

EXPLORATORY ANALYSIS OF CONTACT STRATEGIES IN ANNUAL ECONOMIC SURVEYS

U.S. Census Bureau | Economy-Wide Statistics Division

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Keywords:

communication, relational database, respondent engagement, survey analysis, survey outreach

Summary:

Hannah and Katharyn worked with the U.S. Census Bureau's Annual Integrated Economic Survey (AIES) team to analyze the relationship between communication methods and respondent engagement. They created a **relational database** of the communication strategies for 7 annual economic surveys from survey years 2015-2022 that enabled them to link data on respondents accessing surveys with contact efforts. Hannah and Katharyn used **R** to analyze the data and create visualizations that demonstrated patterns in engagement. This analysis helped the AIES team see how communication strategies have evolved over time and the difference in engagement between emails and postal mailings.

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coding it forward >



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BACKGROUND

- The Census Bureau utilizes mailings, emails, and telephone calls to inform and remind potential respondents about the importance of completing the survey; however, contact strategies can be resource-intensive.
- For this project, we aimed to identify and track trends in communication outreach efforts over time for several annual economic surveys and understand their correlation with survey engagement (authentication code burn rates).



DATA SOURCES

Data Sources:

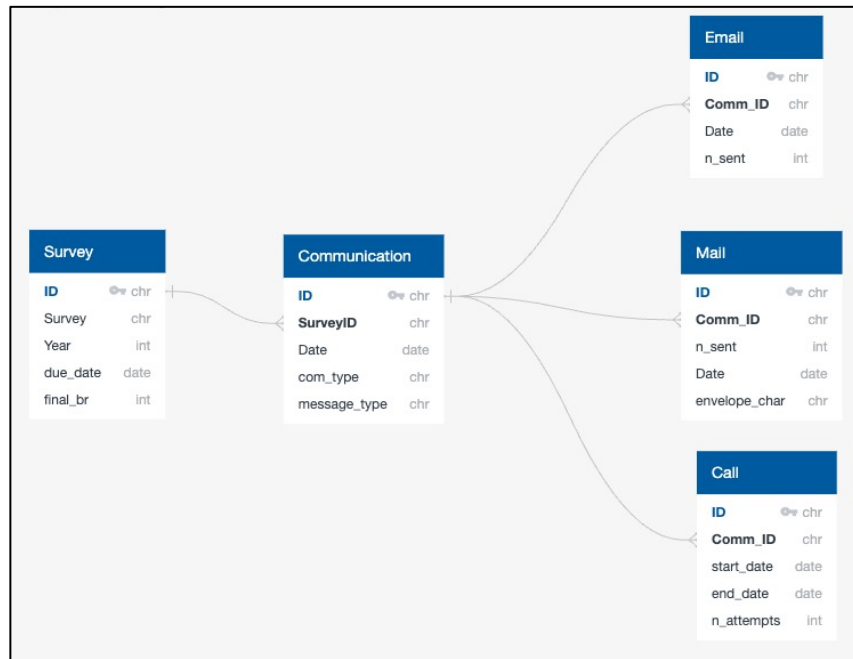
- Collection strategy documentation (survey years 2015-2022)
- Authentication code usage (survey years 2017-2022)

Annual Economic Surveys Included in the Study:

- SAS (Service Annual Survey)
- ARTS (Annual Retail Trade Survey)
- AWTS (Annual Wholesale Trade Survey)
- M3UFO* (Manufacturers' Unfulfilled Orders Survey)
- ACES (Annual Capital Expenditures Survey)
- COS/ASM (Report of Organization/Annual Survey of Manufactures)

