**Results from 2015 Focus Groups with Enumerators on the
Bring Your Own Device (BYOD) Concept for Census Enumeration**

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Abstract

In preparation for each decennial census, the U.S. Census Bureau conducts a series of large-scale tests focused on evaluating and refining the planned methodology for the upcoming census operation. In 2015, the Census Bureau completed one such test in Maricopa County, Arizona that assessed the Non-Response Follow-Up (NRFU) operations for the 2020 Census. The test incorporated a number of potentially cost-saving innovations, including an exploration of the Bring Your Own Device (BYOD) concept for enumeration, in which selected enumerators used their personally owned smartphones to download Census Bureau applications in which they recorded respondent information. To evaluate the results, the Center for Survey Measurement (CSM) within the U.S. Census Bureau conducted three focus groups with enumerators who participated in the 2015 BYOD Test . The goal of the focus groups was to gather feedback from enumerators via a group discussion of the BYOD Test, focusing on the areas of training and preparation, field operations, and reimbursement for personal device use.

Enumerators felt the training and preparation provided to them was appropriate. They said they had the tools they needed to successfully enumerate and address respondent concerns about BYOD. However, some enumerators reported technical issues that required direct assistance from staff to resolve. Similarly, enumerators had few issues with BYOD-specific field operations; most of their concerns were general problems with the COMPASS enumeration application that was used to assign sample cases to interviewers and record information about respondents and contact attempts. While enumerators were mostly satisfied with the BYOD experience, they disliked the reimbursement policy for using their own devices, saying that it was overly complicated. To encourage future BYOD participation, we recommend changing this reimbursement policy and resolving COMPASS issues. In this report, we describe findings for each of these discussion topics in further detail.

Introduction

In preparation for each decennial census, the U.S. Census Bureau conducts a series of large-scale, mid-decade tests focused on evaluating and refining the planned methodology for the upcoming census operation. In 2015, the Census Bureau completed one such test in Maricopa County, Arizona[1] that assessed the Non-Response Follow-Up (NRFU) operations for the 2020 Census. The 2015 Census Test incorporated a number of potentially cost-saving innovations, including an exploration of the Bring Your Own Device (BYOD) concept for enumeration. To implement the concept of "Bring Your Own Device" (BYOD), the Census Bureau would ask enumerators to use their personal smartphones (as opposed to a government-issued smartphone) during the Nonresponse Follow-up (NRFU) operation in the 2020 Census. Enumerators would download Census-developed software and use a secure application to collect responses from individuals who do not self-respond after receiving initial requests to complete the 2020 Census questionnaire

Methods

2015 Census Test

The 2015 Census Test in Maricopa County, Arizona was conducted in the spring and summer of 2015. To conduct the NRFU operation, the Census Bureau recruited, hired, and trained a team of enumerators from the local area who were trained to initiate contact with and collect census data from individuals who had been selected to participate in the 2015 Census Test but did not self-respond by internet or mail before a certain date.

A subset of enumerators who participated in the NRFU operation were also selected to take part in the BYOD Test, based on eligibility as well as logistical considerations. The BYOD test was a two-week operation that ran concurrently with the final two weeks of the NRFU operation. Eligibility was determined based on responses to a survey sent to all enumerators working on NRFU a few weeks before the BYOD test was scheduled to start. It asked questions about enumerators' type of smartphone, operating system, cell phone plan, and willingness to participate in a test of BYOD. It also asked whether enumerators' personal smartphones were "jailbroken" or rooted, referring to a process where a smartphone has undergone "the process of removing limitations on a mobile operating system through the use of software and hardware exploits" (BYOD Acceptable Use Policy, 2015). The Denver Regional Office used results from this survey and requirements for the concurrent NRFU test to select enumerators for BYOD.

Enumerators underwent additional training before the BYOD test that focused primarily on the differences between the BYOD test and NRFU operations. Enumerators used the COMPASS application in both NRFU and BYOD; however, this application was pre-installed on enumerator's government-issued devices in the NRFU operation. Thus, installation of the COMPASS application on enumerators' personal smartphones was also part of the BYOD training. Additionally, in order to participate in the BYOD test, enumerators were required to sign an Acceptable Use Policy (AUP) that outlined the terms and conditions for participation. For example, the AUP stated that the Census Bureau was not responsible for lost or stolen personal

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[1] U.S. Census Bureau. 2015 Census Tests. http://www.census.gov/programs-surveys/decennial-census/2020-census/research-testing/testing-activities/2015-census-tests/maricopa/about.html

smartphones and that enumerators were expected to protect their devices with a password, among other things.

