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MEMORANDUM FOR The Distribution List

From: Burton Reist *[signed]*
 Acting Chief, Decennial Management Division

Subject: 2010 Census Telephone Questionnaire Assistance Assessment Report

Attached is the 2010 Census Telephone Questionnaire Assistance Assessment Report. The Quality Process for the 2010 Census Evaluations, Experiments, and Assessments was applied to the methodology development, specifications, software development, analysis, and documentation of the analysis and results as necessary.

If you have questions about this report, please contact Kevin Zajac at (301) 763-1962.

Attachment

August 2, 2012

2010 Census Telephone Questionnaire Assistance Assessment Report

U.S. Census Bureau standards and quality process procedures were applied throughout the creation of this report.

FINAL REPORT

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Executive Summary

During the 2010 Census, the U.S. Census Bureau was responsible for providing telephone support to callers who needed assistance in completing their questionnaires through a program called Telephone Questionnaire Assistance. The program provided support in the form of answers to frequently asked questions and census questionnaire help, providing the ability to request census materials, and capturing census responses with the assistance of a telephone representative. Unique toll-free telephone numbers provided dedicated support for callers in various languages, including English, Spanish, Chinese (initially Mandarin, then Cantonese was later added), Korean, Vietnamese, Russian, as well as for callers originating in Puerto Rico (English and Spanish), callers receiving experimental questionnaires as part of the 2010 Census Program for Evaluations and Experiments (English and Spanish), and callers to the Telephone Device for the Deaf. Calls to the stateside English and Spanish language telephone numbers connected to a front-end Interactive Voice Response system where a caller could obtain information by selecting from a series of menu options before transferring to a representative, if needed. These numbers were available to the public from February 25 through July 30, 2010.

The purpose of this assessment is to document aspects of the Telephone Questionnaire Assistance operation related to the performance of the program, as well as to provide recommendations to consider in the next planning cycle in support of the 2020 Census.

What were the overall call metrics of the Telephone Questionnaire Assistance program?

A total of 4,573,912 calls were made to Telephone Questionnaire Assistance throughout the duration of the program, which is substantially lower than the forecast of 6.61 million calls. The English language line received 80.5 percent, and the Spanish line about 16.6 percent of the total number of calls. The remaining telephone lines each experienced less than one percent of the total number of calls, respectively.

On the English and Spanish lines combined, about 60 percent of the calls were serviced entirely in the front-end Interactive Voice Response system. This 60 percent, which amounted to 2,665,815 calls, represented the call volume that was “deflected” from an agent by the automated front-end system during the operation. This exceeded the Interactive Voice Response deflection rate forecast of 40 percent.

Average wait times for callers that waited were reasonable on all toll-free telephone lines except the Census Program for Evaluations and Experiments English and Spanish, which were dedicated telephone numbers for experimental census questionnaires. These two phone lines had average wait times of at least four minutes, primarily due to a higher than anticipated number of calls caused by a change request not being correctly assessed for impact for Telephone Questionnaire Assistance, which increased the number of experimental questionnaires being mailed out. In comparison, all other phone lines had average wait times under 40 seconds for calls that waited.

What call patterns were experienced in the Telephone Questionnaire Assistance program?

While overall call volume was lower than anticipated, the patterns in which the calls were received during the Telephone Questionnaire Assistance program were relatively consistent with expectations.

- In general, higher call volume seemed to be associated with the delivery dates of mailing pieces. This is also true around Census Day of April 1, 2010.
- From a day of the week perspective, Mondays and Tuesdays saw the highest percent of overall call volume. Weekend call volume was generally low.
- Hourly analysis of all calls showed that the largest volume was received during the afternoon, with the peak hours beginning at 3 pm and at 4 pm.

During operations, a late program change was made to the front-end Interactive Voice Response system encouraging callers to provide their data over the phone by giving instructions on how to directly reach a live agent. This change resulted in the Interactive Voice Response agent deflection rate dropping from 61.7 percent to 51.3 percent, which means that a higher percentage of calls were ultimately transferring to an agent instead of being “deflected” by the automated system.

What type of requests did callers make during Telephone Questionnaire Assistance? What was the level of satisfaction with the help received by callers through Telephone Questionnaire Assistance?

A total of approximately 1.3 million calls entering the Interactive Voice Response system during Telephone Questionnaire Assistance operations could be associated with a specific type of caller request. Nearly 85 percent of these calls were for assistance, while the remaining 15 percent of calls were categorized as requests for census materials (also known as form fulfillment). For the 1.66 million calls to Telephone Questionnaire Assistance agents that had a specific request type, about 79 percent of these calls were for assistance, 13 percent were for fulfillment, and short form capture accounted for just over 8 percent. The majority of assistance calls received during production were general questions on the 2010 Census and questions on properly completing the census questionnaire. Note that there were an additional 248,444 calls to Telephone Questionnaire Assistance that went uncategorized, which are assumed instances of agents manually assisting callers using paper job aids.

In looking at the data from the Customer Satisfaction Survey, callers were generally positive about various aspects of the automated Interactive Voice Response system and the Telephone Questionnaire Assistance agents. These results, however, represent an extremely small proportion (less than one percent) of callers.

What were the overall results for the fulfillment portion of the Telephone Questionnaire Assistance program?

The Telephone Questionnaire Assistance program received a total of 418,020 fulfillment requests, which included requests for both language guides and questionnaires. Of the 376,669 valid questionnaire fulfillment requests eligible to be delivered by mail, over 79 percent (298,501

questionnaires) were mailed back to the Census Bureau. Fewer than 29 percent of these mailed back questionnaires had a Census ID, meaning they matched to an existing record on the Master Address File. The remaining questionnaires mailed back had only a Processing ID and did not match to a Master Address File record.

How much did Telephone Questionnaire Assistance cost?

The Telephone Questionnaire Assistance program had an estimated cost of \$129,024,000. Of this amount, \$70,030,000 was attributed to operational costs. The remainder was a proportional program cost that covered Project Management, Engineering, Architecture, Test, Data Quality, Security, Operation Management, Telecommunications, and Electronic Suitability Assessment (fingerprinting).

Was staffing adequate during Telephone Questionnaire Assistance operations? Were any issues experienced with Telephone Questionnaire Assistance staffing?

Staffing for the Telephone Questionnaire Assistance program was sufficient overall, primarily because most call arrival patterns were consistent with expectations. In the few instances where call volumes exceeded the forecast, agents were able to absorb the volume due to other factors such as short average handle times.

Conclusions and Recommendations

Overall, the 2010 Census Telephone Questionnaire Assistance program was a success. Telephone Questionnaire Assistance received a total of just less than 4.6 million calls during operations across the 11 telephone lines, with nearly 1.9 million of those calls ultimately connecting to a live agent.

The overall call volume forecast for the 2010 Census Telephone Questionnaire Assistance program was approximately 6.6 million calls, which was substantially higher than the actual call volume of 4.6 million. The forecasted number was based primarily on Census 2000 call volume data, with some adjustments due to mailing strategy changes and population increases since 2000 that were anticipated to affect the number of Telephone Questionnaire Assistance calls. The main driver for the lower call volume was assumed to be the simplified census questionnaire (i.e., no long form census) as well as the efforts the Census Bureau took to educate the public about the 2010 Census. Moving forward toward the 2020 Census, keep in mind that the most comparable source of call volume estimates will be ten years old. Because Telephone Questionnaire Assistance call volume based from Census 2000 was not necessarily a good indicator for the 2010 Census, and based on the difficulty in anticipating the effect that program changes from 2000 to 2010 had on volume, it may be difficult to anticipate call volume for the 2020 Census. In addition, implications on Telephone Questionnaire Assistance need to be kept in mind throughout the 2020 Census planning cycle as more response modes are considered.

On the English and Spanish Telephone Questionnaire Assistance lines, over 60 percent of calls were entirely serviced within the Interactive Voice Response system, meaning that more calls

would have gone to agents had the system not been in place. While the general assumption is that a high Interactive Voice Response “deflection” rate is a good thing, data showed that a high percentage of callers did not select a specific option within the automated system which indicated the possibility that callers may not have received the assistance that they were seeking. Although some of the callers’ questions may have been answered by the front-end emergency messaging, the implication of callers not selecting a specific option coupled with the lower than anticipated call volume during operations suggests that additional functionality should be considered for the Interactive Voice Response system in the future allowing for the capability of the front end system to be turned on/off based on agent availability. If agents are at work and available, there may be advantages in directing callers to a live person instead of to an automated system. Additionally, this allows agents to stay engaged with their job responsibilities.

For the 2010 Census, the Interactive Voice Response was designed in such a way to allow “emergency messages” to be placed within the system to communicate with callers. In total, three different emergency messages were pushed to the Interactive Voice Response system during operations. While the first emergency message responded to misinformation in the media regarding penalties for not completing the census questionnaire, the second and third messages instructed callers on how to directly reach a Telephone Questionnaire Assistance agent to complete a short form capture. The effect of these last two messages could be seen in terms of a higher percentage of calls going directly to agents (i.e., not being “deflected” by the Interactive Voice Response system). Additionally, average handle times of Telephone Questionnaire Assistance agent calls were higher after the second message due to an increase in short form capture calls keeping agents on the phone substantially longer than assistance or fulfillment call types. If 2010 Census call volume had not been lower than anticipated, the emergency message change to encourage short form capture via Telephone Questionnaire Assistance could have affected call center staffing. Therefore, in looking toward the 2020 Census, it is imperative to plan, design, and staff accordingly if Telephone Questionnaire Assistance is planning to be utilized as an important mode of data collection.

Several other important recommendations for the Telephone Questionnaire Assistance program should be considered based on results from the 2010 Census:

- **Requirements for the Telephone Device for the Deaf need to be made flexible to take advantage of up-to-date technology.** Commercial call centers are generally knowledgeable about modern solutions for the hearing-impaired population. The 2010 Census solution used older technology, which was costly and difficult to implement, and there were extensive issues with extracting quality data out of the system. It may also be advantageous to interact with the user community to find out best options.
- **The design of a telephone help line for experimental questionnaires needs to be well thought out to minimize caller frustration.** Due to the experimental nature of the questionnaires, basically no assistance was provided to the caller on the 2010 Census Program for Evaluations and Experiments English and Spanish lines because of the risk that specific information may compromise the experimental design. This approach did not work, as callers were often aggravated that questions could not be answered.

- **Frequently Asked Question content needs to have the ability to be easily updated within the Telephone Questionnaire Assistance application so that all of the relevant information is in one place.** On several occasions throughout production, updates and new information needed to be provided so agents could more effectively do their job. Giving paper job aids forced agents to consider an additional source of information, which was confusing and cumbersome.
- **Telephone Questionnaire Assistance needs to examine how best to serve impaired individuals.** For example, agents should be allowed to take interviews from blind persons at any time during production. Early in the operation, rules were in place to collect respondent data only if they were able to provide a Census ID. Because blind individuals could not read this information to provide to an agent, it was not possible for the system to initiate a short form data capture for the caller. It is unknown whether or not data was ultimately received from these individuals.
- **Telephone Questionnaire Assistance phone numbers for each of the language lines need to be different enough so they do not cause confusion.** In the 2010 Census, some of the phone numbers for the Telephone Questionnaire Assistance language lines were only different by one digit. These similar phone numbers occasionally led callers to call the incorrect Telephone Questionnaire Assistance line.
- **Telephone Questionnaire Assistance phone number placement on mailing materials needs to go through thorough testing so as not to cause confusion on the phone number associated with the language and Telephone Device for the Deaf lines.** Callers often called the Telephone Device for the Deaf telephone number mistakenly when trying to reach other Telephone Questionnaire Assistance lines.
- **A documented policy controlling promotion and distribution of Telephone Questionnaire Assistance phone numbers needs to be in place.** Publicizing of Telephone Questionnaire Assistance phone numbers on press releases and census materials drives additional calls. While unexpected call spikes to Telephone Questionnaire Assistance during the 2010 Census were generally able to be absorbed due to lower than anticipated overall volume, there is a potential that larger increases may be more difficult to handle. During Census 2000, a policy was in place to help keep call volumes in check (Miskura, 2000).
- **The Telephone Questionnaire Assistance program requires very specialized call center personnel throughout the development and operational cycles.** Telephone Questionnaire Assistance is short duration, high volume, and incorporates extremely complex systems. The 2010 Census Telephone Questionnaire Assistance program was successful due in large part to the commercial vendors being used for this project.

1. Introduction

The Telephone Questionnaire Assistance (TQA) program was implemented to assist the public in completing their census questionnaires. Language-specific national toll-free numbers were printed on census materials. The English and Spanish stateside toll-free numbers connected to an Interactive Voice Response (IVR) system where a caller obtained information by selecting from a series of menu options and, if needed, transferred to an agent. Incoming calls to the Telephone Device for the Deaf (TDD) and to the Chinese, Korean, Vietnamese, Russian, English Puerto Rico, Spanish Puerto Rico lines, English 2010 Census Program for Evaluations and Experiments (CPEX), and Spanish 2010 CPEX lines were directed to agents who were trained to answer calls specific to those telephone lines.