DATA SOURCES

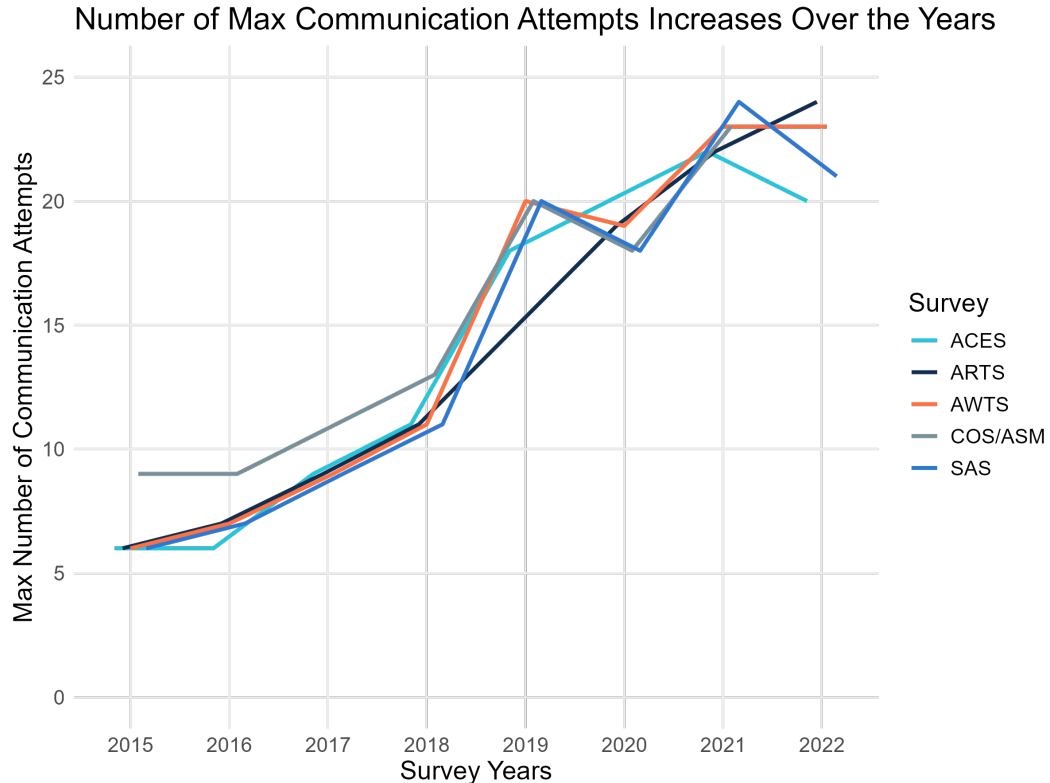
<p>Collection and Outreach Strategy for the <Survey Collection Period & Name> <March 1, 2016 (Date Modified)></p> <p><This paragraph should include a high-level summary of the overall collection and outreach strategies and response goals. For example:</p> <p>The Annual Retail Trade Report will continue to follow an all-electronic collection strategy for the 2015 survey year. The only collection instrument used will be Centurion. Respondents will have access to a Question Preview that they can view and/or print. EWD has provided EMD with an overall unit response rate goal of 80%, and rates comparable to the 2014 survey year at each 4 and specific 5 and 6-digit NAICS. This document describes the collection and outreach strategies proposed to achieve these goals.></p> <p><Prior Collection Periods></p> <p>Mail Count: <000,XXX> Launch Date: <Month Day, Year> Due Date: <Month Day, Year> Soft Closeout Date: <Month Day, Year> Final Closeout Date: <Month Day, Year> Final Unit Response Rate: <00.0%> Percent Unit Response via Internet: <00.0%> Percent Unit Response via Mail/Fax/Phone/Analyst: <00.0%> # Telephone Follow-up (Outgoing) Calls: <00,XXX> # Telephone Assistance (Incoming) Calls: <00,XXX></p> <p><Current Collection Periods></p> <p>Mail Count: <000,XXX> Launch Date: <Month Day, Year> Due Date: <Month Day, Year> Soft Closeout Date: <Month Day, Year> Final Closeout Date: <Month Day, Year> Final Unit Response Rate: TBD Percent Unit Response via Internet: TBD Percent Unit Response via Mail/Fax/Phone/Analyst: TBD # Telephone Follow-up (Outgoing) Calls: TBD # Telephone Assistance (Incoming) Calls: TBD</p> <p>Page 1 of 7</p>



Moving data from word documents into a relational database.