Goals of the BYOD Test included: 1) testing the technical feasibility of enumerating on personally-owned smartphones, 2) assessing the prevalence of qualifying smartphones and cell phone plans among enumerators for BYOD, and 3) gathering feedback from participating enumerators on the BYOD experience. To accomplish the latter goal, the Center for Survey Measurement (CSM) held three focus groups with enumerators who worked the BYOD Test.[2]

Focus Groups

The focus groups were held on June 23, 24, and 25, 2015 in the Local Census Office (LCO) for the test area in Maricopa County, Arizona.[3] The focus groups were held during the final week of the BYOD Test. The groups were comprised of 11, 12, and 10 enumerators, respectively, for a total of 33 participants, and each session lasted approximately two hours. Enumerators were selected for the focus groups by the LCO based on interest and availability. The focus group moderator led each group in discussion on the following BYOD topics (see Appendix A for a copy of the focus group moderator's guide):
- Training and Preparation
- Field Operations
- Reimbursement

In this report, we describe findings on each of these discussion topics corresponding to the moderator's guide.

Results

Training and Preparation

In this section, we asked enumerators about the following:
- Why they participated in the BYOD Test
- The survey they were asked to complete during NRFU training in order to assess their eligibility to participate in BYOD
- Changes they may have made to their personal smartphones
- General opinions on the BYOD training
- Download of Census applications on their personal smartphones
- The Acceptable Use Policy (AUP) they needed to sign in order to participate in the BYOD Test

Participation in BYOD

Nearly all of the enumerators indicated they participated in the BYOD Test because it was an opportunity for continued work.[4] A few enumerators said that they were curious about how

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[2] The focus groups were conducted by Marylisa Gareau (CSM).

[3] LCO 3107 located in Phoenix, AZ.

[4] Many cases in the NRFU operation are closed out before it ends, and thus there was less certainty about how much work enumerators would receive in NRFU compared to BYOD.

enumeration would work on their personal phones, and how it would compare to NRFU work on government-furnished equipment (GFE). A few other enumerators mentioned they were interested because BYOD seemed like a good idea, had the potential to save taxpayer money, or because they were more comfortable with their own phones than the GFEs.

Eligibility Survey

Many enumerators could not clearly remember the eligibility survey for participation in BYOD. We provided paper copies of the survey to help them recall the questions, which asked about enumerators' smartphone type, operating system, storage space, and cell phone plan, among others things. Some enumerators remembered the survey as the "Monkey survey," as it was hosted on SurveyMonkey.

The majority of enumerators correctly reported that the survey's purpose was to identify enumerators who were eligible to participate in BYOD. However, it is important to note that this may have only been clear to enumerators in hindsight, after they were selected for and worked the BYOD Test. As stated earlier , we conducted the focus groups during the final week of the BYOD Test. Thus, they may have not known at the time they were completing the survey over a month earlier that it was for eligibility purposes.

Most enumerators also reported that the survey was easy to answer, but this finding may be biased by the composition of the groups. The focus groups were comprised of only a subset of enumerators who were eligible, selected, trained, and worked. Enumerators who were not selected into this group may have found the questions more difficult to answer.

Enumerators mentioned asking other enumerators in the training, looking up information on their phones, or referring to the instructions if they were unsure how to answer a question in the survey. Ultimately, enumerators had very few comments on the eligibility survey. We believe the four-to-six-week recall period between the survey and the focus groups may have been too long. If feedback on eligibility screening is desired in future BYOD tests, we suggest asking about it closer to the time of the survey.

Changes to Personal Smartphones

Next, we asked enumerators whether they made any changes to their personal smartphones as a result of participating in the BYOD Test. Evaluation of the eligibility requirements prior to selecting participants for the BYOD test was intended to minimize the need for enumerators to make changes or upgrades to their phones in order to participate in the test. However, it was unknown to what extent enumerators would voluntarily make changes to their personal smartphones in order to meet the eligibility requirements or otherwise to prepare for participating in the test. Most enumerators said they did not have to make updates to their phones in order to participate in BYOD. There were a few comments across groups regarding removing items from phones to ensure there was adequate space and updating the operating system. One enumerator upgraded her phone, but it was unclear if this was specific to BYOD participation.[5]

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[5] U.S. Census Bureau staff upgraded the operating system of two enumerators' personal devices during the training.

