

# The Impact of COVID-19 on Large-scale Phone Survey Productivity and Response Rates

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# What We Know and What We Heard About COVID

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- **COVID was a big deal**

- Interrupted everyone's work style and daily habits
  - Interviewing staff sent home to work
  - Respondents at home more often, juggling work and family demands (or dealing with unemployment)

- **Would it negatively affect productivity? Response rates? Other outcome metrics?**

- Will interviewers be more productive at home?
- Will sample be more efficient due to COVID because people have more time to participate in surveys?

- **Anecdotal indication across surveys and firms that productivity went up during COVID while interviewers worked from home**

# Our Ongoing Study

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- **12 ongoing random digit dial (RDD) health surveys using comparable sample designs**
- **Fielded 2019 and 2021**
  - Only surveys with data for all three years included
  - A few outliers removed
- **Outcome rates that we could compare (using BRFSS definitions<sup>1</sup>)**
  - Contact Rate – **Contacted Eligible** out of **Known Eligible + e(Unknown Eligible)**
  - Cooperation Rate – **Complete + Partial** out of **Known Eligible**
  - Response Rate (AAPOR 4) – **Complete + Partial** out of **Complete + Partial + e(Unknown Eligible)**
  - Refusal Conversions – **Converted Refusals** out of **Refusals**

<sup>1</sup>[https://www.cdc.gov/brfss/annual\\_data/data\\_quality\\_reports.htm](https://www.cdc.gov/brfss/annual_data/data_quality_reports.htm)

# Analysis approach

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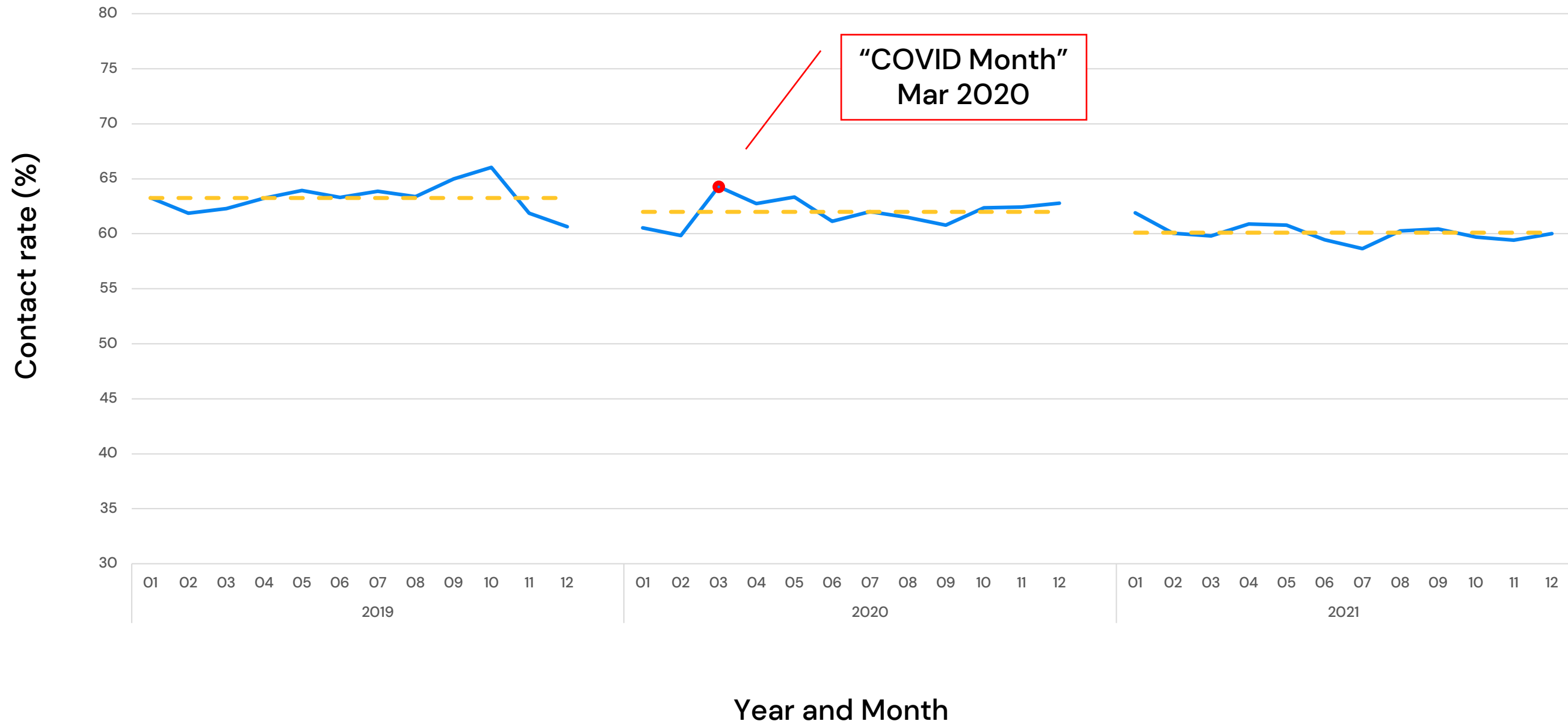
- **Exploratory!**

