Census 2000 Evaluation A.1.a
March 20, 2003

Telephone Questionnaire Assistance

FINAL REPORT

This evaluation reports the results of research and analysis undertaken by the U.S. Census Bureau. It is part of a broad program, the Census 2000 Testing, Experimentation, and Evaluation (TXE) Program, designed to assess Census 2000 and to inform 2010 Census planning. Findings from the Census 2000 TXE Program reports are integrated into topic reports that provide context and background for broader interpretation of results.

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EXECUTIVE SUMMARY

The purpose of this evaluation is to profile the Census 2000 Telephone Questionnaire Assistance program through empirical analysis of the data collected from the Intelligent Call Routing system, Interactive Voice Response systems, the agent desktop tool called the Operator Support System, and the telecommunications provider American Telephone and Telegraph (AT&T). Where appropriate, this evaluation assesses the performance of the Telephone Questionnaire Assistance system.

The Telephone Questionnaire Assistance program was implemented to assist the public in completing their census forms. Six language specific national toll-free numbers were printed on Census questionnaires and Language Assistance Guides. The English and Spanish toll-free numbers connected to an Interactive Voice Response system where a caller obtained information by selecting from a series of menu options, and if needed, was transferred to an agent. The Asian language toll-free numbers connected directly to bilingual agents. The Asian languages supported were Chinese, Korean, Vietnamese, and Tagalog. The Operator Support System facilitated agents in servicing calls by providing verbatim scripting.

In summary of our results, we obtained an overall picture of the Census 2000 Telephone Questionnaire Assistance program from a variety of perspectives. Namely, we focused on the call volumes experienced by the Telephone Questionnaire Assistance system and how well the system handled these call volumes. In addition we looked at some of the call behaviors exhibited by Telephone Questionnaire Assistance callers. Finally, we concluded with analysis of the costs of the Telephone Questionnaire Assistance program. These results allowed us to assess the general functionality of the Telephone Questionnaire Assistance system as well as recognize some of the call behaviors exhibited by Telephone Questionnaire Assistance respondents. Furthermore, from our assessments, we can make recommendations that will aid in the development of future Telephone Questionnaire Assistance programs.

What were the Overall Results of the Telephone Questionnaire Assistance Program?

Based on the 1990 Census call volume of 7.9 million, with an allowance for growth, the Census 2000 Telephone Questionnaire Assistance program projected a call volume of 11 million calls. We only received approximately 6 million calls. The decision to use 11 million reflected executive staff direction that the primary objective was to ensure that we did not undersize the system to avoid repeating our 1990 experience, when we handled less than 50 percent of the total calls. Of the 5.8 million calls serviced by the Interactive Voice Response system (English and Spanish), 47.3 percent were resolved in the Interactive Voice Response system. That is, the caller neither opted nor was automatically transferred to an agent. This exceeded the Census Bureau and contractor's projected Interactive Voice Response system resolution rate of 40 percent. Of the 6 million calls received by the Telephone Questionnaire Assistance program, approximately 51 percent of these calls were serviced by an agent. Finally, 3.6 percent of the calls were blocked at the American Telephone and Telegraph (AT&T) network level or the Telephone Questionnaire Assistance network level. Note that 57 percent of all blocked calls occurred on one day due to an issue with the Intelligent Call Routing System, and when we exclude this day, only 1.7 percent of the calls were blocked.

What are the Different Call Patterns the Telephone Questionnaire Assistance Program Experienced?

For the daily total call volume, we observed three peaks. The first peak occurred after the initial mailout of census questionnaires, the second peak occurred after the mailout of the reminder postcard, and a third smaller peak occurred the week of Census Day. Each of the peaks occurred on Mondays. Excluding the peak days, we observed a trend in which Monday was the highest call volume day with a gradual decline in call volume throughout the week ending with a low on Sunday.

What Types of Call Behaviors were Exhibited by Telephone Questionnaire Assistance Callers?

The Interactive Voice Response system allowed callers to obtain or enter information by selecting from a series of menu options. More specifically, callers could obtain information about completing a census form, request a form be mailed to the mailing address they entered into the system, or obtain information about the census in general. Through our analysis we found that callers primarily used the Interactive Voice Response system to obtain information on completing a census form. Second, they used the Interactive Voice Response system to request a census form by mail. Following these two services, callers used the Interactive Voice Response system to obtain general information and other information pertaining to the census.

Of the main services provided by an agent, the most frequently requested service was the request for a census form. Forty four percent of callers serviced by an agent requested this service. Following the requests for a census form, 37.2 percent were in need of an answer to a frequently asked question about the census; 8.0 percent needed an answer to a specific item on the census questionnaire. Finally, 6.3 percent needed to register a complaint about the census. Less than 5.0 percent requested any combination of the previous services.

How much did the Telephone Questionnaire Assistance Program Cost?

The Telephone Questionnaire Assistance contract, which includes the cost of the Telephone Questionnaire Assistance and the Coverage Edit Follow-Up programs, was allocated $102 million. Approximately $89 million was actually spent on the two programs (AT&T cost excluded). The positive variance of $13 million was the result of lower contractor costs in running the program since the number of inbound calls of 6 million was 45 percent lower than the 11 million calls planned. Note that we still had to pay for the dedicated agents covering the hours we advertised at a planned call volume of 11 million. Since some of the item costs for both the Telephone Questionnaire Assistance and Coverage Edit Followup programs were not billed separately by the contractor (shared cost), we were not able to accurately report the separated costs for the Telephone Questionnaire Assistance program for these items. The total shared cost between the two programs amounted to $56,598,905. Costs attributed solely to the Telephone Questionnaire assistance program amounted to $25,533,987, and costs attributed to the Coverage Edit Followup program amounted to $10,380,183.

What are the Recommendations?

- The bulk of the call blockage occurred as a result of the call model not adequately forecasting the call volume levels on peak call volume days. **We recommend better prediction of the call volumes on these peak call volume days based on what we experienced in Census 2000.** To caveat this recommendation, our predictive modeling may be limited to call volume data based on a differing mailing strategy and our inability to predict any uncontrollable factors that may influence the daily call volumes.