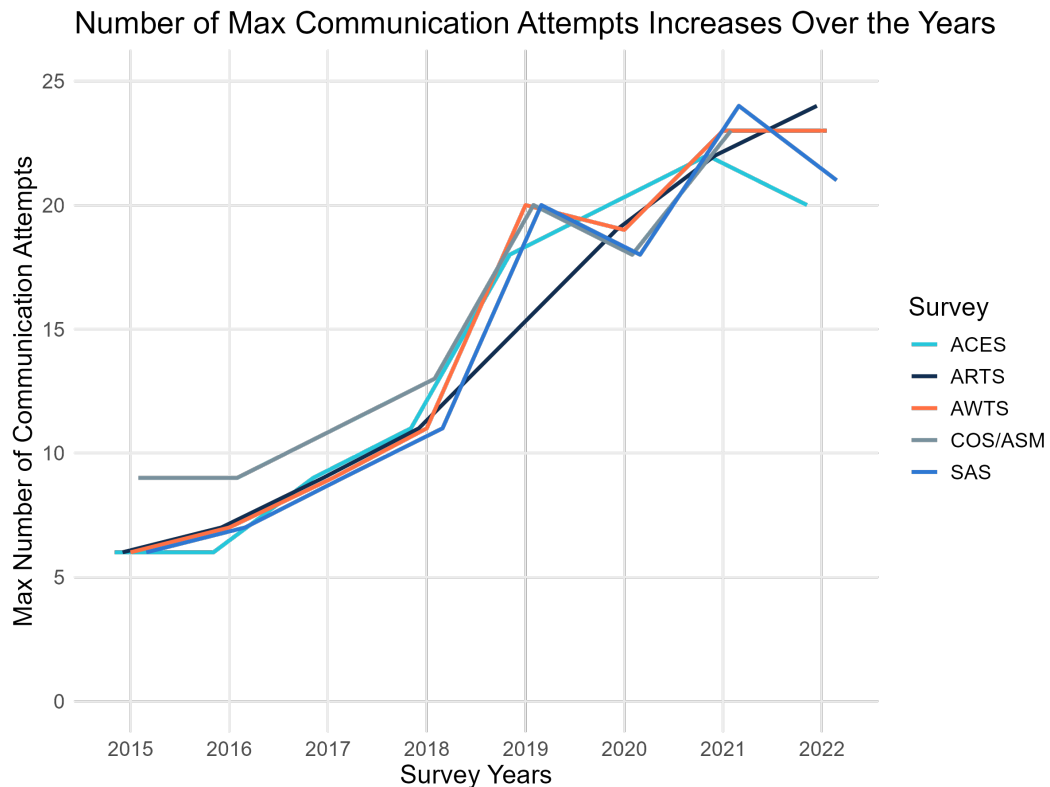
COMMUNICATION OVER THE YEARS

- Across surveys, the number of maximum contact attempts have **tripled** between survey years 2015-2022.



COMMUNICATION OVER THE YEARS

- Two notable changes in communication strategies:
 1. Introduction of email and robocalls as contact methods
 2. Introduction of Undeliverable as Addressed (UAA) mailings and Unexpired Extension Requests (UER) emails.