The purpose of the 2010 Census TQA assessment is to document the overall performance of the TQA program, document the data results of the program for historical and informational purposes, and provide recommendations and best practices to be used in the next planning cycle in support of the 2020 Census. The assessment will include an analysis of the public's usage of the TQA program by reviewing call patterns exhibited during the operation. Data from all calls to the TQA are logged to analyze callers seeking answers to frequently asked questions (FAQs), census questionnaire help, requests for language questionnaires, requests for language assistance guides (LAGs), and requests for interviews taken by TQA agents.

This assessment will evaluate the TQA operation by looking at the number of calls received, average call length, number of times callers in the IVR transferred to a TQA agent, how many callers in the IVR system hung up before being transferred to a TQA agent, how long callers had to wait to reach a TQA agent, participation in the Customer Satisfaction Survey (CSS), satisfaction with the help received through TQA, and the number of questionnaires from fulfillment that were checked in as a receipt or undeliverable in the 2010 Census data capture centers.

2. Background

2.1 Census 2000

In Census 2000, the TQA program was implemented to provide the public with assistance in completing their census questionnaires and/or obtaining information about the census. The program incorporated two technologies used in private sector customer service environments. The IVR system allowed callers to enter and obtain information by selecting from a series of menu options using the touch-tone keypad or voice response. An Intelligent Call Routing (ICR) system responded to the requests from the AT&T network and routed calls to the IVR system and, if necessary, to a call center agent.

The TQA program was available to the public through language specific toll-free numbers from March 3 through June 30, 2000. Callers could access the IVR portion of the network 24 hours a day, seven days a week. Call center agents were available 8:00 AM to 9:00 PM, seven days a week, for each time zone. Six language-specific national toll-free numbers were printed on census questionnaires, LAGs, and other promotional materials. The English

and Spanish toll-free numbers connected to the IVR and, if needed, transferred to a call center agent. The Asian language (Chinese, Korean, Vietnamese, and Tagalog) toll-free numbers connected directly to bilingual agents.

Callers could request census information, questionnaire help, a census questionnaire, a LAG, or provide their census information via interview over the telephone. ICR software routed calls from the AT&T network to the IVR systems and, if necessary, from the IVR to a call center. The ICR had the capability of identifying and routing a call to an open IVR system. If a caller transferred to an agent, the ICR could view call activity at the individual agent level and route the call to an available agent across the network.

The IVR systems, provided in English and Spanish languages, were ideal for handling routine inquiries. The objective of the system was to provide users with information without transferring to an agent. A caller transferred to an agent if the caller gave two invalid responses to a menu or selected a menu option that automatically transferred the caller to an agent.

An operator responded to a caller's request through a browser-based desktop tool referred to as the Operator Support System (OSS). The OSS was accessible by the 22 call centers through a network. The OSS facilitated the operator in answering census-related questions, taking address information in order to mail a census questionnaire or LAG, or conducting an interview if the caller met certain criteria (Chesnut, 2003).

2.2 Mid Decade Tests

As a cost savings measure, TQA was conducted at the U.S. Census Bureau's Tucson Telephone Center (TTC) for the 2003 National Census Test, as well as the 2004 Census Test and the 2006 Census Test. These tests used a system that was developed for this purpose called the WebTQA system.

2.3 2008 Census Dress Rehearsal

For the 2008 Census Dress Rehearsal, the initial plan was for the TQA operation to be included as a part of the Decennial Response Integration System (DRIS) contract. However, as a cost saving measure, the TTC provided the public with assistance during the 2008 Census Dress Rehearsal using a scaled down version of the planned 2010 Census TQA operation. Services were only available to help callers in completing their census questionnaires and for form fulfillment (i.e., interviews were not taken). Census Day for the 2008 Census Dress Rehearsal was May 1, 2008. TQA interviewers were available between the hours of 9:00 AM and 9:00 PM (caller time) from April 7, 2008 through June 2, 2008 (excluding holidays). Three toll-free telephone assistance numbers for English, Spanish, and TDD were routed to interviewers during TTC business hours. If all interviewers were busy, calls were routed to a supervisor. If neither interviewer nor a supervisor was available, or the TTC was closed, callers (on English and Spanish lines) heard a recorded message asking them to call back at another time. A recorded message before April 7, 2008, informed callers of the TQA start date and hours of operation. From June 3 on, the recorded message informed callers the TQA operation had ended and would no longer be responding to calls.

Residents in dress rehearsal areas (the urban site of San Joaquin County, California, and the urban/suburban/rural mix site of Fayetteville and Eastern North Carolina) could request an English questionnaire, a language questionnaire (bilingual English/Spanish or Chinese), or a LAG. Interviewers would provide assistance using an intranet-based application first developed for the 2004 Census Test called WebTQA, which provided answers to questions and/or gathered the information needed to send a questionnaire or LAG. Unlike Census 2000 and the 2010 Census, interviewers did not collect census information over the phone. At the end of each call, the caller was asked to participate in a voluntary CSS. The CSS would only be conducted if the caller agreed to participate. After completing a call, the interviewer had the opportunity to enter more detailed information regarding the purpose of the call.

If the WebTQA system was unavailable during a call, a paper copy of the information within the WebTQA system was available to the interviewers. Address data for fulfillment were logged manually and entered into the WebTQA system at a later time, which could be right after the call, at the end of the day or one to two days later. At the end of each day, files were created with address and type of document request (questionnaire or LAG). Staff at the National Processing Center (NPC) accessed these files and used the data to prepare the mailing pieces. The fulfillment operation occurred from April 8, 2008 through June 3, 2008, with NPC staff working Monday through Friday. Requests were ready to mail within two workdays after the data files were received from the WebTQA system.

2.4 2010 Census

During the 2010 Census, TQA was handled under the DRIS contract as a "build to cost" solution. The operation was available from February 25, 2010 through July 30, 2010. The TQA program was supported by an IVR system to assist the public in completing their census questionnaires. An Automatic Call Distribution (ACD) system responded to requests from the AT&T and Verizon networks and routed calls to the IVR system and, if necessary, to a live TQA agent if the caller stayed on the line through the IVR process.

Callers accessed the IVR portion of the network 24 hours a day, seven days a week. The IVR system was intended to provide high quality service to the public while minimizing the telephone agent intervention, thus reducing cost and resource dependencies. The IVR handled the assistance and fulfillment services using speech recognition technology or through number entry on the telephone keypad.

The IVR system provided assistance and fulfillment support for the TQA operation on calls to the English and Spanish stateside telephone numbers. Incoming telephone calls to the nine other language lines (TDD, Chinese, Korean, Vietnamese, Russian, Puerto Rico English, Puerto Rico Spanish, CPEX English, and CPEX Spanish) were directed to an agent with the appropriate language skills. Callers in the IVR system (on the English and Spanish lines) had the opportunity to transfer to an agent if they felt it was necessary. Note that later in 2010 Census production, a change was made in the system to put a message at the front of the IVR telling callers how to directly speak to an agent. (The primary purpose of this message was to encourage callers to provide their data to an agent via short form data capture and to make it easier for callers to connect directly to an agent.)

For callers transferring to an agent or calling a telephone number linked directly to an agent, the TQA application served as the agent desktop application for the 2010 Census. This application (along with supplemental paper job aids) allowed representatives to answer callers' questions, request LAGs and/or questionnaires, and complete an interview over the telephone. Once a call was complete, the TQA application had the ability for disposition to end the call, or transfer the call (if randomly selected) to the automated CSS. The CSS was intended to collect information about the public's experience with the TQA operation (whether the experience was obtained through the IVR system only, the TQA Agent Support system, or both). The CSS was conducted entirely within the IVR system.

The TQA application was comprised of two major components:

- TeleTech InSite component - providing call management and disposition functions.
- TQA Custom Application software - allowing the agent to access help information and capture needed data to service the caller.

The TQA operation in the 2010 Census was designed to provide three primary services:

- Assistance – Provide answers to questions about the 2010 Census and to provide guidance for completing the census questionnaire
- Fulfillment requests – Take requests for census questionnaires and/or LAGs
- Short form data capture¹ – Conduct telephone interviews to collect census questionnaire information as appropriate.

In keeping with the Census 2000 baseline, the TQA operation was divided into three operational phases. The phase determined which scripts were used by the agents and within the IVR, and what activities would take place. Phase 1 started at the beginning of operations (starting with Update/Leave (U/L) field supervisors training) and went until the end of questionnaire delivery (including the replacement mailing). Callers who provided a valid Census ID (which was located above the mailing label on mail pieces) could request and receive a census questionnaire in English or one of five other languages or have their questionnaire completed by an agent during a phone interview at the caller's request. For callers without this valid Census ID, requests for questionnaires or phone interviews were not honored since the mail out had not yet been completed. LAGs were mailed with or without a Census ID.

Phase 2 started after the delivery of all questionnaires and went until just before the start of Nonresponse Followup (NRFU) universe selection. All callers (with or without a valid Census ID) could request and receive a questionnaire and/or LAG and, if the caller requested, could have their questionnaire completed by an agent in an interview over the telephone.

Phase 3 started after the cutoff date for NRFU selection and went to the end of TQA operations. No questionnaires (English or other languages) were mailed to callers. Callers

¹ The CPEX lines provided only short form data capture service. Due to the experimental nature of the CPEX program, providing other services on these lines had the potential of contaminating the sample.

could request and receive LAGs whether or not a caller provided a Census ID. Callers who provided a Census ID could have their questionnaire completed by an agent during the call if they requested it. Callers who did not have a Census ID were offered the opportunity to have a questionnaire completed for them by an agent during the call. Table 1 shows the services provided by phase, which is dependent on whether a caller provided a valid Census ID.

Table 1. TQA Phases and Services During the 2010 Census

Form Type	Phase 1 (February 25 – April 11)		Phase 2 (April 12 – April 21)		Phase 3 (April 22 – July 30)	
	ID	No ID	ID	No ID	ID	No ID
English Questionnaire	Mail	N/A	Mail	Mail	N/A	N/A
Non-English Questionnaire	Mail	N/A	Mail	Mail	N/A	N/A
Language Assistance Guide	Mail	Mail	Mail	Mail	Mail	Mail
Short Form Data Capture	Available	N/A	Available	Available	Available	Offered

NOTE: In the table, ‘N/A’ means Not Available.

Fulfillment requests fed into the fulfillment operations. This is the process by which the orders for questionnaires and LAGs were transmitted through the Workflow Control and Management (WCM) system to the fulfillment print contractor. The fulfillment print contractor addressed the requested questionnaires and LAGs and mailed them to respondents. Table 2 shows the fulfillment and short form data capture services provided by language.

Table 2. Form Fulfillment Languages Provided By TQA During the 2010 Census

Tier ²	Languages	TQA Representative Services Provided		
		Questionnaire	Short Form Data Capture	LAG
1	English, Spanish, Chinese (Simplified), Korean, Vietnamese, and Russian	✓	✓	✓
2	Chinese (Traditional), Portuguese, Polish, Tagalog, Haitian Creole, Japanese, French, Arabic, Italian, German, Farsi, Dari, Armenian, Hindi, Tigrinya, and Somali (also Braille and Large Print)			✓
3	Ukrainian, Greek, Bengali, Thai, Panjabi, Urdu, Romanian, Cambodian, Albanian, Laotian, Bulgarian, Turkish, Hebrew, Hmong, Serbian, Hungarian, Navajo, Burmese, Malayalam, Yiddish, Swahili, Dutch, Croatian, Nepali, Czech, Lithuanian, Ilocano, and Dinka			<i>callers directed to 2010 Census website to download</i>

NOTE: Puerto Rico questionnaires were only sent to callers in Puerto Rico.

When a caller requested census materials that met phase eligibility as described by the Census Bureau in Table 1, a completed request was sent to WCM. For all questionnaire

² Tier 1 had in-language assistance lines and all services provided through TQA; Tier 2 had LAGs available to be ordered through TQA; Tier 3 was directed to the 2010 Census website where LAGs could be downloaded.

requests, WCM created a Processing ID and produced a record containing the information required to fulfill the questionnaire request.

Twice a day, the WCM systems administrator saved a file with all the accumulated requests and transmitted the file to the fulfillment contract printer, who was responsible for actually fulfilling the requests. This fulfillment mail service received and sorted the file by form type and request time. If the request was for a questionnaire or a questionnaire and LAG, a bar code was created as defined in the DRIS paper data capture requirements.

If there was a request for a LAG only, the request was sent to the guide printer queue. These LAG requests were sorted by language and sent to the label printer. Cardinal Technologies, who was the fulfillment mail service contractor, printed the address on a label, and affixed the label to the LAG envelope. The envelopes were then sent to the United States Postal Service (USPS) for delivery.

If there was a request for a questionnaire only, the request was sent to the questionnaire only printer queue. Cardinal Technologies then printed the barcode and address onto the questionnaires and sent the envelope to the USPS for delivery.

If there was a request for both a questionnaire and a LAG, the request was sent to the Cardinal Technologies to package both mail pieces together. These mail pieces were then handed over to the USPS for delivery.

3. Methodology

The following production data sources were used to answer the research questions for this assessment:

- Experiments, Evaluations, and Assessments (EEA) Complete File

The EEA Complete File, which was provided by DRIS, was used to look at detailed information for all calls to TQA. For each call, this file has the ID, time duration of the call, time duration of the IVR call segment, time duration of call segment with TQA agent, time duration of the CSS call segment, the telephone number from which the call originated, and the TQA telephone number dialed. If a caller was eligible for and participated in the CSS, this file has the responses from participants. This file has flags to denote whether a caller received form fulfillment, LAG fulfillment, general assistance, or short form data capture. The remaining variables on the file show the type of assistance provided to each caller.

