An Update to an Examination of the Sales Impacts of the City of Walla Walla Streatery Policy

Presentation to the Walla Walla City County

4.10.2023

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Study goals

- To compare the growth rates in sales by streatery restaurants since the enactment of the City of Walla Walla streatery policy to growth rates in:
  - Other downtown restaurants
  - All restaurants in the City
- To compare the growth rates in sales by businesses adjacent to streatery restaurants to:
  - Sales at similar businesses throughout the City
  - Sales of streatery restaurants

Definition of terms

- Downtown (DT) “beneficiary” group = streateries
  - Includes 6 wineries & 11 restaurants
- Other DT restaurants = 16
- All Walla Walla restaurants
  - Excludes all Walla Walla wineries
- Start of “intervention” (streatery policy): Q3 2020

Data

- Source: WA Department of Revenue (DOR)
  - Public: “Quarterly Business Reviews”
  - Privileged: Monthly reports from the DOR by company, grouped into quarters

- *Updated* period of analysis: Q1 2019 through 4th quarter of 2022 (5 additional quarters), generally

- Data challenges
  - In monthly reports, restaurant sales were often reported with a lag of one or more months
  - For some adjacent firms, sales were discontinuous or too recent to use in the descriptive analysis
  - For other adjacent firms reported to us, no data were available

The data

Businesses adjacent to streateries

- A/o Q2 2021, they consisted of 17 businesses
  - 2 wineries
  - 2 furniture/home décor stores
  - 4 specialty food & beverage stores
  - 4 clothing stores
  - 1 general merchandise store
  - 1 miscellaneous merchandise store
  - 2 restaurants (not streateries)
  - 1 day spa

- In the descriptive analysis, a “consolidated” list will exclude businesses due to data discontinuity or comparability reasons.

- A wide range of sales observed for these businesses

Two approaches

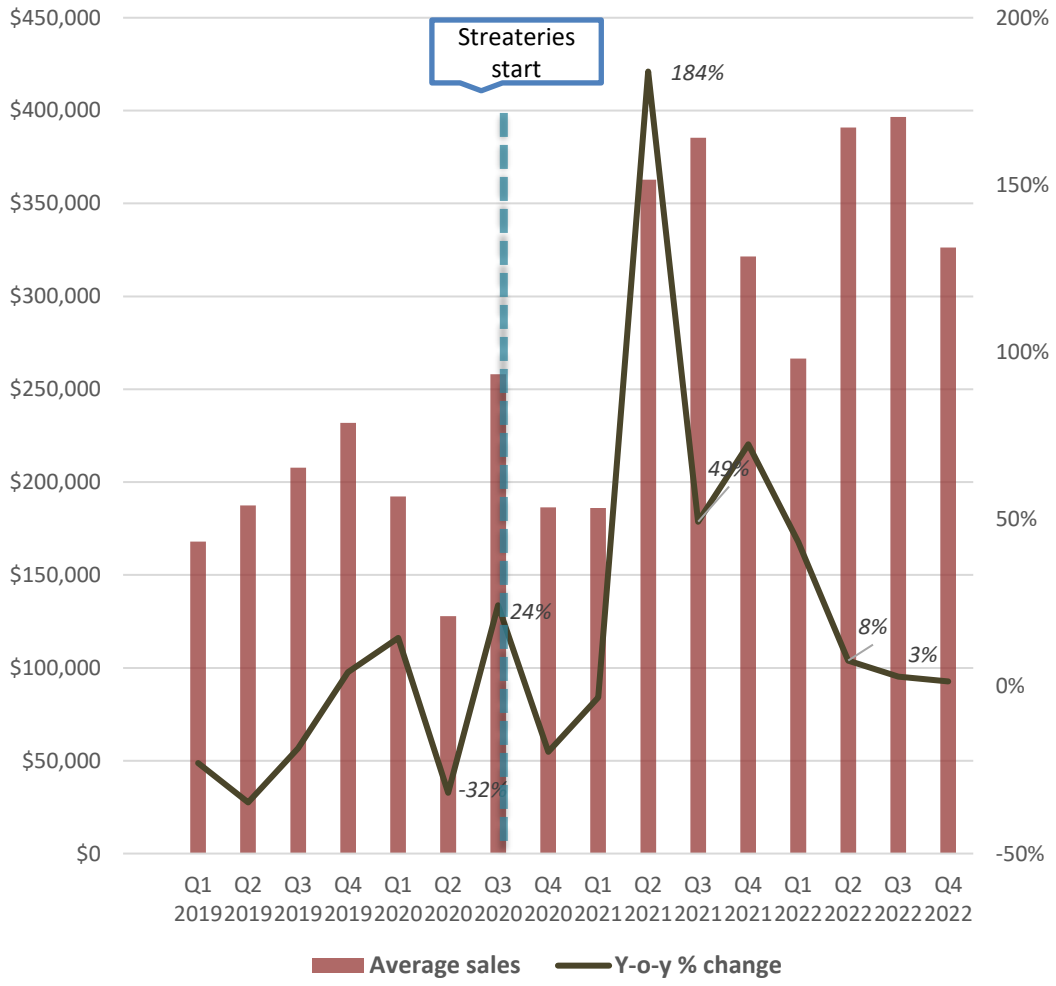
- **Descriptive**: Present the augmented data series, with the stated modifications, via a set of graphs charting quarterly year-over-year growth rates
  - This installment of the study largely uses *average* sales
    - Better way to answer how did the average business have done in the streateries environment
  - Sometimes, totals (comparison of sales indices)

- **Analytical**: Apply statistical techniques to the augmented data, with similar modifications, via statistical techniques
  - Approach: A "difference-in-differences" model
  - The model allows for inference about the size of the differences between restaurant and business groups, that is, whether the reported differences are *statistically significant*.