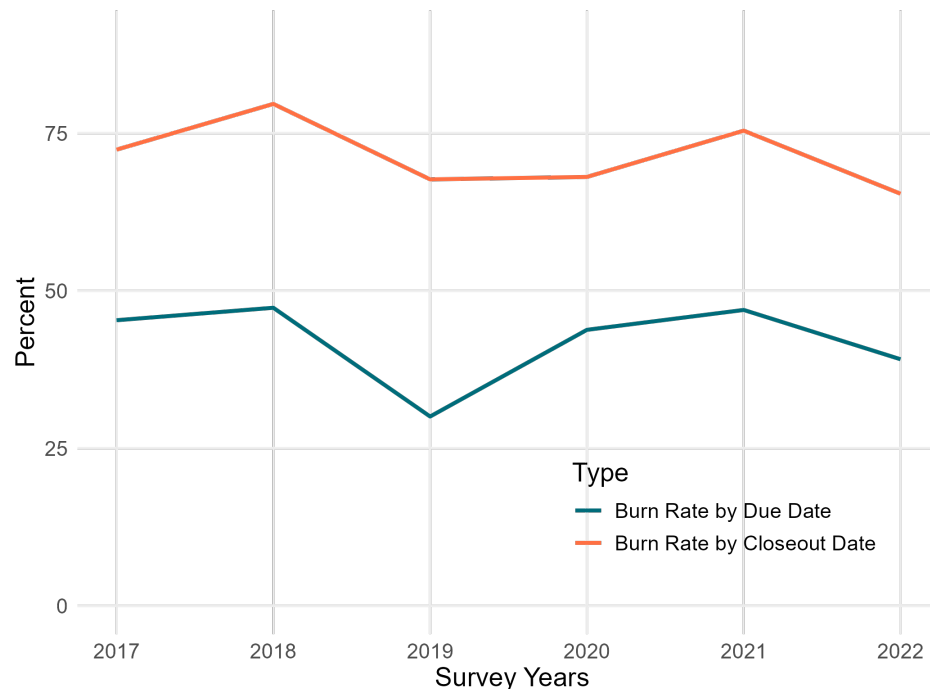


RESPONDENT ENGAGEMENT OVER TIME

- Our outcome of interest is burn rate, or the percentage of respondents who use their unique authentication codes to access a survey.
- Higher burn rate by due date is correlated with higher burn rate by survey closeout for ACES survey.

Burn Rate by Due Date and Burn Rate by Closeout
from 2017 to 2022

Annual Capital Expenditures Survey

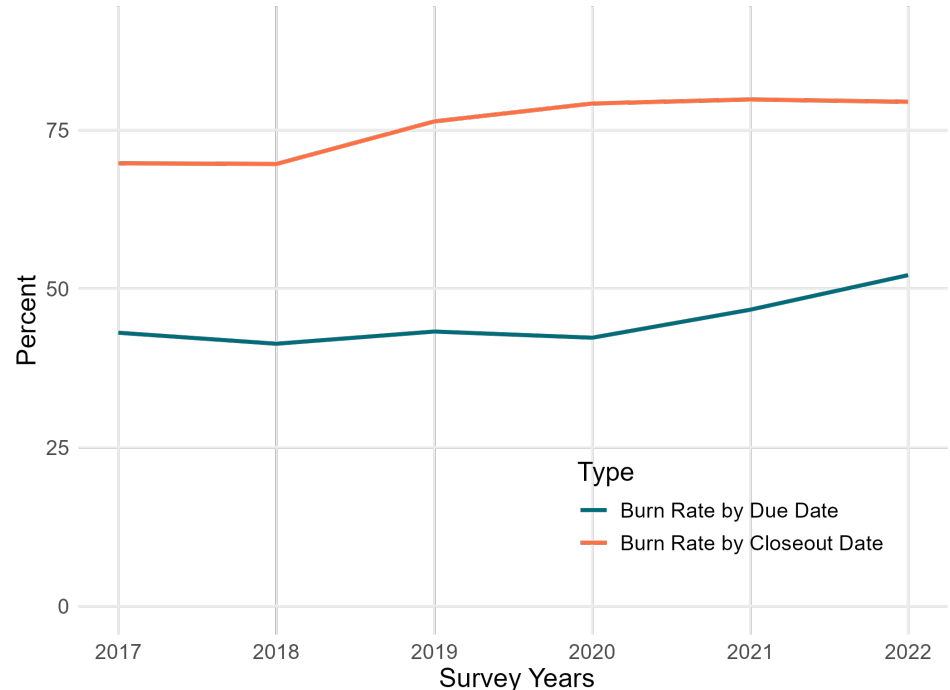


RESPONDENT ENGAGEMENT OVER TIME

- Not always the case for other surveys, such as the AWTS survey.
- Indicates respondents have different code burning behavior among surveys.

