

Decomposing the Elements of Consumer Demand to Understand Sales

Including Household Penetration Acceleration Score

“Everyone knows behavior is changing. The challenge is quantifying change and the underlying dynamics driving change. This unlocks understanding that is fundamental to answering the question, ‘what is going to happen in the back half?’”

Sue Brady | Data Analytics Expert

Executive Summary:

The Numerator Demand Decomposition Analysis is designed to help brands understand how demand is building for a brand or category over time, based on underlying consumer behaviors. This is a topic of particular importance given the shifts that happened during COVID-19.

This analysis allows brands to:

- Evaluate the cumulative household penetration of a brand for the analysis period relative to a control period (in this case, 2020 relative to 2019)
- Understand 2020 performance relative to year ago to better anticipate penetration trajectory for the rest of the year, specifically the extent to which brands are ahead or behind the baseline
- Deconstruct drivers to better understand buy rate in terms of purchase frequency and spend per trip, the relative importance of new versus existing customers and more

INTRODUCTION

Disruptive marketplace events (like COVID-19, recessions, etc.) can have a significant impact on consumer behavior. Marketers may focus on overall sales changes as things play out, but it is even more essential to understand the underlying changes in consumer behavior that are driving those sales changes, as these changes may have a profound effect on future sales and on how to plan for success moving forward.

At Numerator, we are uniquely positioned to understand the impact of these disruptive marketplace events by examining changes in consumer behavior with an OmniChannel lens. For this particular analysis, we decomposed sales for sixteen center-store food and non-food categories to examine what was driving sales and how demand is building based on underlying consumer behavior dynamics (Demand Decomposition Analysis).

While this can be done for diverse periods and events, this focus was on the key/base panel metrics that explain sales: penetration, buy rate, spend per trip and trips per household -- and how those metrics during the COVID period compared to the Pre COVID (year ago) period. The COVID time period was defined as January 2020 forward (with the Pre COVID period starting January 2019).

The analytic approach then used cumulative metrics to see how these core components have been building since COVID vs what we saw last year. For example, we wanted to see how penetration (the percent of U.S. households buying the category or brand) has grown so far in the COVID marketplace vs what that category or brand achieved last year. And, we wanted to dissect sales to see which of the core components were driving the changes we were seeing in the marketplace during COVID (was it an influx of buyers, buyers spending more than they usually would, more frequent purchasing).

Demand can be driven by multiple factors:

- New buyers
- Existing buyers spending more
- More frequent purchasing

Further, we then did a simple extrapolation based on the patterns we are seeing with the COVID time period vs. what the Pre COVID period showed to get a measure on the extent to which the category or brand is ahead (or behind) in attracting households (or getting households to spend, etc). Having the build for the entire annual Pre COVID period provides a clear and interesting perspective on where the category or a brand may be headed throughout the rest of the year and/or what inflection points we should be tracking or looking for.