Summary of restaurant sales

Average quarterly sales of streatery restaurants & wineries

- 1st quarter response to streatery program was highly positive: 24% over Q3 of 2019
- Subsequent two quarters lagged 2019
- Q2 & Q3 of 2021 brought huge increases over 2020
- Q2 & Q3 of 2022 also brought y-o-y increases but smaller



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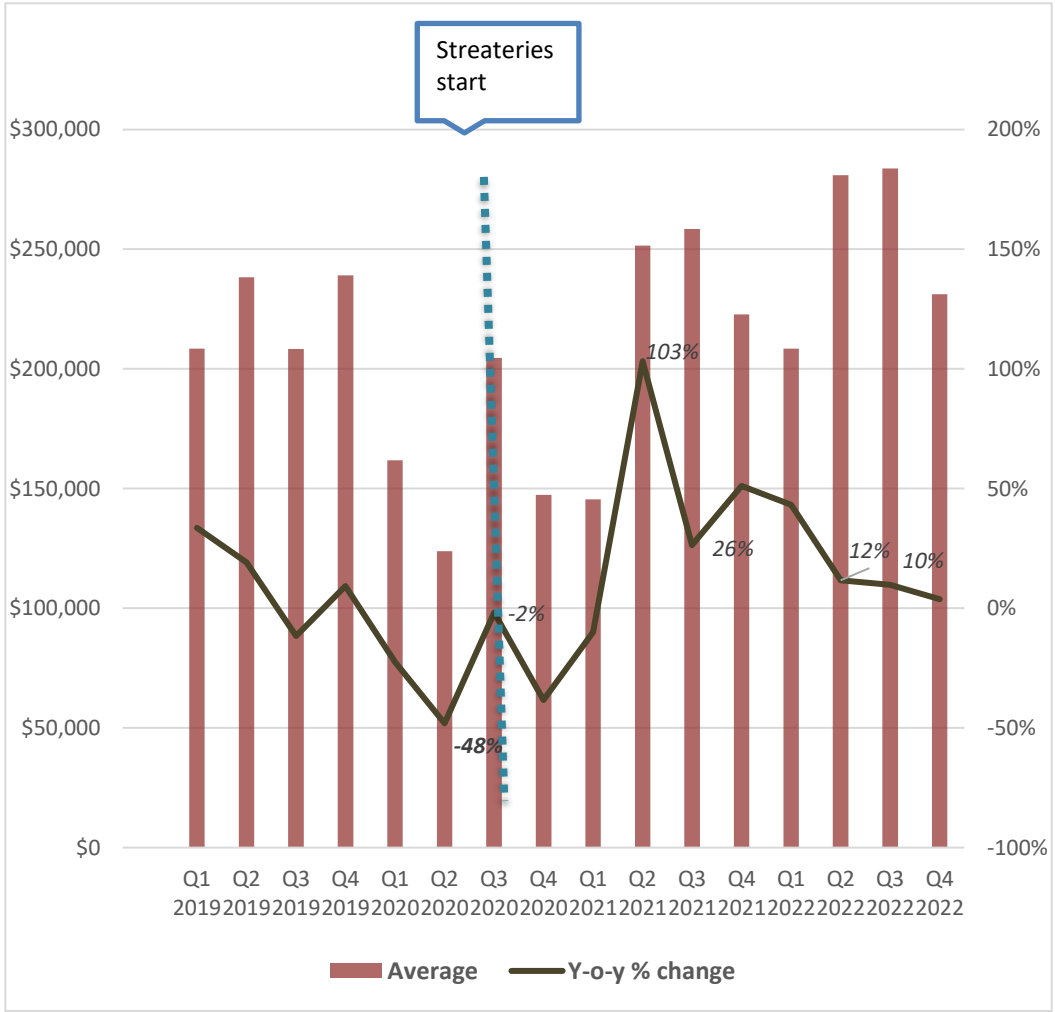
Summary of restaurant sales

Quarterly average sales of other downtown restaurants & wineries

- Y-o-y change in 1st quarter of streateries was slightly negative for the average "other" DT restaurant & winery.
- Subsequent 2 quarters yielded negative y-o-y growth, a little "deeper" than for streateries.
- But Q2s & Q3s of 2021 & 2022 saw strong growth
  - Smaller than streateries in 2021
  - But > streateries in 2022