Burn Rate by Due Date and Burn Rate by Closeout
from 2017 to 2022

Annual Wholesale Trade Survey

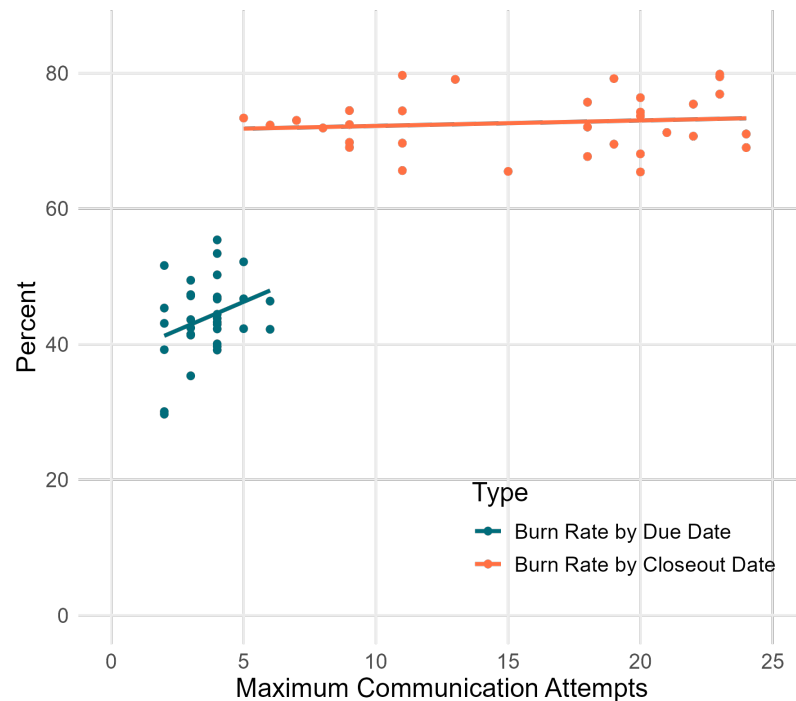


RESPONDENT ENGAGEMENT OVER TIME

- Subsetting data to period between opening and due date demonstrates positive correlation between number of communication attempts and burn rate.
- Suggests earlier communication may have more effect on respondent engagement than later communication.

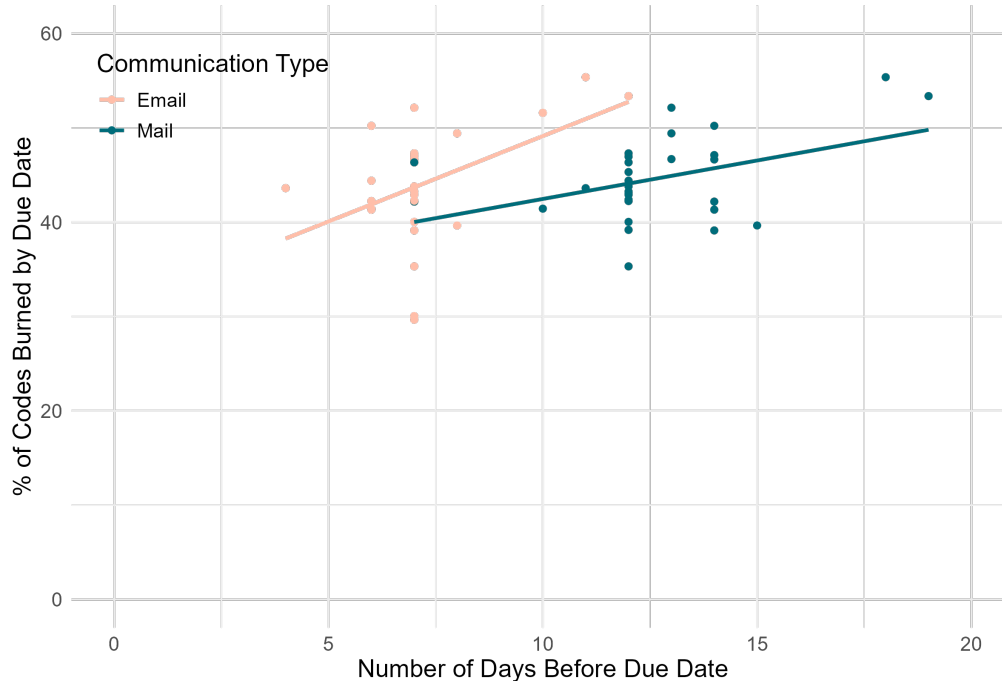
Burn Rate and Max Communication Attempts at Due Date and Closeout Date

