

## Efficacy of Prenotification Letters in Improving Response Rates – The Telephone Point of Purchase Survey

Cassandra Yocum  
Bureau of Labor Statistics

### Abstract

The Telephone Point of Purchase Survey is a list-assisted RDD survey with a four-quarter rotating panel design, used to collect the outlet frame for the Consumer Price Index (CPI). Falling response rates have prompted an investigation into methods to improve survey response. This paper studies the effect of pre-notification letters sent prior to the first of four interviews on response rates in the first quarter.

**Keywords:** TPOPS, Response Rates, Pre-notification Letters, Refusal Rates

### 1. Background

The Telephone Point of Purchase Survey (TPOPS) uses computer assisted telephone interviews conducted by the Census Bureau on behalf of the Bureau of Labor Statistics (BLS) in order to collect household information from eligible consumer units. This household information includes details on purchases made during a specified time period, such as amount spent, name of store or provider of the purchased good or service (referred to as a POPS category, or POPSCAT), how the item or service was purchased, and where the transaction took place. The primary function of this survey is to provide an outlet frame for pricing items in the Consumer Price Index (CPI).

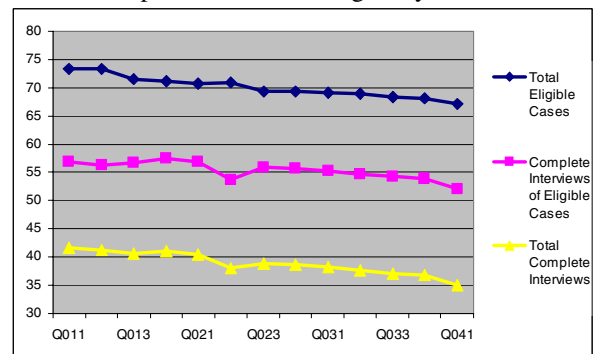
TPOPS originated as a paper-based personal interview with each respondent being asked about every POPSCAT, of which there are currently 215. In the 1990's, BLS decided to switch to using the telephone, and the survey was put into software which used the DOS interface for data capture during the interview. The survey has since been converted to Windows-based software, beginning with the second quarter of 2004. With the use of computer-assisted telephone interviewing (CATI) only a subset of POPSCATs are asked during any one interview.

The sample uses a rotating panel design with Random-Digit-Dial (RDD) recruitment. Approximately 37,000 telephone numbers are in sample each quarter. Respondents ideally participate in four consecutive

quarters where in any given quarter respondents are evenly divided among their first, second, third, and fourth interviews. However, due to the incidence of ineligible phone numbers and attrition, first time interviews can be as much as 50 percent of the sample. About 13,500 telephone numbers actually result in completed or partially completed interviews.

TPOPS, like many other telephone surveys, has suffered from declining response rates in recent years (see Chart 1). In addition to the difficulties associated with telephone interviewing, another feature of TPOPS which interviewers had reported as contributing to the refusal rate is the mandatory recitation of the notification statement which includes identification of the necessary approval to conduct TPOPS as well as the source legislation that allows the survey to collect and use data.

Chart 1. Response Rates and Eligibility Rates–TPOPS



At the request of the Office of Management and Budget (OMB), BLS conducted a study to determine whether pre-notification letters would improve response rates. In conjunction with this, BLS decided to also test whether the length and wording of the notification statement could be modified to increase response.

### 2. Experiment

Letters were designed and scheduled to be sent approximately one week before the start of interviewing every quarter for the first interview respondents, over a total of four quarters, beginning with the second quarter of 2004. These letters included a fact sheet which disclosed the authorization for the survey and the purpose thereof.

The study sample was derived from the pool of phone numbers with addresses available, approximately 31 percent of the total sample. This pool was divided into three study groups: the control group which did not get sent a letter; the OMB group which was sent the letter and read the full authorization statement during the actual interview; and the conditional OMB group which was sent the letter and read a shorter notification statement unless the respondent did not recall receiving the letter, which would trigger the reading of the full authorization statement.

### 3. Data

After data collection, each applicable study group was classified by letter recall. Cases where recall was not captured during the interview for reasons not explained were not included in the analysis, nor were ineligible telephone numbers. The following study subgroups were used as the bases for analysis:

- NRf – letter sent, but not recalled; full notification by study definition as full OMB group
- YRf – letter sent, recalled; full notification as full OMB group
- NRc – letter sent, but not recalled; full notification due to lack of recall as conditional OMB group
- YRc – letter sent, recalled; alternative notification as conditional OMB group
- NL – control group, no letter sent
- NA – no letter sent due to no address available
- Letter – the aggregation of all cases sent a letter

Table 1. Distribution of records across study groups

- NR/OMB – aggregation of NRc and NRf
- YR/OMB – YRf
- YR/No – YRc

Some subgroups have been relabeled and regrouped. NRf and NRc are classified together as NR/OMB, particularly, since the experience for the respondent is identical in both cases.

