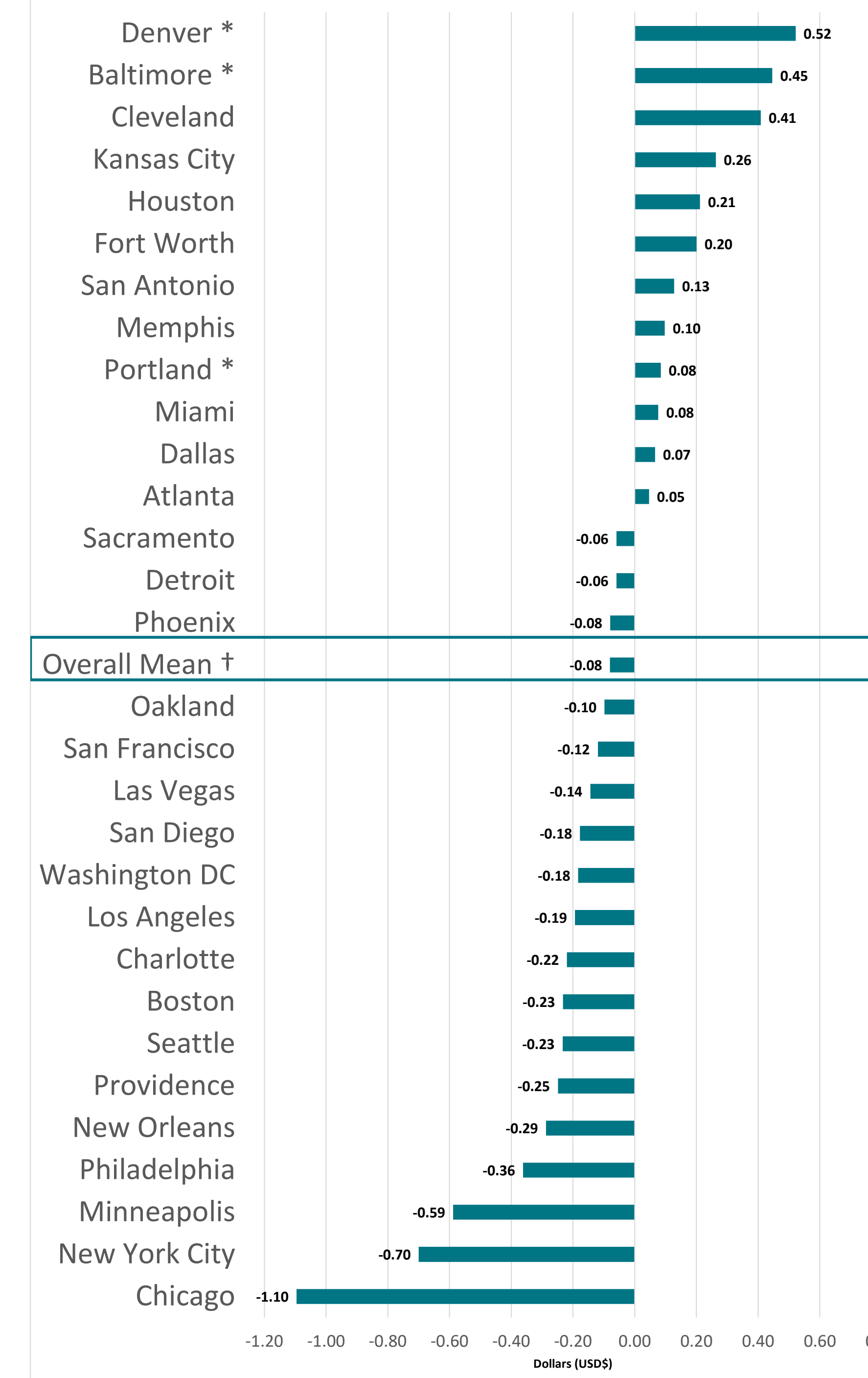


Figure 3. Difference between actual Marlboro price (2022) and expected price as per core inflation (10.2%)



* State cigarette excise tax increased by \$1.10 in Baltimore, \$1.75 in Denver, and \$2.00 in Portland between 2020 and 2022.

† According to manufacturer's reports, Marlboro wholesale price increased 6 times over the study period (total=\$0.82), but overall mean change was \$.08 less than core inflation.

Validity

- Excluding excise tax increase, average observed increase across 30 cities from 2020 to 2022 was \$0.86, ranging from \$0.43 (Chicago) to \$1.29 (Baltimore) with significant city-level variation (p<.01).
- Marlboro price increase was significantly greater in three cities with state excise tax increases than other cities.
- Average increase in Marlboro price was higher than tax increase (consistent with overshifting) in Baltimore and Denver, but not in Portland.
- Across cities, the mean rate of increase in Marlboro price was slightly less than Core Inflation (9.8% vs. 10.2%), ranging from 2.9% in Chicago to 17.6% in Denver.

Limitations

- Only one cigarette price was obtained given concerns for retailer cooperation
- Protocol did not ask whether price included sales tax, but most cigarette prices are advertised "plus tax." (Schleicher et al., 2018, Tob Reg Sci)

CONCLUSIONS

- Obtaining cigarette price by telephone was feasible when store visits were impossible.
- Results indicate predictive validity of price obtained by telephone with significantly greater increases for Marlboro price observed where excise tax increased, and the pattern was consistent with overshifting (price increase greater than tax increase) in two of three cities.
- Overall, Marlboro price barely kept pace with Core Inflation which could encourage smoking, and cities varied in terms of amount of price increase, which raises concern about differential pricing strategies.
- Future research should examine whether and how pricing strategies relate to city and store-neighborhood demographics, and to small-area estimates of smoking prevalence.

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