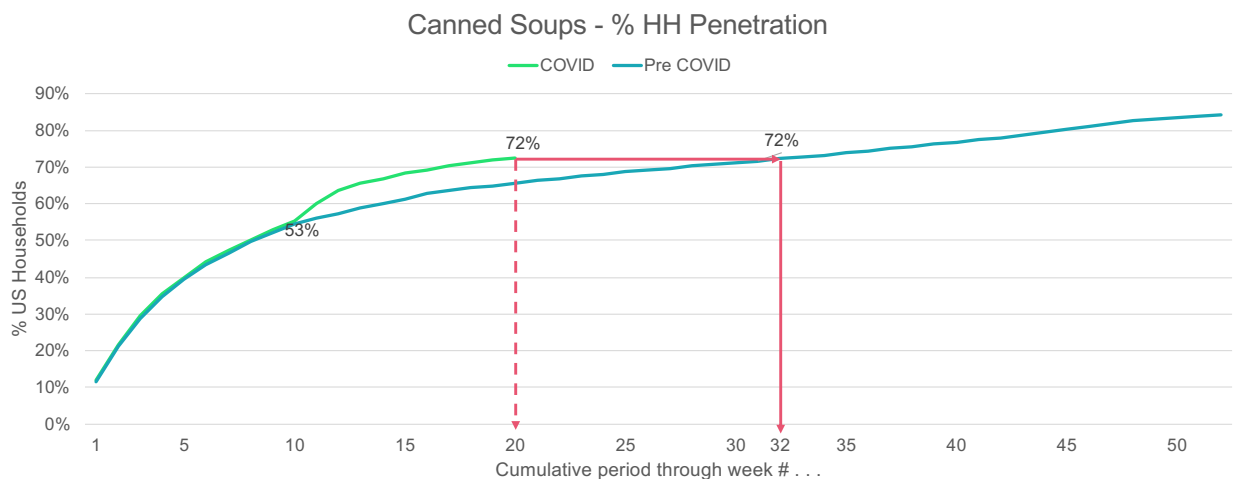
METHODOLOGY

The following chart (Figure 1) provides the cumulative penetration build for the Canned Soups category. The light green line looks at the build of household penetration through the COVID period, while the teal line provides the pattern observed last year (Pre COVID). On a total outlet basis, this shows that Canned Soups attracted households to the category much earlier this year (during COVID). Though the curve is flattening (which is not surprising in such a high penetration category), Canned Soups is still at least 12 weeks ahead of a typical year in terms of attracting households. (Said another way, Canned Soups already has a penetration rate of ~72% this year whereas it did not hit this penetration level until about week 32 last year (early August).)

20 weeks into 2020, Canned Soups are tracking 12 weeks ahead on HH penetration

FIGURE 1:
CUMULATIVE HOUSEHOLD PENETRATION BUILD - CANNED SOUPS

Canned soups brought buyers into the category earlier due to COVID; penetration level is ~12 weeks ahead of a typical year.

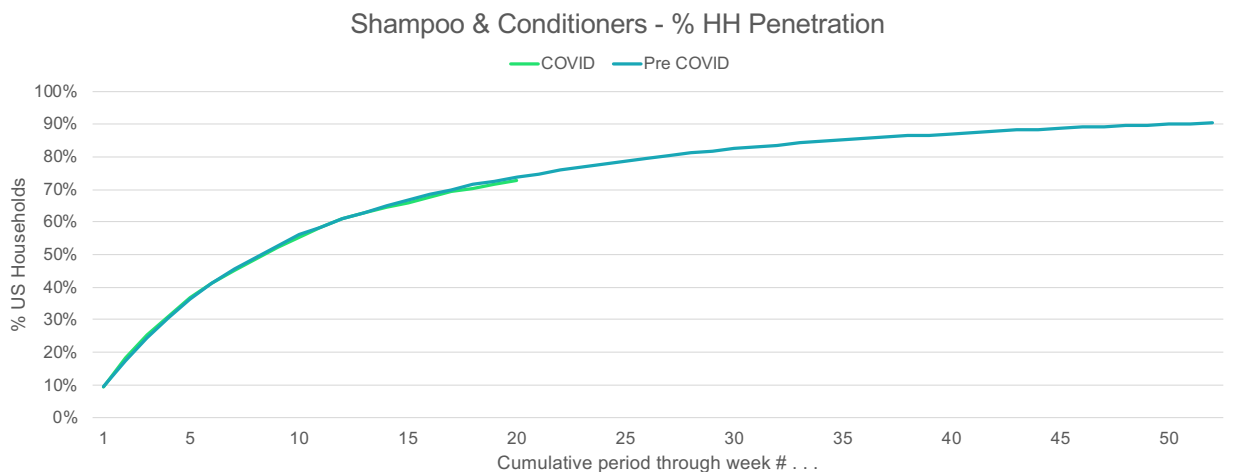


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However, not all categories have been impacted or accelerated by COVID. For example, the pattern for penetration for the Shampoo & Conditioners category was virtually identical to what it was last year pre COVID (Figure 2).

FIGURE 2:
CUMULATIVE HOUSEHOLD PENETRATION BUILD - SHAMPOO & CONDITIONERS

Penetration build for the Shampoo & Conditioners category did not change this year, even during COVID



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For this type of analysis, it is important to focus on the patterns we are seeing, not necessarily the absolutes, as where you start the time period will have some influence on the absolute levels. (Categories can be subject to seasonality influences.) However, looking at these patterns helps contextualize what COVID has been doing for the category in a compelling way (and, since we're looking at how the pattern differs from the same time last year, the pattern is an "apples to apples" look). Using this perspective, we build a better understanding of what has been driving the marketplace performance during COVID so that we can apply that learning to plans and actions needed in the back half of this unusual year.

