



2023 Small Business Inflation Impact Study

**The Effects of Post-Pandemic Inflation
on U.S. Small Businesses**



ABOUT THE 2023 SMALL BUSINESS INFLATION IMPACT STUDY

In the *first* study of its kind on inflation's impact on small businesses, Biz2Credit, a leading online funding provider to small businesses, analyzed revenues, expenditures and other economic features of US small businesses. The analysis is based upon anonymized, user-permissioned transactional cash flow data from 140,000+ US small businesses on the Biz2Credit funding platform, comprising nearly 105 million cash inflow and cash outflow transactions between January 2019 to October 2022.



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EXECUTIVE SUMMARY

The economic behavior of small businesses in the post-vaccine recovery and inflationary phase was very different from the earlier Covid pre-vaccine phase. In the pre-vaccination phase (2020-Q1 to 2020-Q3), small businesses conducted severe cost-cutting in the face of falling revenue, with both dollars per expenditure transaction and the number of transactions falling by 14% and 8% respectively.

By contrast, in the post-vaccination recovery (2022-Q1 to 2022-Q3) during high inflation, small business encountered severe pressures to manage cash flow while trying to maintain business activity at higher post-vaccine recovery levels. As a result, while dollars per expenditure transaction fell 12%, the number of transactions rose by 9% to maintain business activity in the recovery phase which offset the fall in cash outflow per transaction.

The study next analyzes how inflation impacted small business behavior due to energy prices (gasoline and utility rates) that increased rapidly in 2022. For gasoline, the study analyzes the impact on the Transportation and Warehousing industry, for whom this is an essential input. The average volume of gas consumption fell when prices rose in 2022-Q2, then rose slightly when gas prices fell in 2022-Q3. As transportation firms need to fulfill customer orders in any event, they have limited flexibility in adjusting volume in response to price changes.

A similar analysis was done for utility spending by the Accommodation and Food Services (AFS) industry, where average utility spending was highest. The utility price index from the [US Energy Information Administration \(EIA\)](#) indicated that energy prices rose sharply in 2022-Q2 from the prior quarter and continued to do so in Q3. The observed reduction in volume due to higher utility prices in 2022-Q2 was much greater than with gasoline, indicating that small businesses had greater leeway in cutting utility volume when prices rose. However, as utility prices continue to rise in Q3, the reduction in volume was much less than when compared to Q2, suggesting that the businesses were reaching their limits in cutting utility consumption.

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A NOTE ABOUT TIMELINES IN THIS INFLATION IMPACT STUDY

The study identifies 3 distinct phases: **(a)** the Pre-Covid phase up to 2020-Q1 **(b)** the Covid Pre-vaccine phase covering the initial waves of the pandemic before mass vaccination in 2021-Q1 **(c)** the Post-vaccine Recovery and Inflation phase, combining a gradual, partial recovery from 2021-Q2 and extended to 2022-Q2, a phase marked by higher inflation.

US prices experienced a persistent rise that began in the summer of 2021, and inflation accelerated by the middle of 2022. The **Producer Price Index (PPI)** which gauges prices paid by businesses, grew at a peak rate of nearly 3% month over month by May 2022, and over 20% from the prior year.

- The spike in prices came just as the US economy was recovering from the initial waves of the Covid pandemic and created an entirely new set of challenges for small businesses.
- The inflationary phase is analyzed in the context of the unique circumstances created by the pandemic beginning in March 2020. Following mass vaccination in 2021-Q1, the US economy began to recover through a combination of a strong labor market and spending of accumulated savings by consumers and businesses. However, it also faced global supply chain constraints.

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KEY FINDINGS ON SMALL BUSINESS MACROECONOMIC TRENDS



KEY FINDINGS: SUMMARY



Small businesses saw a post-vaccine economic recovery from 2021-Q2 as their revenues grew. This was also a time of higher inflation that accelerated in 2022-Q2, before moderating in 2022-Q3.



During the first wave of the pandemic in 2020, small business dollars per expenditure transition fell by 14% and number of transactions by 8%.



In 2022, small businesses reduced dollars per transaction by 12% to preserve cash flows but *increased* number of transactions by 9% to maintain activity at recovery levels.



As gas prices spiked in 2022-Q2, gasoline consumption fell for Transportation companies. However, the price change had only a small impact on volume as such firms had to meet customer orders.



By contrast, as utility prices rose in 2022-Q2, businesses cut volume more significantly compared to gasoline. As utility prices continued to rise in Q3, businesses were reaching their limit to cut volume further.

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INSIGHT FROM ROHIT ARORA, BIZ2CREDIT CEO

// The analysis is based upon anonymized, user-permissioned transactional cash flow data comprising nearly 105 million cash inflow and cash outflow transactions from U.S. small businesses on Biz2Credit’s online marketplace. Unfortunately, the spike in prices came just as the U.S. economy was recovering from the initial waves of the COVID pandemic and created an entirely new set of challenges for small businesses. Many of them are still hurting. //