The enumerator who had to remove items from her phone to make space indicated that she wished she had known more about that prior to the training, so that she could have brought her laptop or other storage device to back up information such as photos from her phone.

Some enumerators reported making changes to their smartphones in order to make them seem more like work phones. Several enumerators mentioned changing their voicemail messages to be less personal and using vibrate and silent features of their phones more frequently. One enumerator mentioned getting rid of games on her phone, and another enumerator changed her smartphone home screen to show only work applications.

Several enumerators also mentioned actions they took in response to the intense heat in Arizona during this time, such as removing a case and avoiding adding any additional personal apps.

General Opinions on BYOD Training

We asked enumerators several questions about the training more generally, including whether the length of time seemed appropriate and how prepared enumerators felt to use their own smartphones.

Enumerators generally thought that the training was fine and felt well prepared to enumerate on their own devices. Most enumerators commented that the training was much more about the technical aspects of BYOD as well as how to address respondent inquiries about BYOD. Most of these enumerators felt this was appropriate given they had already worked NRFU and thus were familiar with the survey and enumeration more generally. There were a couple of enumerators who wanted a refresher on general enumeration during this training.

Despite being generally satisfied with their preparation for BYOD, enumerators in the focus groups did mention numerous possible opportunities for improvement of the training. Enumerators who completed the first day of BYOD training did not receive cases for enumeration until after they left the training. These enumerators mentioned technical difficulties with receiving the cases, and suggested downloading them as part of the training.[6] They also noted that members of the technical support team seemed to be more experienced with either Apple or Android devices, and that sometimes they would ask a question only to be told to wait for another more knowledgeable employee to be available to respond. Thus, they suggested that the training classes should be divided by device type. One enumerator said that she would have liked to receive an estimate of how much data would be used during BYOD, and a couple of Apple device users wanted a reminder to know their Apple IDs and passwords prior to the training.

One enumerator was not sure if she could begin enumerating the same day after the training was complete. We recommend clearly addressing this question in the training sessions for future BYOD tests.

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[6] It is our understanding that this issue was resolved by the time subsequent BYOD training sessions occurred.

Downloading of Census applications

Most enumerators reported that the downloading of applications was easy, and mentioned that it was greatly aided by the presence of hands-on technological support. It is unclear whether enumerators would have been able to download the applications easily without this support. Only a few technical issues were mentioned with the downloading of the apps, such as one enumerator who mentioned receiving an incorrect link to download applications.

For this test, comments by enumerators suggest that the written instructions alone were not sufficient to aid in the download of the applications. However, technical lessons learned may increase their value in future tests.

Most technical issues identified by enumerators were with the use of the COMPASS application for enumerators, and the VPN used to secure the connection for enumeration. We discuss some of these comments in the Field Operation section of the report.

Acceptable Use Policy (AUP)

As was the case with the eligibility survey, it was difficult for enumerators to remember the details of the AUP because they had signed it at least a week prior to participating in the focus group (and they had all signed a similar AUP prior to starting participation in the NRFU operations several weeks earlier). Most enumerators were generally unconcerned about it; however, we were only able to gather the opinions of enumerators who signed it due to the design of the focus groups.[7] Enumerators were unable to remember many specifics of the AUP until they referenced a paper copy of it, at which point they mentioned restrictions on the use of Bluetooth, texting while driving, and screen visibility.

Several enumerators commented on being uncertain about what the government could and could not access on personal smartphones. As a result, a few enumerators altered their behavior on their phones, like one enumerator who told her friends "not to text [her] crazy things."
One enumerator said that the idea of being watched on his phone made him feel "nervous." Another enumerator commented that there is a "fine line" between government and personal data, and that he should have control over his own personal data.

One enumerator mentioned asking the trainer about the section of the AUP that states that the Census Bureau could remotely wipe a device. This enumerator said that the trainer's response was that this was unlikely to happen. We recommend more clearly addressing these kinds of privacy concerns in the training sessions for future BYOD tests.

Field Operations

In this section, we asked enumerators about the following:
- Comparisons between the enumerator experience using GFE vs. personal smartphone
- Problems in the field with using a personal smartphone for enumeration

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[7] Enumerators who did not sign the AUP would not have been permitted to work the BYOD Test, thus making them ineligible for the focus groups.

