

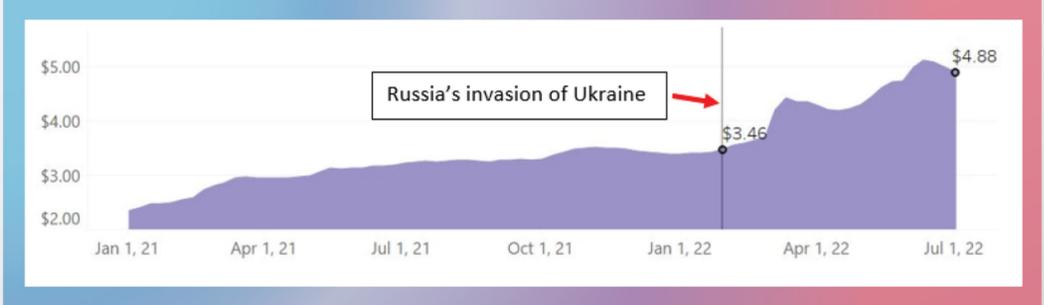
Insights and Data to Help Manage Today's Changing Consumer Environment

Do gas prices impact lottery sales? In our May 3rd issue of Data in Motion, we examined this question and, based on the data we had at the time, concluded that *“Overall, gas prices are not a good indicator of lottery performance.”* But we also promised to continue studying how the volatility of our current financial landscape, including gas prices, impacts our industry. In this issue of Data in Motion, we share some additional data points and take another look at the correlation between gas prices and lottery sales.

Gas Prices: The Up and Up

As the chart below shows, the cost of fuel, which was already on a slow upward trajectory, rose at an accelerated pace following Russia's invasion of Ukraine. Prices per gallon grew from \$3.46 in March to an all-time high of \$5.02 in June. A recent drop has brought the US average down to \$4.88¹, but the continued overall elevation of fuel prices has given us an additional 11 weeks of data to include in our analysis.

US Retail Price of Gas



Methodology

Our current analysis employed a similar methodology to that of our May 3rd issue. It examined weekly per capita (WPC) game sales from specific states as well as a US industry average. These WPCs were then compared to gas prices collected from across the country to calculate a *Pearson Correlation Coefficient* for four timeframes: all of calendar year 2021, calendar year 2022 year-to-date (YTD), the 18 weeks prior to the war in Ukraine, and the 18 weeks since the war began.

As a reminder, the findings we share below are not necessarily indicative of the pressure of fuel costs *solely* – there are other market forces at work as well including inflation, the consumer price index, interest rates, and a decrease in real disposable income. As a matter of fact, March, 2022 saw the lowest year-over-year growth of disposable income of all time (-20.9%). As a point of reference, the lowest this number ever dropped to during the Great Recession was -1.9%².

Instant Game Findings

With 18 weeks of additional data points, we are now seeing more time periods where the correlation between gas prices and lottery sales is consistently 'negative.' This means that we are starting to see evidence that a decline in lottery sales aligns more consistently with a rise in gas prices. This 'negative' alignment wasn't present in our earlier analysis.

It's worth noting, however, that our industry is also currently experiencing its usual "summer sales slump." From 2016 to 2019, we saw instant weekly lottery sales fall approximately 14.9% between March 1st and July 1st (2020 and 2021 were excluded due to COVID-driven market anomalies). This year's March 1st to July 1st drop was 17.5% so, while we are certainly experienced a seasonal decrease in revenue, that decrease is comparable to pre-COVID numbers.

When evaluating how instant sales and gas prices have interacted in 2022, the relationship has shifted from 'positive' early in the year to a 'moderate negative' preceding Russia's invasion of the Ukraine. The relationship then transitioned to a very 'strong negative' in the 18 weeks following the start of the war. This relationship is visually evident in the chart below. Notice how the trend lines split around May 1st as lottery sales dip and gas prices continue to rise (i.e., a 'negative' correlation).

Correlational Plots for Gas Prices & Instant WPC Sales – US Averages



Draw Game Findings

In order to better understand the gas/sales correlation with draw games, we specifically looked at numbers games since lotto game sales are so jackpot-driven. Once again, and as the chart below illustrates, we see a split in May as gas prices move up towards \$5 per gallon and the average of US WPC for numbers games drops to around \$0.30. This divergence moved this correlational relationship from a 'weak positive' (meaning as gas prices rose, so did number game sales) for the first half of 2022 to a 'strong negative' in recent weeks.

Correlational Plots for Gas Prices & Numbers WPC Sales – US Averages



Final Thoughts

The end of June marked the second consecutive quarter of negative Gross Domestic Product growth in the US, signaling a recession. As consumers tighten their spending, it's not unreasonable to assume that our industry, like so many others, may take a hit. While there might not yet be a light at the end of the tunnel, we are not solely at the mercy of negative economic factors. For example, lotteries still have control over the games they develop, the value that they build into their prize structures, odds, and the messaging that they use to engage their players. And it is exactly this topic that Haley Bobo, Scientific Games' Manager of Data Science, will be presenting at NASPL's Professional Development Seminar on Wednesday, July 27th (tomorrow!). We hope you can join her at 11:30 EST for her session 'Product Positioning in the Face of Economic Volatility.' You're almost certain to learn something new.

Sources:
 1. YCharts (June 2022). US Retail Gas Price https://ycharts.com/indicators/us_gas_price
 2. FRED Economic Data. US Bureau of Labor Statistics (June 2022) <https://fred.stlouisfed.org/series>
 3. Scientific Games iNFUSE & MAP Data Sources