For callers seeking general assistance within the IVR, this file shows which of the ten FAQs and ten form-specific questions were accessed. For callers seeking general assistance with a TQA agent, this file shows the last ten specific FAQs accessed in the TQA application by the agent and the form questions the agent viewed while providing assistance.

For callers requesting a questionnaire and/or LAG, this file shows whether a Census ID was collected within the IVR system or by a TQA agent. All fulfillment requests were flagged based on whether the form request was fulfilled within the IVR system or with a TQA agent.

- EEA Call Summary File

The EEA Call Summary File, which was provided by DRIS, was used to look at time lengths related to calls received by TQA agents. The application used by TQA agents had a timer keeping track of the length of time for the separate portions of the call. Tallies of production data include number of calls, ring time, talk time, after call work time, delay time (i.e., time spent in the automatic call distribution (ACD) system device which sends the call to a call queue), queue time (i.e., time spent in queue waiting for an agent), number of calls abandoned after the caller completes the IVR but before the agent picks up the telephone, and number of calls that had a wait time (i.e., delay time plus queue time).

- Telephony Post Production Analyses and Enhanced Lessons (PALS) Reports

The Telephony PALS Reports, which were contract deliverables provided by DRIS to the Census Bureau which documented analyses of various telephony-related design, implementation, sizing, and procedural drivers impacting operational results, were utilized to produce the distribution of fulfillment requests. Additionally, data results and qualitative information from the reports were used to supplement the TQA assessment.

- Internal Fulfillment Query Results from Census Bureau Headquarters Processing

An Internal Fulfillment Query, performed specifically for TQA assessment purposes by the Census Bureau Headquarters Processing area, documented the number of fulfillment questionnaires received and processed at Census Bureau Headquarters. Results from this query served as documentation on the number of non-ID TQA fulfillment requests which ultimately ended up going through non-ID processing and receiving a Master Address File (MAF) ID.

- External Fulfillment Query Results from DRIS

An External Fulfillment Query, performed specifically for TQA assessment purposes by DRIS (Lockheed Martin), helped to document the general flow of fulfillment questionnaires to assist in answering assessment questions. Various sources were used to complete the query, including the DRIS WCM Fulfillment table, the DRIS WCM Address table, the DRIS Form table, and the DRIS Undeliverable-As-Addressed (UAA) table. The results will serve as documentation for the numbers of questionnaires fulfilled by TQA, the number of questionnaires returned to DRIS, and the number of fulfilled questionnaires that were UAA.

- DRIS Contract Performance Report (CPR)

The DRIS CPR, which is a monthly contract deliverable from DRIS to the Census Bureau to address contractor performance, was used to estimate cost data information for TQA.

4. Limitations

- The older technology of the TDD system used for TQA during the 2010 Census did not allow us to extract quality TDD data for analysis purposes. Results for TDD could not be calculated in some instances.
- A majority of IVR calls and a portion of TQA calls were not able to be assigned a specific call behavior due to limited information on the data file.
- The majority of callers entering the CSS ultimately hung up at some point during the survey, which severely limited the number of responses to the CSS questions.

5. Results

The following questions include all subquestions as presented in the study plan, and in Section 3.1, followed by data that answer each question.

5.1 What were the overall call metrics of the TQA program?

5.1.1 What was the distribution of calls in the TQA program by language line? What was the IVR agent “deflection rate” (i.e., calls serviced entirely in the IVR)?

Table 3. Distribution of Calls in the TQA Program by Language Line

Language	Number	Percent
English	3,681,835	80.50
Spanish	757,250	16.56
Chinese	17,492	0.38
Korean	10,399	0.23
Vietnamese	12,105	0.26
Russian	6,571	0.14
CPEX English	12,157	0.27
CPEX Spanish	5,857	0.13
Puerto Rico English	4,154	0.09
Puerto Rico Spanish	30,479	0.67
TDD ³	35,613	0.78
TOTAL	4,573,912	100.00

Source: EEA Complete File

Table 3 shows the call distribution by language line during TQA. Of the nearly 4.6 million calls to TQA, the majority (80.5 percent) were on the English language line, while the Spanish line accounted for nearly 16.6 percent of all TQA calls. Each of the remaining language lines received less than one percent of all calls during the TQA program.

³ Based on information collected during and after TQA operations, it is believed that the majority of calls to the TDD phone number were not true TDD calls. (See Conclusions and Recommendations section later in this document for more information.)

5.1.2 What was the IVR agent ‘deflection rate’ (i.e., calls serviced entirely in the IVR)?

Table 4. IVR Agent Deflection Rate by Language

Language	IVR-Only calls	Total Calls	Deflection Rate
English	2,174,427	3,681,835	59.06
Spanish	491,388	757,250	64.89
TOTAL	2,665,815	4,439,085	60.05

Source: EEA Complete File

In Table 4, IVR agent deflection rates are shown for the English and Spanish language lines. An IVR agent “deflection” is best described as a call that is completely serviced within the front end IVR system and never gets to a TQA agent. (Note that deflection rates are not computed for the remaining language lines since an IVR system was only utilized for English and Spanish.) As can be seen in this table, the majority of TQA calls to the English and Spanish lines were handled in the IVR. English calls were deflected at a rate of over 59 percent, while calls to the Spanish line were handled within the IVR nearly 65 percent of the time.

5.1.3 What were the average wait times and abandonment rates by language line?

Table 5. Average Wait Times and Abandonment Rates by Language Line

Language	Average Wait Time for Calls that Waited (in seconds)	Average Wait Time for All Calls (in seconds)	Abandonment Rate
English	18.26	6.12	0.01
Spanish	39.82	11.96	0.02
Chinese	37.80	12.09	0.08
Korean	25.39	7.88	0.09
Vietnamese	36.08	11.01	0.07
Russian	3.73	0.89	0.13
CPEX English	261.91	89.84	0.37
CPEX Spanish	246.56	104.92	0.30
Puerto Rico English	24.35	6.74	0.14
Puerto Rico Spanish	29.98	9.82	0.06
TDD	0.00	0.00	0.95

Source: EEA Complete File

Average wait times and abandonment rates for each of the language lines are displayed in Table 5 above. Note that the first column of average wait times is computed based only on calls that waited in queue to speak to an agent on that specific language line, while the next column of average wait times is computed based on all calls on that line directed to an agent. The last column in the table is the abandonment rate, which is calculated as the number of calls that were abandoned prior to getting to a TQA agent, in relation to the number of total calls bound for an agent. An abandoned call is defined as anytime a caller hangs up the phone while waiting to speak to an agent.

Overall, average wait times were excellent for all lines except CPEX English and CPEX Spanish. The high average wait times for CPEX were caused by a higher than anticipated number of calls on those lines. This was due primarily to a change request (which increased the number of experimental questionnaires mailed out) being erroneously listed as “no impact” for TQA, thus causing the initial call volume forecasts for CPEX to be based on a lower number of experimental questionnaires. These call volume estimates affected the initial staffing plan for CPEX to the point where callers often waited for extended periods of time because agents dedicated to those lines were already taking calls. Not surprisingly, the long wait times also resulted in high abandonment rates for CPEX in comparison to the other lines. For all non-CPEX lines, the wait time average was less than 40 seconds.

The English and Spanish lines experienced the lowest abandonment rates (0.01 and 0.02, respectively) of all TQA language lines. This is particularly encouraging since these two languages accounted for the large majority of all calls to TQA. The Vietnamese, Chinese, Korean, and Russian lines had abandonment rates ranging from 0.07 to 0.13. Calls to the Puerto Rico English and Puerto Rico Spanish lines abandoned at similar rates of 0.14 and 0.06, respectively. Of all TQA lines, TDD showed the highest abandonment rate at 0.95. This high rate, however, can be attributed to the fact that the majority of calls to this line were not true TDD phone calls, potentially caused by callers mistakenly dialing this number based on the TDD number placement on census materials.

5.1.4 What was the average handle time by language line and by type of call (assistance, fulfillment, short form data capture)?

Table 6. Average Handle Time in Seconds by Language Line and Type of Call - for Calls Handled by TQA Agents

Language	Type of Call						
	Assistance	Fulfillment	Short Form Capture	Assistance and Fulfillment	Assistance and Short Form Capture	Fulfillment and Short Form Capture	Assistance, Fulfillment, and Short Form Capture
English	205	171	654	299	818	687	869
Spanish	246	217	1092	377	1399	1142	1592
Chinese	215	384	1397	576	1644	2791	2455
Korean	181	310	1318	471	1448	1784	--
Vietnamese	261	364	1592	570	1821	2074	2220
Russian	181	367	1331	625	1556	2238	--
CPEX English	89	n/a	764	n/a	n/a	n/a	n/a
CPEX Spanish	99	n/a	1157	n/a	n/a	n/a	n/a
Puerto Rico English	152	313	839	514	1084	1005	--
Puerto Rico Spanish	205	293	1036	482	1294	--	--

Source: EEA Complete File

NOTE: In this table, ‘--’ indicates cases where there were no occurrences and ‘n/a’ indicates scenarios that are Not Applicable.

The TQA application used by the agents provided three primary functions – assistance, fulfillment, and short form capture. The functions that were accessed in the application during a specific call determined which of the seven different types into which the call was categorized.

For calls that were handled by TQA agents, Table 6 shows average handle time (in seconds) by language line and by type of call. As can be expected, calls which accessed more than one primary function in the application produced higher average handle times than calls that accessed those same functions singularly. In comparing call types using only one primary function, fulfillment calls produced the lowest average handle times for the English and Spanish languages at 171 seconds and 217 seconds, respectively. For all other language lines, the smallest average handle times were seen for assistance call types. Due to the fact that agents on all non-English and non-Spanish language lines were mandated to read verbatim from translated paper job aids, it is not entirely surprising that different call types produced vastly different average handle times. Calls accessing short form capture produced high average handle times for all languages, which is not surprising given that all questions on the 2010 Census questionnaire were asked of the caller for all persons in the household.

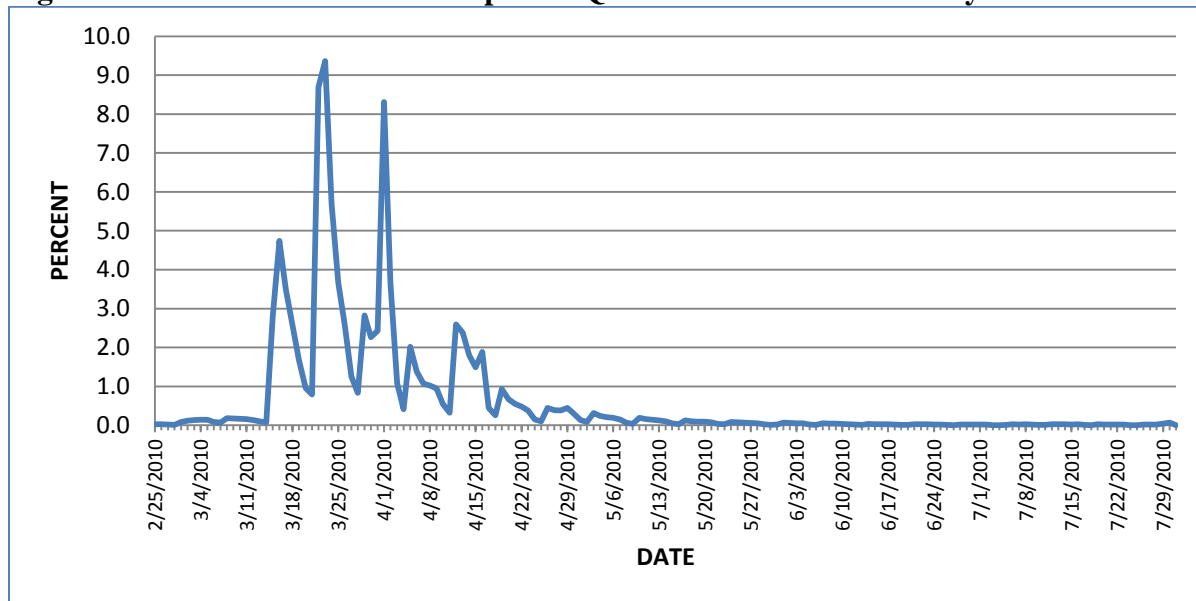
Assistance calls to the CPEX English and CPEX Spanish telephone numbers had especially low average handle times, primarily due to the fact that agents on these lines had limited information available to them to assist callers based on the experimental nature of the questionnaires. These lines experienced a high number of frustrated callers because of the limited assistance that was available to be provided on these lines.

NOTE: Because of the process associated with TDD, all calls on this line showed up only as an “assistance” type of call with an average handle time of zero.

5.2 What call patterns were experienced in the TQA program?

5.2.1 What different call patterns were experienced in the TQA program by date, by days of week, by hour, by week, by operational phase, and by language line?

