Effective Resource Planning and Disbursement during the COVID-19 Pandemic
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Principal Research Investigators (Name, Institution)

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Community Partners (Name, Institution)

- NYU Langone Medical Center
- NYU School of Global Public Health
- Center for Urban Science & Progress (CUSP), NYU
- NYC Department of Health
- NYC Department of City Planning

Project Overview

Visual Schematic

- Virus Spreading
- Preventive Measures (Masks & Sanitizers)
- Panic and Its Spreading
- Overreaction (Hoarding & Gouging)
- Supply Shortage

- Media reports influence consumer behavior and can create panic.
- Overreactive behavior can lead to overstocking and shortages of consumer goods.
- This project aims to measure the impact of consumer panic and analyze how it spreads among the population through the media reports.

Project Vision

Other Communities

Community A

Consumer Panic

Resource Shortage
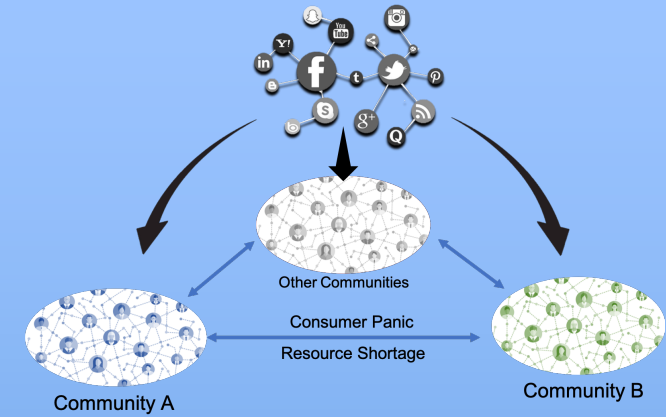
Community B

- Understanding and quantification of linkages between media reports and consumer panic behavior.
- Study the role of socio-economic community factors including population demographics in entanglement between media reports and virus spread.
- Decision analytics for planning and disbursement of critical disease prevention resources to cater for the effects of panic-buying consumer.

Project Overview

Use-Inspired Research

- Developing panic-aware resource planning to minimize the impact of disease spreading.
- Prioritizing resource provisioning among geographical regions in the boroughs of NYC.
- Protect NY city consumers from shortages and price gouging behaviors in various neighborhoods

Fundamental Research Contributions

- Correlation analysis and predictive modeling of sales, prices, etc.
- Resource allocation strategies and prioritization mechanisms for disbursement of disease prevention resources in the population.
- Developing analytical methods to predict the spreading and quantify the impact
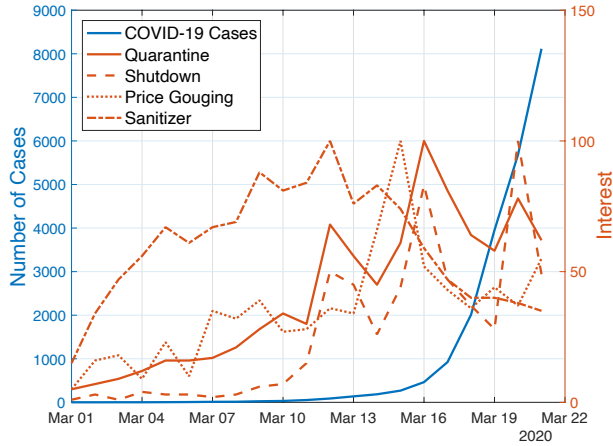
Project Update

Fig: Price of cleaning wipes in recent weeks from third party online vendors

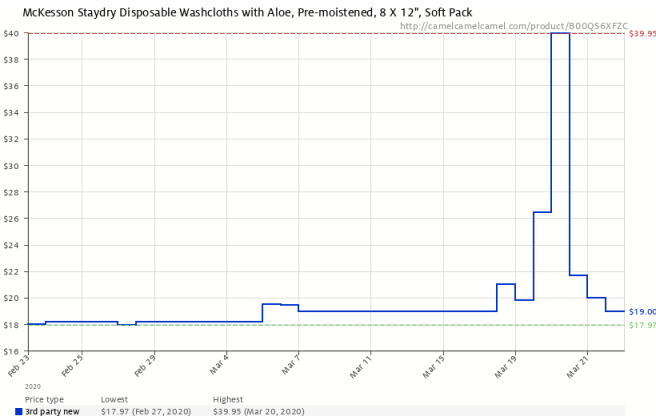Fig: Number of reported COVID-19 cases in NYC as of March 21, 2020 and Google trends of selected terms.