An overview of the 16 categories reviewed for this analysis is below (Figure 3).

FIGURE 3:
Approximate # of Weeks Penetration Build is Ahead in COVID Period

CATEGORY	HH % ACCELERATION SCORE
Canned Soups	+ 12 weeks
Canned Vegetables	+ 13 weeks
Cleansers	+ 2 weeks
Cold, Cough & Flu	+ 3 weeks
Crackers	+ 6 weeks
Digestive Health	On track
Frozen Dinners & Meals	+ 3 weeks
Hand Soaps & Sanitizers	+ 10 weeks
Ice Cream & Novelties	+ 3 weeks
Juices	+ 3 weeks
Laundry Detergent	+ 2 weeks
Non-Seasonal Candy	On track
Packaged Cookies	+ 3 weeks
Pain Relievers	+ 4 weeks
Shampoo & Conditioners	On track
Yogurt & Yogurt Drinks	+ 2 weeks

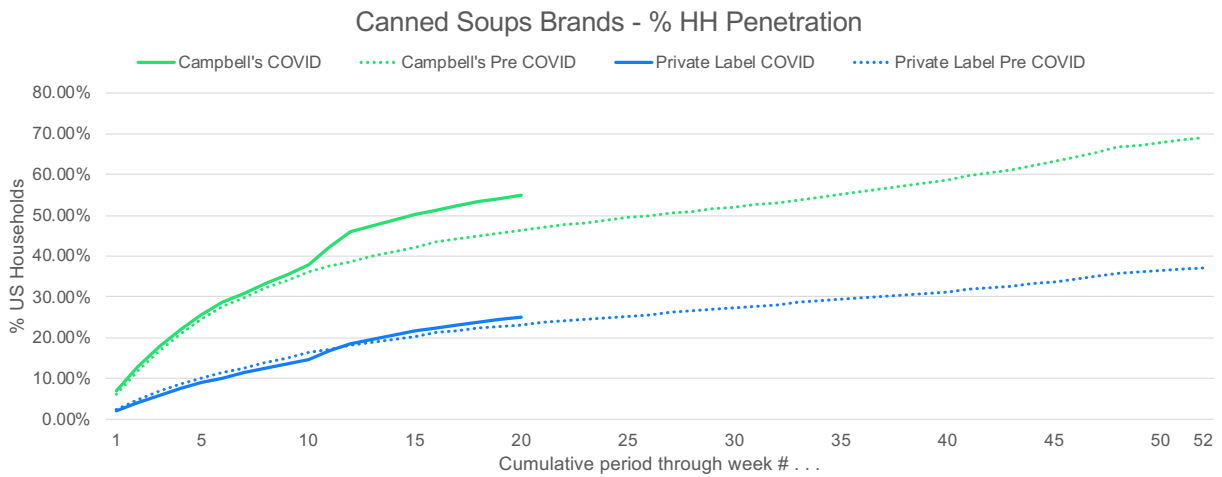
Keep in mind that the table (Figure 3) does not necessarily indicate that these categories will net out to an annual penetration rate that is substantially higher at the end of the full year. In some cases, that will be true, but in other cases (especially where categories have high annual penetration levels, like Canned Soups), penetration can only climb so far. What it does indicate is that these categories built their buyer bases much faster this year (during COVID), said another way, some new households are being attracted and some households are buying off cycle. In either case, this is an opportunity to garner additional sales from these households by getting them to repeat in the back half of the year.

Brands within categories can show very different performance patterns, highlighting why it is important to look beyond category dynamics to see how your brand may be benefitting from the disruptive event vs losing opportunities. In Figure 4 below, a leading brand (Campbell's) is showing a much stronger penetration build compared to Private Label. Here, Campbell's is ahead at least 15 weeks in terms of attracting households to the brand whereas the pattern for Private Label is fairly stable this year compared to last.