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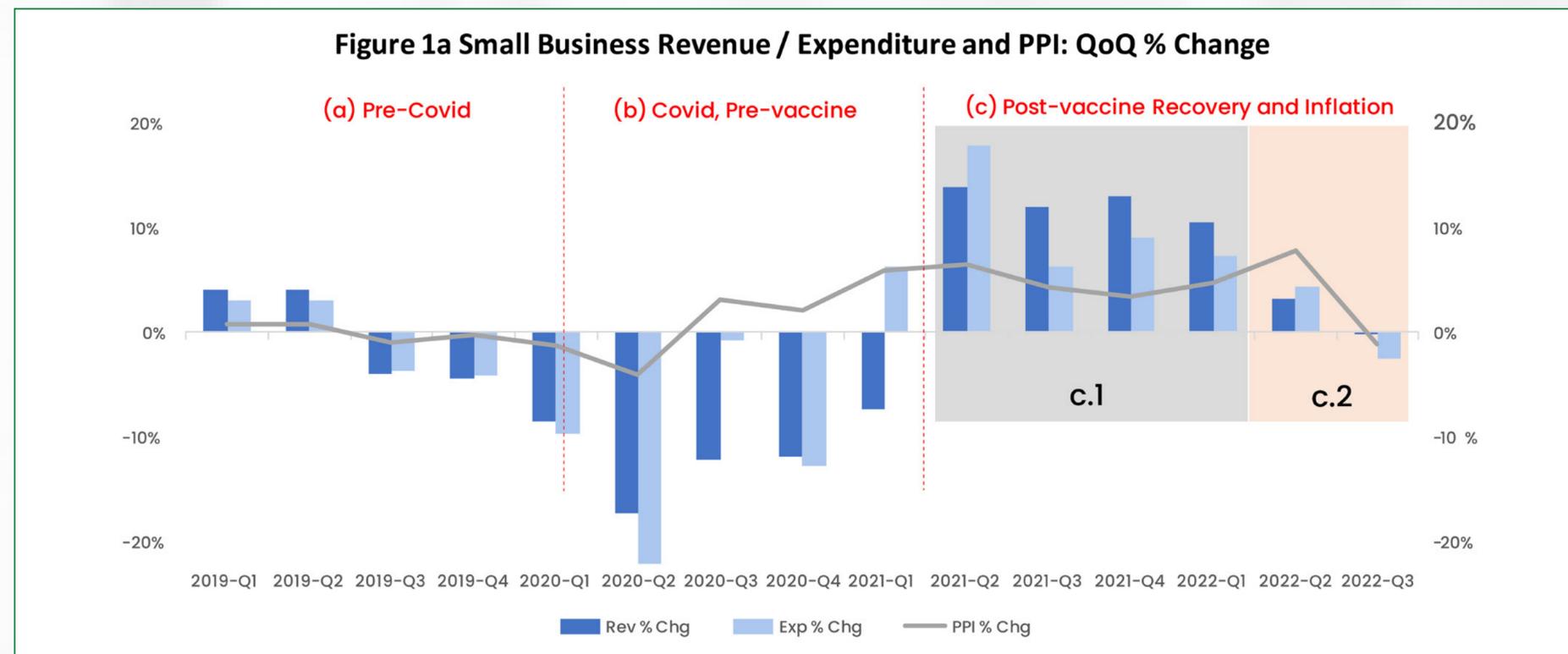
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SMALL BUSINESS REVENUE, EXPENDITURE, AND PRODUCER PRICE INDEX (PPI)

- The PPI* rose steadily in phase (c) with economic recovery beginning in 2021-Q2, extending to 2022. It has two sub-periods: in c.1, small business revenue and expenditure grew. The PPI accelerated in c.2, starting in 2022-Q2, after which the PPI stabilized as supply constraints eased and interest rates rose.
- While revenue and expenditure grew faster than the PPI in c.1, this changed in c.2 as small business revenue growth slowed in 2022-Q2.
- Finally in 2022-Q3, as inflation eased, small businesses were able to cut expenditure, although small business revenues remained flat.

Figure 1a shows (a) the Pre-Covid phase up to 2020-Q1 (b) the Covid Pre-vaccine phase prior to mass vaccination from January 2021. There was large cost cutting as small business revenue fell sharply (c) the Post-vaccine Recovery and Inflation phase as small business revenues gradually recovered. This phase consists of two sub-periods c.1 and c.2, as noted above.