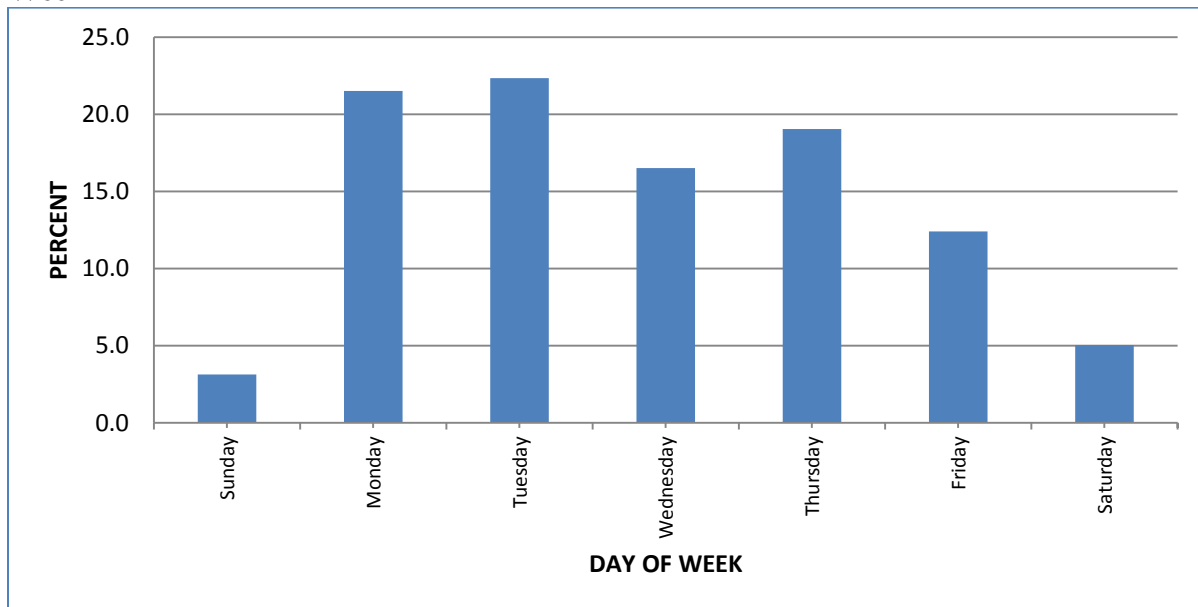
Figure 1. Percent of Overall Enterprise TQA Call Volume Received by Date



Source: EEA Complete File

Figure 1 shows the percent of overall TQA call volume received by date across the entire enterprise. Distinct increases in call volume are apparent in the graph, with each spike corresponding to an explainable event. The first spike near March 18, which peaks around 5.0 percent of total call volume, corresponds to the start of mailout for the initial questionnaire. The next (and largest) spike near March 24 and March 25 at over 9.0 percent of overall call volume is likely caused by the majority of initial questionnaires being mailed out. On April 1, 2010, which was Census Day, call volume is just above 8.0 percent. This peak is conceivably due to people waiting until this reference date to fill out their questionnaires. The spikes around April 5, 2010, and April 12, 2010, seem to correspond to the blanket replacement questionnaire mailing and the targeted replacement questionnaire mailing, respectively.

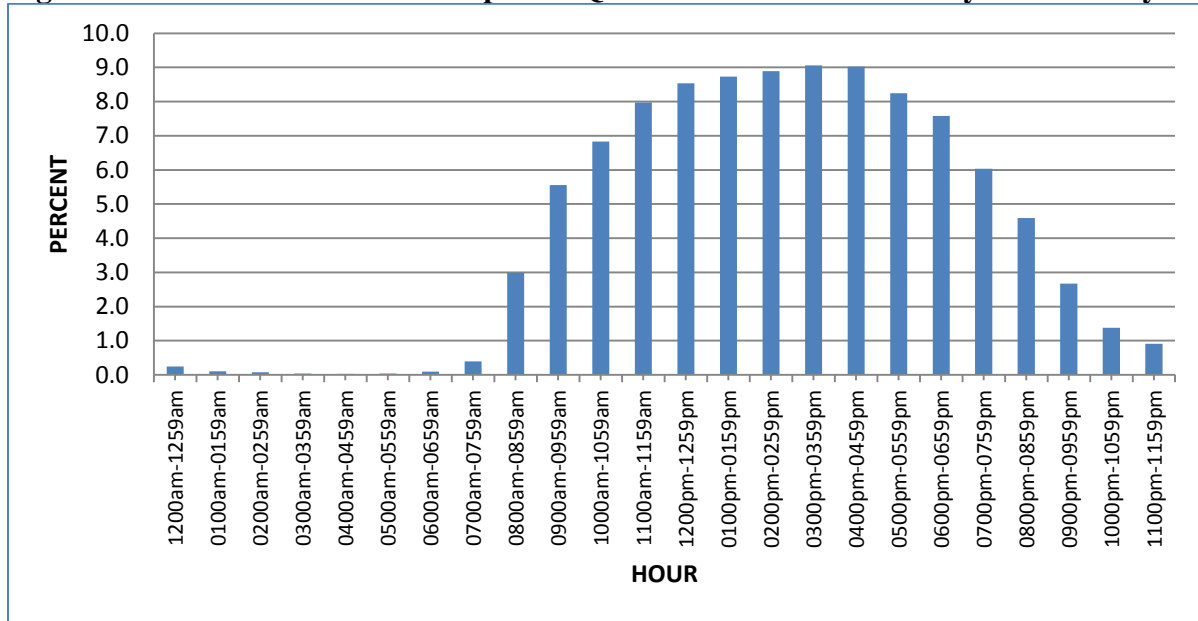
Figure 2. Percent of Overall Enterprise TQA Call Volume Received by Day of the Week



Source: EEA Complete File

Overall TQA call volume by day of the week is shown in Figure 2. Call volume was high starting on Monday, peaked on Tuesday, and generally decreased moving through the weekend. Mondays and Tuesdays during the TQA operational period produced the highest call volumes, with each accounting for over 20 percent of the enterprise total. Call volumes on Wednesdays and Thursdays were also substantial at about 16 percent and 19 percent of the overall total. Fridays accounted for approximately 12 percent of the total call volume. Weekend days (Saturday and Sunday) each produced less than 5 percent of overall total calls, much lower than any of the weekdays.

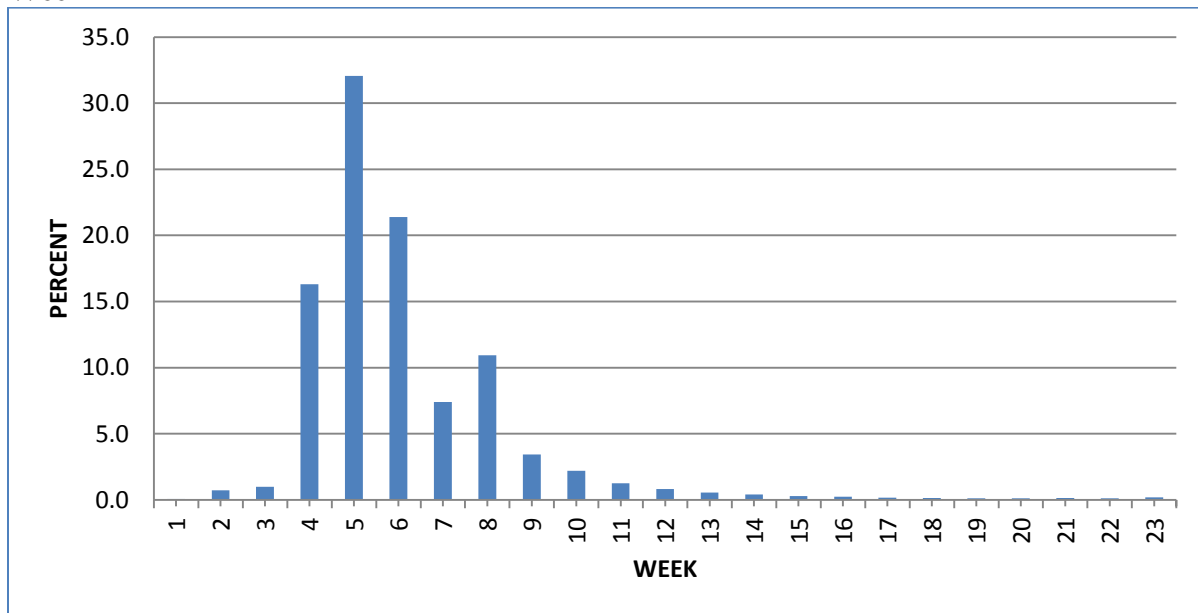
Figure 3. Percent of Overall Enterprise TQA Call Volume Received by Hour of Day



Source: EEA Complete File

In Figure 3, percent of overall call volume is delineated by hour of day. All call times were converted to Eastern Time in order to present the data in one consistent time zone in this graph. As can be seen, the percent of overall call volume reached the highest points during the afternoon hours. The hours beginning at 3:00 PM and at 4:00 PM saw the greatest percent of volume at about 9 percent of all calls. The early morning hour time frames from 12:00 AM to 7:00 AM showed the least amount of call volume overall.

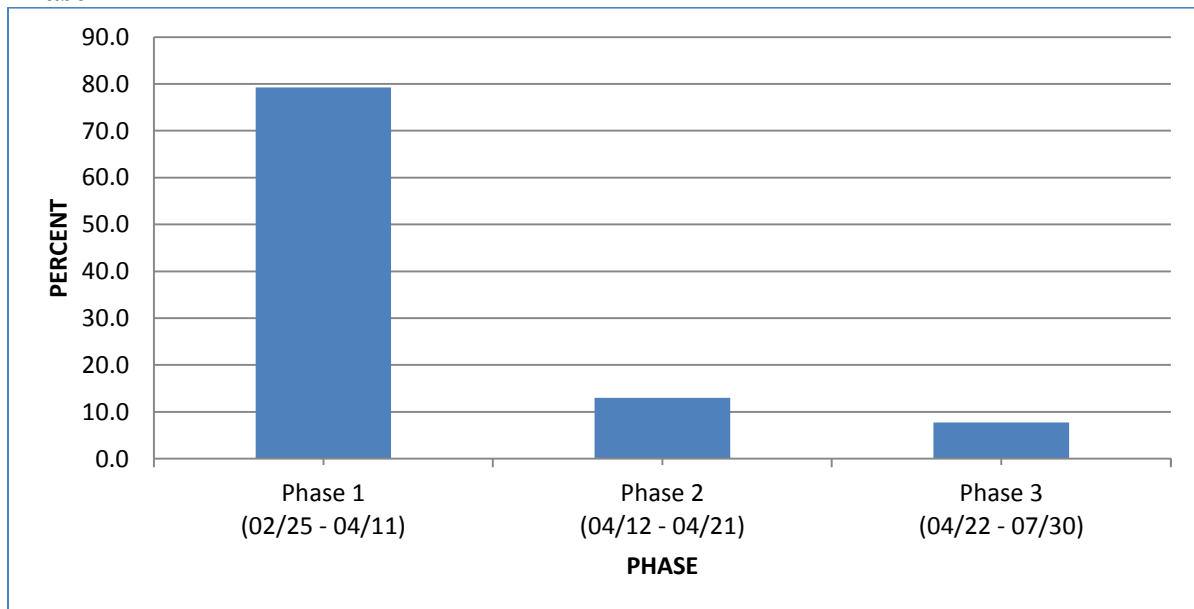
Figure 4. Percent of Overall Enterprise TQA Call Volume Received by Operational Week



Source: EEA Complete File

Figure 4 displays percent of overall enterprise call volume received by TQA operational week. Week 1 corresponds to the first week of operations, which runs from the beginning of TQA on Thursday, February 25, 2010, through Saturday, February 27, 2010. Week 2, as well as each subsequent week until the end of operations, reflects a full week of calls from Sunday through the following Saturday. A dramatic increase is seen in percent of call volume during Week 4, which begins on March 14, due to the beginning of the initial questionnaire mailout. Week 5 and Week 6, which began on March 21 and March 28, respectively, showed the greatest number of calls during operations with over 50 percent of all TQA call volume over this two week period. Week 5 coincided with the reminder postcard mailout and Week 6 included the Census Day of April 1. The following two weeks (Week 7 and Week 8) were associated with replacement questionnaire mailings and also showed a considerable amount of the total call volume.