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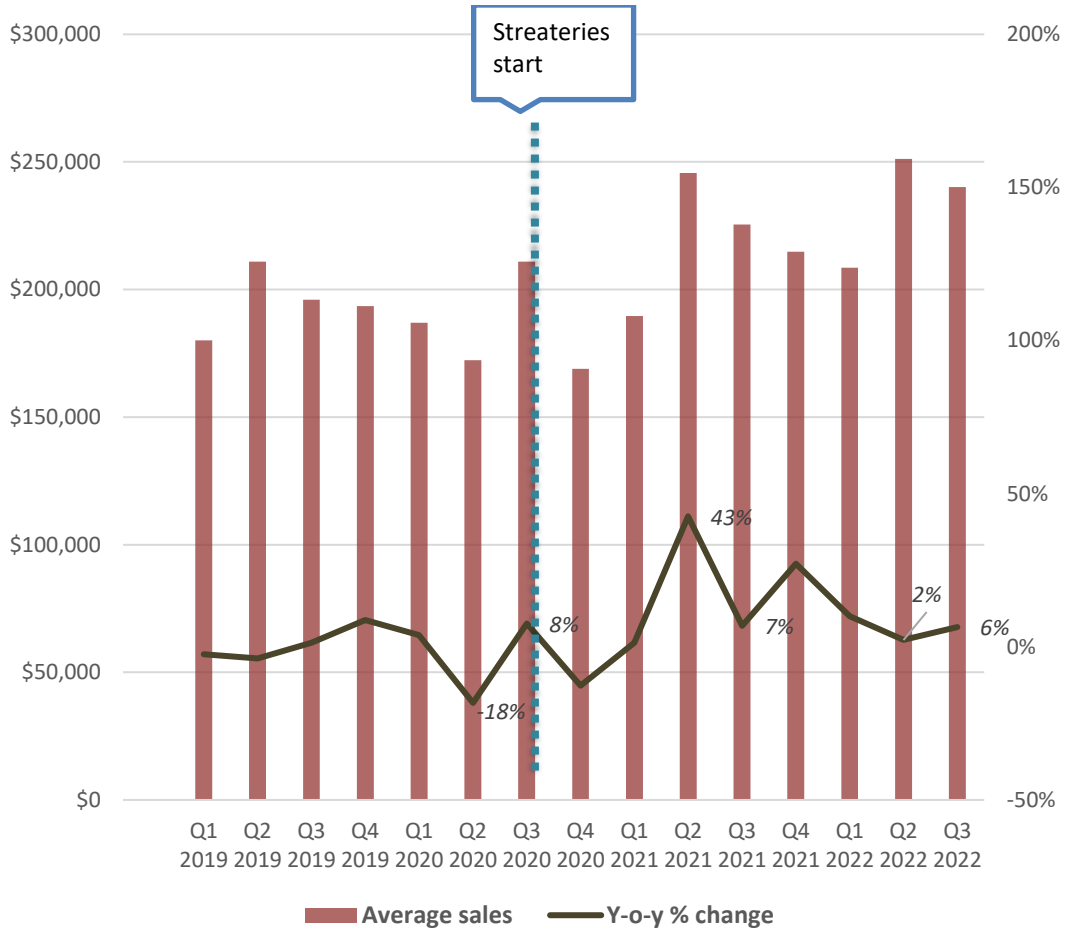
Summary of restaurant sales

Quarterly average sales in *all* restaurants in Walla Walla

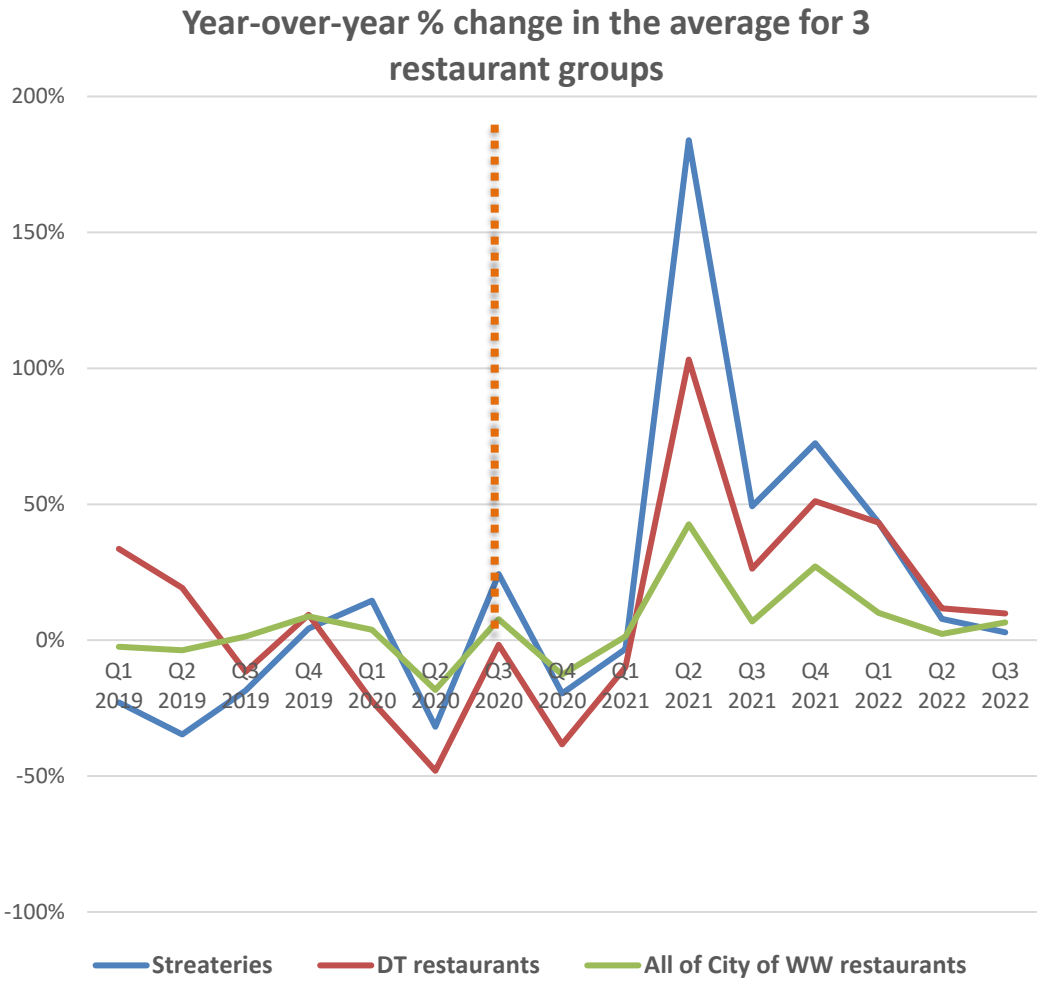
- All WW restaurants, on average, took a more modest hit in Q2 2020 than all DT restaurants
- All WW restaurants, on average, showed a weaker recovery in following year
  - And much less than average streatery