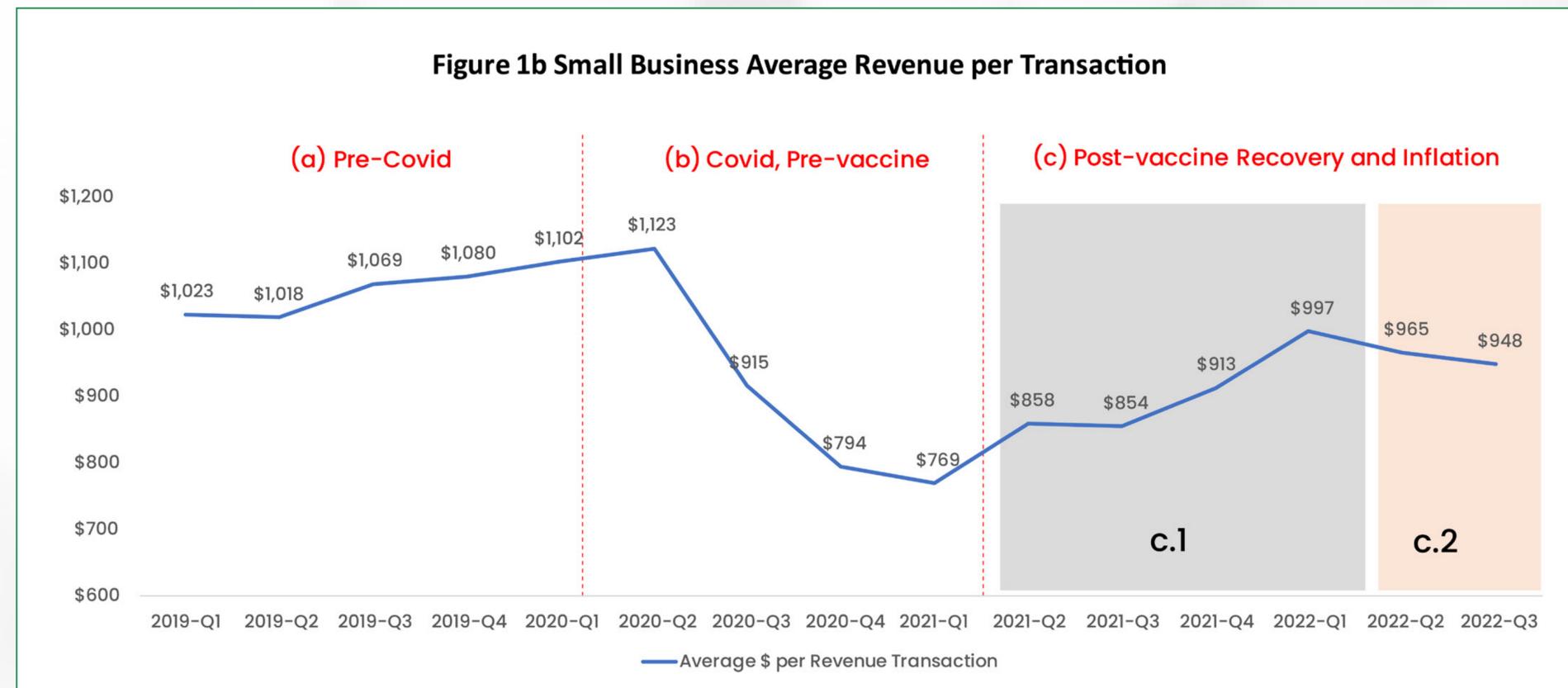


The chart shows Quarter over Quarter percentage change in PPI, small business revenue and expenditure. Source: Biz2Credit Data, <https://fred.stlouisfed.org/series/PPIACO>; Biz2X Analysis

*Producer Price Index measures inflation from the perspective of costs to the industry or producer of products. **Increase of PPI usually means inflation is on the way.**

SMALL BUSINESS REVENUE PER TRANSACTION PATTERNS

- The study calculates the average revenue per transaction received by small businesses, as shown in Figure 1b. In the first sub-period c.1, the average revenue per transaction grew from \$858 to \$997 in 2021-Q2, indicating that customers of small businesses were willing to spend more.
- This changed in 2022-Q2, with higher inflation, as average revenue per transaction fell from its peak in 2022-Q1 to \$965 and \$948 in next two quarters (subperiod c.2); this suggests that customers of small businesses were also facing the challenge of inflation and limiting their cash outflows accordingly.
- From the perspective of small businesses, this transition likely represents a reduction in their pricing power, i.e. capacity to pass on cost increases to the customers without significantly impacting demand.



Values are quarterly average of monthly values.

Source: Biz2Credit Data; Biz2X Analysis

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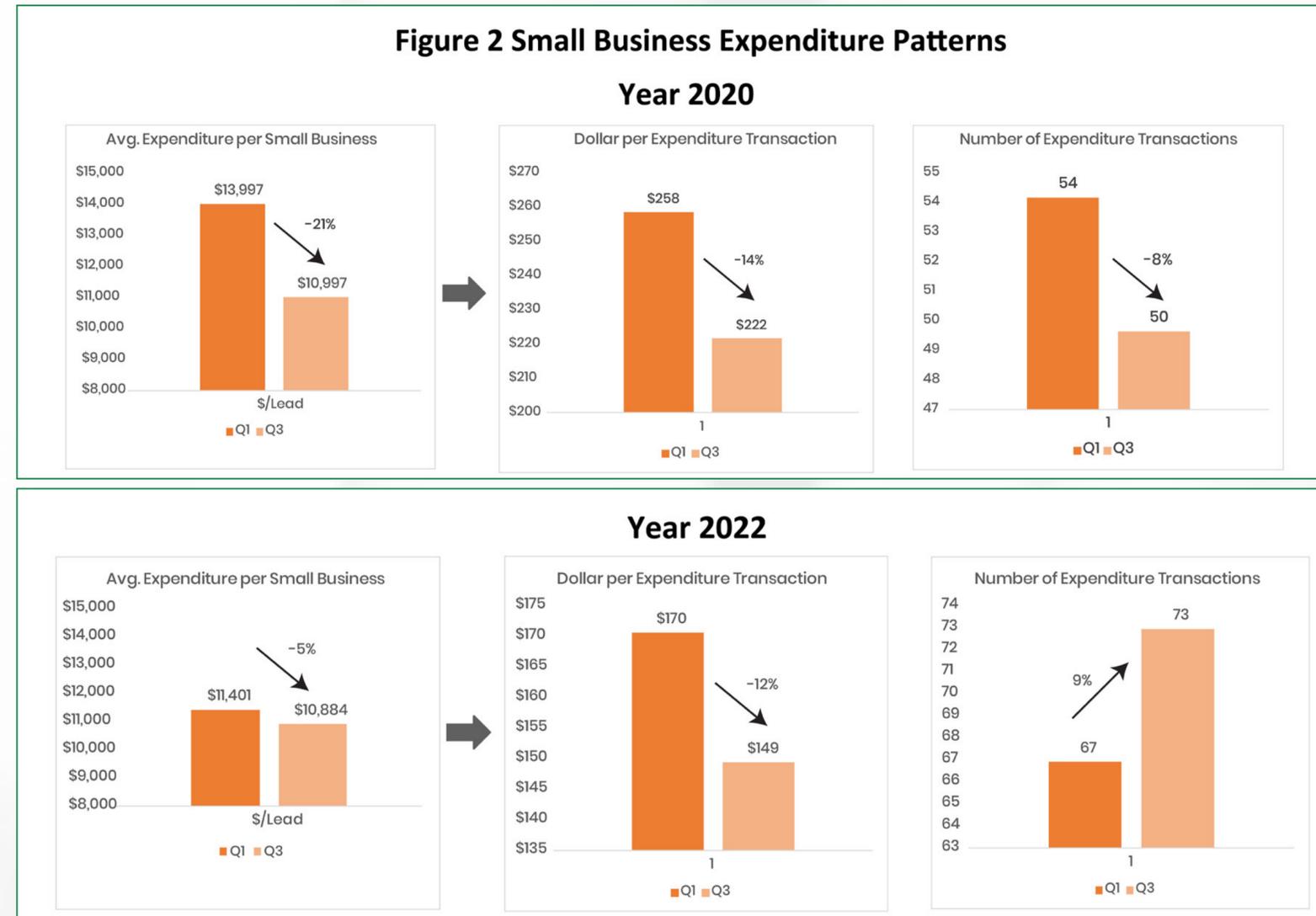
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SMALL BUSINESS EXPENDITURE PATTERNS

Small business economic behavior in the post-vaccine high inflationary period (2022-Q1 to 2022-Q3) sharply contrasted from its behavior in the pre-vaccine Covid period (2020-Q1 to 2020-Q3).