When cumulative HH penetration peaks earlier in the year, brands have more opportunity to drive repeat purchase.

FIGURE 4:
CUMULATIVE PENETRATION BUILD - CAMPBELL'S VS PRIVATE LABEL CANNED SOUPS

Campbell's tracking ~15 weeks ahead in terms of building penetration this year (during COVID) while Private Label is fairly flat

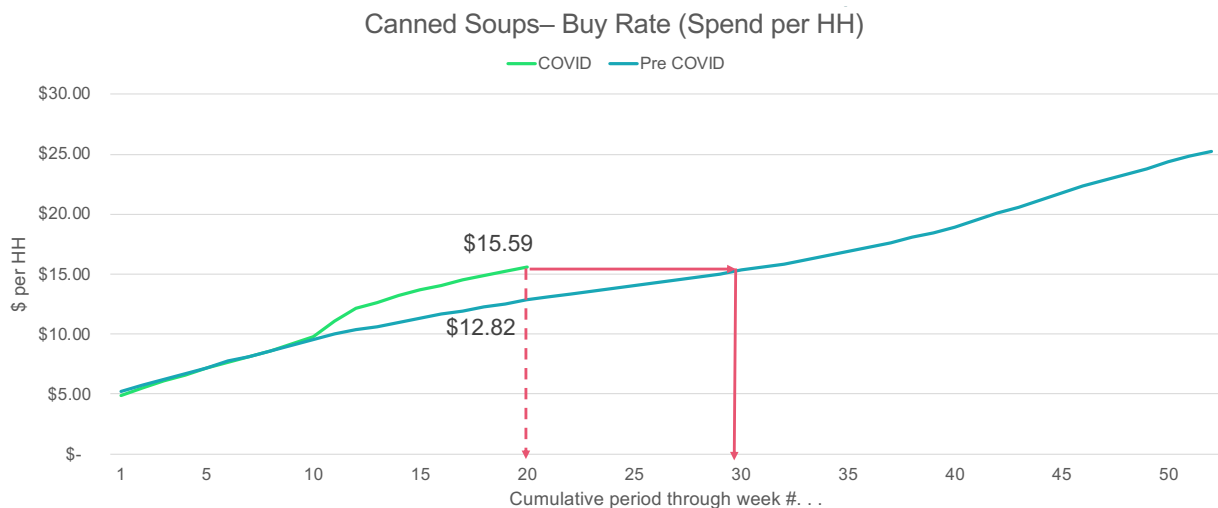


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A similar view of the cumulative build for buy rate (the average spend on the category per household) (Figure 5) shows that we are also ahead of what we would have expected to see in a typical year by about 10 weeks. In this case, based on the pattern of behavior we're seeing just through week 20 of COVID, households are spending 22% more (close to \$3 more per household) on Canned Soups vs what was spent last year over the same time period.

FIGURE 5:
CUMULATIVE BUY RATE BUILD - CANNED SOUPS

Buy rate for Canned Soups is 10 weeks ahead of what would be expected in a normal year



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Two factors comprise buy rate. That is, the average amount a household spends can be decomposed into how much they spend per trip and how frequently they buy. In the case of Canned Soups, the growth in buy rate is being driven by both: households are spending more per trip during COVID compared to what they spent last year and they are buying more frequently. (Figure 6)

