

PO Boxes on Address Based Sampling (ABS) frames – under- or over-coverage or both?

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Abstract

Research regarding Only Way to Get Mail (OWGM) PO Boxes in survey applications is limited, details on the methodology used by vendors, in particular the accuracy of the methodology, is lacking. This paper (1) discusses how CDS vendors likely identify OWGM PO Boxes, (2) highlights under-coverage of housing units by OWGM, and (3) proposes improvements in identifying OWGM.

Key Words: ABS, frame coverage, mail survey, PO Box, OWGM,

1. Background

A PO Box is a secured, uniquely numbered box located at a U.S. Post Office or a qualified business where a United States Postal Service (USPS) customer can get their mail delivered. Close to 90% of USPS residential customers who have their mail delivered to a PO Box can also have mail delivered to their street address. Those without the option of home delivery are provided a PO Box, unusually for free. These are referred to as Only Way to Get Mail PO Boxes or OWGM. A common misconception is that all OWGM are identified on the Computerized Delivery Sequence file (CDS), the foundation of most ABS frames.

To date, USPS does not provide a link between a street addresses and a PO Box. In other words, if a household that is eligible to receive home delivery also has a PO Box the two cannot be associated with one another on the CDS. Thus, the CDS and the ABS frame derived from it, do not know the one-to-many relationship between a residential household and their street address and PO Box. Without this information there can be to over-coverage and multiplicity because a sample unit (in this case an address as proxy for a household) has

Key Points

- PO Poxes can be a source of both under- and over-coverage for an ABS frame's coverage of residential households.
- Only Way to Get Mail PO Boxes (OWGM) are usually provided free to residents living in areas without home delivery.
- OWGM are identified by CDS vendors, not the USPS.
- CDS vendors do not disclose their method for identifying OWGM. RTI identifies how CDS vendors likely identify OWGM.
- Current OWGM identification methods likely undercover the population of OWGM households.
- RTI proposes a method for identifying additional OWGM to reduce under-coverage of households for mail surveys.

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more than one chance of being selected for a survey and the selection probability cannot be known.

Because of this over-coverage, it is common practice for ABS mail surveys to remove most PO Boxes from ABS frames to avoid a single household having multiple ways of being selected into the sample. The exception to removing PO Boxes are OWGM.

2. Vendor identified OWGM

The classification of PO Boxes as OWGM is undertaken by the licensed vendor of the CDS, not the United States Postal Service itself. RTI has experience with two nationally qualified CDS vendors. Our current CDS vendor, Compact Information Systems, and our former vendor both consider their methods for identifying OWGM PO Boxes proprietary and have not publicly disclosed them. While appropriate for business, lack of transparency in scientific pursuits can make replication and quality assessment difficult or impossible.

Errors in identifying OWGM can lead to two types of frame problems. First, PO boxes erroneously classified as OWGM can introduce over-coverage or multiplicity, and second, PO Boxes that are mistakenly not identified as the only way the household receives mail, if removed from the frame, could lead to under-coverage.

2.1 How vendors likely identified OWGM

We believe our CDS vendor uses the USPS City State product to identify OWGM. It is possible other CDS vendors use a different method or a combination of this method with another to identify OWGM.

The City State Product is available for purchase through the USPS Address Information System (United States Postal Service, 2018a). The purpose of the City State Product is to assist with the standardization and accuracy of mailing. The USPS describes the application of the City State Product as such: “City State Product is for mailers who need assistance with the following processing functions: ZIP Code validation, ZIP Code Assignment, finance number assignment, county code/name identification, street name matching, ZIP Code and carrier route changes” (United States Postal Service, 2018b). The data file is updated monthly by the USPS.

There are multiple record types within the City State Product. In our research of OWGM, we used the (wait for it) PO Box Only portion of the City State Product. The AIS Technical Guide (United States Postal Service, 2018c) states the following;

“The P.O. Box™ Only portion of the product contains P.O. Box Only Delivery Zones. ***These records assist mailers in identifying communities where the customer’s only acceptable form of postal delivery is through a P.O. Box address.*** This flag is different from the existing ZIP Address Information System Products Technical Guide 3 Classification code “P” located in the City State Detail record, which indicates where a ZIP Code only has P.O. Boxes but other forms of postal delivery are also provided to the community.”

We confirmed, in large part, that our CDS vendor identifies OWGM using the ZIP codes from the City State Product by matching 4,162 ZIP codes identified by the City State Product as P.O. Box Only Delivery Zones to our vendor's CDS file. The match was almost perfect in that the City State Product identified every OWGM identified by our vendor except for 1500 PO Boxes found on our CDS but not the City State Product. We suspect that this small discrepancy could be caused by the vendor using a City State Product from a different month than we used.

To read about other uses for the City State Product in Survey research, see Brown & McMichael 2018.

2.2 Under-coverage of housing units by OWGM

It seems reasonable that the PO Box Only portion of the City State Product would be very good at “identifying communities where the customer’s only acceptable form of postal delivery is through a P.O. Box address,” however, this is not always the case. We also identified areas that are clearly OWGM and not identified on City State Product or by our CDS vendor. We assume there are many more.

Three examples of OWGM areas not identified by the City State Product or by our CDS vendor:

- 1) **Two Arizona towns Page & San Luiz:** Both have over 10,000 residents and only receive mail though PO Boxes (**Figure 1**).
- 2) **Carmel-by-the Sea, CA:** Small town (Pop ~3,800) elects to be OWGM to avoid cutting down trees (**Figure 2**).
- 3) **Arizona City, Arizona:** Over 10,000 residents and Google Street view shows no mailboxes for curb delivery (**Figure 3**). County tax records identify the street address which is not found on the CDS and a PO Box mailing address which is found on the CDS (Pinal County Parcel Search).



Figure 1: Newspaper reports Arizona towns Page & San Luiz are OWGM. (Kingman Daily Miner 2000)



Figure 2: Blogger writes about why Carmel-by-the Sea, CA is OWGM. (Hartong 2011)



Figure 3: Google Street View shows no mailboxes in Arizona City, AZ. (Google 2018)

3. Proposed improvements in identifying OWGM

3.1 RTI OWGM Method

Through trial and error, we found that a unique city name and ZIP code combination on the CDS which contains only non-OWGM PO Boxes is likely an unidentified OWGM. This method identified PO Boxes we believe should be classified as OWGM. All the areas we identified in Section 2.2 were found with this method.

This method identified an additional 275,907 PO Boxes over the 1,436,424 OWGM already identified on the CDS (**Table 1**).

Defining a unique city-ZIP as a Community, we identified 874 OWGM Communities. These communities had an average of 209 PO Boxes. Most of these communities seem to be small rural towns, though not always. The RTI Identified OWGM communities are found in 1,775 counties in every state except DC.

We submit that our approach for identifying OWGM reduces under-coverage in mail surveys utilizing the CDS.

Table 1: OWGM Characteristics by Identification Method

OWGM Type	PO Boxes		# Communities (number of city-zip)	Average Community Size (number of PO Boxes)
	Total	Occupied		
Vendor Identified	1,436,424	907,945	4,167	217
RTI Identified	275,907	183,258	874	209

Suggested Citation

McMichael, J., & D. Brown, D. 2018. *PO Boxes on Address Based Sampling (ABS) frames: Under- or over-coverage or both?* In JSM Proceedings, Survey Research Methods Section. Alexandria: American Statistical Association.

A copy of this paper and the original presentation can also be found at: abs.rti.org

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