

Evaluating Mode Sequence When Email is used as the Initial Contact in Establishment Surveys

Background Paper

Josh Langeland – U.S. Bureau of Labor Statistics

1. Introduction

The U.S. Bureau of Labor Statistics (BLS) Occupational Employment Statistics program has traditionally invited businesses to their survey through postal mail. But in the current survey climate of rising data collection costs coupled with stagnant budgets and faltering response rates, there is interest in converting to paperless options. With hopes of reducing costs, increasing web reporting and shortening time to response, the BLS is conducting a series of experiments to test the effectiveness of using Email as a method to contact businesses. The first experiment in the series compared Email invitations to postal mail invitations in a production setting. The second experiment, and the topic of this presentation, was conducted outside of production in a more controlled environment. It examines the effects of different mode sequences for non-response follow-up when Email is used for the initial survey invitation.

Section 2 describes the motivation behind the experiments. Section 3 is a brief overview of the Occupational Employment Statistics survey in which the experiments were conducted. Section 4 reviews results from the first experiment and Section 5 describes the design of the second experiment. The presentation will disseminate the results of the second experiment.

2. Motivation

By replacing postal mail with Email to deliver survey invitations, there is a potential cost savings through the elimination of printing and postage expenses. The use of Email as a mode of invitation may further decrease survey costs by encouraging online reporting since respondents only receive a link to the online version of the questionnaire instead of a hard copy of the survey packet. When units report online their data is already available in electronic form which reduces the need for analysts to key in the data. Online questionnaires also have the desirable attribute of employing real time edit checks to respondent data which may reduce reporting error.

While there are many potential benefits of using Email as a mode of invitation, there are possible downsides as well. One such limitation is that Email addresses are rarely provided on survey data frames. Even if there is an Email address on the frame, it's possible it isn't the Email address of the person in the establishment that is able to complete the survey request, but rather someone else in the company. And while paper copies can be passed around the office until the appropriate person is found, forwarding Emails can quickly bury the original request. Another potential problem with Email is trust in the survey request. Many businesses have cyber security awareness training that educate their staff about Email phishing scams and malware that is spread through Email in attachments or clickable links. This may render a legitimate survey request as appearing malicious.

Time until response is also an important consideration when choosing a particular survey design. Units that take longer to respond are often sent reminder materials that increase survey costs. By using Email as a mode of invitation, the questionnaire and responses are transmitted instantly which eliminate the delivery time of postal mail; so we may expect Email invitations to reduce time until response. However, postal mail invitations have the added benefit of acting as a physical reminder of the survey request. That is, a piece of paper will stay on a respondent's desk until they respond or throw it away. A survey request sent by Email may quickly get buried in an inbox and ultimately forgotten, even by a well-intentioned respondent. So it may be the case that sampled establishments receiving an Emailed invitation respond at a slower pace even considering the instantaneous delivery time.

3. The Survey

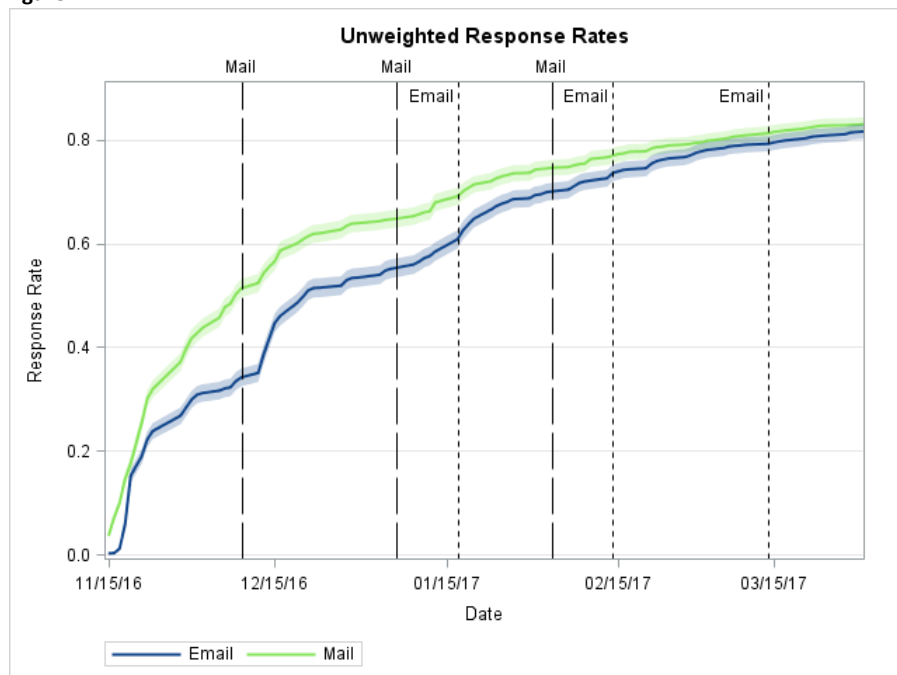
The experiments described in Sections 4 and 5 were conducted in the BLS Occupational Employment Statistics (OES) program. The OES produces employment and wage estimates for over 800 occupations. These are estimates of the number of jobs in certain occupations, and estimates of the wages paid to them. These estimates are available for the United States as a whole, for individual States, and for metropolitan statistical areas (MSAs), metropolitan divisions, and nonmetropolitan areas. The OES program is the only comprehensive source of regularly produced occupational employment and wage rate information for the U.S. economy. The OES program is conducted semiannually and surveys approximately 200,000 establishments every six months. Data collection is primarily through postal mail. See <https://www.bls.gov/oes/> for more details.