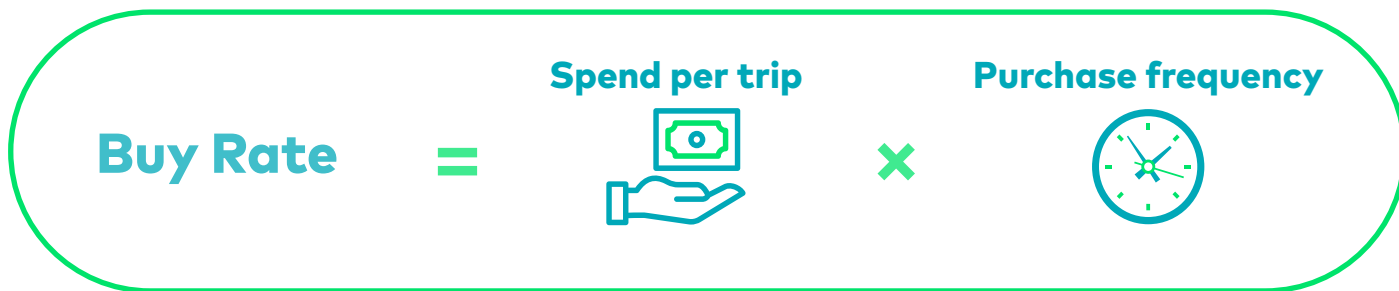
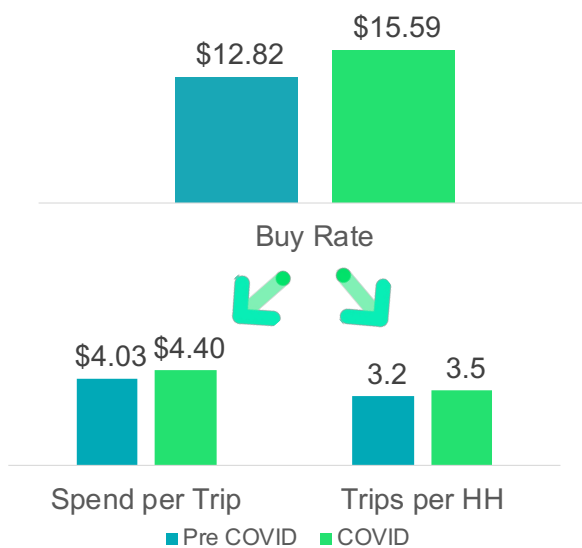


FIGURE 6:
COMPONENTS OF BUY RATE - CANNED SOUPS

Canned Soups' higher Buy Rate driven by both higher spend per trip and more frequent purchasing

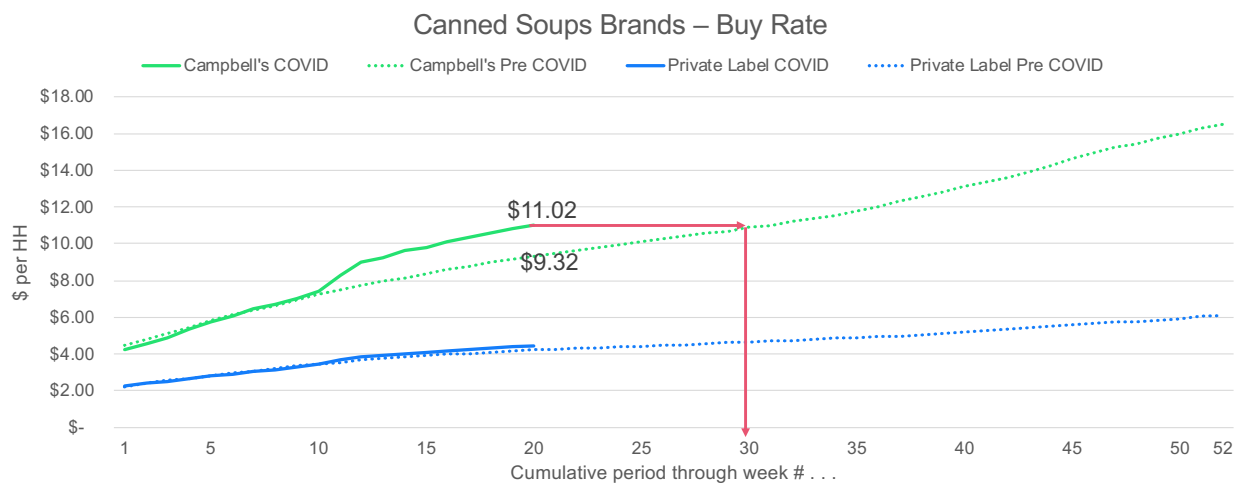


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At a brand level, Campbell's is showing a much stronger performance compared to Private Label Canned Soups from a buy rate perspective as well. In addition to Campbell's already attracting more households sooner (as seen previously), the households that have been buying are spending more on average than households spent last year. In fact, average buy rate (dollars spent per household on Campbell's) is about ten weeks ahead of what the average buyer spent last year. In contrast, Private Label soup buyers have been spending at about the same level this year (during COVID) vs what buyers spent last year. (Figure 7)

FIGURE 7:
CUMULATIVE BUY RATE BUILD - CAMPBELL'S VS PRIVATE LABEL CANNED SOUPS

Campbell's is ahead about 10 weeks in building the average spend per household, while Private Label Buy Rate is flat vs year ago.