- **We recommend for the future monitoring the performance of the network provider be based on our awareness of their contractual requirements so that we may be aware of any issues that may arise affecting the Telephone Questionnaire Assistance program.**

- The results of our analysis showed a day of the week effect coincided with a mailing strategy effect potentially causing an additive increase in call volume. **We recommend delivering the census mailing pieces on a day other than Monday to avoid an additive effect due to mailing strategy and day of the week.**

- The Interactive Voice Response component of the Telephone Questionnaire Assistance system worked well in terms of reducing agent call volume, minimizing program cost, and servicing callers in a timely manner. **We recommend continued use of Interactive Voice Response systems in future telephone questionnaire assistance programs.**

- **To further maximize the benefits of Interactive Voice Response technologies we recommend future research in assessing the expanded use of Interactive Voice Response technologies.**

- Some call centers did not have on-site technical support to resolve problems immediately. **We recommend providing on-site technical support to all call centers.** Note that additional funding would be required to meet this recommendation and to maintain the Census Bureau's goal of subcontracting call centers with small, small-disadvantaged, and women owned businesses.

- Based on a policy decision, the Spanish language Interactive Voice Response system did not allow callers to request a Spanish questionnaire where as this service was available in the English language Interactive Voice Response system. **We recommend providing equal levels of service in both English and Spanish systems for future telephone questionnaire assistance programs.**

- **Due to the uncertainty in the discrepancy between the number of short form cases indicated by the evaluation data and the number of cases processed by the Census Bureau, we recommend incorporating a better control method to ensure proper tracking of these short form cases.**

- **Given that we have multiple telephone operations handled under the same contract, we recommend that we collect, to the extent possible, cost data for these programs separately.**

- **In order to improve upon the limitations encountered in the evaluation process of the Telephone Questionnaire Assistance program we recommend the following:**

  - **Improving communication among Census program areas and contract management**

  - **Scheduling the Telephone Questionnaire Assistance program testing and development into 2008 Dress Rehearsal so that we can test the functionality of the system before going into the 2010 Census**

  - **An early contract award to allow for adequate time to foster a common culture between the Census Bureau and the contractor to reduce the risk of compromising the Software Development Life Cycle principals**

1. BACKGROUND

The Telephone Questionnaire Assistance (TQA) operation was a short duration program implemented to assist the public in completing their census forms or obtaining information about the census. The goal of this evaluation is to study the public's usage of the TQA program by observing the call patterns that were exhibited during the program. In addition, the evaluation looks at the behavior callers exhibit in the two components of the system. Also, we will examine the amount of time required to service a caller through the TQA program. Finally, the evaluation concludes with general cost analysis of the program.

1.1 What was the TQA Program?

As part of the Census 2000 design, the Census Bureau implemented a telephone program to provide the public with assistance in completing their census forms. To meet the program requirements the Census Bureau contracted with Electronic Data Systems (EDS). EDS leveraged state-of-the art technologies commonly used in customer service environments in the private sector. The major technologies included Intelligent Call Routing (ICR) software and Interactive Voice Response (IVR) technology coupled with a network of commercial call centers to function as a single virtual call center. The IVR system was based on telephone technology that allowed callers to enter and obtain information through a series of menu options using either the telephone keypad (touch tone) or for English speaking callers, voice response. The ICR system responds to a request from the AT&T network and routed the calls to an IVR system or, if necessary, to an agent. The anticipated large call volume and short time frame of the program created a challenge in recruiting participants from the call center industry.

The TQA network was available to the public through language specific toll-free numbers March 3 through June 30, 2000. Callers could access the IVR portion of the network 24 hours a day, 7 days a week. TQA agents were available 8:00 AM to 9:00 PM for each of the nation's nine time zones, 7 days a week. TQA provided the following services:

- Answered questions about the census and the census questionnaire
- Allowed respondents to request a census form or language guide by mail
- Allowed callers, who met certain criteria, to respond to the census through TQA

Agents could collect a callers' census short form data only if they met certain requirements. Respondents who called after April 7 and claimed they had received a form with an address that did not correspond to their current residence were given a short form interview. Any caller who claimed to have difficulty reading or understanding a form and did not have a long form was given a census short form interview if they were calling between March 22 and June 8. Callers who wanted to complete their form over the phone and did not have a long form, or callers with a short form who called before April 8 and wanted to complete their form over the phone were given an interview. If a caller claimed they needed to add a person to a form they already sent in, the agent would conduct a short form interview. If a caller called after April 7 and claimed they had not received a form, the agent collected their information. Finally, if a caller claimed they had a usual home elsewhere, then we would collect their information over the phone.

1.2 What was the Basic Infrastructure/Design of the TQA System?

The basic infrastructure/design of the TQA network consisted of IVR systems and 22 call centers networked together as a virtual call center. 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 needed to be transferred to an agent, the ICR could view call activity at the individual agent level and route the call to the most available agent across the network. (U.S. Bureau of the Census, 2001a). Note that due to unexpectedly high call volumes some undetected ICR programming problems occurred. As a result, the prime contractor turned off certain ICR functions for the dates of March 13 and 14 to overcome the situation and continue taking calls.

The IVR systems, provided in English and Spanish languages, was based on telephone technology that allowed callers to enter and obtain information through a series of menu options using either the telephone keypad (touch tone) or, for English speaking callers, voice response. An IVR is ideal for handling routine inquiries. Users interact with a computer by using their telephone as a terminal. The objective of the system is to provide users with information without being transferred to an agent (Hayes, 1999). In the Census 2000 system, a caller was transferred to an operator if the caller gave two invalid responses to a menu, selected a menu option that automatically transferred the caller, or chose to speak with an agent.

Other potential benefits of an IVR system are: reduced operation cost, standardized customer service, 24 hour access to information, reduced peak call loads to agents, increased reliability of information, and diminished 'hold' and 'busy' signals and no-ring answers. (Hayes, 1999).