Data was also parsed by PSU (primary statistical unit, defined by metropolitan statistical areas used in the Consumer Price Index) size, region, quarter of interview, and outcome as defined below:

- Size: A – largest metropolitan areas
- B – medium sized metropolitan areas
- C – smaller metropolitan areas
- Region: NE – Northeast Census region
- MW – Midwest Census region
- S – South Census region
- W – West Census region
- Quarter: Q042 – 2<sup>nd</sup> quarter of 2004
- Q043 – 3<sup>rd</sup> quarter of 2004
- Q044 – 4<sup>th</sup> quarter of 2004
- Q051 – 1<sup>st</sup> quarter of 2005
- Outcome: I – completed or partially completed
- R – refusals
- NC – non-contacts and other
- UN – unknown AAPOR outcome class

$$RR2 = I / (I + R + NC + UN)$$

$$REF1 = R / (I + R + NC + UN)$$

Comparisons were made between response rates, as defined by RR2 above, for those respondents sent a letter, those in the control group, and those respondents who did not have addresses available. Comparisons were also drawn among the letter recall combinations.

Refusal rates were calculated to give additional insight into the behavior among the analysis groups, as defined by REF1. The incidence of refusals as opposed to non-contact or unknown eligibility as a primary cause of low response rate calculations may be useful in determining possible strategies to improve survey response.

### 4. Results

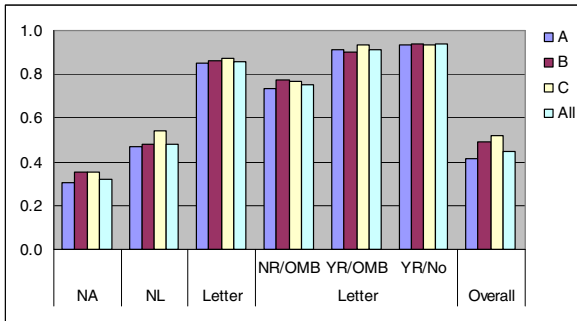
Nationally, sixty-nine percent (25,745) of the eligible cases did not have addresses available. A greater percentage of addresses were found for phone numbers in the Midwest, and also among the smaller cities. Q044 and Q051 had the highest address match rate of the four-quarter study, resulting in letters sent to nearly 25 percent of the sample, a ten percent improvement over

	Nation	A	B	C	NE	MW	S	W	Q042	Q043	Q044	Q051
NA	25,745	16,418	7,863	1,464	6,081	4,739	8,124	6,801	6,762	7,213	5,822	5,948
NL	4,077	2,023	1,707	347	903	1,044	1,389	741	782	829	1,217	1,249
Letter	7,553	3,995	2,898	660	1,617	2,211	2,415	1,310	1,355	1,594	2,248	2,356
NR/OMB	2,962	1,558	1,157	247	644	779	1,029	510	512	632	889	929
YR/OMB	2,252	1,141	889	222	447	716	686	403	355	467	691	739
YR/No	2,339	1,296	852	191	526	716	700	397	488	495	668	688
Total	37,375	22,436	12,468	2,471	8,601	7,994	11,928	8,852	8,899	9,636	9,287	9,553

the first quarter of the study.

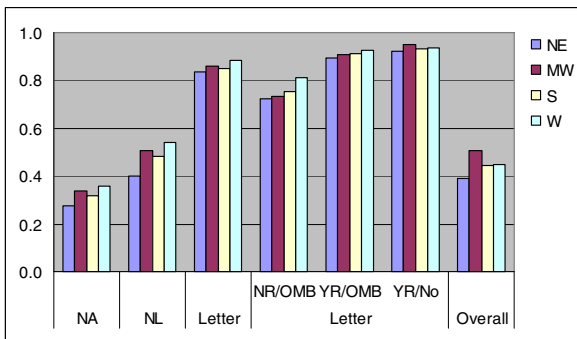
Overall, respondents who were sent a letter had a higher response rate than those who were not sent pre-notification letters (see Chart 2). While some distinct variation in response rates did exist between the largest and smallest city sizes, the differences were generally small when divided into the study subgroups.