Figure 2 Small Business Expenditure Patterns



In 2020, the average monthly expenditure of small businesses dropped from almost \$14,000/month in Q1 to under \$11,000 in Q3, a **drop of 21%**. This was a period of extreme small business stress as revenues dried up in the first waves of the pandemic and they had to severely cut costs.

Small businesses reduced dollars per transaction **by 14%** and number of transactions **by 8%**. This was to cut costs by every possible means.

In 2022, monthly average expenditure fell from \$11,400 in Q1 to just under \$10,900 in Q3, a **drop of 5%** in the face of inflation.

In the high inflation period of 2022, small businesses decreased dollars per transaction **by 12%** to manage cash flow better. However, they increased the number of transactions **by 9%** to maintain business activity in the recovery phase.

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Values are quarterly average of monthly values, adjusted for inflation by the PPI.

Note: Average expenditure = \$ per expenditure transaction X number of expenditure transactions

INSIGHT FROM SARITA EKYA, OWNER OF S'Mac

// The rise in goods price has impacted us and is continuing to impact us. It is hard to raise our prices. It is mac and cheese. Yes, it is fresh cheese and fresh ingredients every day. But there is only so much you sell a plate for.

So, we must find other ways of tightening things up. We are looking at our bottom lines. How can we still sell our food at a modest price point when our cost of goods is going through the roof right now? //

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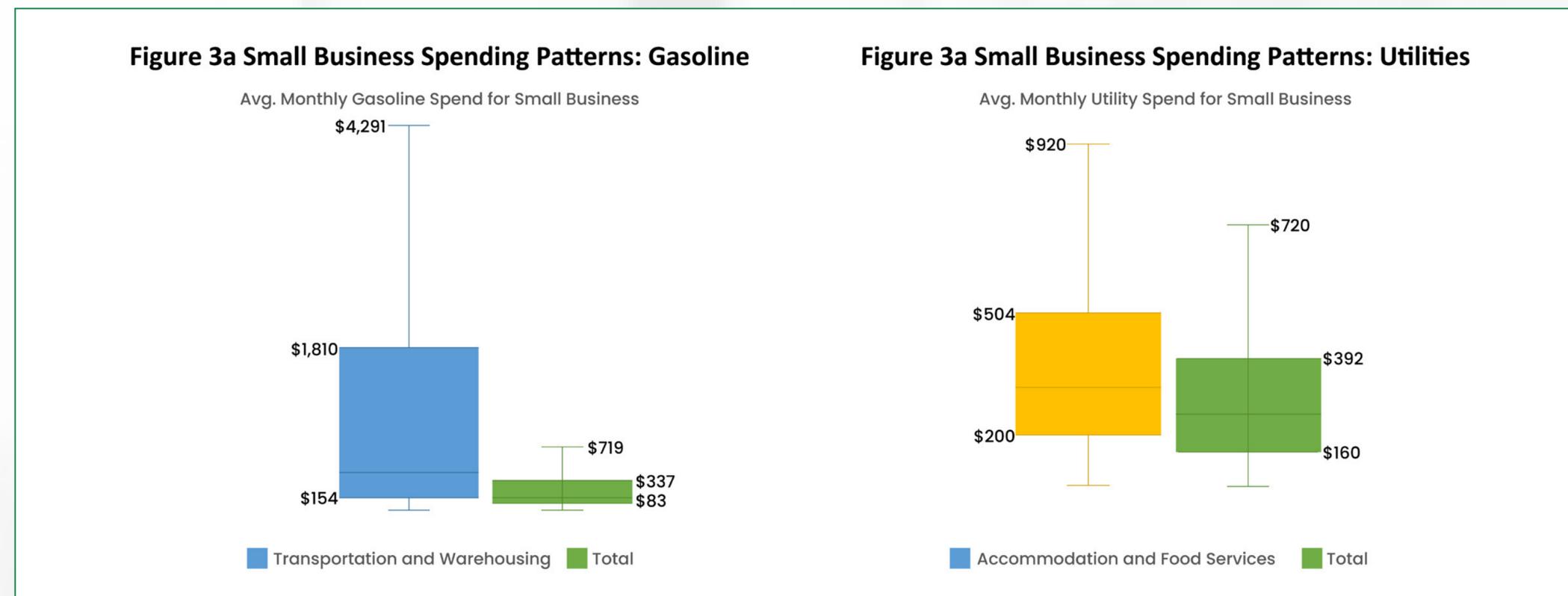
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KEY FINDINGS ON HIGH IMPACT EXPENDITURES



IMPACTS OF GASOLINE AND UTILITY INFLATION

- This study focuses on the impact of high inflation in industries and sub-industries most likely to be affected. For the rise in cost of gasoline, the Transportation and Warehousing industry (Figure 3a) would be most affected. For utility spend, this is Accommodation and Food Services (Figure 3b).
- As shown in Figure 3a, gasoline spend for the middle 50% of Transportation and Warehousing small businesses in the Biz2X sample ranged between \$154 to \$1810 per month, with some firms in the industry averaging nearly \$4300 per month. This is far greater than ranges of all industries (\$83 to \$337).
- Figure 3b shows the difference between Accommodation and Food Services and all industries for utility spend. For the former, it ranged between \$200 to \$504 (middle 50% of firms in the industry) compared to the range of \$160 to \$392 for all industries.