Three IVR scripts were designed to suit the needs of the public and the Census Bureau corresponding to the three different phases of Census 2000. These phases were:

- Phase 1 (March 3 - March 21, 2000) - Mailing of questionnaires in Mailout/Mailback areas and Update/Leave Mail Delivery which entailed updating Census Bureau maps and address listings as well as leaving questionnaires at the housing units
- Phase 2 (March 22 - April 7, 2000) - Majority of the questionnaires delivered
- Phase 3 (April 8 - June 30, 2000) - Housing units identified for Nonresponse Followup (NRFU) through the completion of the NRFU operation

The major difference in scripting across the three phases was defined by the method in which the IVR handled requests for a census form. We defined the phases based on timing of questionnaire delivery and the NRFU operation along with requests from respondents for a census form. In Phase 1, a caller who had not yet received a census form could not request a form since not all forms had been delivered. However, if a caller had received a form, but it was damaged, lost, or destroyed, and they could still provide us with the ID number; we would accept their request for a replacement form during Phase 1. In Phase 2, a caller could request a census form within the IVR and from an agent. In Phase 3, if a caller requested a census form, the caller was immediately transferred to an agent who either collected their census data or told the caller that a census worker would visit them at their home.

In addition there were differences between the English and Spanish IVR systems based on policy decisions. The Spanish language IVR system did not allow callers to request a Spanish questionnaire where as this service was available in the English language IVR.

An operator responded to a caller's request through a browser based desktop tool, written in HTML and Java, 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 mailing address information in order to mail a census form or language assistance guides, or conducting short form interviews given the caller met certain criteria.

The TQA program experienced some limitations in creating a fully integrated system. Late in the schedule, two call center companies cut about 2000 seats, as a result three call centers using older technology not compatible with the ICR were added. So, any calls handled by these call centers were not reported by the ICR. In addition to the use of older technology, we had the subcontracting requirement to work with small, small-disadvantaged, and women owned businesses. Some of these call centers had limitations and difficulties with their telecommunication switches, with no real time technical support available on site.

Staffing at the call centers was based on projected call volumes that were detailed to the individual day and hour level. We built a contingency into our staffing to allow for unexpected spikes/peaks in call volumes by assuming a 65 percent agent production rate, which could increase up to 80 percent for short periods, as necessary to handle these unexpected call volumes. This essentially allowed us to handle approximately a 25 percent increase in call volume with the staff for any specific day or time. If we experienced actual volumes that far exceeded the projected volume such that we exhausted our agent capacity but not AT&T's capacity to handle calls, AT&T got a message from the ICR to block incoming calls. This was to prevent agents from becoming overloaded due to the fact that the agent capacity was already maxed out with the calls already forwarded to them. In other words, the strategy when the agent network was maxed out was to give the caller a busy signal, rather than put them into the TQA network, which would have simply resulted in their waiting a long time in the queue.

We did not impose a performance standard for blockage rate on AT&T since in reality we are not able to control callers behavior, so we made our best effort to project call volumes and develop a reasonable contingency for flexing for dealing with periods of unexpected spikes in calls. If the number of calls exceeded the estimated call volume by 125 percent our solution was to block some people out of the system.

Our objective was building a system to meet peak demands based on a model. We recognize that there would be instances where we did not have enough agent capacity, and therefore would have a call queue. That is also why we built in messaging to notify the caller about projected wait times, and if necessary, request them to call back later. We also built "priority routing" into the system, so if a caller hung up based on the length of the queue, their return call would be routed directly to an agent with priority over first time callers.

We had some technical difficulties/issues with the small businesses that provided the Asian language support. At least one of these small businesses had limitations on its telecommunications switch, in terms of providing the appropriate type of messaging. Our strategy to use bi-lingual agents also may have had an impact. That is, depending on the timing of the calls and call volumes, some Asian language agents may have been handling English language calls when other Asian language calls came in. We always attempted to maintain a core Asian language agent staff to handle in-language calls, but unexpected spikes in call volumes would create wait times.

2. METHODOLOGY

2.1 What were the Data Sources used for this Evaluation?

The data used in this evaluation to profile the TQA program came from five separate sources: AT&T daily reports, ICR daily reports, ICR evaluation data file, IVR evaluation data file, and OSS evaluation data file.

The AT&T generated daily call volume reports that provided call volume handled by each of the language toll-free numbers. In addition, the reports included call volume handled by the IVR and calls offered to an agent. Also, the forecasted call volume was listed as a comparison to the actual.

The ICR component of TQA produced detailed management reports as well as evaluation call record data that tracked time and date information. The daily ICR management reports contained the following:

- call volumes for each language (toll-free number)
- total number of calls resolved in the IVR
- total number of calls received at each of the call centers
- total number of calls blocked at the AT&T network level, TQA network level, and the call centers
- call abandonment rates
- average call times for the different call types handled by an agent - short form interview, form request, questionnaire assistance.

The ICR evaluation file contained time, date, language, and case ID information. The case ID was intended to link the ICR file with call records produced by the other data sources.

The IVR evaluation files provided caller behavior information such as the menu options selected by a caller. Similarly, the OSS evaluation files provided recorded data of the screens accessed by an agent while servicing a caller. For a description of the complete file layout specifications for each of the evaluation files refer to U.S. Bureau of the Census, 1999. The ICR, IVR, and OSS evaluation files were specified to contain a call level ID so we could link the information across the three sources.

2.2 Applying Quality Assurance Procedures

We applied quality assurance procedures throughout the creation of this report. They encompassed how we determined evaluation methods, created specifications for project procedures and software, designed and reviewed computer systems, developed clerical and computer procedures, analyzed data, and prepared this report. For a description of these procedures, see the binder "Census 2000 Evaluation Program Quality Assurance Process."

3. LIMITATIONS

3.1 Limitations of the Data Sources

Not all of the data sources were in agreement - this indicated a loss of evaluation and report data and limited our ability to evaluate the TQA program. Two factors which contributed to the loss of evaluation and report data were the integration of three call centers using older technology and a compressed development schedule. The three call centers using older technology were not compatible with the ICR. So, any calls handled by these call centers were not reported by the ICR. The TQA program managers knew early in development, but other options were not available. These call centers were included in the TQA network to meet projected seat capacity requirements as a result of two call center companies cutting about 2000 seats very late in the schedule. The second factor, the compressed development schedule did not allow for adequate testing which may have uncovered an ICR software problem that surfaced when TQA received a high volume of calls beyond what was projected. Given more time to develop ICR routing routines, we may have prevented these problems, however we do not know for sure because of the inability to truly replicate the census call volumes during testing. Other issues related to the programming of the ICR may have also contributed to the loss of evaluation and report data but were never fully confirmed. Note that AT&T reported the largest call volume of all the data sources. Since AT&T billed the Census Bureau based on call volume, we decided that AT&T was the most reliable data source.