- Plot and review average rates over 12 surveys
- Response rates and other outcomes by month for 2019 through 2021

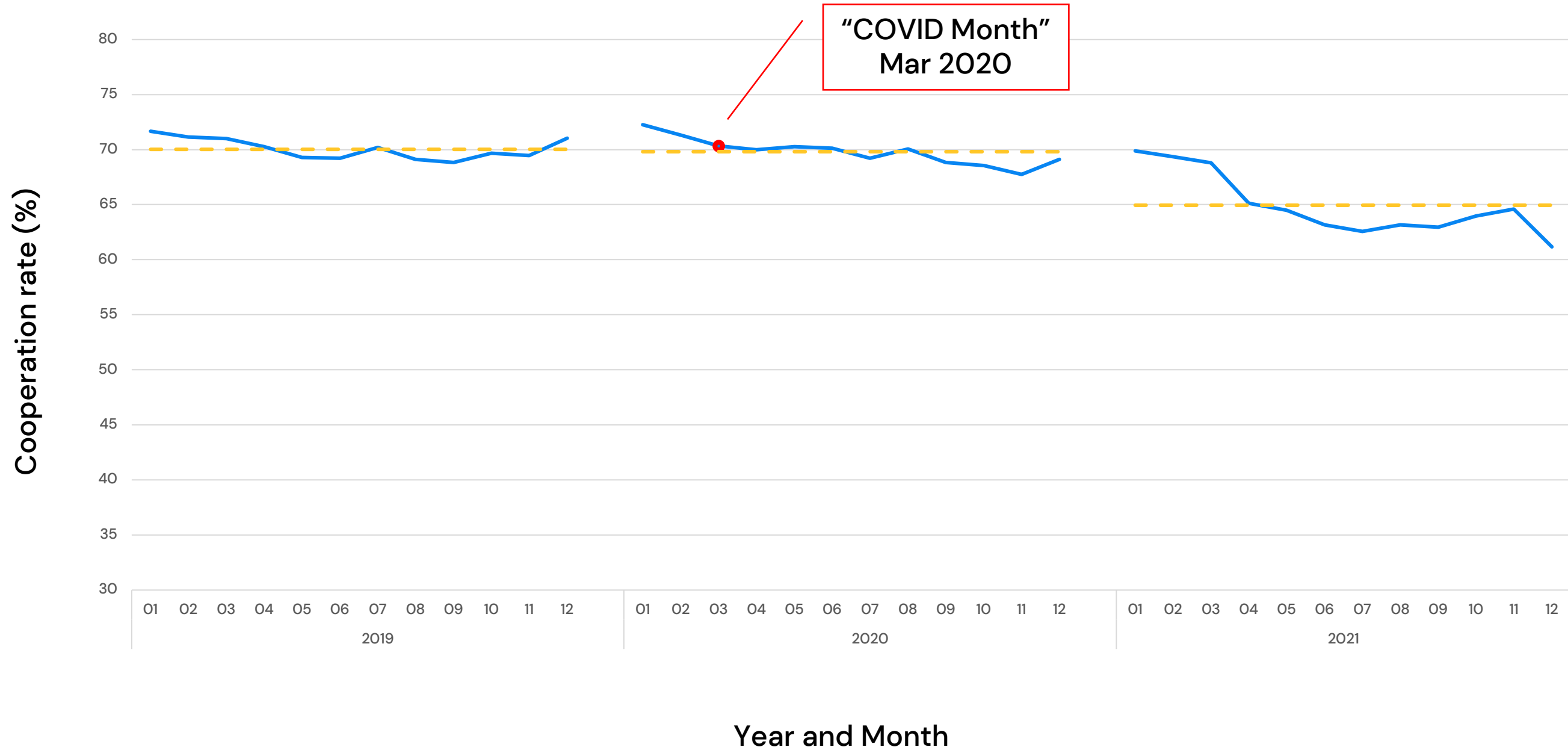
- **Looking for...**

- Spike or dip in March 2020 (***shock effect*** of COVID)
- Increase or decrease through 2020 (and beyond) relative to 2019 (***ongoing effect*** of COVID...maybe)