Note: Data is for 2022 Q3. The box for each industry show the range of average monthly spend of the middle 50% of firms in the industry. The thin lines extending from either side of the box show the 10th percentile and 90th percentile of average monthly spend. The same applies for all industries.

GASOLINE TRENDS UNDER INFLATION

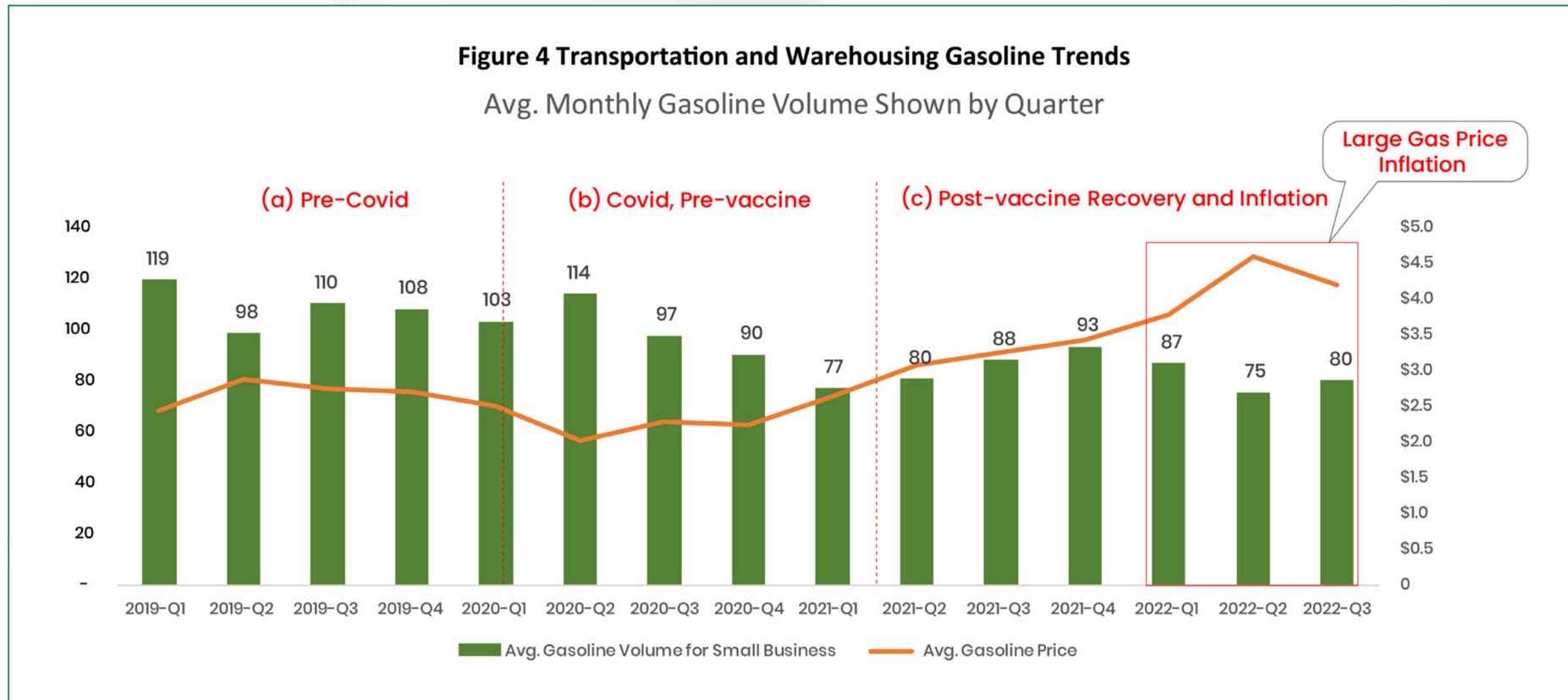


Figure 4 estimates average gasoline volume by Transportation and Warehousing firms by dividing their average gasoline spend by the retail gasoline price (orange line).

In 2022, as gasoline prices increased between Q1 and Q2, volume fell; In Q3, as gasoline prices fell, volume rose slightly. (red box)

In 2022, changes in gas prices are associated with changes in volume in the opposite direction.

As firms in the industry do not have much flexibility in gas consumption while meeting customer orders, price changes had only a small impact on volume.

However, customer demand would have likely changed as gasoline prices rose and fell, impacting volume.

* This study uses the average retail gasoline price across the US provided by the [US Energy Information Administration](#) to estimate average gasoline volume from quarterly averages of gasoline spend. Estimated Volume (Gallons) = Avg. Gasoline Expenditure / Retail Gasoline Price. This chart shows the gasoline volume for the Transportation and Warehousing industry; Similar patterns can be seen across all industries (see Figure A in the Appendix)

Source: Biz2Credit; Biz2X Analysis

Note: A potential explanation of the volume decrease in 2022-Q2 is increased use of electric vehicles. This is highly unlikely for two reasons (a) electric vehicle sales in 2022 of around 800,000 units was a tiny share (5.8%) of total new-car sales of 13.8 million (Wall Street Journal, <https://www.wsj.com/articles/u-s--sales-jolted-higher-in-2022-as-newcomers-target-tesla-11672981834>) and an even smaller proportion of the stock of new and old vehicles on US roads responsible for gasoline consumption (b) It would also not apply to the Transportation industry that relies almost exclusively on gasoline powered trucks at present.