- Respondent inquiries about BYOD
- Changes to typical use of their smartphone as a result of BYOD
- Differences in enumeration behavior using GFE vs. personal smartphone
- Overall preference for GFE vs. personal smartphone for enumeration

Enumerator Experience with Personal Smartphone vs. GFE

Overall, enumerators reported that the enumeration experience was very similar whether using their own smartphone or a government-issued device (GFE). As they mentioned in the training and preparation portion of the focus groups, enumerators reported that they had to take more measures to prevent distractions while using their personal smartphones for work purposes compared to using the GFE. Specifically, there was concern about personal text messages coming up during interviews or receiving personal phone calls. To counteract these distractions, several enumerators reported putting the phone on silent or vibrate during all work time.

A few enumerators noted that the government-issued phones all came with a large protective case and a stylus, which many did not have for their own phones. Feelings about this difference between personal and government-issued devices seemed to be mixed. One enumerator mentioned that it was nice not to have a big, bulky protector for the phone during the BYOD test and another commented that it was sometimes hard to read the GFE screen through the provided OtterBox case. One enumerator also mentioned dropping the government-issued phone frequently while attempting to access the stylus. Other participating enumerators, however, preferred these features of the GFE compared to their own phones. Some mentioned that the stylus was convenient for data entry on the devices, and one enumerator expressed concern about the personal smartphone being less protected than the government-issued phone and chose to buy a new personal phone case to use during the BYOD test. One enumerator suggested that having government-provided cases for all BYOD devices would cause them to look more uniform and professional.

Several enumerators identified benefits in terms of comfort and ease of use that resulted from using their own phone for the BYOD test. Some specific aspects that were mentioned included the swipe text entry feature that some device keyboards allowed, copy and paste functions, and the convenience of being able to work with a familiar operating system (since all of the government-issued devices during this test were Android phones). Regarding size of the device, however, a few enumerators stated a preference for the larger screen of the government-issued smartphone. No one stated an explicit preference for a smaller-sized personal smartphone, on the other hand.[8]

Problems in the Field

Enumerators readily listed problems that occurred during data collection, but it was not always clear that issues were more severe during the BYOD Test compared to the NRFU operation. A few of the focus group participants stated that they had fewer technical issues during the BYOD Test, while others reported more or different problems than what they experienced when using the GFEs. The most frequently reported problem with field operations, which was mentioned in each

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[8] The government-issued smartphone for this test was one of the larger models available in 2015 (the Samsung Galaxy Note 3), but the devices used for the BYOD test varied in size. Some BYOD enumerators were using smaller phones while others were using phones of similar size to the government-issued devices.

of the focus groups and came up during several different sections of the group discussions, were problems with overheating and battery life on personal smartphones. Enumerators reported substantially more problems with insufficient battery and overheating during the BYOD Test compared to their experience with NRFU enumeration which began a few weeks earlier. One enumerator noted, however, that the apparent difference in phone performance could have been due to changing temperatures in Maricopa County rather than a feature of the devices per se.[9] Enumerators reported various strategies for managing the device overheating and battery issues, including the use of external battery packs, storing the device in a container with ice packs, and holding the phone up to air conditioning vents in the car between interviews. Many enumerators indicated that being able to charge the phone in the car was essential to being able to complete a full day's work. One enumerator mentioned that charging the government-issued phone frequently had also been essential and that the GFE took a long time to charge with a car charger.

Aside from pervasive battery and overheating issues, enumerators additionally mentioned some issues specific to the Census applications and connections with the VPN on their personal smartphones. Several reported continual interruptions to their connection with the VPN as well as long lag times after an interview was complete for the data to sync (reported times ranged roughly from 5 to 15 minutes), during which time the device appeared to be frozen.

Enumerators expressed dissatisfaction with various aspects of COMPASS, most of which were not unique to the BYOD Test. One issue that seems to have been specific to the use of COMPASS on personal smartphones as opposed to government-issued devices, however, was a reported problem with the geolocation feature. Two general issues emerged: the enumerator's device could not identify the current location and placed the enumerator's location at a point in Africa or the device displayed a map of the entire United States but did not zoom in to the local area. Enumerators reported spending a substantial amount of time attempting to zoom in to the correct location for enumeration as well as using alternative geolocation applications on their devices (outside of the Census suite of applications) to complete their work.