Summary of restaurant sales

Examining the three groups together

- Sales move together: Correlations between streateries & other groups is high: 0.94
- Visually obvious that the average streatery has outperformed other 2 groups.
- Average y-o-y % gain 2020 Q3–2022 Q3:
  - Streateries: 40%
  - Other DT rests: 22%
  - All WW rests: 10%



Sales of adjacent businesses

General considerations

- Goal: to examine whether presence of a streatery has negatively impacted sales of adjacent businesses

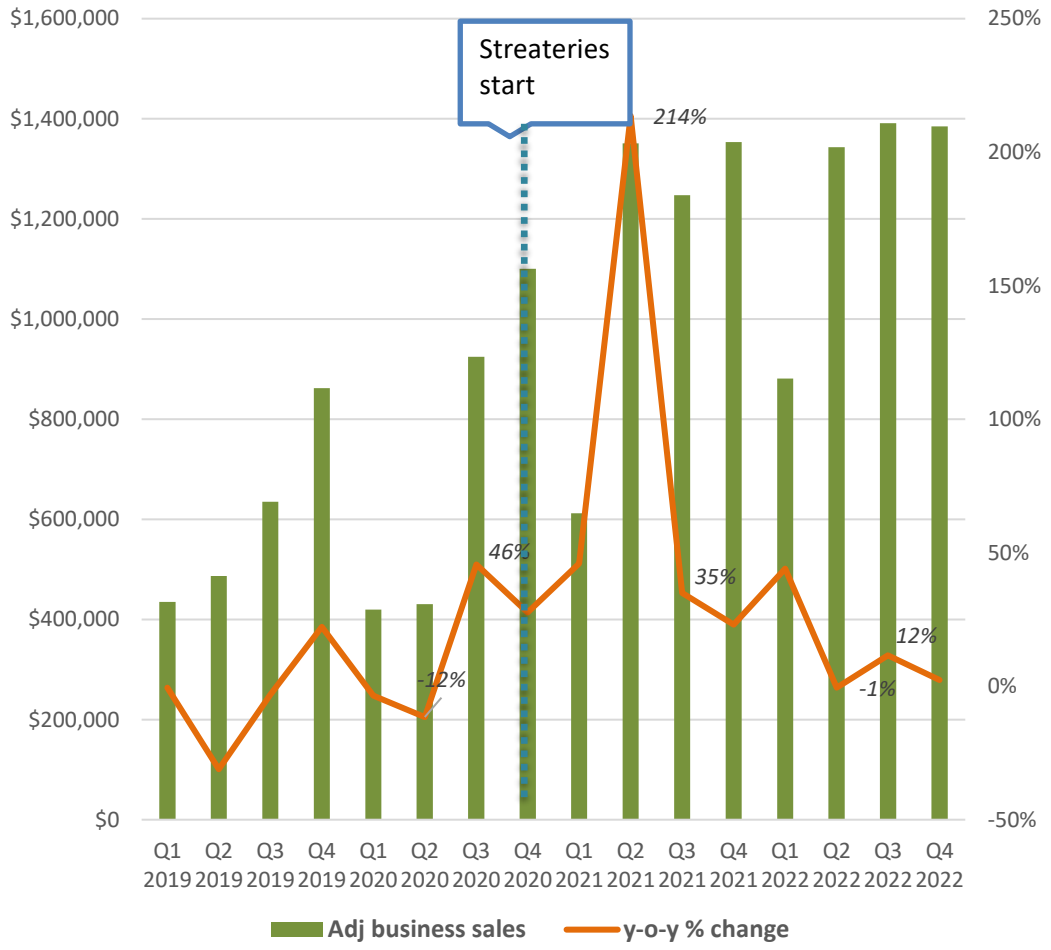
- Original set of adjacent businesses received from City was trimmed from 19 to 6
  - Three had no to little sales over reporting period
  - Others cut due to the inability to compare to like businesses city-wide

- The final six represented furniture & home furnishings, specialty food and clothing establishments.

Sales of adjacent businesses

Sales of the "consolidated" set of adjacent businesses to streateries

- Immediate pandemic response (Q2 2020) by these 6 businesses much *better* than all restaurant categories
- Recovery response in all of 2021 (y-o-y % increase), @ 79%, *higher* than all restaurant types:
  - Streateries: 76%
  - Other DT rests: 43%
  - All WW rests: 19%
- Not as robust y-o-y growth rates in 2022: ~ same as others



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Sales by adjacent businesses

Creation of an "all-city" measure of similar businesses

- Goal: to create a city-wide benchmark for same types of businesses as represented by adjacent businesses to facilitate comparisons

- *Exclusions* from "all City" measure & "unconsolidated" DT list
  - **Wineries**: Most have sales independent from a retail location
  - **Specialty food** retailers (2): Time series for the DT businesses didn't include 2019 data
  - **Miscellaneous** retailers: An all-City measure contains a huge variety of enterprises, making comparisons spurious
  - **Telecom**: Assume that a good portion of reported sales cannot be traced to a retail location
  - **Day spa**: Could not easily find counterparts in City retail sales data

Sales of adjacent businesses

Creation of weights from a "consolidated" set of adjacent businesses

- Ultimately, 3 types of businesses make up the set – with weights by sales
  - Furniture/home furnishings: 30%
  - Specialty food: 9%
  - Apparel: 61%

- With these three types, a like-to-like comparison possible between these DT businesses and their counterparts within the City,