We do not know the source of the problems that caused the failures in data reporting. Therefore we are unable to assess the bias associated with each problem. Thus, analysis will be based on non-probabilistic samples of the overall call universe. Note that all statistics produced will cite the data source.

A comparison in call volume between the ICR and AT&T shows the ICR component did not output evaluation data for approximately 2 million calls. We would expect these two sources to be in agreement. The days where the ICR and AT&T data discrepancies occurred were March 13 through March 15, March 20 through March 25, and March 27 through April 1. According to the AT&T data, this was during the peak of the operation. On March 13 and March 14 certain ICR functions were turned off since the unexpected call volume stressed the system to the point that some previously undetected ICR programming problems occurred. Therefore, we are able to account for the missing data from the ICR on these dates. "The ICR problems were a disappointment to the TQA program because of the data and reporting capabilities that were lost." (Bureau of the Census, 2001a).

As stated earlier, the incomplete data sources used in this evaluation necessitate the use of non-probabilistic samples of the call universe in our analysis. Table 1 shows record counts for each of the data sources by call type. We can clearly see by comparison of the data source record counts that the reporting data are incomplete. During the TQA program we were aware of some of the problems with the output of reporting data, some of which were corrected during the program. Since we do not know the source or cause of the problems from each of the data sources we cannot assess the bias effect on the analysis. These data reporting problems were a direct result of inadequate testing due to a compressed development schedule for the TQA program.

In addition to the lost evaluation data records, connectivity across the files was lost. Each case record was to have a case ID carried on each evaluation file such that the files could be linked by the case ID number. However, this was not always the case as seen in Table 1. Thus, we lost the ability to link records for a large percentage of the cases, which compromised our ability to conduct planned analysis for this evaluation.

Table 1. Comparison of Data as Reported by each of the Data Sources (English and Spanish)[6]

Source File	Total Calls	IVR Resolved	OSS Calls	Undetermined
AT&T	[1] 6,028,371	2,736,009	3,074,398	*217,964
ICR (Geotel) evaluation file	[2] 4,003,193	[3]1,952,521	[4]2,037,979	12,693
IVR evaluation file	[5]5,540,386	[6]3,579,294	[7]1,961,092	0
OSS evaluation file	N/A	N/A	**1,704,803	N/A
ICR and IVR linked data	3,597,884	[6]2,171,458	[7]1,426,426	0
ICR and OSS linked data	N/A	N/A	463,663	N/A

[1] *Note that AT&T total calls contains blocked calls.*
[2] *Determined by tallying the total number of ICR call records.*
[3] *Determined by tallying the number of ICR call records that meet the following conditions: the IVR end time stamp is greater than the IVR start time stamp and both time stamp fields are non-blank, and both TQA start and end time stamp fields are blank.*
[4] *Determined by tallying the number of ICR call records that meet the following conditions: the TQA end time stamp is greater than the TQA start time stamp and both time stamp fields are non-blank.*
[5] *IVR evaluation file total calls contains no Asian, no Spanish voice response, and no blocked calls.*
[6] *Determined by tallying call records where transferred.*
[7] *Determined by tallying call records where transferred.*
** These are calls that were either blocked at the Network (AT&T) level or the premise (TQA) level.*
*** Contains Asian language call records.*
[6] *Note that the IVR resolution rate should not be calculated from these data do to inconsistencies in the files.*

3.2 Analysis of the Operator Support System

Originally we had planned to evaluate every screen or page of the OSS using the evaluation data. However, due to the following factors we were not able meet this objective: inter-divisional communication and planning complications, not all of the screens or pages of the OSS were programmed to output evaluation data, and the incompatibility of our specifications format to specifications needed to build an object oriented system such as the OSS. The latter was the largest contributing factor to our inability to fully evaluate the OSS. This was due to the fact that our specification format was so disparate from how an object oriented system is built, and thus did not facilitate the best design strategy. These limiting factors hindered the capability of this evaluation to provide a complete analysis of the OSS.

3.3 Cost Analysis

Included in the TQA contract was a coverage improvement program named Coverage Edit Follow-Up. This program was an outbound calling operation designed to correct count discrepancies or to add people to housing units classified as large households. Since the request for separate cost data for Coverage Edit Followup and inbound operations came almost at the close of the program, some of the item costs for both the inbound and outbound components were not billed separately by the contractor, thus we were not able to accurately report the separated costs for the inbound TQA program for these item costs. Moreover, we were not able to report the true value of the total cost of the TQA operation. In addition headquarter costs were not included in the cost figures.

3.4 Comparison to the 1990 Census

Ideally, we would be interested in comparing the TQA program experience of the 1990 census to the Census 2000 experience. However, due to the lack of data available from the 1990 census TQA program we are not able to perform such analysis. In fact, no evaluation work was conducted on the TQA program of the 1990 census.

4. RESULTS

4.1 What are the Different Calling Patterns the TQA program Experienced?

The TQA operation was conducted from March 3 to June 30. The system was designed to accommodate 11 million calls, but received approximately 6 million calls throughout the operation. Based on the 1990 Census call volume of 7.9 million, with an allowance for growth, the Census 2000 TQA program projected a call volume of 11 million calls. This projection reflected executive staff direction that the primary objective was to ensure that we did not undersize the system to avoid repeating our 1990 experience, when we handled less than 50 percent of the total calls. In Table 2, we see the overall call volume received for each of the language toll-free numbers. Of the total call volume (includes blocked calls), 86.9 percent of the callers used the English toll-free number, 12.6 percent called the Spanish number, and less than 0.5 percent combined called the Asian languages toll free numbers (Chinese, Vietnamese,

Korean, or Tagalog). Of the Asian languages, Chinese reported the largest call volume and Tagalog reported the smallest.