Each Dot Represents a Collection Period for a Survey



DUE DATE REMINDER TIMING

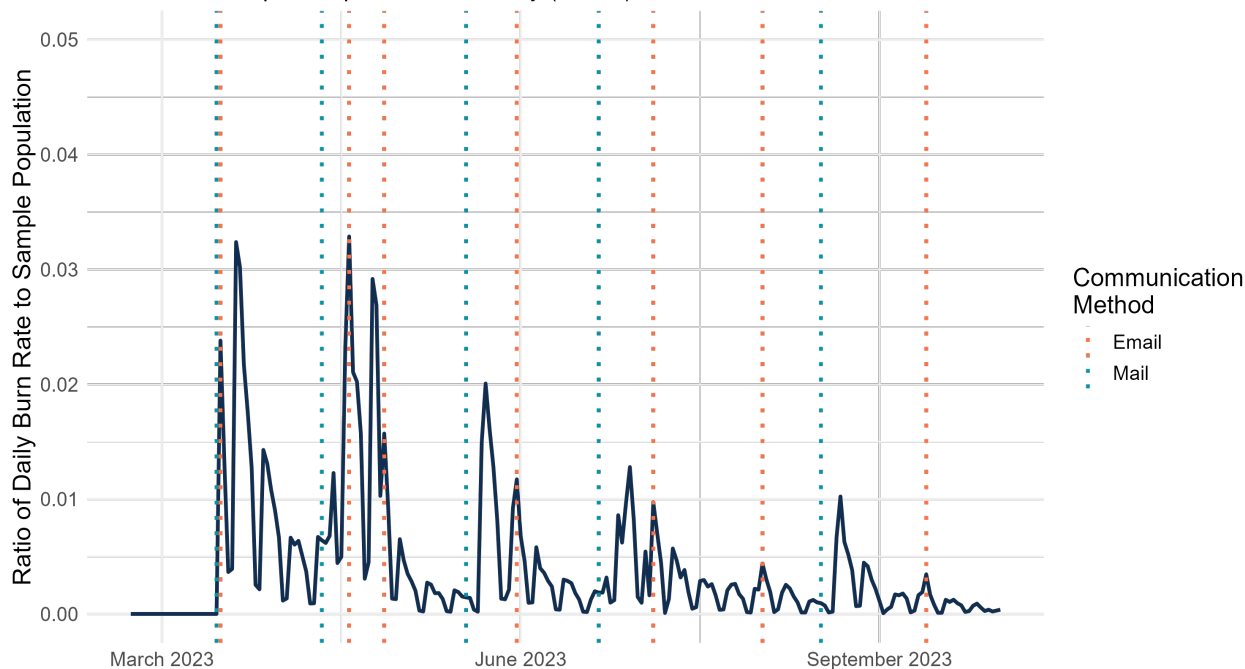
Burn Rate increases with Number of Days before Due Date a Due Date Reminder is sent



- The number of days before the due date a due date reminder (DDR) is sent is positively correlated with the burn rate.
- This indicates that more people may burn their codes when the due date reminder is sent earlier.