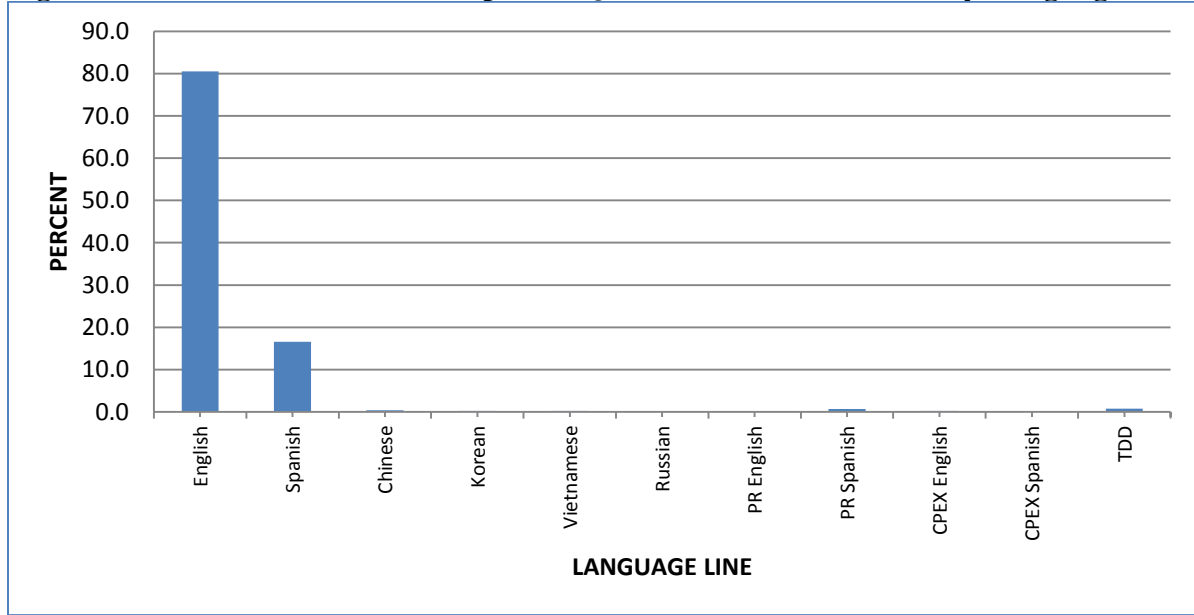
Figure 5. Percent of Overall Enterprise TQA Call Volume Received by Operational Phase



Source: EEA Complete File

As Figure 5 shows, nearly 80 percent of all TQA call volume was received during Phase 1, which ran from February 25, 2010, through April 11, 2010. The fact that this operational phase accounted for such a high percentage of calls is not surprising since it included a majority of the highest call volume weeks. Phase 2, which spanned a total of 10 days, was responsible for about 13 percent of all volume. Phase 3, which ran from April 22, 2010, to the end of TQA operations, totaled slightly less than 8 percent of the total TQA call volume.

Figure 6. Percent of Overall Enterprise TQA Call Volume Received by Language



Source: EEA Complete File

Figure 6 shows the percent of overall enterprise TQA call volume received by language line. This figure visually depicts the same data as in Table 3 above. Overall, the English and Spanish stateside language lines combined accounted for over 97 percent of the total call volume. The remaining call volume was dispersed among the remaining nine language lines, with each line receiving less than one percent of total enterprise volume.

5.2.2 What was the impact of the late program change directing callers on how to bypass the IVR to speak directly to a TQA agent?

The IVR system design offered the option to include tailored front-end emergency messages to help communicate with callers. On the evening of April 13, 2010, a late program change made to the IVR instructed callers on how to bypass the automated system in order to be quickly directed to a TQA agent.

Table 7. IVR Agent Deflection Rate by Language, Before and After the Change Directing Callers on How to Bypass the IVR

Language	Before the Change			After the Change		
	IVR-Only Calls	Total Calls	Deflection Rate	IVR-Only Calls	Total Calls	Deflection Rate
English	1,860,483	3,056,460	60.87	313,944	625,375	50.20
Spanish	444,279	678,727	65.46	47,109	78,523	59.99
TOTAL	2,304,762	3,735,187	61.70	361,053	703,898	51.29

Source: EEA Complete File

Table 7 shows IVR agent deflection rates for the English and Spanish telephone lines before and after the addition of the emergency message. As anticipated, the added message has an effect of lowering the deflection rate, thus causing a greater percentage of calls transferring

to an agent. Overall, the IVR agent deflection rate dropped from 61.7 percent to 51.3 percent. The English line saw the deflection rate decrease from 60.9 percent to 50.2 percent while the Spanish line experienced a decrease from 65.5 percent to 60.0 percent.

5.3 What type of requests did callers make during TQA? What was the level of satisfaction with the help received by callers through TQA?

5.3.1 What types of call behaviors (assistance, fulfillment, short form data capture) were displayed by the callers, and by IVR and TQA agent?

Table 8. Call Behaviors in the TQA Program

Call Behavior	IVR		TQA	
	Number	Percent	Number	Percent
Assistance	1,108,692	84.65	1,309,841	78.92
Fulfillment	201,121	15.35	215,966	13.01
Short Form Capture	n/a	0.00	133,846	8.06
TOTAL	1,309,813	100.00	1,659,653	100.00

Source: EEA Complete File

NOTE: In this table, 'n/a' indicates a scenario that is Not Applicable.

NOTE: Calls with no defined call behavior are not included in this table. There were 3,129,272 calls to the IVR which could not be defined with a call behavior since no specific assistance or fulfillment options were selected by the caller within the IVR system. Similarly, TQA had 248,444 calls not defined with a call behavior because no specific options were selected by the agent.

Table 8 displays the call behaviors of callers within the IVR and when speaking with a TQA agent. In the IVR, a caller only had the ability to get assistance or request a form fulfillment through the use of the automated system (it was not an option to complete a short form capture in the IVR). All three call behaviors (assistance, fulfillment, short form capture) were available through TQA. Some behaviors, however, were not available during specific operational phases. During any call, it was possible that more than one call behavior could be accessed. In order to categorize calls into a particular call behavior category, a hierarchy was used with short form capture receiving highest priority, then fulfillment, then assistance.

Approximately 1.3 million calls to the IVR could be categorized as assistance or fulfillment based on specific options chosen by the caller within the automated system. It should be noted that a call behavior could not be defined for 3,129,272 calls since no specific assistance or fulfillment options were selected by the caller within the IVR. Of the categorized IVR calls, about 85 percent accessed assistance while the remaining calls went down the form fulfillment path.

Nearly 1.66 million calls to TQA agents had a categorized call behavior. Note that there were 248,444 calls where a behavior could not be determined from the data file because no specific options were selected by the agent to be able to categorize the call.⁴ Of these calls to TQA, about 79 percent were for assistance. Fulfillment, meanwhile, accounted for 13 percent of all categorized TQA calls, and short form capture for just over 8 percent.

⁴ Because there were no data from files to be able to categorize these calls, it is likely that agents answered caller questions using information from paper job aids that was not available in the TQA application.

5.3.2 What were the most often asked FAQs and help topics by language line, and by IVR and TQA agent?

Table 9. Top Ten Most Frequently Asked Topics in the IVR

	FAQ	Frequency
1	IVR Form Question 2 – Race.	230,351
2	IVR FAQ 8 – Why did I receive a second questionnaire or a visit from a Census worker?	211,537
3	IVR Form Question 10 – Live or Stay elsewhere.	208,899
4	IVR FAQ 7 – Why did I receive a reminder postcard?	153,386
5	IVR Form Question 1 – Hispanic, Latino, or Spanish Origin.	148,889
6	IVR FAQ 2 – What is the deadline?	60,430
7	IVR Form Question 7 – Owner or renter classification.	57,289
8	IVR Form Question 9 – Additional People.	53,655
9	IVR FAQ 4 – How do I apply for Census 2010 jobs?	23,878
10	IVR FAQ 3 – Must I answer the Census?	22,521

Source: EEA Complete File

NOTE: N=4,439,085

Table 9 shows a distribution of the top ten most frequently accessed topics by callers within the IVR system. The menus within the IVR listed 20 topics (ten FAQs and ten form-related questions) within the IVR for which the caller could get assistance. Of all the topics listed in the IVR, the form question about race was touched over 230,000 times making it the most frequently accessed question in the automated system. This potentially indicates confusion with the concept of the race question. The FAQ about receiving a second questionnaire or a visit from a census worker was the second most accessed topic by callers in the IVR, and this may have been largely due to many areas of the country that were blanket mailed a replacement questionnaire. Callers also frequently sought out information about the form question concerning people that live or stay elsewhere.

Table 10. Top Ten Most Frequently Asked Topics in TQA

	FAQ	Frequency
1	FAQ 74 – Why did I receive a second questionnaire?	307,963
2	Census Coverage 2010 Basic Principle	155,986
3	Race	149,927
4	FAQ 77 – Why did I receive a postcard/reminder card when I’ve already mailed my form back?	135,690
5	Hispanic/Latino/Spanish	109,056
6	FAQ 31 – When will the replacement questionnaires be delivered to residents who have not returned the first questionnaire?	108,123
7	FAQ 71 – What is the due date for returning the questionnaire?	106,813
8	FAQ 94 – Vacation home or Usual Home Elsewhere (UHE)	90,589
9	FAQ 7 – What is Census Day?	89,703
10	FAQ 16 – What are Be Counted forms?	88,097

Source: EEA Complete File

NOTE: N=1,908,097

For calls that went to TQA, the caller verbalized their request over the phone to the agent who was then responsible for assisting in the best possible way. In the case of calls requiring information on form-related questions or general census questions, the agent interpreted the request and searched the database within the TQA application to provide an answer for the caller. Table 10 shows the top ten most frequently accessed topics by the agent based on information provided by the caller.

The most accessed FAQ in TQA addressed the topic of receiving a second questionnaire. As mentioned in the IVR table above, many areas were blanket mailed a second questionnaire even though some respondents may have already mailed back their initial questionnaire. FAQs related to the basic census principle of counting everyone at the residence, race, and receiving a reminder postcard were also highly accessed topics by the agent.

5.3.3 Did callers eligible for the CSS participate? Were participants satisfied with the help they received from the IVR and/or TQA agents?

Table 11. Number and Percent of Callers Participating in the Customer Satisfaction Survey

Number of Callers	Number of Callers Eligible for CSS	Percent Eligible	Number of Participants	Percent who Participated
4,439,085	44,327	1.00	12,880	29.06

Source: EEA Complete File

Table 11 shows the number and percent of callers who participated in the CSS. Number of callers in the table represents only callers to the IVR, since the CSS was not offered to the non-English and non-Spanish foreign languages. One percent of all callers to the English and Spanish lines were selected as eligible for the CSS⁵. Of the 44,327 eligible callers, a total of 12,880 callers (29.1 percent) were considered to have participated in the survey, meaning that they gave at least one response or took an action to skip at least one survey question.

Appendix B shows the distribution of responses for each of the seven CSS questions. Overall, survey participants seemed to indicate that callers were satisfied with their IVR and TQA experience. The questions were presented on a scale of one to five, with five being the most positive response. The summarized results for participants who gave a response on a scale of one to five are as follows:

- Question 1 - Getting information from the automated system: 46 percent felt that it was “very efficient,” while 21 percent thought that it was “not efficient”.
- Question 2 – Ease of following words and phrases used by the automated system: 58 percent felt that it was “very easy to follow,” while 10 percent thought it was “not easy to follow at all”.
- Question 3 – Usefulness of information from the automated system: 48 percent said that it was “very useful,” while 21 percent felt that it was “not helpful at all”.

⁵ The initial plan was to select one of every 10 callers for the CSS. However, the 10 percent rate was determined to far exceed the burden hours allowed by OMB without special paperwork and approval.

- Question 4 – Helpfulness of information to participate in the 2010 Census: 67 percent thought that it was “very helpful,” while 13 percent said that it was “not helpful at all”.
- Question 5 – Satisfaction with call to help line: 60 percent were “very satisfied,” while 12 percent were “very dissatisfied”.
- Question 6 – Resolution of request by representative (TQA): 75 percent said that the representative “completely resolved” their request, while eight percent felt the representative was “not able to resolve” their request.
- Question 7 – Courteousness of representative (TQA): 87 percent thought the representative was “very courteous,” while three percent said that the representative was “not courteous at all”.

5.4 What were the overall results for the fulfillment portion of the TQA program?

5.4.1 What was the distribution of fulfillment materials requested by language line?

Table 12. Number of Language Assistance Guides and Questionnaires Successfully Requested During Fulfillment by Language Line

Language	IVR		TQA	
	LAGs	Questionnaires	LAGs	Questionnaires
English	18,616	154,789	1,778	131,903
Spanish	11,603	17,076	6,307	65,672
Chinese	<i>n/a</i>	<i>n/a</i>	1,468	2,507
Korean	<i>n/a</i>	<i>n/a</i>	688	1,906
Vietnamese	<i>n/a</i>	<i>n/a</i>	608	1,823
Russian	<i>n/a</i>	<i>n/a</i>	299	718
Puerto Rico English	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	437
Puerto Rico Spanish	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	1,606
TOTAL	30,219	171,865	11,148	206,572

Source: Telephony PALS

Table 12 displays the number of successfully requested LAGs and questionnaires during fulfillment by language line for both IVR and TQA. Note that CPEX is not included in this table since fulfillment materials were not available for callers on this line due to the experimental nature of the questionnaires received by the CPEX population. Additionally, note that questionnaires were only available for fulfillment through April 21, 2010, which was the end of operational phase II.

Callers requested a total of 30,219 LAGs and 171,865 questionnaires in the IVR, with the majority of these requests occurring on the English language line. In TQA, agents ordered a total of 11,148 LAGs and 206,572 questionnaires for callers across all language lines.

5.4.2 How many questionnaires fulfilled by TQA were returned to DRIS, and how many were considered to be UAA during the production timeframe? What was the distribution by Census ID and those without a Census ID?