Table 2. Overall Call Volume by Language

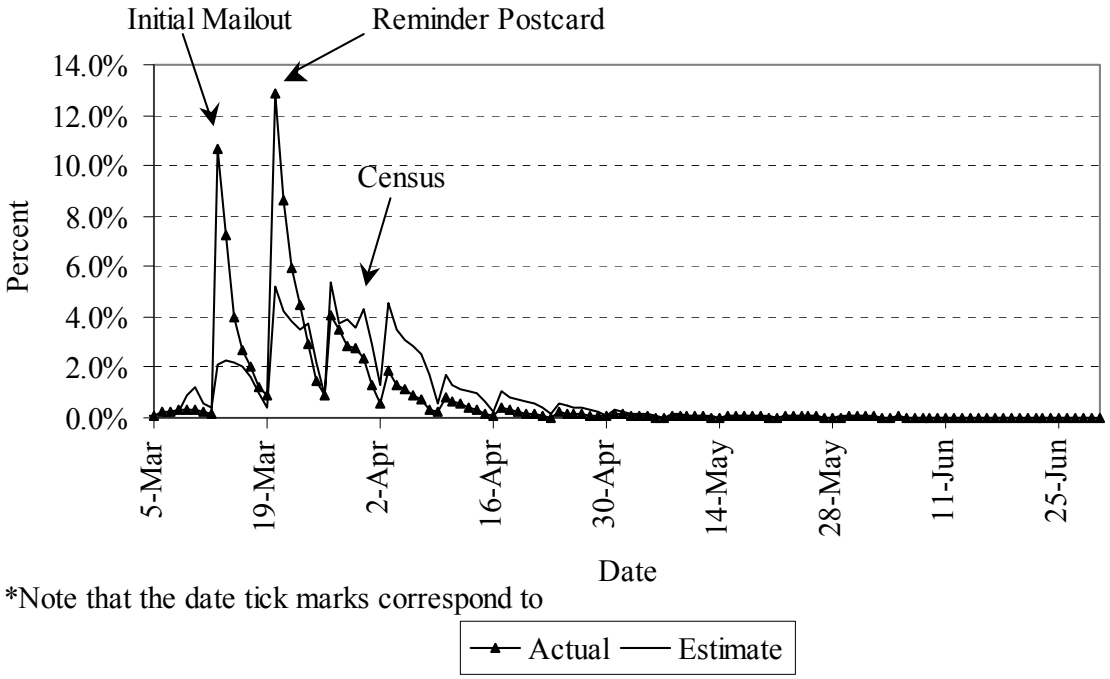
	Call Volume	
Language	Number	Percent
Total	6,028,371	100.0%
English	5,240,134	86.9%
Spanish	760,325	12.6%
Chinese	11,828	0.2%
Vietnamese	7,342	0.1%
Korean	7,249	0.1%
Tagalog	1,493	0.0%*

** The percent value calculated is less than a tenth of percentage point.*
Data Source: AT&T reports

Figure 1 shows both the daily percent distribution of actual call volume and the estimated call volume for the TQA program. We see that the first peak in the actual call volume occurs March 13, which corresponds to the initial mailout of Census 2000 questionnaires. We received approximately 10.6 percent of the total call volume on this date. The second and largest peak occurs March 20, which corresponds to the mail out of the Census 2000 reminder postcard. This peak shows that we received approximately 12.9 percent of the calls on this date. Following this is a third peak occurring on Monday, March 27 the week of Census Day (Saturday, April 1), after which calls taper-off to June 30.

In comparing the daily percent distribution of the estimated call volume to the actual call volume, we clearly see that the estimated call model did not account for the peaks that occurred on March 13 and 20. Note that the call model was based on the 1990 census, 1995 test, and the 1998 dress rehearsal data. Difference between these sources used for constructing the Census 2000 call model potentially account for the discrepancies between the model and the actual calling patterns. After March 20, the actual call volume tapers off at a faster rate than the estimated call volume. The estimated call distribution was modeled such that the bulk of the calls were predicted to come in during phase 2 (March 22 - April 7), the time period after all questionnaires were delivered up to the NRFU operation. Note that the denominator for the estimated percent distribution was based on a predicted call volume of 11,041,715 calls. Where as, the actual percent distribution was based on the actual call volume of 6,028,371. For a detailed comparison of the estimated and actual number of cases by day see Table A-1 in Appendix A. In addition, see Table A-2 in Appendix A for daily call volumes by language.

Figure 1. Daily Total Call Volume



*Note that the date tick marks correspond to

On the two peak call volume days (March 13 and March 20) we have a large difference between the actual number of calls and estimated number of calls. On March 13 the actual call volume was 640,555 (see Appendix A-1), where as we anticipated receiving 231,137 calls. This is a difference of 409,418 calls. On March 20 the actual call volume was 775,106 (Appendix A-1) and the estimated call volume was 579,217, which gives us a difference of 195,889. Hence, the variance between the estimate and the actual call volume is much larger for the first peak.

In addition to a daily call volume perspective of the TQA program, we are interested in viewing call volume from a day of the week perspective as seen in Table 3. The total column from Table 3 shows that 31.7 percent of callers called on Mondays with call volume dropping slightly each day as the week progressed. Sundays were the lowest call volume days. This distribution may be skewed toward Monday because the two largest call volume days, March 13 and March 20, occurred on Mondays. However, if we look at Figure 1 again, we see that after the peak call volume days, Mondays continue to be a high call volume day. Note that high call volumes on Mondays is an industry wide trend. We speculate that Mondays are a popular day for people to take care of "personal business" phone calls such as getting assistance for completing their Census 2000 questionnaire. Note that this trend follows for the English and Spanish callers, but is not as apparent for the Asian callers. This may be due to the fact that the Asian callers consist of a small universe and may contain outliers that distort the trend seen for the English and Spanish callers. For day of the week estimated and actual call volumes by language, see Table A-3 in Appendix A.