A final difficulty reported with the BYOD test related to taking callbacks on personal smartphones. Enumerators reported that it was difficult to listen to the respondent and record their responses in COMPASS simultaneously on the same device. One enumerator reported that putting the respondent on speakerphone was an adequate solution, while others expressed a preference for having two devices to complete the task – one phone to talk to the respondent and another with which to record the response data.

Respondent Inquiries

A key objective of the focus groups was to determine whether enumerator use of personal smartphones for data collection raised any concerns for respondents. When asked to report about respondent inquiries, however, enumerators did not recall fielding frequent questions about the use of their personal smartphones. A couple of enumerators reported receiving questions that were

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[9] Indeed, temperature data for Maricopa County, AZ during the two tests indicate that the weeks of the BYOD Test had an average high temperature that was more than 15 degrees warmer than the average high temperature for the portion of the NRFU test that preceded the start of BYOD (daily high temperatures retrieved from www.wunderground.com).

not specific to the BYOD test. For instance, one respondent inquired about why the Census was using cell phones for data collection (no emphasis on personal devices). Another respondent mentioned that he thought using smartphones for data collection was a good idea. Still another respondent expressed concern about where the data collected on a smartphone would be stored, again without seeming to mention specific concerns about it being a personally-owned device.

In terms of BYOD-specific inquiries, enumerators seemed to attribute these types of questions from respondents to the use of unique or unprofessional phone cases, whether the case was their own or belonged to another enumerator who had participated in the test. One enumerator mentioned that he experimented with using his phone with and without a skin or cover to see if it would make a difference, but he still did not receive any respondent inquiries. One enumerator who had a red cover on the phone reported receiving a question about whether the phone was a personally-owned device and believed that the inquiry was due to the presence of the cover.

In all cases mentioned during the focus groups, enumerators who received respondent inquiries about data collection on phones or about the use of personal devices were able to address respondent concerns and continue with the interview. No one reported a respondent refusal resulting from such an inquiry. Although few specifics were given about how the enumerators addressed respondent concerns, one enumerator reported that it was helpful to explain to respondents that the data would be sent immediately after the interview via VPN. Another enumerator, who seemed to believe that he was supposed to notify all respondents about the use of his personal device, reported emphasizing that the confidentiality and data security protections were the same regardless of the type of device being used for data collection. Correction from the group about the need to notify respondents about the BYOD Test suppressed further comments from the enumerator on the subject, but it did not seem that he had many difficulties with respondent cooperation either.

Changes to Typical Use

Overall, enumerators reported few changes to the typical use of their smartphones as a result of participation in the BYOD test. As mentioned earlier, a few did report keeping their phones on silent or vibrate and also changing or considering changing their voicemail messages in an effort to make the phone more suitable as a work device. Several enumerators also mentioned adding a password or PIN to the start page of their phone if they were not previously using one.[10]

Although most did not report any specific change in their behavior related to data, several enumerators mentioned changes to their typical data usage as a result of participation in the BYOD test. Some had the impression that they were using more data than usual, while others expressed uncertainty about their data usage because they had not yet received a bill for the month. A couple of enumerators reported receiving warning messages from their carrier about approaching the data limit on their plans. Only one enumerator reported deliberate efforts to use less personal data to ensure that there was enough left for BYOD activities. Another reported calling her carrier specifically to enquire about data usage and was informed that she was not using an especially large amount of data during the days she was enumerating. Because most enumerators had not yet

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[10] This change was recommended to enumerators during training, although it was not mandatory.

been billed for the time period during which the BYOD Test occurred, the majority of comments about data usage were speculative.

Differences in Enumeration

With regard to changes in how they completed their Census work, most enumerators indicated little or no change to their work as a result of switching from a government-issued device to their personal smartphone. A few mentioned being more likely to see (and thus also possibly to respond) to personal messages during work time when using only their personal phone. Several enumerators mentioned that they received more callbacks from respondents during the BYOD Test than they had while participating in the NRFU test a few weeks earlier. Some attributed this to the use of a local phone number, while others speculated that it could have been a consequence of the different areas being enumerated. One enumerator comment also hinted at the possibility of billing differences for the BYOD Test as a result of time spent receiving IT help and technical support. The enumerator was uncertain if resolving IT issues should be counted as work time but eventually decided to count the time toward her hours worked.