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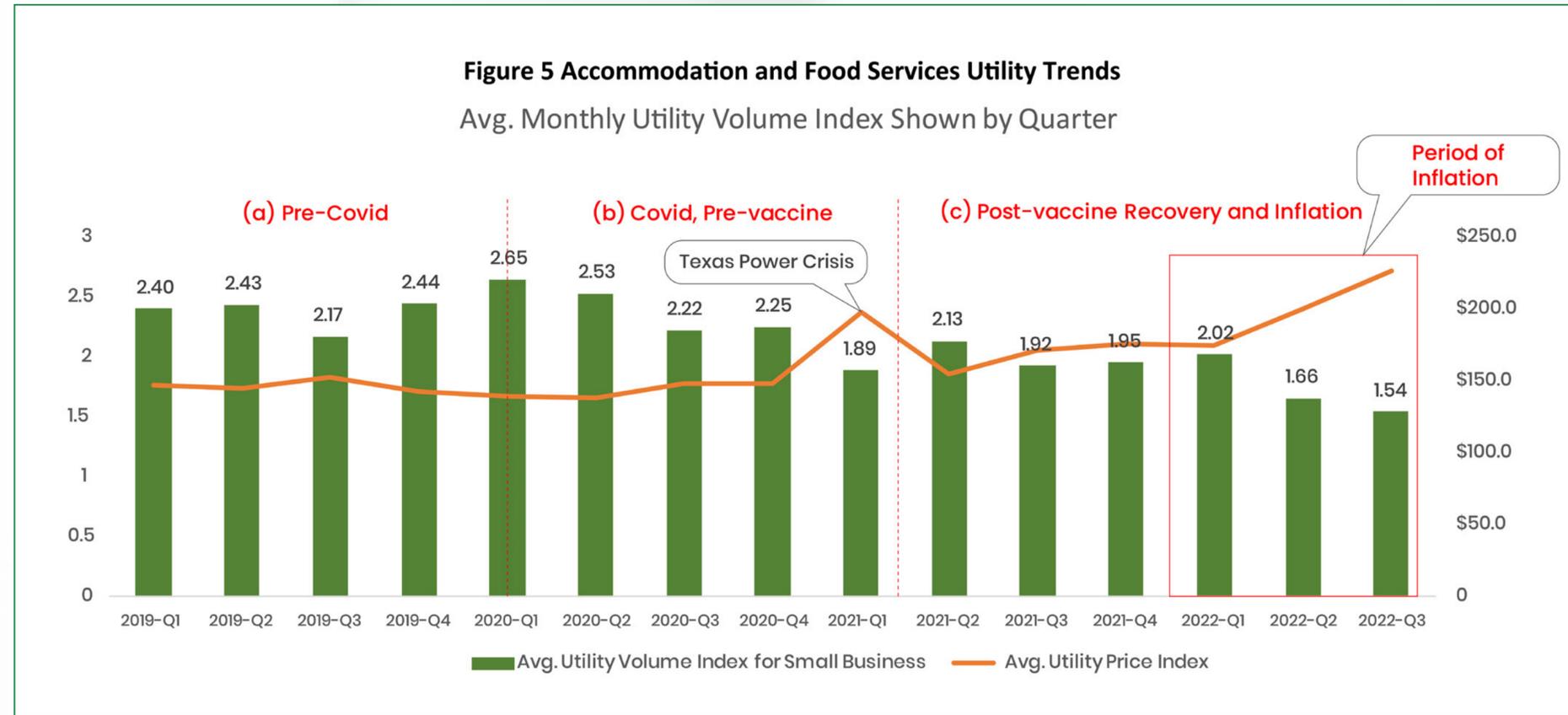
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UTILITY TRENDS UNDER INFLATION



* Similar to gasoline, utility prices vary by state. This study uses a US wide utility price index provided by the [FRED database from the Federal Reserve Bank of St. Louis](#) to construct a utility volume index from quarterly averages of utility spend.

This chart shows the utility volume index for the Accommodation and Food Services industry; Similar patterns can be seen across all industries (see Figure B in the Appendix)

Source: Biz2Credit; Biz2X Analysis

Figure 5 shows the utility price index between 2019-Q1 and 2022-Q3 (orange line). A utility volume index is estimated by dividing utility spend by the utility price index.

In 2022, as utility prices rose, volume fell. This happened in both Q2 and Q3 (red box), and contrasts with gasoline prices that fell in Q3.

In 2022, as with gasoline, changes in utility prices are associated with changes in volume in the opposite direction.

Unlike gasoline, firms in the industry had more leeway in adjusting utility consumption to higher prices, which was observed in 2022-Q2 when volume dropped significantly.

As utility prices continued to rise in 2022-Q3, volume dropped much less, indicating that businesses were reaching the limits in cutting back their consumptions.

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IMPLICATIONS OF INFLATION FOR BUSINESS OWNERS IN 2023



INSIGHT FROM CHARLES “TEE” ROWE

President & CEO of America SBDC (Small Business Development Center)

// Inflation is the biggest challenge facing America’s small businesses in 2023, and Biz2Credit’s research shows the impact it is having on small business. Entrepreneurs are struggling to prioritize costs and manage cash flow. Inflation reflects rising fuel costs that affect all small business sectors, rising food costs that hurt restaurants, and rising employee costs that are part of the current difficult labor market.

With the current volatile economy, we encourage all small businesses to visit their local Small Business Development Center (SBDC) for guidance on creating a manageable path forward. With nearly 1,000 centers nationwide, every small business can get the help and support they need. //

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IMPLICATIONS FOR SMALL BUSINESSES IN 2023

- Inflation during the post-vaccination recovery period led to significant changes in small business activity. This was especially seen when inflation accelerated in 2022. In 2023, there is considerable uncertainty about the prospect for continued inflation, further interest rate hikes, weaker economic growth or spikes in gasoline prices. The inflation study offers valuable insights for small businesses in such circumstances.
- With continued macroeconomic uncertainty around inflation, growth and interest rates, small businesses need to be exceptionally cautious about cash flow management. This involves careful timing of cash outflows to match projected cash inflows. Small businesses accomplished this in 2022 by spending less on each expenditure transaction, while increasing the number of transactions to preserve overall activity levels.
- On the revenue side, small businesses need to gauge their ability to pass on cost increases to their customers (which is known as pricing power) without excessively hurting demand. Such pricing power is likely to be diminished as consumers also confront inflation, so ongoing revenue management will be critical.
- Small businesses need to assess whether their operations require additional financing to manage cash flows and whether their projected cash flows can support such borrowing. A disciplined historical track record showing prudent cash flow management can be very helpful in obtaining such financing from banks and online marketplaces, should they choose to apply for it.