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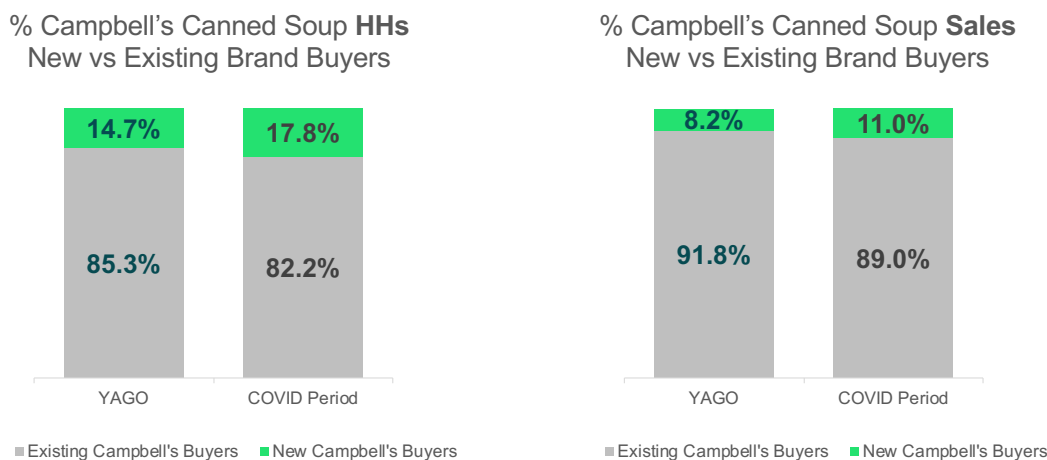
Beyond observing how key/core consumer behavior metrics are changing, we can also dig deeper to understand how the importance of New vs Existing buyers are to the category or brand during COVID vs what we saw last year. In this case, we identified households that had not purchased Campbell's Canned Soups during the full year prior to the COVID period (vs those who had made at least one purchase of Campbell's Canned Soups during the previous year) to see what percent of the COVID buyers were sourced from each group.

We also looked at the Pre COVID buyers in the same way (identifying households who had not purchased Campbell's Canned Soups in the full year prior to the Pre COVID period vs. those who had).

Campbell's has a strong repeat performance among its buyers, so it was not surprising that the vast majority of the Campbell's Canned Soups buyers during COVID were Existing brand buyers. However, despite this fact, Campbell's Canned Soups did show a higher percent of its buyer base and sales sourcing from New buyers this year (during COVID) vs what we observed last year (Figure 8). For example, Pre COVID, New Campbell's buyers accounted for 8% of brand buyers and 14% of sales -- however, during COVID, 11% of Campbell's buyers and 18% of sales sourced from New buyers on a total Omnichannel basis.

FIGURE 8:
IMPORTANCE OF NEW VS EXISTING CAMPBELL'S BUYERS

Although Existing Campbell's buyers comprised the vast majority of buyers, New buyers gained in importance.