Device Preference

Enumerators who participated in the focus groups all had the experience of using both a government-issued device and their personal smartphone for data collection. When asked which type of phone they would prefer to use if they were to take another job conducting interviews for the Census Bureau, few of the focus group participants (only one or two enumerators per group) explicitly preferred using their own smartphone as opposed to a government-issued phone. Of the remaining focus group participants, some indicated no strong preference between using their own smartphone or a government-issues one while others definitely preferred the GFE.

All groups were able to identify pros and cons to both device types. In favor of using personal smartphones, enumerators mentioned having better reception on their own phones as a result of using the best local carrier and better callback rates as a result of having a local number. One enumerator also mentioned feeling *less* concerned about liability for the personally-owned device since it was not government property, although others mentioned contrasting concerns that the personal smartphones were *more* of a safety concern because the Census Bureau did not offer any kind of protection in relation to their use. In favor of using government-issued smartphones, enumerators mentioned potential respondent concerns about the security of information stored on personally-owned devices as well as their own concerns about the costs and reimbursement policy associated with using their own smartphones. Enumerators indicated that the details of the reimbursement policy would be a primary deciding factor in whether or not they would choose to use their personal smartphones for future work.

Reimbursement

We concluded the focus groups by asking enumerators about the reimbursement policy for this test. Enumerators' reimbursement was calculated through a formula that accounted for their phone charges and time worked, while subtracting out taxes and additional fees such as data overages. Enumerators were asked to provide a copy of their phone bill with this calculation in order to be

reimbursed. At the time of the focus group, enumerators had not requested reimbursement and most had not yet received a phone bill to perform the calculation.

Most enumerators did not know what to expect in terms of reimbursement, and indicated frustration with the reimbursement procedure. Enumerators with unlimited data plans said they did not think it would be worth their time to submit a claim. One enumerator mentioned being on a family cell phone plan, and that it would be difficult for her to access the bill. They felt as though it was extremely complicated and said they would prefer flat-rate compensation. One enumerator commented that someone would need to be a "Harvard mathematician" to determine his reimbursement using the existing procedure.

Another enumerator said that the flat-rate was fair because using the personal device makes enumerators "on-call" for longer periods of time because they need to be available to receive phone calls from respondents. One enumerator mentioned that the compensation should be akin to how the Census Bureau reimburses for mileage, at a fixed rate per mile.

Despite their dislike of the reimbursement policy, most enumerators indicated they would participate again if the policy were kept the same because of the opportunity for more work. However, this may vary by data plan type. One enumerator said that she would not have participated if she did not have unlimited data. Another enumerator mentioned that she had to pay $10 to increase her data allowance, and that she likely would not receive enough in reimbursement from the Census Bureau to offset that cost.

As of August 28, 2015, no enumerators had submitted a reimbursement request. This may be a result of the complicated procedure discussed in these focus groups, or there may be a high prevalence of unlimited data plans among BYOD Test enumerators.

Encouraging Participation in BYOD

Enumerators made several suggestions about how to encourage people to participate in BYOD in the future, including:
- Provide protection options for personal phones, such as cases or insurance in case of loss or theft
- Implement a simpler, flat-rate reimbursement policy
- Explain more clearly what the government can and cannot do with personal smartphones
- Resolve technical issues with enumeration applications such as COMPASS
- Emphasize benefits of BYOD to the U.S. Census Bureau and enumerators, savings for taxpayers

Discussion

Overall, the information gathered from the 2015 BYOD Enumerator Focus Groups indicates that the 2015 BYOD Test was implemented successfully. The survey for identifying eligible enumerators was effective, a sufficient number of enumerators were willing to participate in the test, the Census Bureau applications were able to be installed on personal smartphones, and participating enumerators were able to conduct enumeration tasks using their own phones.

Additionally, the focus group results revealed very little evidence of public concern about BYOD data collection and suggest that even respondents who notice that enumerators are using personal smartphones to record data are still willing to provide their information.

The focus group results also suggest several possible directions for future research on this topic. One particularly key research agenda for the 2020 Census NRFU operations will be predicting the BYOD participation rate when there is a choice between using a GFE or a personally-owned device. Participants in the 2015 BYOD Test indicated that their primary motivation for participating was having the opportunity for additional work, but it is unclear how many of the enumerators would have chosen to use their own devices if doing so was optional.