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INSIGHT FROM ROHIT ARORA, BIZ2CREDIT CEO

// The continuing inflationary environment underscores the need for careful cash flow management in both expenditures and revenues. Cash outflows need to be well-timed to match cash inflows from customer revenues. Small businesses accomplished this in 2022 by decreasing the average amount of each expenditure transaction while increasing the number of such transactions to preserve overall activity levels. //

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METHODOLOGY

The analysis in this study is based upon anonymized, user-permissioned transactional cash flow data from more than 140,000 US small businesses on the Biz2Credit marketplace between January 2019 and October 2022, comprising nearly 105 million cash inflow and cash outflow transactions. Monthly revenues and expenditures are calculated for the (anonymized) businesses within each sector. An outlier treatment is conducted to exclude the top 10% and bottom 10% of such values from the analysis.

The data is grouped according to 6 industry sectors: Accommodation and Food Service, B2B, Healthcare and Social Assistance, Retail Services, Retail Trade, Professional, Scientific and Technical Services. The study calculates monthly revenues and expenditures for the (anonymized) businesses within each sector. The top 10% and bottom 10% of such values are excluded through an outlier treatment. A representative sampling scheme across sectors is used to calculate average monthly trends for revenues, expenditure and other economic quantities.

The study also considered expenditure categories where inflation was particularly high, such as gasoline and energy prices charged by utilities in 2022. This section focuses on industry sectors (such as Accommodation and Food Services for utility spending) or subsectors (Transportation and Warehousing within B2B for gasoline expenditures) where such spending is high.

Sampling Characteristics

By Industry Sector: Accommodation and Food Service 8%, B2B 33%, Healthcare and Social Assistance 6%, Retail Services 31%, Retail Trade 13%, Professional, Scientific and Technical Services 9% (According to the NAICS, e.g. B2B includes Construction, Transportation and Warehousing, Wholesale Trade, Manufacturing, Information Technology, etc.)

By Census Region: Midwest 15%, Northeast 15%, South 47%, West 23%

By Business Structure: Corp 20%, LLC 42%, Sole Proprietor 36%, All Other 2%

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To compute a time trend of small business revenues, expenditures and other aggregates used a fixed industry weightage for each of the 6 sectors to maintain representativeness. The weights are in proportion to the number of small businesses in each industry sector according to the SBA Economic Profiles for 2021. These time trends are compared with external macroeconomic data, such as the Producer Price Index (PPI), available in the [FRED database from the Federal Reserve Bank of St. Louis](#).

An analytical technique labeled as Entity Class Recognition was used to identify cash flow transactions related to gasoline expenditure and utility spending, with more than 2 million and 100,000 transactions identified respectively. For gasoline spending, the outlier treatment is the same as at the overall level. For utility spending, outlier treatment also includes the transaction month to incorporate seasonality of energy demand. Corresponding macroeconomic time trends such as the [US retail gasoline price](#) and the [utility price index](#) are obtained from the US Energy Information Administration (EIA) and FRED database respectively.

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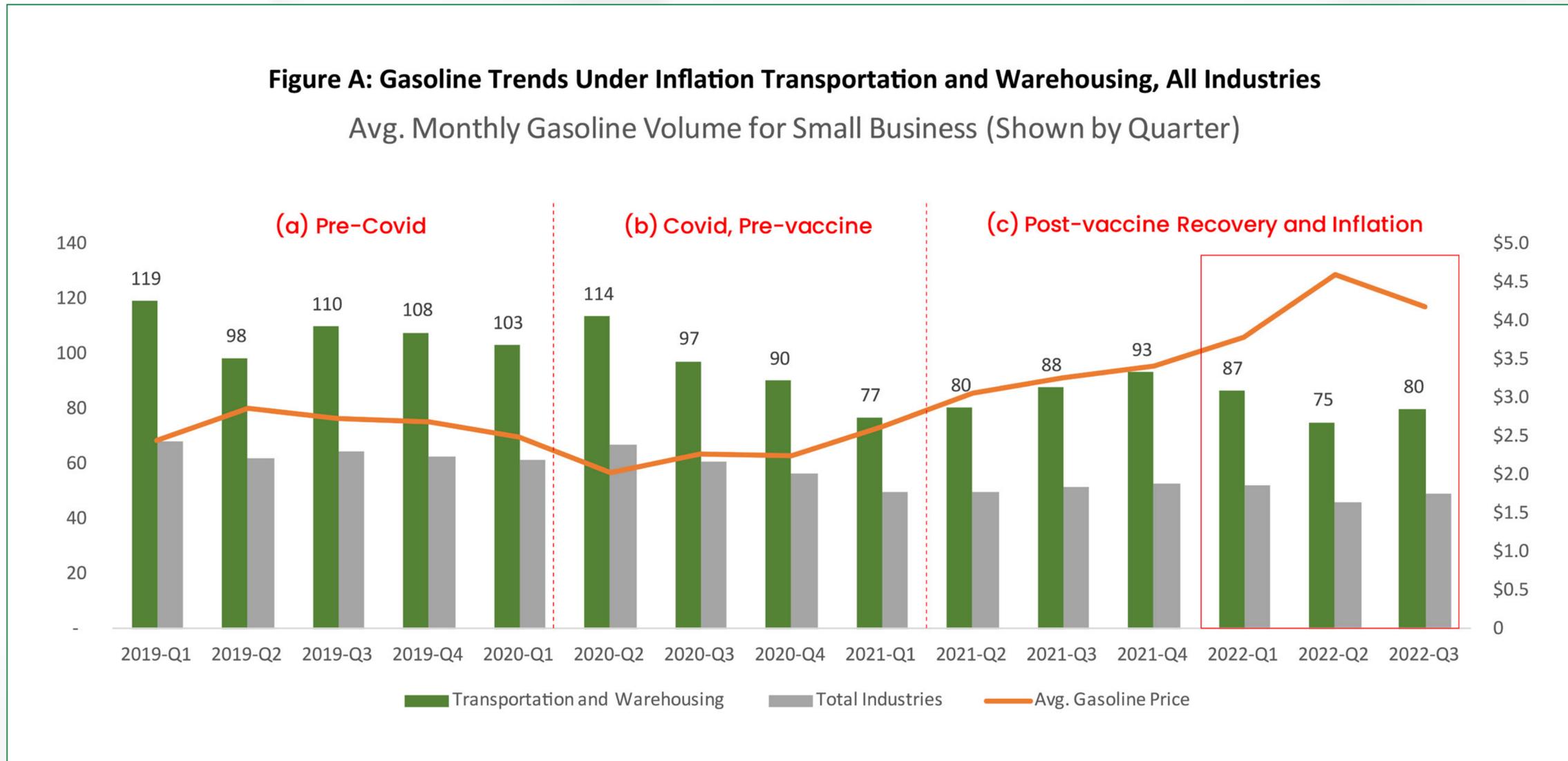
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FIGURE A: GASOLINE TRENDS UNDER INFLATION TRANSPORTATION AND WAREHOUSING, ALL INDUSTRIES