According to queries performed by DRIS, TQA received a total of 418,020 fulfillment requests, which include both LAGs and questionnaire requests. It was determined that 376,669 of this total were valid questionnaire fulfillment requests, meaning that enough information was collected so that a questionnaire could be delivered to an address. Over 79 percent (298,501 questionnaires) of the 376,669 were mailed back, while less than 8 percent (28,689 questionnaires) were considered to be UAA. Of the mailed back questionnaires, slightly less than 29 percent (85,795 questionnaires) had a Census ID that was provided by a caller over the phone while approximately 71 percent (212,706 questionnaires) were assigned a Processing ID.

5.4.3 Of the non-ID TQA fulfillment questionnaire mail returns, how many ultimately ended up receiving a MAF ID?

According to queries performed by the Census Bureau Headquarters Processing area, a total of 171,250 non-ID TQA fulfillment questionnaire mail return records ultimately received a MAF ID back from Geography Division.

5.5 How much did TQA cost?

The total cost of TQA is estimated at \$129,024,000, with \$70,030,000 being attributed to TQA operations. The remaining TQA costs (\$58,994,000) were proportionally spread across supporting contract costs, which included Project Management, Engineering, Architecture, Test, Data Quality, Security, Operation Management, Telecommunications, and Electronic Suitability Assessment (fingerprinting), that crossed all segments contained in the contract. These figures reflect actual costs through July 2011, with estimates to complete being used for the remainder of the year.

Note that the cost results presented in this assessment were generated by program office staff using methods predating the US Census Bureau's commitment to comply with Government Accountability Office's cost estimating guidelines and the Society of Cost Estimating and Analysis best practices. Hence, while the Census Bureau believes these cost results are accurate and will meet the needs for which they will be used, the methods used for estimating costs of 2010 Census operations may not meet all of these guidelines and best practices. The Census Bureau will adhere to these guidelines in producing 2020 Census cost estimates.

5.6 Was staffing adequate during TQA operations? Were any issues experienced with TQA staffing?

Overall, agent staffing proved to be adequate for the TQA program. Most key call volume assumptions, specifically call arrival pattern, met expectations. This helped ensure agent schedules matched actual operational needs.

While there were a handful of instances during production where call volumes were higher than anticipated, they were handled with little problem from a staffing perspective. On Census Day (April 1, 2010) and the following day, a large number of callers inquired about misinformation that April 1 was a deadline for the 2010 Census, causing more calls than forecast for those days. On April 29, 2010, as well as on July 29, 2010, and July 30, 2010, media events caused some unplanned minor spikes in call volume. Fortunately, in cases where number of calls exceeded expectations, average call handle times were generally minimal helping to alleviate the effect of the unexpectedly high volume.

6. Related Assessments, Evaluations, and/or Experiments

- 2010 Census Language Program Assessment
- 2010 Census Mail Response/Return Rates Assessment
- 2010 Census Bilingual Questionnaire Assessment
- 2010 Census DRIS Paper Questionnaire Data Capture Assessment
- 2010 Census Non-ID Processing Assessment
- 2010 Census Be Counted/Questionnaire Assistance Center Assessment

7. Key Lessons Learned, Conclusions, and Recommendations

Overall, the 2010 Census TQA program was a success. TQA received a total of just less than 4.6 million calls during operations across the 11 telephone lines, with nearly 1.9 million of those calls ultimately connecting to a live agent.

The overall call volume forecast for the 2010 Census TQA program was approximately 6.6 million calls, which was substantially higher than the actual call volume of 4.6 million. The forecasted number was based primarily on Census 2000 call volume data, with some adjustments due to mailing strategy changes and population increases since 2000 that were anticipated to affect the number of TQA calls. The main driver for the lower call volume was assumed to be the simplified census questionnaire (i.e., no long form census) as well as the efforts the Census Bureau took to educate the public about the 2010 Census. Moving forward toward the 2020 Census, keep in mind that the most comparable source of call volume estimates will be ten years old. Because TQA call volume based from Census 2000 was not necessarily a good indicator for the 2010 Census, and based on the difficulty in anticipating the effect that program changes from 2000 to 2010 had on volume, it may be difficult to anticipate call volume for the 2020 Census. In addition, implications on TQA need to be kept in mind throughout the 2020 Census planning cycle as more response modes are considered.

On the English and Spanish TQA lines, over 60 percent of calls were entirely serviced within the IVR system, meaning that more calls would have gone to agents had the system not been in place. While the general assumption is that a high IVR “deflection” rate is a good thing, data showed that a high percentage of callers did not select a specific option within the automated system, which indicated the possibility that callers may not have received the assistance that they were seeking. Although some of the callers’ questions may have been answered by the front-end emergency messaging, the implication of callers not selecting a

specific option coupled with the lower than anticipated call volume during operations suggests that additional functionality should be considered for IVR in the future allowing for the capability of the front end system to be turned on/off based on agent availability. If agents are at work and available, there may be advantages in directing callers to a live person instead of to an automated system. Additionally, this allows agents to stay engaged with their job responsibilities.

For the 2010 Census, the IVR system was designed in such a way to allow “emergency messages” to be placed within the IVR to communicate with callers. In total, three different emergency messages were pushed to the IVR during operations. While the first emergency message responded to misinformation in the media regarding penalties for not completing the census questionnaire, the second and third messages instructed callers on how to directly reach a TQA agent to complete a short form capture. The effect of these last two messages could be seen in terms of a higher percentage of calls going directly to agents (i.e., not being “deflected” by the IVR). Additionally, average handle times of TQA agent calls were higher after the second message due to an increase in short form capture calls keeping agents on the phone substantially longer than assistance or fulfillment call types. If 2010 call volume had not been lower than anticipated, the emergency message change to encourage short form capture via TQA could have affected call center staffing. Therefore, in looking toward the 2020 Census, it is imperative to plan, design, and staff accordingly if TQA is planning to be utilized as an important mode of data collection.

Several other important recommendations for the TQA program should be considered based on results from the 2010 Census:

- **Requirements for TDD need to be made flexible to take advantage of up-to-date technology.** Commercial call centers are generally knowledgeable about modern solutions for the hearing-impaired population. The 2010 Census solution used older technology, which was costly and difficult to implement, and there were extensive issues with extracting quality data out of the TDD system. It may also be advantageous to interact with the user community to find out best options.
- **The design of a telephone help line for CPEX needs to be well thought out to minimize caller frustration.** Due to the experimental nature of the questionnaires, basically no assistance was provided to the caller on the CPEX English and CPEX Spanish lines because of the risk that specific information may compromise the experimental design. This approach did not work as callers were often aggravated that questions could not be answered.
- **FAQ content needs to have the ability to be easily updated within the TQA application so that all of the relevant information is in one place.** On several occasions throughout production, updates and new information needed to be provided so agents could more effectively do their job. Giving paper job aids to provide updates to agents was confusing, cumbersome, and inhibited changes.

- **Telephone Questionnaire Assistance needs to examine how best to serve impaired individuals.** For example, agents should be allowed to take interviews from blind persons at any time during production. Early in the operation, rules were in place to collect respondent data only if they were able to provide a Census ID. Because blind individuals could not read this information to provide to an agent, it was not possible for the system to initiate a short form data capture for the caller. It is unknown whether or not data was ultimately received from these individuals.
- **TQA phone numbers for each of the language lines need to be different enough so they do not cause confusion.** In the 2010 Census, some of the phone numbers for the TQA language lines were only different by one digit. These similar phone numbers occasionally led callers to call the incorrect TQA line.
- **TQA phone number placement on mailing materials needs to go through thorough testing so as not to cause confusion on the phone number associated with the language line.** Callers often called the TDD telephone number mistakenly when trying to reach other TQA lines. Additionally, the U/L stateside reminder postcard had the incorrect TDD phone number, potentially resulting in less calls to the TDD phone line.
- **A documented policy controlling promotion and distribution of TQA phone numbers needs to be in place.** Publicizing of TQA phone numbers on press releases and census materials drives additional calls. While unexpected call spikes to TQA during the 2010 Census were generally able to be absorbed due to lower than anticipated overall volume, there is a potential that larger increases may be more difficult to handle. During Census 2000, a policy was in place to help keep call volumes in check (Miskura, 2000).
- **The TQA program requires very specialized call center personnel throughout the development and operational cycles.** TQA is short duration, high volume, and incorporates extremely complex systems. The 2010 Census TQA program was successful due in large part to the commercial vendors being used for this project.

8. Acknowledgements

Thank you to Martine Moss for performing the majority of the SAS programming for the results in the assessment.

9. References

- Chesnut, John (2003), “ Census 2000 Evaluation A.1.a - Evaluation of the Telephone Questionnaire Assistance Program in Census 2000,” U.S. Census Bureau, March 20, 2003
- Miskura, Susan (2000), “Census 2000 Informational Memorandum No. 42 – Guidelines for Disseminating Telephone Questionnaire Assistance (TQA) Toll-Free Telephone Numbers,” U.S. Census Bureau, February 22, 2000.

APPENDIX A – FAQs and Topics Accessed in the IVR

Table 13. Frequency of Each Topic Accessed in the IVR

<u>FAQ # / Topic</u>	<u>Topic Description</u>	<u>Frequency</u>	<u>Percentage of Total Frequency</u>
IVR FAQ 1	What is Census Day? Census Day is April 1, 2010. Report your household information as you would expect it to be as of this date. You do not have to wait until April 1st to complete and return your questionnaire. Please return it as soon as possible.	2,551	0.20%
IVR FAQ 2	What is the deadline? Report your household information as you would expect it to be as of this date. You do not have to wait until April 1st to complete and return your questionnaire. Please return it as soon as possible.	60,430	4.82%
IVR FAQ 3	Must I answer the Census? Participation in the census is mandatory by law, Title 13 of the United States Code. Title 13 also requires that the Census Bureau keep respondents' answers confidential and use them only for tabulations that do not reveal any personal data about individuals or households.	22,521	1.80%
IVR FAQ 4	How do I apply for Census 2010 jobs? To apply for jobs with Census Twenty-Ten, you should call our Jobs line at 1-866-861-2010. TDD callers should call the Federal Relay Service at 1-800-877-8339. We cannot transfer you directly to these numbers. Once again these numbers are 1-866-861-2010 and for TDD callers 1-800-877-8339.	23,878	1.91%
IVR FAQ 5	How are my privacy and confidentiality protected? All of the information that the United States Census Bureau collects as part of the Census is kept confidential under Title 13, United States Code. If anyone violates this law, it is a federal crime; they may face severe penalties, including a federal prison sentence of up to five years, a fine of up to \$250,000, or both. The Census Bureau only collects those data that are necessary to meet federal agency needs required by federal legislation, administrative regulation, or court decision. The Census Bureau has strict confidentiality provisions in place to ensure that the data respondents entrust to us are protected. No one, except those persons who are sworn for life to protect your confidentiality, can see your answers.	16,473	1.31%
IVR FAQ 6	What is the Census? The census is an official count of the population of the United States. The U.S. Constitution (Article 1, Section 2) requires that a census be done every 10 years to apportion the seats of the U.S. House of Representatives among the states. In addition, the Census Bureau is legally required to provide redistricting data to public officials in a non-partisan manner no later than 1 year from Census Day. For a fair and equitable apportionment, it is crucial that the 2010 Census count people in the right place.	4,207	0.34%

IVR FAQ 7	Why did I receive a reminder postcard? All households have been sent a reminder postcard even if we have already received your questionnaire. So, if you have already returned your questionnaire, thank you for doing so and please disregard the postcard. If you haven't yet returned your questionnaire please take a few moments to complete and return it today.	153,386	12.24%
IVR FAQ 8	Why did I receive a second questionnaire or a visit from a Census worker? Second mailings are automatically scheduled for delivery if we haven't checked in your first questionnaire by April 9th. It might be that your original form was lost in the mail. We've also found that we can save millions of dollars during the 2010 Census if we mail the form a second time rather than send a census worker to your house. So please fill out the second questionnaire and return it in the envelope we provided. You will not be counted twice.	211,537	16.88%
IVR FAQ 9	How are Census data used? Census data are used to apportion seats in the House of Representatives, [slight pause] draw congressional, state, and local legislative districts, [slight pause] and fund, monitor, and evaluate federal programs. You can get more information on this topic at www.census.gov/2010Census . [record numbers in web address as two zero one zero]	4,312	0.34%
IVR FAQ 10	Internet Information Although the option to complete your Census questionnaire on the internet is not available, you can get more information about the 2010 Census at web address www.census.gov/2010Census . [record numbers in web address as two zero one zero]	18,252	1.46%
IVR Form Question 1	Hispanic, Latino, or Spanish Origin. As soon as you've heard enough, you can say 'stop'. People of Hispanic, Latino, or Spanish origin are those who trace their origin or descent to Mexico, Puerto Rico, Cuba, Spanish-speaking countries of Central or South America, and other Spanish cultures. Origin can be considered as the heritage, nationality group, lineage, or country of birth of the person or the person's parents or ancestors before their arrival in the United States. People who identify their origin as Hispanic, Latino, or Spanish may be of any race.	148,889	11.88%
IVR Form Question 2	Race. As soon as you've heard enough, you can say 'stop.' The concept of race reflects self-identification; it does not indicate any clear-cut scientific definition that is biological or genetic in reference. The data for race represent self-classification by people according to the race or races with which they most closely identify. People may choose to report two or more races. People who identify their origin as Hispanic, Latino, or Spanish may be of any race.	230,351	18.38%