Table 3. Call Volume by Day of the Week

			Language					
Day of Week	Total	Estimate	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Sunday	3.1%	4.1%	3.0%	3.9%	5.6%	6.2%	3.6%	5.3%
Monday	31.7%	21.6%	32.6%	25.8%	17.8%	20.1%	19.3%	16.3%
Tuesday	22.6%	17.1%	22.6%	22.7%	21.6%	15.5%	17.6%	16.1%
Wednesday	15.6%	16.1%	15.6%	15.4%	15.8%	14.2%	18.0%	14.6%
Thursday	12.4%	15.6%	12.2%	13.8%	15.5%	16.0%	18.3%	16.4%
Friday	9.5%	15.7%	9.2%	11.5%	14.8%	16.3%	14.3%	21.5%
Saturday	5.2%	9.9%	4.9%	6.9%	9.0%	11.7%	8.8%	9.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Data Source: AT&T reports

From Figure 1 we have seen an effect due to census mailing strategy, and from Table 3 we have seen an additional effect due to the day of the week. Interestingly enough, the census mailing strategy was planned such that delivery of the census questionnaires and the reminder postcards to respondents started on Mondays continuing through Wednesdays (3-day window). Thus, these two effects coincide possibly causing an additive increase in call volume. To avoid this potential problem of a combined day of week effect and mailing effect, we should consider separating the two events to spread the distribution of call volume.

Next we compare the estimated day of the week percent distribution of calls to the actual total. Both the actual and the estimated day of week percent distribution are similar in regard to the fact that both are decreasing distributions when traversing from Monday to Sunday. This trend is also evident in examining Figure 1 and noticing the corresponding troughs on Sundays and peaks on Mondays for the two daily distributions.

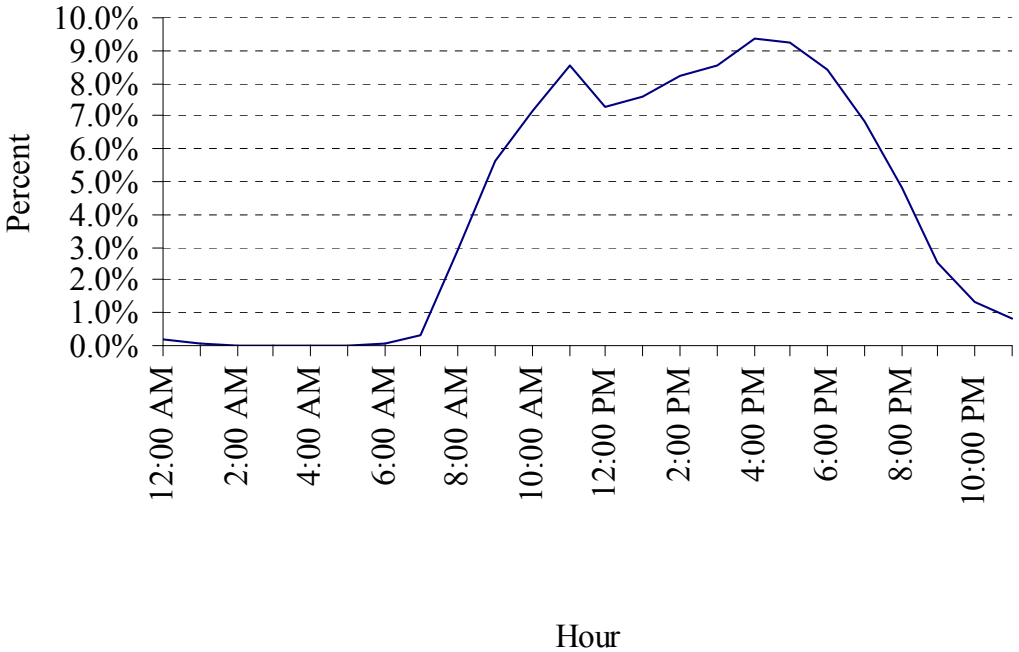
Changing our call volume measurement from day of the week to hour of the day, Figure 2 shows that the bulk of the call volume was received between the hours of 8 AM and 11 PM Eastern Standard Time. Note that all calls reported in this graph are reported in Eastern Standard Time, regardless of time zone of the call origin. Also note that call center agents were available from the hours of 8 AM to 9 PM for each time zone. The hourly call volume sharply peaks at 11 AM, drops off approximately one percentage point, and then gradually rises to its highest peak at 4 PM. We see from Figure 2 that the hours of agent availability and the IVR system were adequate for the hourly call volume experienced during the census. To see hourly call volumes by language, see Table A-4 in Appendix A.

In the previous graphs and tables we looked at the overall call volume patterns for various measurements of time, i.e. date, day of the week, and hour. Included in the call volume were calls that were blocked. By definition a blocked call is any call that was not able to access the IVR component of the TQA system or was not able to access an agent during normal operating hours. The major reason the TQA program experienced any call blockage was due to a contingency plan that was in place to react to any days/times where we experienced call volumes far exceeded our project call volumes. Note that agent staffing was based on projected call volumes. Thus, we built a contingency into our staffing to allow for unexpected spikes/peaks in call volumes by assuming a 65 percent agent productivity rate, which could increase to 80 percent for short periods, as necessary to handle unexpected call volumes. This essentially

allowed us to handle approximately a 25 percent increase in call volume with staff for any given day or time. However, if we had any days where the call volume far exceeded the projected call volume, the ICR sent a message to the AT&T network to block incoming calls. This prevented long wait times for callers queued to speak to an agent.

By definition, any blockage at the call center level was due to the lack of availability of agents.

Figure 2. Hourly Total Call Volume Distribution



Call centers were staffed based on the call model. So, any blockage we observe at the call center level is a direct result of the inability of the call model to forecast the true call patterns.

Table 4 summarizes by language the volume of calls that were blocked at the AT&T network. Overall, the incident of blockage at the AT&T level occurred for 3.6 percent of the calls. Note that the bulk of this blockage was a direct result of the contingency plan followed when call volumes far exceed the projected call volume on March 13 and 20. We see that English callers accrued the largest portion of the blocked calls, followed by Spanish and the Asian languages. In reference with Table 2, the percent of blocked calls distributed across languages is very similar to the percent of total calls distributed across languages. This shows that the AT&T blockage was impacting the calls by language proportional to their call volume - no bias.