4. Study 1 – Email vs Paper Mail Invitations

The first OES study the Bureau of Labor Statistics conducted to evaluate the use of Email as a mode of invitation in an establishment survey was implemented during the OES November 2016 data collection period. The purpose of the study was to evaluate the effects of using Email to invite respondents to the survey instead of the traditional postal mail invitations. All non-responding units in the experiment received the same follow-ups, both paper mail and Email. The outcomes of interest were response rates, time to response, mode of response and cost per response.

Figure 1 displays the unweighted response rates for the two groups across five months of data collection. The green and blue lines represent units that received the initial survey invitation via postal mail and Email respectively. We found the units that received the survey invitation by Email achieved an equivalent overall response rate to units receiving a paper mail invitation, however, they responded at a slower pace. Responding units in the Email group were much more likely to respond through the web instrument (74.3% vs 47.9%). Finally, assuming a fixed cost for each mailing and a processing fee for each response, the Email units achieved a 21% reduction in cost per response.

Figure 1

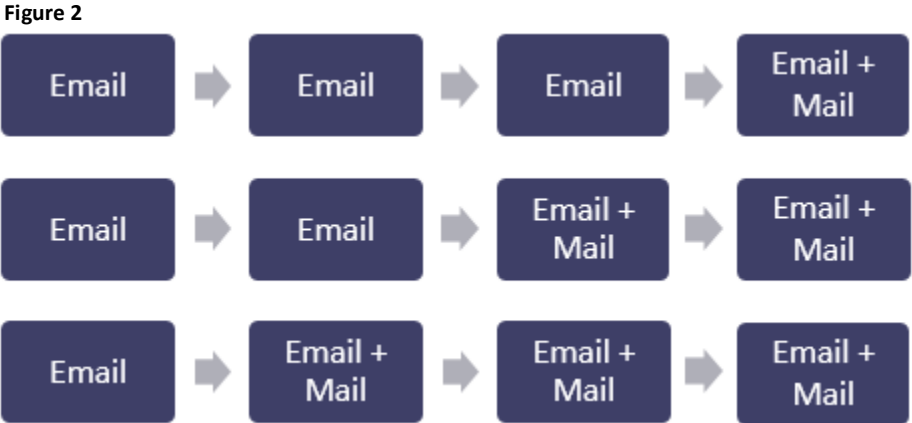


It is important to note that this experiment was conducted during production and after the first mailing to the non-responding units was sent, data collectors were allowed to contact units (through CATI or other means) to meet their production goals.

5. Study 2 – Mode Sequence (current study)

The previous study suggests that using Email as the initial mode of invitation is a promising alternative to postal mail. While the Email units responded at a slower pace, they achieved an equivalent overall response rate, were more likely to respond via the web instrument and were cheaper to collect per response. However, the previous experiment had the drawback of being conducted during production where data collectors may have introduced some confounding interventions in order to meet their production standards. This led to the design of a second experiment conducted outside of production which aimed to evaluate different sequences of modes for non-response follow-ups.

In the second study, business with Email addresses on the data frame were randomized into three groups. All units received the initial survey invitation by Email and the mode of contact for non-responding units varied by group with contacts taking place at one month intervals. Figure 2 shows the three treatment regimes.



The experiment was fielded in November, 2017 and data collection lasted five months. The outcomes of interest are again: response rates, time to response, mode of response, and cost per response. My presentation will disseminate the results.