IVR Form Question 3	Age. As soon as you've heard enough, you can say 'stop'. Enter the person's age on April 1, 2010. Do not round the age up if the person is close to having a birthday. If you do not know the exact age, an estimate will do. For babies who are not yet one year old, enter "0."	5,916	0.47%
IVR Form Question 4	Name. As soon as you've heard enough, you can say 'stop'. Enter the person's age on April 1, 2010. Do not round the age up if the person is close to having a birthday. If you do not know the exact age, an estimate will do. For babies who are not yet one year old, enter "0." Enter the person's legal name, that is, the name used to sign checks and other important papers. If a person uses a first initial and a middle name enter the initial and name in the First Name field and leave the Middle Initial field blank. If the person uses junior or senior, enter the last name and the suffix in the Last Name field. For a newborn infant who does not yet have a given name, enter "infant" in the First Name field.	16,401	1.31%
IVR Form Question 5	Date of birth. As soon as you've heard enough, you can say 'stop'. Enter the month, day, and year of birth in the spaces provided. For month, do not enter names of months. Use the two-digit identification for each month. For example, "06" for June, "12" for December, etc. If you do not know the month, leave the month field blank. For day, if you do not know the day, leave the day field blank. For year, enter all four digits of the year. If you do not know the year, leave the year field blank.	5,773	0.46%
IVR Form Question 6	Sex. As soon as you've heard enough, you can say 'stop'. If that's all the information you needed, please hold for our Customer Satisfaction Survey. Otherwise, to hear the topic information again say 'repeat that' or for help on another question on the Census questionnaire say 'questionnaire help.' You can also say 'Census information', 'request Census materials', or 'representative.'	1,899	0.15%
IVR Form Question 7	Owner or renter classification. As soon as you've heard enough, you can say 'stop'. Mark the "Owned with a mortgage or loan" box to describe any house, apartment, or mobile home that has any type of loan secured by real estate. These liens may be called mortgages, deeds of trust, trust deeds, and contracts to purchase. Owner-occupied units with reverse mortgages and home equity loans are considered to be "owned with a mortgage or loan" as are owner-occupied mobile homes with installment loans.	57,289	4.57%
IVR Form Question 8	Telephone. As soon as you've heard enough, you can say 'stop'. On your form, please write your telephone number, including Area Code. We use this in case we need to contact someone in order to clarify information provided on the questionnaire.	6,609	0.53%

IVR Form Question 9	Additional People. As soon as you've heard enough, you can say 'stop'. If there were other people who were staying at this place on or around April 1st, but you did not include them in Question 1, choose one or more of the categories provided to describe the relationship or situation of these additional people. You may mark all categories that apply. If there are no additional people, please mark the last category.	53,655	4.28%
IVR Form Question 10	Live or Stay elsewhere. As soon as you've heard enough, you can say 'stop'. Some people have more than one place where they live or stay, and might get counted twice in the census. Mark the box "Yes" if a person sometimes lives or stays somewhere else. Do not include people that are on a short-term vacation as someone who lives or stays elsewhere. Also, if you marked "Yes", mark one or more of the boxes below the "Yes" response, indicating the reason why the person lives or stays at the other place.	208,899	16.67%
TOTAL		1,253,228	100.00%

Source: EEA Complete File

Table 14. Top Ten Most Frequently Accessed Topics in the IVR – English

	FAQ	Frequency
1	IVR FAQ 8 – Why did I receive a second questionnaire or a visit from a Census worker?	200,920
2	IVR Form Question 10 – Live or Stay elsewhere.	193,375
3	IVR Form Question 2 – Race.	132,672
4	IVR FAQ 7 – Why did I receive a reminder postcard?	132,139
5	IVR Form Question 1 – Hispanic, Latino, or Spanish Origin.	95,443
6	IVR FAQ 2 – What is the deadline?	52,166
7	IVR Form Question 9 – Additional People.	47,191
8	IVR Form Question 7 – Owner or renter classification.	46,129
9	IVR FAQ 3 – Must I answer the Census?	21,404
10	IVR FAQ 4 – How do I apply for Census 2010 jobs?	20,298

Source: EEA Complete File

NOTE: N=3,681,835

Table 15. Top Ten Most Frequently Accessed Topics in the IVR – Spanish

	FAQ	Frequency
1	IVR Form Question 2 – Race.	97,679
2	IVR Form Question 1 – Hispanic, Latino, or Spanish Origin.	53,446
3	IVR FAQ 7 – Why did I receive a reminder postcard?	21,247
4	IVR Form Question 10 – Live or Stay elsewhere.	15,524
5	IVR Form Question 7 – Owner or renter classification.	11,160
6	IVR FAQ 8 – Why did I receive a second questionnaire or a visit from a Census worker?	10,617
7	IVR FAQ 2 – What is the deadline?	8,264
8	IVR Form Question 9 – Additional People.	6,464
9	IVR FAQ 4 – How do I apply for Census 2010 jobs?	3,580
10	IVR FAQ 5 – How are my provacy and confidentiality protected?	2,918

Source: EEA Complete File

NOTE: N=757,250

APPENDIX B – FAQs and Topics Asked in the TQA

Table 16. Frequency of Each Topic Asked in the TQA

<u>FAQ # / Topic</u>	<u>Frequency</u>	<u>Percent of Total Frequency</u>
001 - What does the U.S. Census Bureau do between the censuses every 10 years?	2,598	0.08%
002 - I have a question about another government agency or department. Can you help me?	1,688	0.05%
003 - Isn't there an easier way that would take less time and money, such as use of public records or private companies, to compile the population figures?	4,996	0.15%
004 - What have you done to make it easier to fill out the form?	8,262	0.24%
005 - I'm having trouble connecting to your internet site. What should I do?	2,501	0.07%
006 - What is the 2010 Census?	65,508	1.90%
007 - What is Census Day?	89,703	2.61%
008 - What operations will take place during the 2010 Census?	38,351	1.11%
009 - When do these operations take place?	32,264	0.94%
010 - Why are you checking addresses here?	5,635	0.16%
011 - What is the procedure for updating your address list?	12,271	0.36%
012 - Why don't you collect the information on the housing unit when you update the address list?	5,182	0.15%
013 - Will the Census Bureau collect information on people experiencing homelessness?	6,340	0.18%
014 - Are people living in group quarters included in the census?	19,924	0.58%
015 - Why was I visited multiple times?	4,663	0.14%
016 - What are Be Counted forms?	88,097	2.56%
017 - Why should I fill out the form?	4,981	0.14%
018 - How will our community benefit from the 2010 Census?	5,383	0.16%
019 - Will any data products or census counts be available from the 2010 Census?	6,109	0.18%
020 - How can I apply for a job for the 2010 Census?	10,477	0.30%
021 - Is basic computer knowledge necessary for temporary census jobs?	1,933	0.06%
022 - Information on the 2010 Census Communications Program	13,811	0.40%
023 - I've heard talk about the American Community Survey. What is it and why are you conducting it?	19,744	0.57%
024 - Will the American Community Survey be conducted during the 2010 Census?	8,725	0.25%
025 - Why did I receive a questionnaire for the Census and a questionnaire for the American Community Survey?	27,644	0.80%
026 - How can I learn more about the American Community Survey program?	12,676	0.37%
027 - Are there other censuses or surveys being conducted by the Census Bureau?	41,503	1.21%
028 - When will the advance letter be delivered?	8,014	0.23%
029 - When will the questionnaires be delivered?	34,221	0.99%
030 - When will the reminder postcards be delivered?	21,408	0.62%
031 - When will the replacement questionnaires be delivered to residents who have not returned the first questionnaire?	108,123	3.14%
032 - What determines whether I will or will not receive a replacement questionnaire?	35,304	1.03%

033 - Will the replacement questionnaires be mailed in any language other than English?	13,005	0.38%
034 - Will there be questionnaires in other languages?	7,319	0.21%
035 - Why does the Census Bureau send out so many mailings?	48,073	1.40%
036 - Do I have to respond to the 2010 Census?	34,380	1.00%
037 - Do I have to respond to the 2010 Census and the American Community Survey?	12,074	0.35%
038 - Will census workers come to my door? How will I know them?	42,114	1.22%
039 - What authority does the Census Bureau have to collect my information?	11,074	0.32%
040 - How long will it take to complete the questionnaire?	3,392	0.10%
041 - Who should fill out the questionnaire?	9,472	0.28%
042 - Do I fill out the form if I'm moving out before April 1 or if the unit will be vacant on April 1, 2010?	16,832	0.49%
043 - How are census questions determined?	4,459	0.13%
044 - What questions are asked on the 2010 Census form?	16,308	0.47%
045 - Can I get paid to complete this form?	2,914	0.08%
046 - Why can't you take my answers from the Census 2000 questionnaire?	2,761	0.08%
047 - Why can't you take my answers from the American Community Survey for the 2010 Census or vice versa?	4,152	0.12%
048 - Why is it important for tribal community members to respond to the 2010 Census?	3,807	0.11%
049 - How is the information kept safe?	17,367	0.50%
050 - How is the privacy of respondents protected?	11,106	0.32%
051 - Do you share information with the Immigration and Naturalization Service, the Internal Revenue Service, courts or the police?	9,211	0.27%
052 - What is the Privacy Act?	4,495	0.13%
053 - Why does the Census Bureau need to know my race?	4,839	0.14%
054 - Why does the Census Bureau collect information on Hispanic origin?	3,849	0.11%
055 - Why do you have one question on race and another on Hispanic origin?	10,302	0.30%
056 - Why doesn't the race question include more categories?	4,174	0.12%
057 - Why is the term "Negro" used in the race question?	5,737	0.17%
058 - How should people who are Central and South American Indians answer the race question?	2,642	0.08%
059 - How should people who are Afro-Caribbean answer the race question?	2,693	0.08%
060 - What does the Census Bureau mean by race?	18,126	0.53%
061 - Will people of mixed racial or ethnic heritage be able to identify themselves on the form?	3,815	0.11%
062 - How will data on American Indians or Alaska Natives be collected?	2,729	0.08%
063 - Do American Indians and Alaska Natives need to answer the question on Hispanic origin?	3,710	0.11%
064 - May American Indians and Alaska Natives report more than one tribe?	1,020	0.03%
065 - Why do the race question write-in areas (denoted under 'American Indian and Alaska Native;' 'Other Asian/Other Pacific Islander;' and 'Some other race' write-in areas) not include more spaces?	2,507	0.07%
066 - Does the Census Bureau define American Indians or Alaska Natives?	2,549	0.07%
067 - How do Hispanics answer the race question?	77,718	2.26%
068 - May American Indians and Alaska Natives report more than one race?	2,635	0.08%
069 - Who should be included on the questionnaire that is mailed to the	23,456	0.68%

residence?		
070 - What should I do after I get the questionnaire?	10,571	0.31%
071 - What is the due date for returning the questionnaire?	106,813	3.10%
072 - <i>not used</i>	0	0.00%
073 - <i>not used</i>	0	0.00%
074 - Why did I receive a second questionnaire?	307,963	8.94%
075 - What will happen if the Census Bureau does not receive my completed questionnaire?	57,424	1.67%
076 - I returned my completed questionnaire but a census worker still visited my home. Why?	36,770	1.07%
077 - Why did I receive a postcard/reminder card when I've already mailed my form back?	135,690	3.94%
078 - Should I count people who don't live or stay here most of the time?	46,561	1.35%
079 - Can I respond on the Internet?	20,466	0.59%
080 - Why do census workers have computers?	6,728	0.20%
081 - Where do I put information if I have more than six people in my household?	10,515	0.31%
082 - Why does the census form have only room for six people?	5,210	0.15%
083 - Why do you need my telephone number?	12,337	0.36%
084 - What do I use to fill out the form - pen or pencil?	3,866	0.11%
085 - I was trying to reach the hearing impaired number. Can you help me?	3,974	0.12%
086 - How do I make corrections on the form?	45,422	1.32%
087 - What do I do if I received more than one 2010 Census questionnaire?	43,431	1.26%
088 - What should I do if my questionnaire has the wrong address?	73,577	2.14%
089 - What if there is more than one housing unit at the same address but the apartment number is not shown on the form?	11,184	0.32%
090 - What if this address is not a residence or home?	23,181	0.67%
091 - What if I lost my return envelope?	17,288	0.50%
092 - Why do you want our names?	16,358	0.48%
093 - Why do you ask for housing information?	7,257	0.21%
094 - Vacation home or Usual Home Elsewhere (UHE)	90,589	2.63%
095 - Can I correct information on the census form I already returned?	12,465	0.36%
096 - We are all visitors at this address. Should we fill out the questionnaire?	20,878	0.61%
097 - What if the housing unit at the address is vacant on Census day?	40,508	1.18%
098 - Will there be a bilingual questionnaire?	1,231	0.04%
099 - Why did I receive a bilingual questionnaire?	1,804	0.05%
100 - What is a language guide?	2,569	0.07%
101 - I need help with my form, but Spanish is my primary language. Can you help me?	2,298	0.07%
102 - Where can I write to complain, or if I have a concern?	23,554	0.68%
103 - I filled out my census form. Why are you calling for the Coverage Followup operation?	10,318	0.30%
104 - Can I respond to the Coverage Followup operation by the Internet?	5,290	0.15%
105 - How long will the Coverage Followup interview take?	4,104	0.12%
106 - Do I have to respond to the Coverage Followup interview?	8,705	0.25%
107 - Who can respond to the Coverage Follow up?	4,023	0.12%
108 - Where can I write to express comments or complaints about the Coverage Followup operation?	6,387	0.19%