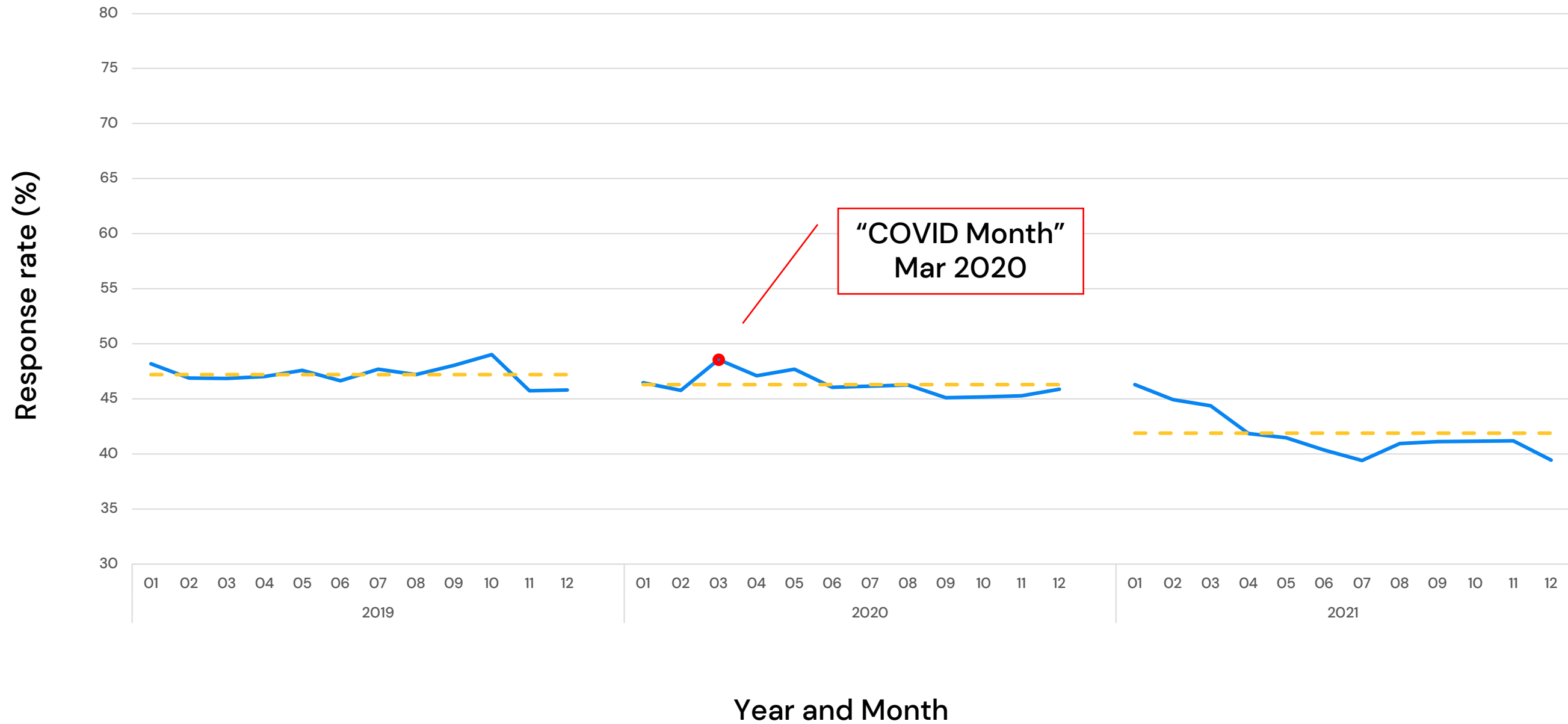
# Contact Rate



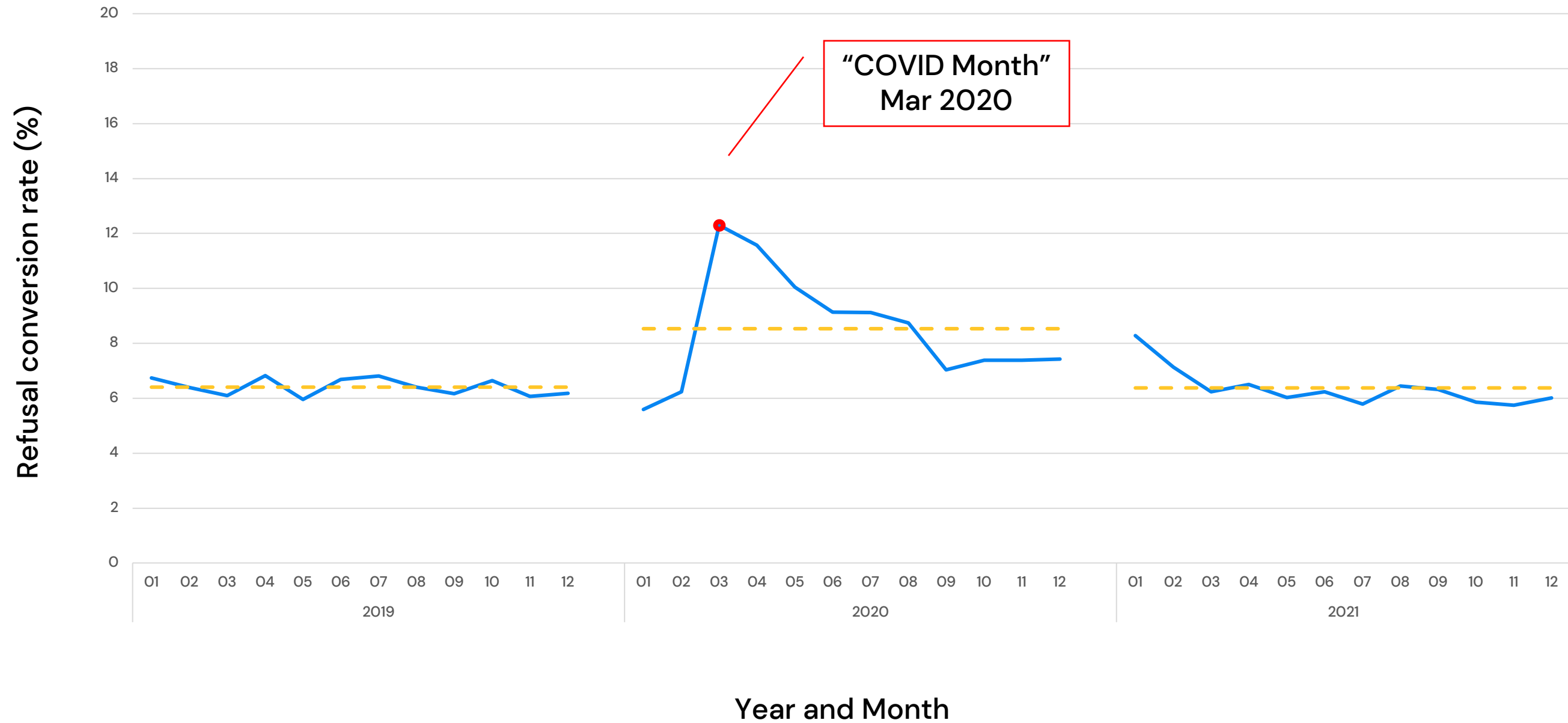
# Cooperation Rate



# Response Rate (AAPOR RR4)



# Refusal Conversions





# Initial(!) Insights

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## 2019 & 2020

- **COVID spiked contact rates, but no discernable effect on Cooperation**
  - Spike occurred in March, while interviewers started to work from home
  - Not maintained through 2020
- **COVID spiked response rate**
  - Lower than 2019 due to change in listed sample rate
- **COVID *really* spiked refusal conversions**
  - Flat trend until March 2020
  - Likely effected by combination of respondent willingness and interviewer efficiency

## Adding 2021

- **Contact**
  - Flat across the year
  - Lower than 2019
- **Contact**
  - Declining over 2021
  - Lower than 2019
- **Response Rate**
  - Declining over 2021
  - Lower than 2019
- **Refusal Conversion**
  - Relatively stable
  - Similar to 2019

# Limitations, Confounds, and Challenges

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## ■ Potential confounds with COVID

- Changes in the sample design (more listed sample)
- Landline only: Higher listed:unlisted ratio in 2020
  - 2019 – 2:1
  - 2020 – 4:1
- Changes in the interviewer pool?
  - Did we hire better interviewers who lost other jobs during COVID?

## ■ General challenges

- Outcome rates, don't necessarily reflect production
  - RR4 penalizes a more productive sample
    - Higher rate of not completing contacts
  - Have more unknown and nonworking #s helps increase RR 4
  - Using new “dual-e” AAPOR RRs may help

# Future Steps

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- **Plot additional productivity metrics, such as...**
  - Sampled phone numbers per complete
  - Calls per contact
  - Calls per complete
- **Assess correlation between outcome metrics at the survey level**
  - Heuristic way to associate productivity metrics with final response rates
- **Disentangle interviewer v. respondent effects on cooperation and refusal conversion**
  - Pre-COVID v. during-COVID v. after-COVID (and working from call center again)
    - Helps understand if changes were due to COVID or the work context
  - Important to know where interviewers preferred to work

# Additional methods for assessing shock and ongoing effects, and outcome rate time series overall

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## ■ Simple methods

- Shock effect
  - Test difference in rates before and after Mar 2020
- Ongoing effect
  - Mar 2020 v all following months
- Compare rate differences across surveys

## ■ Complex methods

- ARMA/ARIMA (auto regressive) models to test the entire time series predicting next month
- Hierarchical versions of these

# Thank you!

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