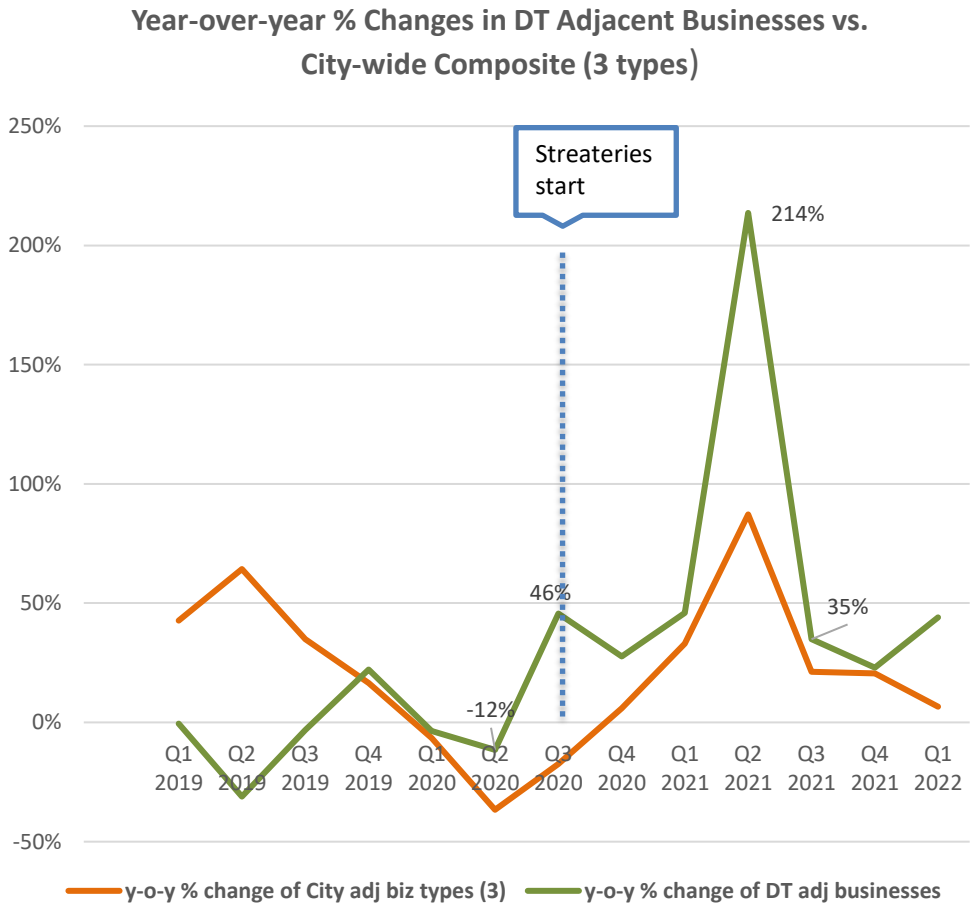
- Interpretation of all-City sales: what the total sales of these 3 business types *would be* if they had the same mix of DT adjacent businesses

- Data limitation: due to change in WA DOR reporting, can extend the analysis only through Q1 2022 (3 quarters beyond phase I's report).

Sales of adjacent businesses

Growth rates for 3 business types DT & City-wide

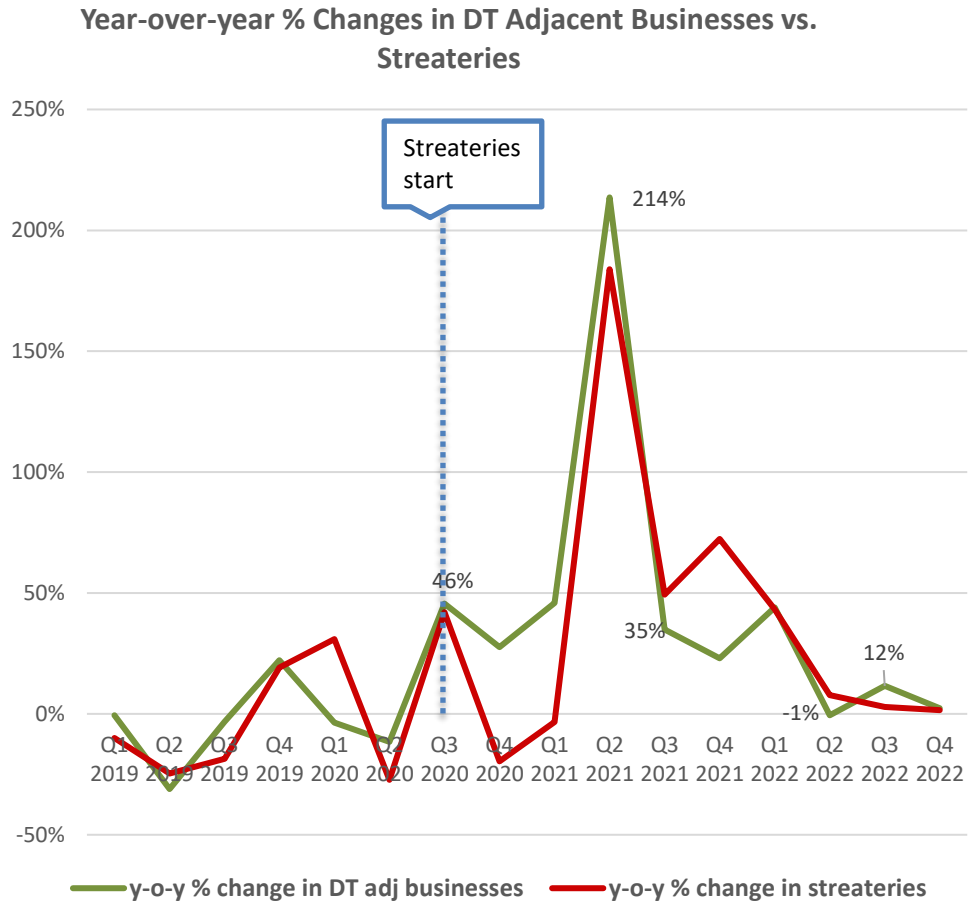
- As in 1st round of analysis, y-o-y % increases in the 3 types of adjacent businesses DT have been much greater than the same mix of those City-wide. Average increases Q3 2020-Q1 2022:
  - Gain DT: 62%
  - Gain city-wide: 22%
- The 3 additional quarters in this analysis all show higher growth rates of DT adjacent businesses > their counterparts city-wide
  - Comparison stops at Q1 2022, due of absence of published DOR data