Chart 2. Response Rates by PSU Size



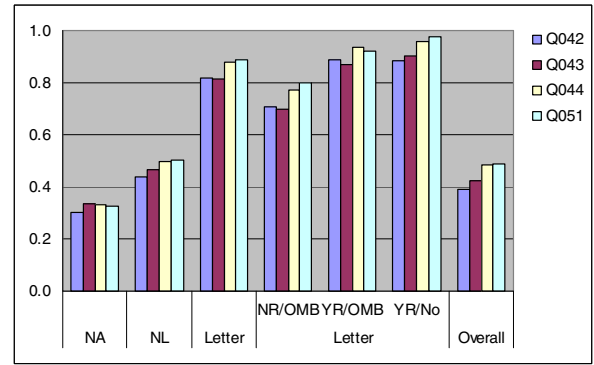
Differences were more obvious between regions, with the Midwest and West pretty consistently more likely to participate in the survey than the other regions (see Chart 3). The Northeast region exhibited the lowest response rates for all study categories.

Chart 3. Response Rates by Region



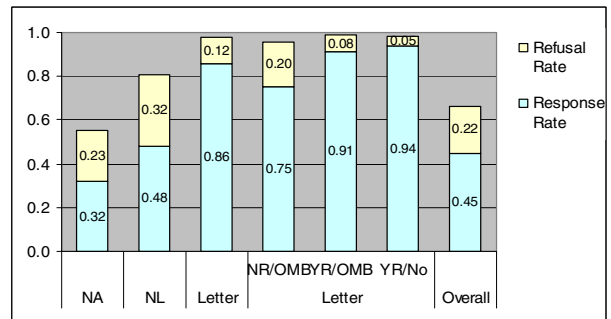
The national response trend held true even after dividing the sample by city size, region and quarter of interview. The quarterly data departs from the behavior in the other analysis groups, however, within the letter category (see Chart 4). Response within the NR/OMB, YR/OMB and YR/No groups was similar regardless of geography and population. Response did seem affected by the quarter of interview. In all cases, this was the first interview and first letter sent to the respondents. However, interviews which took place in Q044 and Q051 clearly were more successful in each letter category than the first two quarters were. These results probably reflect in some part the continued evolution of the collection instrument, as well as the learning curve for the interviewers themselves, although the pattern in not continued in the NA group.

Chart 4. Response Rates by Quarter of First Interview



Some groups' experiences can be explained fairly well by considering the response rate with the refusal rate. Other study groups have a much larger percentage of their case distribution in the unknown eligibility and non-contact classifications. (See Chart 5.) Telephone numbers without addresses are much more predisposed to outcomes other than refusals and completed interviews.

Chart 5. National Response and Refusal Rates



## 5. Conclusions

Significant technical issues related to the introduction of a new data collection instrument in the same quarter this study began confounded the results in the first quarter, and quite possibly in subsequent quarters as the instrument was refined.

Telephone numbers not identified as ineligible which do not have an assignable address result in drastically lower response rates. This deserves additional study on possible sample bias.

The groups which were sent a letter showed higher response rates than those not sent letters or those where addresses could not be attached to telephone numbers. Respondents who remembered receiving the letter consistently showed higher response rates than those who didn't remember the letter, regardless of whether the notification statement was read. It is interesting to note that respondents who did not remember the letter still had significantly higher response rates than those with addresses who were not sent a letter, since otherwise

interview experience was the same. It may be that the simple mention of an intended letter is sufficient to improve participation.

As mentioned, the notification statement does not appear to have played a significant role in decreasing TPOPS response rates, as had been hypothesized. YR/OMB and YR/No rates are consistently similar.

Another interesting point is the difference in refusal rates, especially between the group without addresses and the group with addresses but not sent letters. Once again, from the respondent's perspective, the interview experience for these two groups should be identical. Why then is the NL group experiencing a much higher refusal rate than the NA group?

One caution must be emphasized in this analysis. Among the cases defined as the eligible (including unknown eligibility) sample, this study had to remove approximately 11 percent as a result of corrupted data records. This is not an insignificant number, as only 20 percent of the remaining data were even sent letters, with each subgroup only accounting for 6 - 8 percent, making the defining samples of this study smaller than the corrupted records which had been removed for lack of information on how to resolve the cases.

## **6. Recommendations**

BLS should send pre-notification letters to every available address, since the evidence clearly points to lower refusal rates as well as higher general response. Putting some effort into researching the causes of non-response may boost response rates more if some solution could be implemented.

It would be highly useful to investigate the effects of the letters from the first quarter interview on future participation. One mailing of the letter may yield positive dividends over the full four quarters each case is in sample. Alternatively, if research shows no lasting effect, perhaps quarterly mailings would sustain response rates past the first quarter interview.

Finally, some investigation should be made into the causes of the missing values in the data. A pattern may be determined to exist that could seriously impact the findings of this study.

## **Reference**

The American Association for Public Opinion Research. 2004. *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 3rd edition*. Lenexa, Kansas: AAPOR.