- Data Collection on sales and prices of critical items
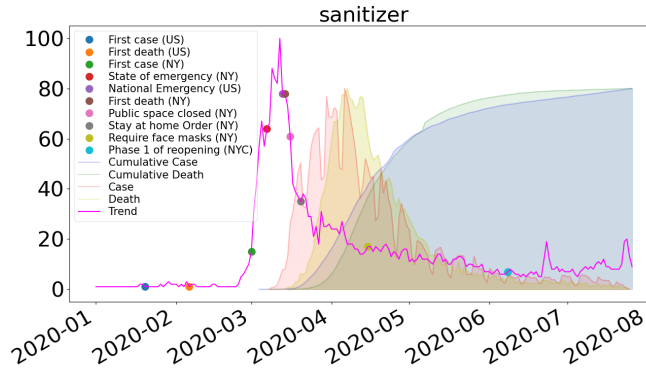
- Causal Analysis and Correlation Studies

Fig: Analysis of online community interest in term 'sanitizer' over time compared with actual COVID cases and deaths.
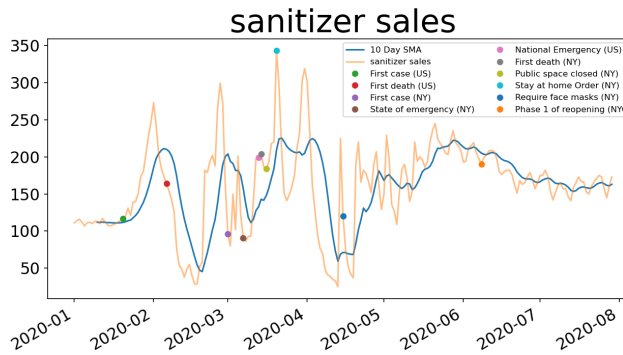

Fig: Analysis of the amount of sanitizer sales from a particular vendor on Amazon along with key events.
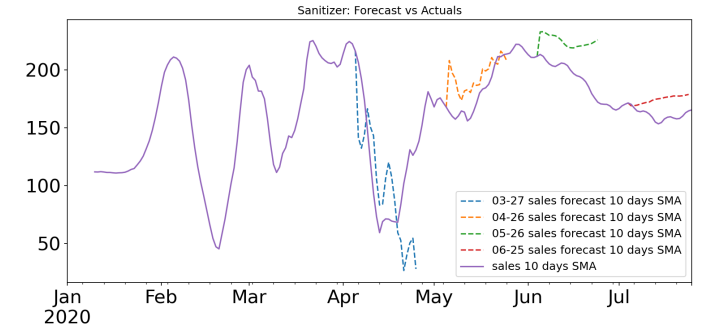
- Predictive Modeling

Fig: Forecasts of sanitizer sales using predictive models based on multiple causation analysis.
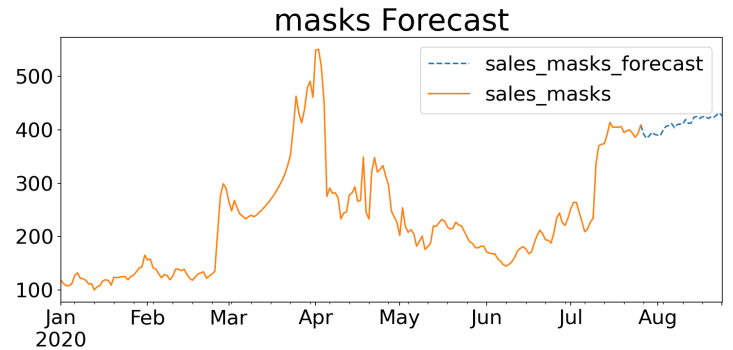

Fig: 30 days masks sales prediction during the COVID-19 period

Project Evolution

- Sequence of Shortages
  - Masks/ Sanitizers to Ventilators to eventually meat and food shortages
- Overreactive Behaviors
  - Overstocking of paper towels and restrictions on bulk purchases
- Price gouging effects mask the legitimate price hikes due to demand increase
- Impacts on Data Quality and Analysis Results

tissues price

tissues sales