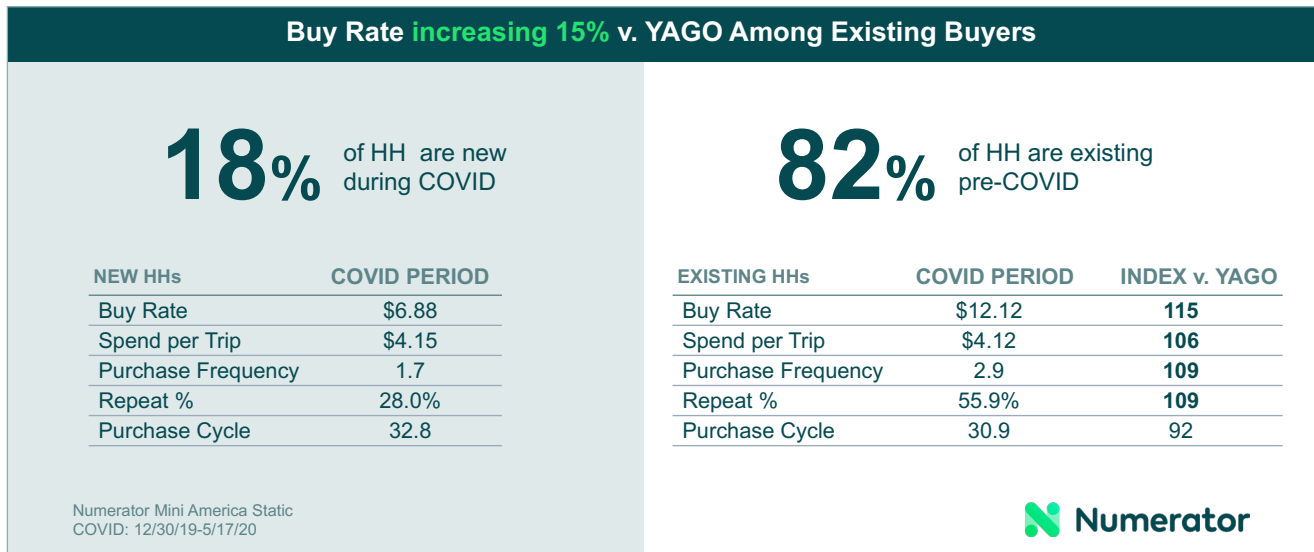
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Since Existing brand buyers are so important to a brand's sales, it is crucial to track and evaluate their purchase behavior over time. In the case of the COVID period, Existing buyers became even more valuable to the Campbell's Canned Soups brand compared to their year-ago counterparts. For example, Existing buyers this year are spending 15% more per household on Campbell's than they did last year and are more likely to have made a repeat purchase already in the COVID period (vs what was observed last year) -- in fact over half (56%) of Existing Campbell's buyers have already made at least one repeat purchase during the COVID period. (Figure 9)

It is also interesting to note that purchase cycle (elapsed days between purchases) for Campbell's Canned Soups has shortened among the Existing Buyers (it is now ~31 days between purchases, an index of 92 vs year ago). This could indicate that households are consuming the products faster and coming back to resupply their homes sooner. Historically, assumptions were that households were stockpiling certain products which may take them out of the category for a longer period of time, but this does not appear to be the case here. If this pattern continues, this would mean that sales for the back half of the year could be bolstered by Existing buyers continuing to purchase the brand more frequently than before.

FIGURE 9:
ADDITIONAL INFORMATION ON NEW VS EXISTING CAMPBELL'S BUYERS

Previous (Existing) Buyers have become even more valuable to Campbell's Canned Soups during COVID



SUMMARY

When disruptive events occur, consumers behave differently. A critical first step for marketers is understanding how that behavior is changing. Decomposing sales into consumer-based components that drive demand and examining how patterns are changing provide key clues into what may influence category and brand performance coming out of the disruptive period. Having an OmniChannel view of this behavior (through Numerator's OmniPanel) is essential in revealing the total picture of these consumer changes.

For a number of categories and brands, we've observed a faster cumulative penetration (and buy rate) build, indicating that these categories and brands are benefitting from the stock up and other behavioral changes caused by the COVID event (and likely driven by shelter in place needs). An influx of buyers leads to higher sales for categories and brands (at least during the COVID period), however, it also means that marketers need to increase focus on converting those buyers to repeat, else sales in the back half of the year will fall. The good news is that, because these buyers have entered the category earlier than normal, there is more time to drive this conversion to impact this calendar year's back-half performance.

Brands that have not accelerated their penetration and/or buy rate build during COVID, especially those competing in categories that have, will have a more difficult challenge ahead in achieving success. Using panel metrics to decompose demand provides the knowledge of where a category sits and, more importantly, where individual brands are tracking throughout these unusual marketplace events and beyond. These metrics quantify the changes and underlying dynamics driving performance to help marketers focus on the tactics and actions that will be needed to ensure success.