Sales of adjacent businesses

Comparison of growth rates of adjacent businesses to growth rates of streateries

- Finding from the 1st phase of the analysis still holds: from the start of the streatery policy in Q3 of 2020 thru Q4 2022, the y-o-y % sales increases in the 3 types of adjacent businesses DT have been greater than those of the streateries.
  - Ave y-o-y gain of adjacent businesses: 45%
  - Ave y-o-y gain of streateries: 38%



Applying Econometric Modeling

To test the efficacy of a policy (permitting restaurants to use streateries), applying a difference-in-differences model allows us to compare treatment groups with other control groups in attempting to understand possible differential impacts.

Research Questions

(1) Streateries vs. Downtown Restaurants

- Was there a statistically significant difference in quarterly revenues between restaurants and wineries that utilized streateries compared to other downtown restaurants that can be attributed to the streatery?

(2) Streateries to ALL Other Restaurants

- Do we observe a statistically significant difference in quarterly revenues between streateries and all other restaurants in the City of Walla Walla that can be attributed directly to the streatery?

(3) Streateries vs. Adjacent Businesses

- Was there a statistically significant difference in quarterly revenues between streateries and businesses located adjacent to the streateries?

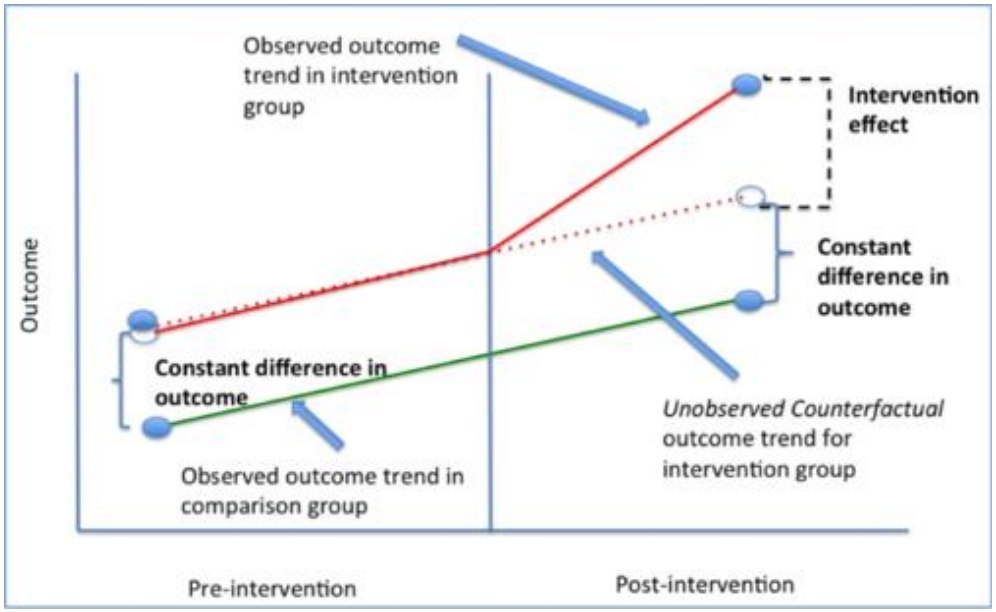
(4) Adjacent Businesses to Other Similar Businesses

- Do we observe a statistically significant difference in quarterly revenues between non-restaurant adjacent businesses when compared to other non-restaurant businesses in the City of Walla Walla that can be attributed to the location near a streatery?

Using a Difference-in-Differences Estimation Approach

Methodology

- Uses a treatment group & a control group
  - Streatery vs. Non-Streatery
  - Adjacent vs. Non-Adjacent
  - Downtown vs. Non-Downtown
- Compares the trends before and after an intervention (structural break) has occurred
  - Allowing some downtown restaurants and wineries to use streateries
- Assumptions
  - Linearity before & after
  - Uses "dummy" (1,0) variables for presence of the treatment (T) and post-intervention (P).
  - An interaction term is created for treated group in the post-intervention period. This is the DID measure.



$$Revenues_{i,t} = \alpha + \beta_1 Treatment_{i,t} + \beta_2 Post_{i,t} + \beta_3 Treat_{i,t} Post_{i,t} + \varepsilon_{i,t}$$

Limitations of the Data

- Protect privacy of individual firms and tax info
  - Aggregate by two-digit NAICS code
  - Use quarterly data (rather than monthly)
- Lags in reporting
  - Corrected in original data set
- Discontinuous reporting (firms entering / exiting)
  - *Stata* (statistical program) allows for missing observations

Summary Statistics: Full Data Panel

Identifying the **Treatment Sample** (Streateries)
(Quarterly Observations)

NAICS Code	Type	Streatery? No	Yes	Total
31	Wineries	80	80	160
44-45	Retail Trade	260	40	300
72	Food Services	380	200	580
81	Other Services	20	0	20
Total		740	320	1060

Identifying the Pandemic Break
(Quarterly Observations)