Comments from the focus group participants suggest that a key determinant of BYOD participation rates may be the details of the reimbursement policy for those using their personal smartphones. Future research exploring different reimbursement options would be beneficial for the purposes of identifying an appealing and fair reimbursement rate. A potential starting point for this research would be to examine average data use for the government-issued devices employed in the 2015 Census Test NRFU operations. Ideally, the final reimbursement amount would be determined, at least in part, by actual expected data usage for BYOD enumerators.

Finally, the implementation of BYOD data collection provides an opportunity for systematic evaluation of the effect of callback number characteristics on respondent callback rates. Specifically, do respondents call back with greater frequency if the callback number is local as opposed to non-local? Enumerators who participated in the focus groups assumed that the use of their local phone numbers inspired trust in respondents and encouraged them to call back at a greater rate, but the 2015 Census Test design does not allow for a rigorous evaluation of this hypothesis. Deliberately incorporating this research question into future tests would provide more information about additional potential cost savings for BYOD data collection as a result of using local phone numbers.

Appendix: Focus Group Moderator's Guide

Moderator's Guide
BYOD Focus Groups
June 23-25, 2015

[As enumerators arrive, give them consent form. If necessary, explain that recording is so that we can focus on what they're saying instead of having to concentrate on taking notes.]

1. Introduction (15 minutes)

GREETING
Hello. My name is _____, and I work for the Census Bureau. I will be the moderator for the focus group this morning. We are going to talk about your experience using your personal smartphone to interview people in the field. This is also called BYOD, or "bring your own device." Thank you for coming here today.

We will spend this time participating in a group discussion. The goal is to learn about your opinions of personal device use for the Census Bureau. There are no right or wrong answers, because only you know what you are thinking.

Additionally, this group is completely confidential- we will not use your names in our reports- and your participation is voluntary. Nothing you say during this focus group will be used to evaluate your performance.

PERMISSIONS
The restroom is located _____. At any time you can excuse yourself to go to the restroom or to get water. However, I ask that only one person be up or out at a time so the conversation can continue.

GUIDELINES: In order for this group to work well, here are some guidelines.
- ☐ Please speak one at a time.
- ☐ Speak in a voice as loud as mine so all can hear.
- ☐ Avoid side conversations with your neighbors, but you can piggy back on other people's comments in the group.
- ☐ I want to hear from everyone; however, you do not have to answer every question. Aim for "equal air time" so no one talks too much or too little. Occasionally I may need to cut someone off to ensure that everyone is heard or to ensure we cover all topics.
- ☐ If you disagree with someone else's comment, that's ok. But please be respectful. Similarly, say what you believe whether or not anyone agrees with you.
- ☐ Only one person up or out of the room at a time.
- ☐ Finally, you may have noticed that there are some observers, both here and on the phone. They are observing because they are interested in learning about the BYOD program. They are not here to personally evaluate you as an enumerator. I would like to remind the

observers that this time is for the enumerators, so please don't make any comments or ask any questions during the group. There will be time for that at the end.

Do you have any questions before we begin?
Please take a moment to make sure that your cell phone is on silent or turned off. Observers, please mute your phones. Let's begin.

SELF INTROS: Please introduce yourself to the group and tell us...
- ☐ Your name
- ☐ An activity you like to do in your free time

TURN ON RECORDER

2. BYOD Training and Preparation (30 minutes)

We are going to start out by talking about BYOD generally, as well as training and your experiences before you started conducting interviews using your personal device.

A. Why did you decide to participate in the BYOD test?
B. You filled out a questionnaire on your GFE at the end of NRFU training. For example, the questionnaire asked some questions about your personal smart phone. Do you remember responding to this survey?
   a. Why do you think you were asked to fill out the survey?
      i. *If respondents identify it was for employment:* How did knowing this survey was for a job affect how you answered the questions?
      ii. *If respondents do not know:* This questionnaire helped the Census Bureau identify whether you were eligible for and interested in participating in the BYOD test. Do you think you would have answered differently if you had known that?
   b. Was the survey easy or difficult to answer? What was difficult about it? (*If needed:* Understanding the questions? Finding the information out about your phone?)
   c. What information did you use to answer any questions you had? (*If needed:* Did you ask other people for help?)
C. Did you have to make any updates to your smartphone in order to participate in the BYOD training?
   If needed: Did you – Get a new phone? Update the operating system? Clear out storage space?
D. Did you choose to make any changes to your smartphone after the BYOD training to make it more like a work phone? *If needed: Did you* – Change the appearance of your device (screensaver or cover)? Change your ringtone? Change your voicemail message?
E. What did you think of the BYOD training?
   a. What sections of the BYOD training did you think were most important? Least important?
   b. Was it too long, too short, or just the right amount of training?
   c. If you could add something into the BYOD training, what would it be?

