Microsoft Advertising Insights
Category traffic and the impact of stimulus checks
Methodology: multiple time lag correlation analysis

<table>
<thead>
<tr>
<th>Dataset A</th>
<th>Dataset B</th>
<th>Correlation: A vs. B</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily search volume on the phrase “stimulus check” (as opposed to general stimulus queries which may be linked to news updates rather than potential receipt)</td>
<td>Daily vertical and sub-vertical level search volume</td>
<td>Positive $\geq 0.3$</td>
<td>Rise of stimulus checks correlated to an increase in vertical traffic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Slightly positive 0.3 to 0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>None 0</td>
<td>OMIT - No relationship or could be noise</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Slightly negative 0 to -0.3</td>
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<tr>
<td></td>
<td></td>
<td>Negative $\leq -0.3$</td>
<td>Rise of stimulus checks correlated to a decrease in vertical traffic</td>
</tr>
</tbody>
</table>

Analysis

- Pearson correlation showed positive/negative correlation between datasets
- Omitted results with weak correlation (smaller than 0.3) or that did not meet 95% statistical significance
- Adjusted stimulus check data by one to eight weeks to analyze potential time lag correlation
Background on stimulus checks

- Stimulus checks were passed in the U.S. as part of a border economic relief effort
- In 2020, there were a total of two stimulus checks passed by Congress
- Americans that had an adjusted gross income less than $75,000 were eligible for receipt

Source:
https://en.wikipedia.org/wiki/Consolidated_Appropriations_Act,_2021#Coronavirus_relief
https://en.wikipedia.org/wiki/CARES_Act
https://www.tracktherecovery.org/
Stimulus checks were most correlated to retailers

Category correlations to stimulus checks (no time lag)

- The top 2 correlations were related to stocking up on **Home Essentials**
- **Hobbies & Leisure** strong correlation is likely a result of consumers trying to stay busy during quarantine
- **Family & Community** includes charitable and faith-based organizations, assuming a raised interest in emotional support
- As stimulus check interest went up, **Travel & Tourism** searches went down

Source: Microsoft Internal Data Jan 2020 – Oct 2020
Hobbies & Leisure held a positive correlation longer than other categories

Top 4 categories and respective time lag correlations

1. Fleeting correlation for Food & Groceries and Family & Community, fading just 3 weeks after initial stimulus interest
   o Suggests that consumers were shifting to less critical needs once the immediate need for food and support was met

2. Hobbies & Leisure along with Retailers & General Merchandise (GM) saw lasting positive correlations, extending up to 7 weeks out

Source: Microsoft Internal Data Jan 2020 – Oct 2020
Stimulus checks were negatively correlated to travel

Top 10 most negatively correlated sub-categories to stimulus checks (no time lag)

- Stimulus checks saw negative correlations to many Travel sub-categories likely driven by COVID-19 related travel restrictions
- Sports were negatively correlated to stimulus checks due to group gathering limitations

Source: Microsoft Internal Data Jan 2020 – Oct 2020
Retail sub-categories also showed strongest correlation to stimulus checks

Top 10 most correlated sub-categories to stimulus checks (no time lag)

- Shopping Portals, Coupons & Rebates, and Wholesalers & Liquidators all appear in the top 10 sub-categories under Retail and General Merchandise

- Although Fitness and Shaving & Grooming were among the most correlated sub-categories, the overarching Sports and Beauty verticals reported no correlation to stimulus checks.
  - Both sub-categories could point to people looking to fulfill new needs that were previously met outside of the home
  - The other sister sub-categories were not correlated to stimulus checks (i.e. Beauty: Lip Care)

Source: Microsoft Internal Data Jan 2020 – Oct 2020
Home Improvement saw correlation peak 2 weeks out

Top 3 sub-categories vs. Home Improvement and their time lag correlations

- The top 3 sub-categories all peaked in correlation immediately, with a correlation time lag decay around 5 weeks.
- Patterns of peak correlation with no time lag were consistent across most categories and sub-categories.
- Home Improvement was an exception with peak correlation occurring 2 weeks later, signifying delays yet significant interest in this category (possibly after having spent money on other more time-sensitive items).

Source: Microsoft Internal Data Jan 2020 – Oct 2020
Summary and Key takeaways

Stimulus checks were most correlated to the following categories:
Retailers, Food & Groceries, and Hobbies & Leisure

Consider messaging and targeting HHI 75k or less if your product falls within these categories.

Stimulus checks were most correlated to the following sub-categories:
E-commerce (Shopping Portals) and Cost-Conscious Retailers (Coupons & Wholesalers)

Consider using Shopping Campaigns to showcase your products and attract consumer attention as the third stimulus check gets passed by Congress.

Stimulus checks were most negatively correlated to:
Travel & Tourism (and related sub-categories)

Monitor quarantine rules by region and use location targeting to quickly ramp up spend in areas with strong COVID-19 recovery.
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