NAICS	Type	Before	After	Total
31	Wineries	80	80	160
44-45	Retail Trade	150	150	300
72	Food Services	290	290	580
81	Other Services	10	10	20
Total		530	530	1060

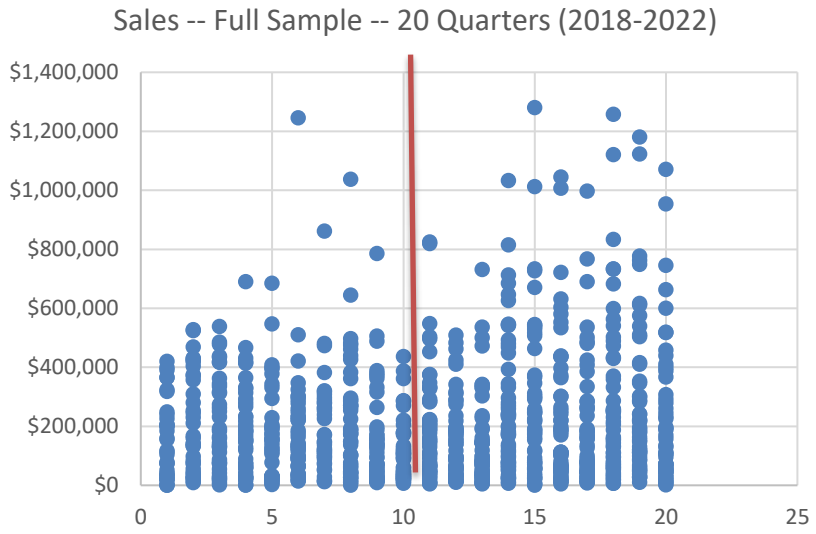
This analysis includes a PANEL DATA approach where data on the identified firms were tracked over a selected time period.

Identifying the **Treatment Group**

- Yes = Streatery
- No = Not a Streatery

Identifying the **Structural** (Pandemic) **Break**

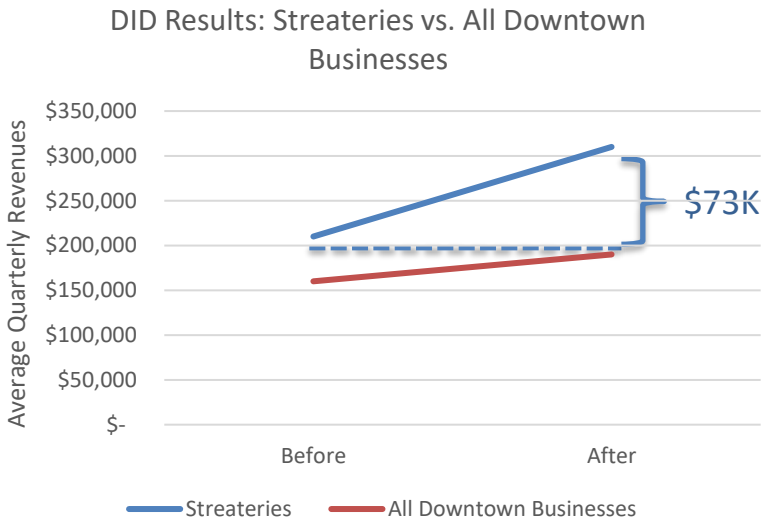
- Before: 2018 Q1 – 2020 Q2
- After: 2020 Q3 – 2022 Q4



Results: Impacts on All Downtown Businesses

Streateries vs. All Downtown Businesses

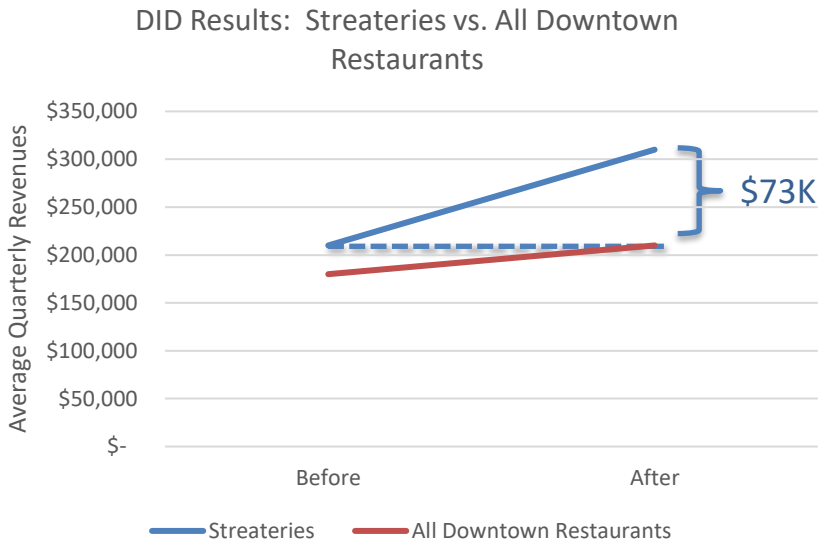
- All DT businesses = adjacent + other downtown restaurants
- There was a strong positive and statistically significant impact of having a streatery restaurant downtown.
- On average, the difference generated $73,000 in additional quarterly revenues ($24,333 per month) compared to other downtown businesses that did not utilize a streatery. This difference can be directly attributed to the presence of the streatery.
- The average All DT business saw quarterly revenues of $160K before the intervention and $190K after **(19% increase).**
- The average streatery business saw quarterly revenues of $210K before the intervention and $310K after **(48% increase).**



Results: Impacts on Downtown Restaurants

Streateries vs. Other Downtown Restaurants

- There was a strong positive and statistically significant impact of having a streatery restaurant downtown. But the financial impact directly attributable to the streatery fell from the initial study to this follow-up, as the pandemic waned and businesses returned to a new normal.
- On average, the difference generated $73,000 in additional quarterly revenues ($24,333 per month) compared to other downtown restaurants that did not utilize a streatery. This difference can be directly attributed to the presence of the streatery.
- The average other downtown restaurant saw quarterly revenues of $180K before the intervention and $210K after **(17% increase).**
- The average streatery business saw quarterly revenues of $210K before the intervention and $310K after **(48% increase**).