<ol type="a" start="4">
How prepared did you feel to conduct interviews on your personal phone?
Were there any differences using your own smartphone as compared to conducting interviews with the Census provided phone?

<ol type="A" start="6">
During the training you downloaded applications onto your phone for interviewing. Tell me about this process. Was it easy or difficult to understand? *If needed:* What about the instructions? Were they helpful?
You were also asked to sign an agreement, called the Acceptable Use Policy, or AUP. Tell me what you remember about this document.
<ol type="a">
What did you think were the key points?
Was it easy or difficult to understand?
Did any sections concerned you? Were you hesitant to sign it?
Were there restrictions on what you could do with your phone?
<ol type="i">
If respondents recall restrictions: Did you find that the restrictions listed in the AUP made it more difficult to use your phone the way you wanted to?

3. BYOD Field Operation (30 minutes)

Now we are going to talk about conducting interviews on your personal device.
<ol type="A">
Tell me about your experience.
How did your experience conducting interviews differ from when you were using a GFE? How was it the same?
What did you like about using your own device? Dislike?
What problems or questions did you have while using your personal smartphone in the field?
<ol type="a">
Who did you ask for help if you had a problem? (*If needed:* Did you contact the service center at Census for assistance during BYOD?)
Were there any issues with the COMPASS application? (*If needed*: Did it run slowly? Was it difficult typing in answers?)
Did the COMPASS login process work well on your personal smartphone?
Is there anything else you'd like to say about the COMPASS application?
In general, did you feel like you had all the tools you needed to be able to do your work during the BYOD test?
<ol type="i">
If not: What else would you have needed or wanted?

Did any respondent ask you about your smartphone or your smartphone cover or "skin" when conducting an interview?
<ol type="a">
If yes: What did they ask? Were they reluctant to participate? How did you respond? Did you talk to them about Census Bureau data protections?
How did the concerns you received from respondents differ during BYOD compared to regular NRFU?
What could the Census Bureau do to reassure people who may be concerned about the use of personal smartphones for data collection?

Did your behavior on your own personal smartphone change during the BYOD test, compared to your normal everyday use of your phone? Did you feel as though you could not do things you normally would on your phone?
<ol type="a">
Did you notice any changes in your data usage after you started the BYOD test?

      b. Did you use a PIN or password on your phone during the BYOD test? If yes, did you use the PIN before participating in this test or did you add it?

  G. Did your behavior doing Census Bureau work change when using your own personal smartphone, compared to when you were doing work on a GFE?

      a. Were you more or less nervous about losing or breaking your device, compared to a GFE?

      b. Did you feel as though you had to, or wanted to, work more when using your personal device compared to when you were using a GFE?

      c. Did you notice any changes in how you billed your time compared to when you were using a GFE?

  H. If you were going to work for the Census Bureau as an interviewer again, would you rather use your own phone or a government-issued phone? Why?

  I. What could the Census Bureau do to improve the experience of interviewers using their own devices to conduct interviews?

4. Reimbursement (15 minutes)

Now we are going to discuss your thoughts on the reimbursement policy for using your own device.

  A. What do you think about the policy for reimbursement?

  B. Do you have any concerns about being reimbursed in this way?

  C. How likely would you be to participate again if the reimbursement policy were kept the same?

  D. How would you change the reimbursement policy?

  E. Do you know how much you will receive in reimbursement?

  F. Do you think the reimbursement is too much, too little, or the right amount?

5. Conclusion

The Census Bureau is planning to ask interviewers to use their personal smartphones in the 2020 Census. What can the Census Bureau do to encourage people to participate in BYOD?

That's all the questions we have for you today. Does anyone have any additional comments or questions we can answer?

[RESPOND TO COMMENTS AND ANSWER QUESTIONS]

Thank you for your comments on BYOD and for coming here to talk with me today.

[END GROUP]