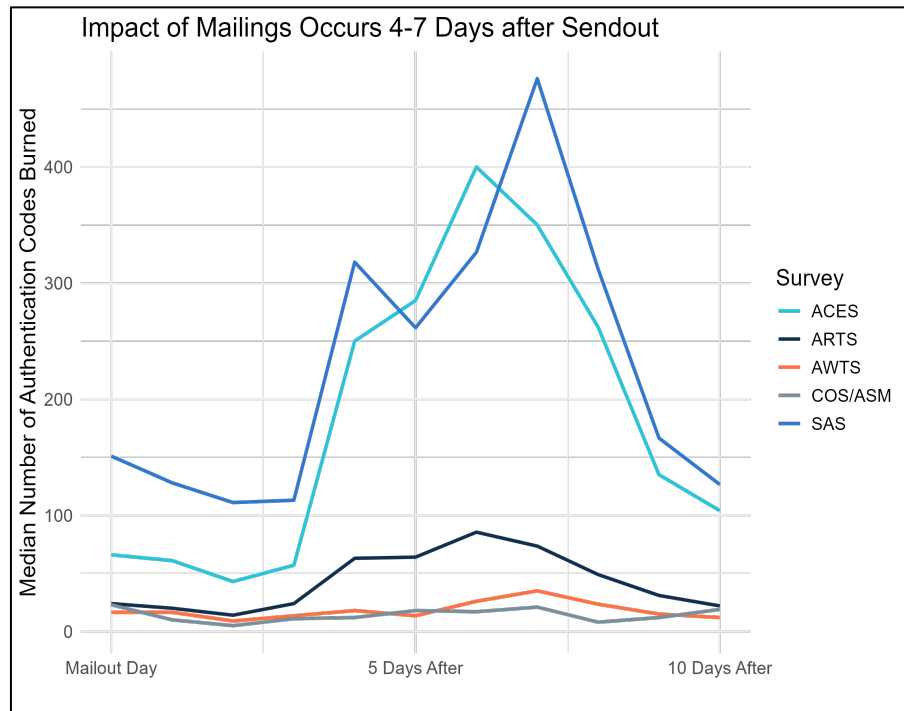
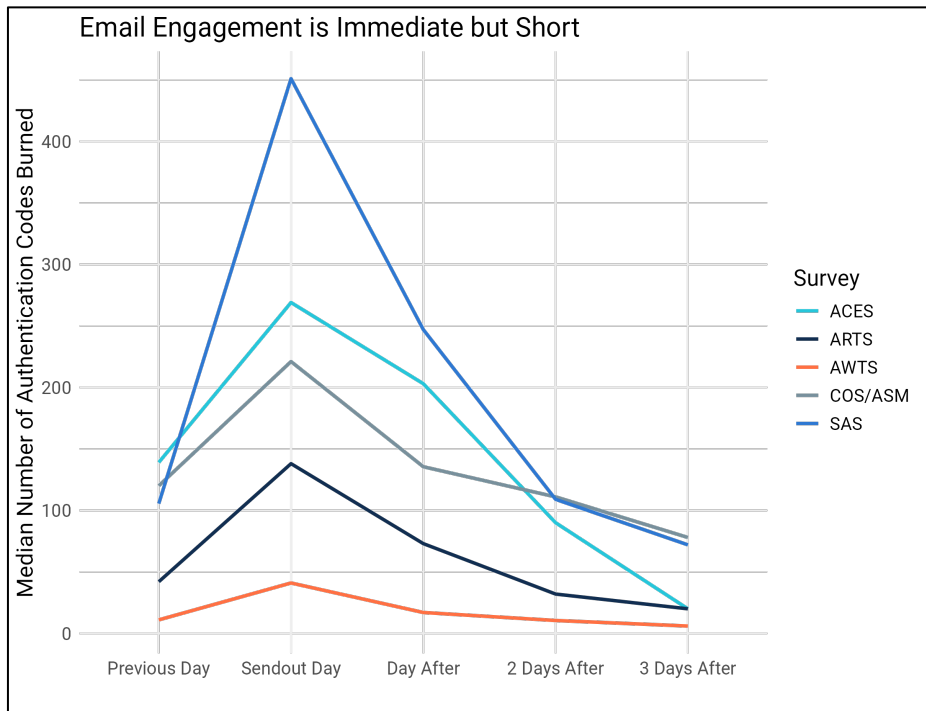
CONTACT EFFORTS AND BURN RATE

Contact Efforts Increase Survey Engagement Across Survey Period
2022 Annual Capital Expenditures Survey (ACES)



Over the course of a collection period, we confirmed that contact efforts correspond to an increase in businesses using their authentication code to access a survey.

EMAIL VS. MAIL ENGAGEMENT



The timing and length of effect of different contact methods varies significantly.

OVERLAPPING COMMUNICATIONS

- Emails have immediate impact while the impact of mailings is observed days after send out.

- When emails and mailings are sent around the same time, it makes it difficult to isolate the impact of one method on authentication code burn rates.

- For **182 mailouts** sent during survey years 2017-2022:

- About **half** of mailouts had at least 1 email **sent within 2 weeks of mailing**

- A **quarter** of mailouts had at least 1 email **sent 3-7 days after mailing** (peak activity time)

LIMITATIONS & RECOMMENDATIONS

Limitations:

- Unable to link respondents with communication they received.
- Unable to model relationship between communication methods and respondent engagement.

Recommendations:

- Minimize the use of emails in the week following mailouts to better discern the impact that mail specifically has on survey engagement.
- Maintain historical records for the contact efforts over the statistical period.
- Store data for the different communication strategies (mail/email/call/robocall) in one parent folder.

CONCLUSION

- Contact efforts notably increase survey engagement but their windows of engagement vary based on the communication method.
- The timing of communications in relation to the survey due date may increase survey engagement as seen through authentication code use; however, more investigation is needed to determine causal effects.
- A next step would be to add additional data sources such as outbound call information to understand the effects that calls specifically have on respondent engagement.

THANK YOU!

If you have questions, we can be reached at
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Any opinions and conclusions expressed herein are those of the author(s) and do not reflect the views of the U.S. Census Bureau. The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data (Project No. P-7529180, Disclosure Review Board (DRB) approval number: CBDRB-FY24-EWD001-004).