Results: Impact on Adjacent Businesses

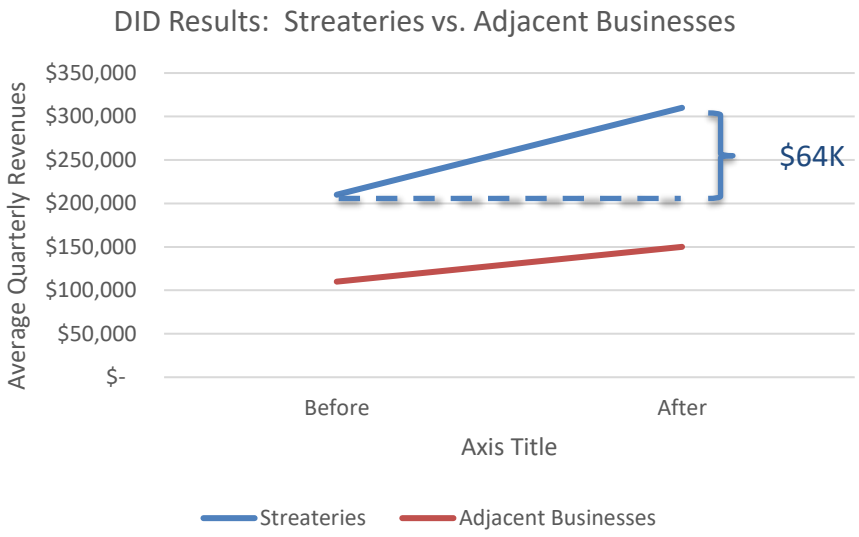
Reduced vs. Induced Demand

- Research Question: Do the streateries, with their reduction in available parking, positively or negatively impact sales of adjacent businesses?
- Hypothesis 1: Reduced Demand (Revenues ↓)
  - Fewer parking spots might deter customers.
- Hypothesis 2: Induced Demand (Revenues ↑)
  - Customers using streateries may also choose to shop at adjacent businesses.
- Therefore, the net effect can not be predicted ahead of time.
  - The predicted sign (+ or -) on the intervention variable is ambiguous, a priori

Results: Impact on Adjacent Businesses

Streateries vs. Adjacent Businesses

- Previously, we found that there is no evidence that adjacent businesses were negatively impacted by the presence of streateries.
- During the 1st time period, quarterly revenues of adjacent businesses increased
- Additional data suggests that there was a strong & statistically significant impact of having a streatery, compared to adjacent businesses.
- Streatery restaurants saw an increase of $64,000 additional revenues ($21,333 per quarter) that were attributable directly to the presence of the streatery that adjacent businesses did not realize.
- Still, average quarterly revenues for adjacent businesses were $110K before the intervention and $150K after the intervention -- **an increase of 36%.**
- As seen, average quarterly revenues for streateries were $210K before the intervention and $310K after the intervention – **an increase of 48%.**



Results: Comparing Adjacent Businesses to Other Similar Businesses in the City

- Analysis considers only businesses with NAICS Code = 312, 44-45, 517, 812 (furniture/home, apparel/jewelry, misc. retail) for reasons already given
- Both groups – DT & non-DT -- experienced an uptick in revenues following the streatery policy.
- Finding: **No evidence was found that adjacent businesses underperformed** relative to other similar businesses throughout the city due to the presence of the streateries.
- In fact, adjacent businesses had a small positive difference due to the streateries, but the result was not statistically significant.

Results: Impacts on All Other Restaurants

Streateries vs. All Other Restaurants in sample

- All Other Restaurants = DT Restaurants (no streatery) + Non DT Restaurants
- Finding: although there is a difference in quarterly revenues, the difference can not be attributed to the streateries themselves.
- Finding**: No statistically significant difference between the control group and the treated group's DID measure.**
- Differences in revenues could be due to heterogeneity in type of restaurant, the location of the non-DT restaurant or differential response to the pandemic.

Results: Impact on Other Downtown Restaurants (Non-Streateries)

Comparing Other Downtown Restaurants (Non-Streateries) to Non-Downtown Restaurants

- Finding: DT restaurants (non-streateries) saw an increase in revenues compared to non DT restaurants.

- That is, no statistical evidence that downtown restaurants saw any 'crowding out' of sales due to the presence of the streateries.

Summary of Econometric Findings

- Utilizing a **streatery** allowed participating restaurants and wineries to experience a significant increase in revenues, about $7,300 per quarter from Q3 2020 to Q4 2022. This impact is smaller than the immediate effect of the streatery policy during the pandemic

- In the same period, **other downtown restaurants** saw relatively flat revenue streams.

- As the economy stabilized and started to grow again after the pandemic, the **overall effect of the streateries** on their revenues fell off slightly, but remained positive.

- **DT businesses adjacent to a streatery** were *not* negatively impacted by the streateries; in fact, they saw increasing revenues, just at a slightly lower rate of increase overall.

- **DT businesses adjacent to the streateries** experienced similar growth rates as their same businesses types outside of DT in the city.

- Concurrent with the streateries, **other downtown restaurants** performed slightly better than their counterparts outside of downtown, but the difference can not be directly attributed to the intervention. (No statistical significance.)

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