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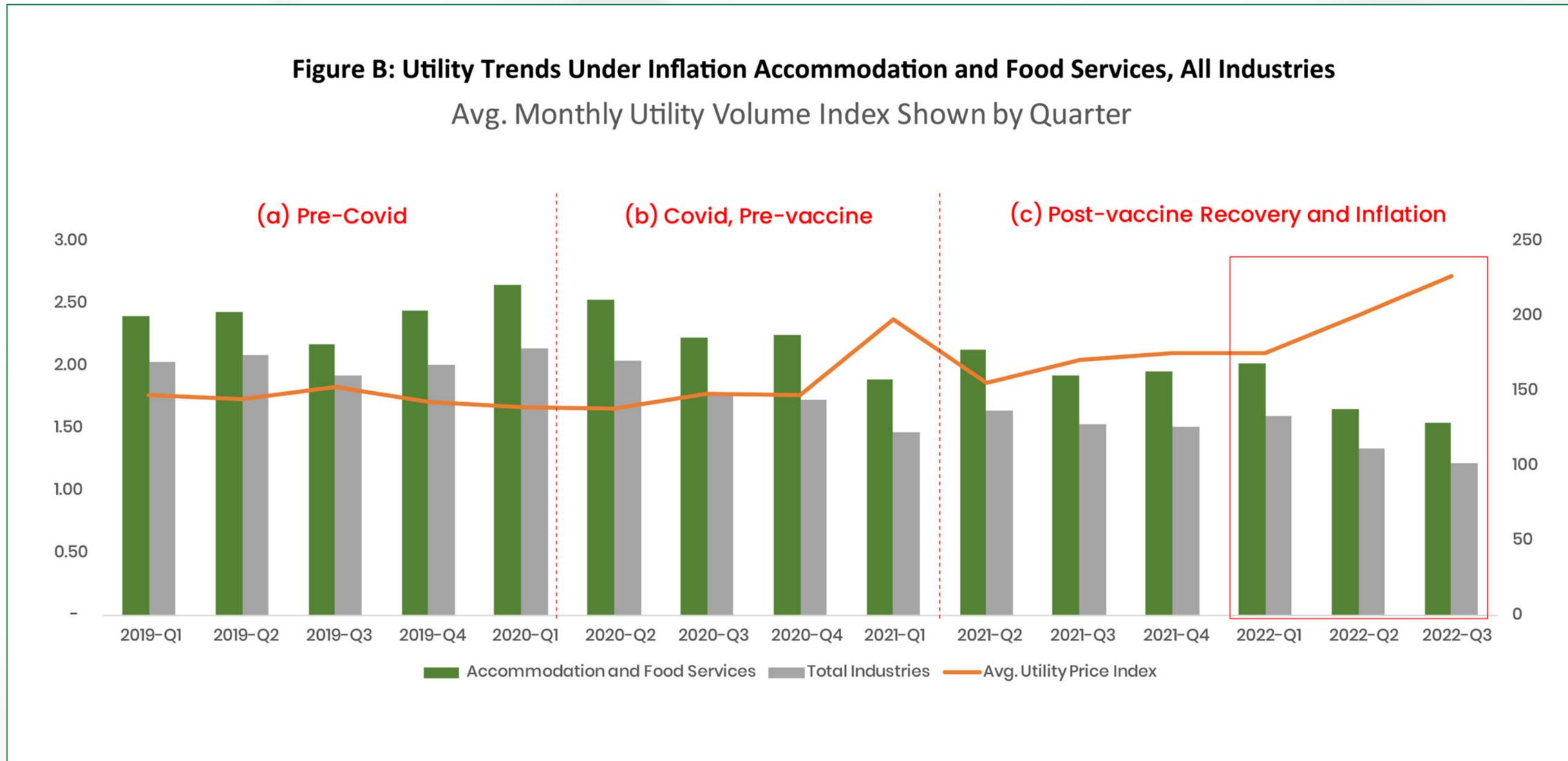
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FIGURE B: UTILITY TRENDS UNDER INFLATION ACCOMMODATION AND FOOD SERVICES, ALL INDUSTRIES



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Founded in 2007, Biz2Credit has arranged more than \$7 billion in small business financing. Through its state of the art online platform, Biz2Credit directly offer business funding products. Biz2Credit believes small business funding should be easy to understand, easy to access, easy to use and always available when needed most. That is why Biz2Credit's goal has always been to create the best and fastest small business funding platform. To learn more and apply for business financing, visit www.biz2credit.com or twitter [@Biz2Credit](https://twitter.com/Biz2Credit), Facebook and LinkedIn