When we look at the blockage rates by language we see Tagalog callers had the highest percent of calls blocked at the AT&T network level (6.8 percent). This may be a result of the small call universe represented by the Tagalog language. Spanish is 0.3 of a percentage point higher than the overall blockage rate. The remaining languages (English and the three other Asian languages) have a blockage rate that is less than or equal to the total blockage rate of 3.6 percent.

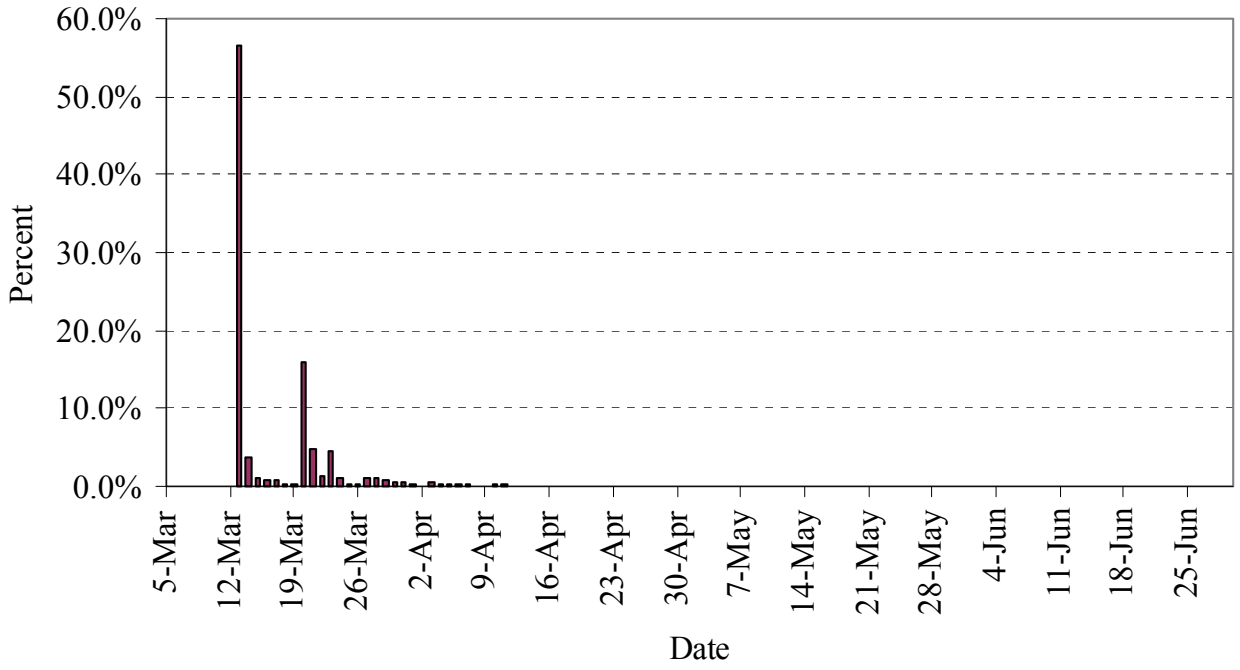
Table 4. Call Blockage at the AT&T Network by Language

	Blocked Call Volume		
Language	Number	Percent	Percent of call
Total	217,964	100.0%	3.6%
English	187,198	85.9%	3.6%
Spanish	30,020	13.8%	3.9%
Chinese	271	0.1%	2.3%
Vietnamese	176	0.1%	2.4%
Korean	198	0.1%	2.7%
Tagalog	101	0.0%	6.8%

Data Source: AT&T data reported via the Intelligent Call Router

Figure 3 shows the daily percent distribution of blocked calls at the AT&T network level. On March 13, we received 10.6 percent of the call volume and 56.6 percent of the AT&T blocked calls. The call volume for this date was 177 percent over what we had projected for this date (see Appendix A, Table A-1). This indicated that the contingent capacity was exceeded, thus explaining the high incidence of AT&T blocked calls. On March 20, we received 12.9 percent of the overall call volume and 15.8 percent of the AT&T blocked calls. This corresponds to the largest peak in call volume seen in Figure 1. We had a smaller incidence of blockage for this second peak, even though it is higher in call volume than the first peak, because the call volume for this date only exceed our projected call volume by 33 percent (see Appendix A, Table A-1). After the second peak in blocked call volume (March 20), we experienced little call blockage for the remainder of the program. Note that the overall blockage rate is 1.3 percent when we exclude the dates March 13 and March 20. For further detail of daily AT&T blocked call volumes, see Table B-1 in Appendix B.

Figure 3. Daily Percent Distribution of AT&T Network Blocked Calls



From Table 5, we see that the bulk of blocked calls occurred on Mondays, followed by Tuesday and Thursday. However, Figure 3 shows that the only two peaks in the volume of blocked calls (72.4 percent of the blocked calls), occurred on Monday, March 13 and Monday, March, 20. So, if we exclude these two days, Mondays may or may not be the peak day for blocked calls. When we look at the distribution of blocked calls by language, English and Spanish mimic the total distribution, but the Asian languages have varied distributions. This variation may be due to the small blockage levels for these languages. For further detail on day of the week AT&T blocked call volumes, see Table B-2 in Appendix B.