109 - Information on 2010 Census data availability and use	6,035	0.18%
110 - Information on Conducting the 2010 Census	5,243	0.15%
111 - General Information on American Indian and Alaska Native	1,130	0.03%
112 - Have you received my census form yet?	45,493	1.32%
Additional People	45,895	1.33%
Age/Date of Birth	32,103	0.93%
Census Coverage 2010 Basic Principle	155,986	4.53%
Census Coverage 2010 Born or Die	15,186	0.44%
Census Coverage 2010 Citizens Out US	12,389	0.36%
Census Coverage 2010 Correctional Facilities	4,975	0.14%
Census Coverage 2010 Foreign Citizens	20,271	0.59%
Census Coverage 2010 Group Homes	9,888	0.29%
Census Coverage 2010 Health	10,531	0.31%
Census Coverage 2010 Living Arrangements	52,513	1.53%
Census Coverage 2010 Merchant Marine	1,901	0.06%
Census Coverage 2010 Military	9,361	0.27%
Census Coverage 2010 Movers	22,479	0.65%
Census Coverage 2010 Nonrelatives	5,778	0.17%
Census Coverage 2010 Shelters	4,247	0.12%
Census Coverage 2010 Students	37,761	1.10%
Census Coverage 2010 Transitory	8,240	0.24%
Hispanic/Latino/Spanish	109,056	3.17%
Household Relationship	23,809	0.69%
Housing Units	33,259	0.97%
Live/Stay Elsewhere	75,493	2.19%
Mailing Address	18,625	0.54%
Name	25,993	0.75%
OMB Approval Number	8,455	0.25%
Own/Rent	41,987	1.22%
Race	149,927	4.35%
Sex	3,258	0.09%
Telephone Number	13,884	0.40%
TOTAL	3,443,315	100.00%

Source: EEA Complete File

Table 17. Top Ten Most Frequently Asked Topics in the TQA – English

	FAQ	Frequency
1	74 – Why did I receive a second questionnaire?	280,781
2	CC 2010 Basic Principle	141,316
3	77 – Why did I receive a postcard/reminder card when I’ve already mailed my form back?	122,241
4	Race	90,288
5	31 – When will the replacement questionnaires be delivered to residents who have not returned the first questionnaire?	90,246
6	94 – Vacation home or Usual Home Elsewhere (UHE).	87,236
7	71 – What is the due date for returning the questionnaire?	86,413
8	7 – What is Census Day?	81,141
9	16 – What are Be Counted forms?	76,904
10	88 – What should I do if my questionnaire has the wrong address?	67,314

Source: EEA Complete File

NOTE: N=1,507,408

Table 18. Top Ten Most Frequently Asked Topics in the TQA – Spanish

	FAQ	Frequency
1	Race	53,289
2	67 – How do Hispanics answer the race question?	51,761
3	Hispanic/Latino/Spanish	47,277
4	74 – Why did I receive a second questionnaire?	22,715
5	71 – What is the due date for returning the questionnaire?	15,175
6	31 – When will the replacement questionnaires be delivered to residents who have not returned the first questionnaire?	11,942
7	77 – Why did I receive a postcard/reminder card when I’ve already mailed my form back?	10,283
8	Census Coverage 2010 Basic Principle	10,170
9	Live/Stay Else	8,339
10	16 – What are Be Counted forms?	7,987

Source: EEA Complete File

NOTE: N=265,862

Table 19. Top Ten Most Frequently Asked Topics in the TQA – Chinese

	FAQ	Frequency
1	31 – When will the replacement questionnaires be delivered to residents who have not returned the first questionnaire?	1,467
2	71 – What is the due date for returning the questionnaire?	1,466
3	Census Coverage 2010 Basic Principle	1,176
4	74 – Why did I receive a second questionnaire?	1,034
5	16 – What are Be Counted forms?	776
6	29 – When will the questionnaires be delivered?	698
7	Race	621
8	Hispanic/Latino/Spanish	589
9	34 – Will there be questionnaires in other languages?	586
10	7 – What is Census Day?	515

Source: EEA Complete File

NOTE: N=17,492

Table 20. Top Ten Most Frequently Asked Topics in the TQA – Korean

	FAQ	Frequency
1	71 – What is the due date for returning the questionnaire?	847
2	74 – Why did I receive a second questionnaire?	735
3	31 – When will the replacement questionnaires be delivered to residents who have not returned the first questionnaire?	560
4	29 – When will the questionnaires be delivered?	554
5	Census Coverage 2010 Basic Principle	487
6	16 – What are Be Counted forms?	361
7	Hispanic/Latino/Spanish	321
8	Race	305
9	Additional People	284
10	7 – What is Census Day?	279

Source: EEA Complete File

NOTE: N=10,399

Table 21. Top Ten Most Frequently Asked Topics in the TQA – Vietnamese

	FAQ	Frequency
1	Census Coverage 2010 Basic Principle	1,041
2	74 – Why did I receive a second questionnaire?	966
3	Race	811
4	Hispanic/Latino/Spanish	801
5	Additional People	726
6	31 – When will the replacement questionnaires be delivered to residents who have not returned the first questionnaire?	653
7	Live/Stay Else	614
8	16 – What are Be Counted forms?	596
9	Own/Rent	538
10	29 – When will the questionnaires be delivered?	509

Source: EEA Complete File

NOTE: N=12,105

Table 22. Top Ten Most Frequently Asked Topics in the TQA – Russian

	FAQ	Frequency
1	74 – Why did I receive a second questionnaire?	430
2	Race	372
3	71 – What is the due date for returning the questionnaire?	273
4	31 – When will the replacement questionnaires be delivered to residents who have not returned the first questionnaire?	267
5	77 – Why did I receive a postcard/reminder card when I've already mailed my form back?	251
6	Hispanic/Latino/Spanish	250
7	Census Coverage 2010 Basic Principle	201
8	29 – When will the questionnaires be delivered?	177
9	Live/Stay Else	168
10	7 – What is Census Day?	155

Source: EEA Complete File

NOTE: N=6,571

Table 23. Top Ten Most Frequently Asked Topics in the TQA – Puerto Rico English

	FAQ	Frequency
1	31 – When will the replacement questionnaires be delivered to residents who have not returned the first questionnaire?	227
2	103 – I filled out my census form. Why are you calling for the coverage followup operation?	186
3	16 – What are Be Counted forms?	150
4	Race	148
5	29 – When will the questionnaires be delivered?	120
6	77 – Why did I receive a postcard/reminder card when I’ve already mailed my form back?	117
7	67 – How do Hispanics answer the race question?	113
8	Hispanic/Latino/Spanish	109
9	7 – What is Census Day?	105
10	Census Coverage 2010 Basic Principle	103

Source: EEA Complete File

NOTE: N=4,154

Table 24. Top Ten Most Frequently Asked Topics in the TQA – Puerto Rico Spanish

	FAQ	Frequency
1	Race	4,093
2	67 – How do Hispanics answer the race question?	3,409
3	31 – When will the replacement questionnaires be delivered to residents who have not returned the first questionnaire?	2,761
4	Own/Rent	1,872
5	77 – Why did I receive a postcard/reminder card when I’ve already mailed my form back?	1,807
6	Hispanic/Latino/Spanish	1,727
7	29 – When will the questionnaires be delivered?	1,698
8	88 – What should I do if my questionnaire has the wrong address?	1,545
9	Census Coverage 2010 Basic Principle	1,492
10	Name	1,469

Source: EEA Complete File

NOTE: N=30,479

APPENDIX C – Distribution of Responses to the CSS by Question

Table 25. Results of CSS Question 1:

“On a scale of one to five, how efficient was the automated system in getting you the information you were calling about? Enter a number on your telephone keypad from one to five, where one means the automated system was not efficient at all and five means the automated system was very efficient.”

Response	IVR		TQA		Total	
	Number	Percent	Number	Percent	Number	Percent
1 – not efficient	661	2.16	1,730	12.77	2,391	5.41
2	143	0.47	879	6.49	1,022	2.31
3	208	0.68	1,213	8.95	1,421	3.21
4	295	0.96	1,048	7.73	1,343	3.04
5 – very efficient	1,096	3.58	4,076	30.08	5,172	11.70
Skip	1,313	4.28	218	1.61	1,531	3.46
Hangup	26,939	87.88	4,385	32.36	31,324	70.86
Total	30,655	100.00	13,549	100.00	44,204⁶	100.00

Source: EEA Complete File

Table 26. Results of CSS Question 2:

“Next question. How easy to follow were the words and phrases used by the automated system? Enter a number on your telephone keypad from one to five, where one means the words and phrases were not easy to follow at all and five means the words and phrases were very easy to follow.”

Response	IVR		TQA		Total	
	Number	Percent	Number	Percent	Number	Percent
1 – not easy to follow at all	347	1.13	727	5.37	1,074	2.43
2	108	0.35	538	3.97	646	1.46
3	172	0.56	1,024	7.56	1,196	2.71
4	316	1.03	1,421	10.49	1,737	3.93
5 – very easy to follow	1,363	4.45	5,176	38.20	6,539	14.79
Skip	268	0.87	171	1.26	439	0.99
Hangup	28,081	91.60	4,492	33.15	32,573	73.69
Total	30,655	100.00	13,549	100.00	44,204	100.00

Source: EEA Complete File

⁶ There were 123 callers selected as eligible that never entered the CSS. This is the difference between 44,204 callers with responses to the CSS and the 44,327 eligible callers noted in Table 11 within the body of the report.

Table 27. Results of CSS Question 3:

“All right. How useful was the information you received through the automated system?
Enter a number on your telephone keypad from one to five, where one means the information was not useful at all and five means the information was very useful.”

Response	IVR		TQA		Total	
	Number	Percent	Number	Percent	Number	Percent
1 – not useful	598	1.95	1,766	13.03	2,364	5.35
2	133	0.43	734	5.42	867	1.96
3	168	0.55	1,090	8.04	1,258	2.85
4	250	0.82	1,036	7.65	1,286	2.91
5 – very useful	1,124	3.67	4,195	30.96	5,319	12.03
Skip	163	0.53	165	1.22	328	0.74
Hangup	28,219	92.05	4,563	33.68	32,782	74.16
Total	30,655	100.00	13,549	100.00	44,204	100.00

Source: EEA Complete File

Table 28. Results of CSS Question 4:

“How much will the information you received today help you participate in Census 2010?
Enter a number on your telephone keypad from one to five, where one means the information won’t be helpful at all and five means the information will be very helpful.”

Response	IVR		TQA		Total	
	Number	Percent	Number	Percent	Number	Percent
1 – not helpful at all	620	2.02	845	6.24	1,465	3.31
2	90	0.29	288	2.13	378	0.86
3	145	0.47	605	4.47	750	1.70
4	203	0.66	791	5.84	994	2.25
5 – very helpful	1,189	3.88	6,225	45.94	7,414	16.77
Skip	122	0.40	155	1.14	277	0.63
Hangup	28,286	92.27	4,640	34.25	32,926	74.49
Total	30,655	100.00	13,549	100.00	44,204	100.00

Source: EEA Complete File

Table 29. Results of CSS Question 5:

“Just one more question. How satisfied are you with your call today to the Census 2010 help line? Enter a number on your telephone keypad from one to five, where one means you are very dissatisfied and five means you are very satisfied.”

Response	IVR		TQA		Total	
	Number	Percent	Number	Percent	Number	Percent
1 – very dissatisfied	652	2.13	699	5.16	1,351	3.06
2	114	0.37	421	3.11	535	1.21
3	169	0.55	887	6.55	1,056	2.39
4	256	0.84	1,224	9.03	1,480	3.35
5 – very satisfied	1062	3.46	5,491	40.53	6,553	14.82
Skip	69	0.23	109	0.80	178	0.40
Hangup	28,333	92.43	4,718	34.82	33,051	74.77
Total	30,655	100.00	13,549	100.00	44,204	100.00

Source: EEA Complete File

Table 30. Results of CSS Question 6 (TQA Only):

“On a scale of one to five, how well was the Census representative you spoke with able to resolve your request? Enter a number on your telephone keypad from one to five, where one means the representative was not able to resolve your request at all and five means the representative completely resolved your request.”

Response	TQA	
	Number	Number
1 – not able to resolve your request at all	760	5.61
2	288	2.13
3	503	3.71
4	730	5.39
5 – completely resolved your request	6,754	49.85
Skip	4,496	33.18
Hangup	18	0.13
Total	13,549	100.00

Source: EEA Complete File

Table 31. Results of CSS Question 7 (TQA Only):

“How courteous was the representative you spoke with today? Enter a number from one to five on your telephone keypad, where one means that the representative was not courteous at all and five means the representative was very courteous.”

TQA		
Response	Number	Percent
1 – not courteous at all	242	1.79
2	120	0.89
3	190	1.40
4	585	4.32
5 – very courteous	7,868	58.07
Skip	268	1.98
Hangup	4,276	31.56
Total	13,549	100.00

Source: EEA Complete File