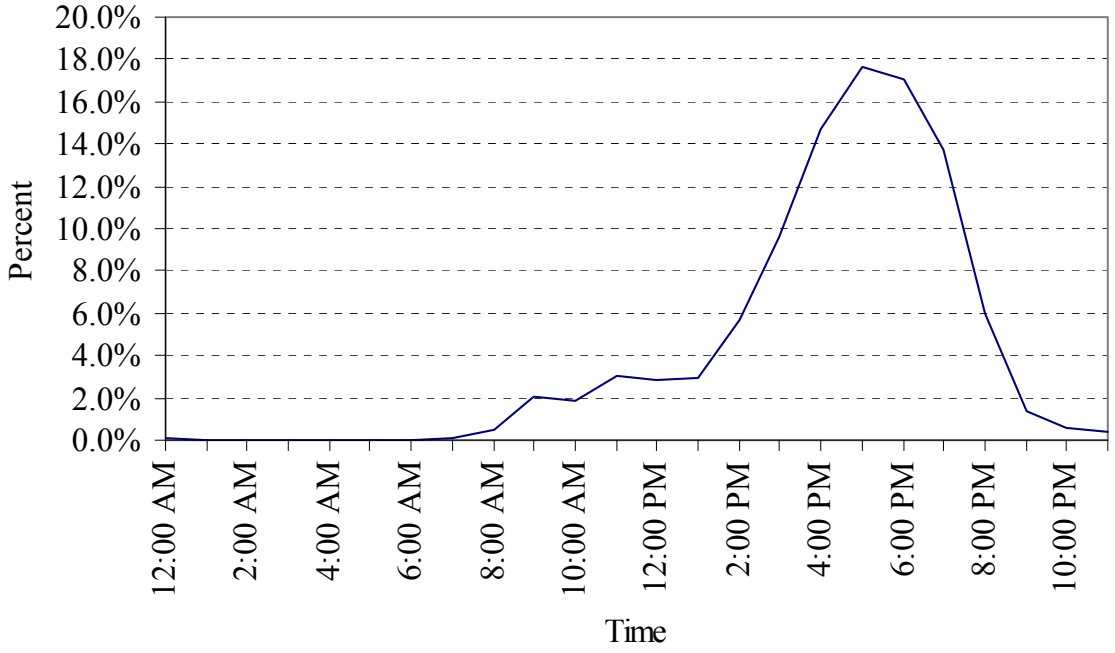
Table 5. Day of the Week Percent Distribution of Blocked Calls

		Language					
Day of Week	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Sunday	0.6%	0.6%	0.6%	8.9%	2.3%	1.5%	3.0%
Monday	74.5%	74.6%	75.4%	15.9%	15.9%	20.7%	14.9%
Tuesday	10.5%	10.3%	11.6%	23.2%	18.8%	22.2%	25.7%
Wednesday	3.9%	3.9%	3.3%	11.1%	13.1%	22.7%	23.8%
Thursday	6.4%	6.5%	5.1%	14.4%	30.1%	18.7%	8.9%
Friday	2.9%	2.7%	3.3%	22.9%	17.0%	13.1%	21.8%
Saturday	1.1%	1.2%	0.7%	3.7%	2.8%	1.0%	2.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Data Source: AT&T data reported via the Intelligent Call Router

From Figure 4, we see that the distribution of hourly blocked calls is uni-modal, gradually increasing from 7 AM to 1 PM Eastern Standard Time and then increasing sharply to a peak at 5 PM. And, then we see a sharp decline to 9 PM. The peak in calls blocked corresponds to the peak in hourly call volume. For further detail on hourly AT&T blocked call volumes, see Table B-3 in Appendix B.

Figure 4. Hourly Percent Distribution of Blocked Calls



Besides being blocked at the AT&T network level, callers could have been blocked at the TQA network level or at the call center level. A call that is blocked at the TQA network level is defined as the incident where a call is passed from the AT&T network to the TQA network and the call is not accepted by the IVR system. This type of blockage occurred for only English and Spanish calls. In addition, calls could have been blocked at the individual call center level. This incident occurred if a caller was transferred to an agent from the IVR (English and Spanish only) or a caller called one of the Asian language toll-free numbers and the call was not accepted by any call center.

Table 6 gives the blockage rates for each of the network levels by language. Note that we have already discussed the AT&T blockage rates. As a performance requirement of the contractor, the Census Bureau required that no more than 2.0 percent of the calls received be blocked at either the TQA network level or the call center level given that actual call volumes were consistent with projected call volumes. We see that this requirement was met for each of the languages except the Tagalog language. We do not have any evidence as to why 9.9 percent of the Tagalog callers were blocked at the Call Center level. One plausible explanation is that we may not have had adequate staffing of Tagalog bi-lingual operators. Another explanation is that our Asian language capacity was provided by some small businesses, one of which experienced

some technical problems during TQA. As a small business they did not have on-site technical support to resolve these problems immediately, so we generally had a few hours before the problems were fixed. In general, the blockage at the TQA network level and the call center level was minimal (less than 0.9 for each of the languages excluding Tagalog). For further detail on daily blocked call volumes at the AT&T network level, TQA network level, and the call center level; see Tables B-4 through B-9 in Appendix B.

Table 6. Blocked Calls at the AT&T Network, TQA Network, and at the Call Centers

	Language					
Network Level	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Total	3.8%	4.1%	2.7%	3.2%	3.2%	16.0%
AT&T	3.6%	3.9%	2.3%	2.4%	2.7%	6.8%
TQA	0.2%	0.1%	N/A	N/A	N/A	N/A
Call Center	0.0%	0.1%	0.4%	0.8%	0.5%	9.9%

N/A These languages did not have IVR capabilities thus a TQA network did not exist for these cases

Data Source: AT&T and the Intelligent Call Router

If a call was not blocked the call was then serviced by an IVR or an agent. Because the blockage was minimal at the TQA and call center network level and for the purposes of this evaluation, let us define a serviced call or handled call as any call that was not blocked at the AT&T network level. So in Table 7, we see the distribution of calls that were handled by language. Note that the distribution of calls handled by language (percent column) does not differ from the distribution of overall call volume (Table 2), English having the highest number of calls handled, followed by Spanish.

Table 7. Calls Handled by Language

Language	Calls Handled		
	Number	Percent by language	Percent of total calls received by language
Total	5,810,407	100.0%	96.4%
English	5,052,936	87.0%	96.4%
Spanish	730,305	12.6%	96.1%
Chinese	11,557	0.2%	97.7%
Vietnamese	7,166	0.1%	97.6%
Korean	7,051	0.1%	97.3%
Tagalog	1,392	0.0%	93.2%

** Note that 0.0% indicates a value less than a tenth of a percentage point.*

Data Source: AT&T data reported via the Intelligent Call Router

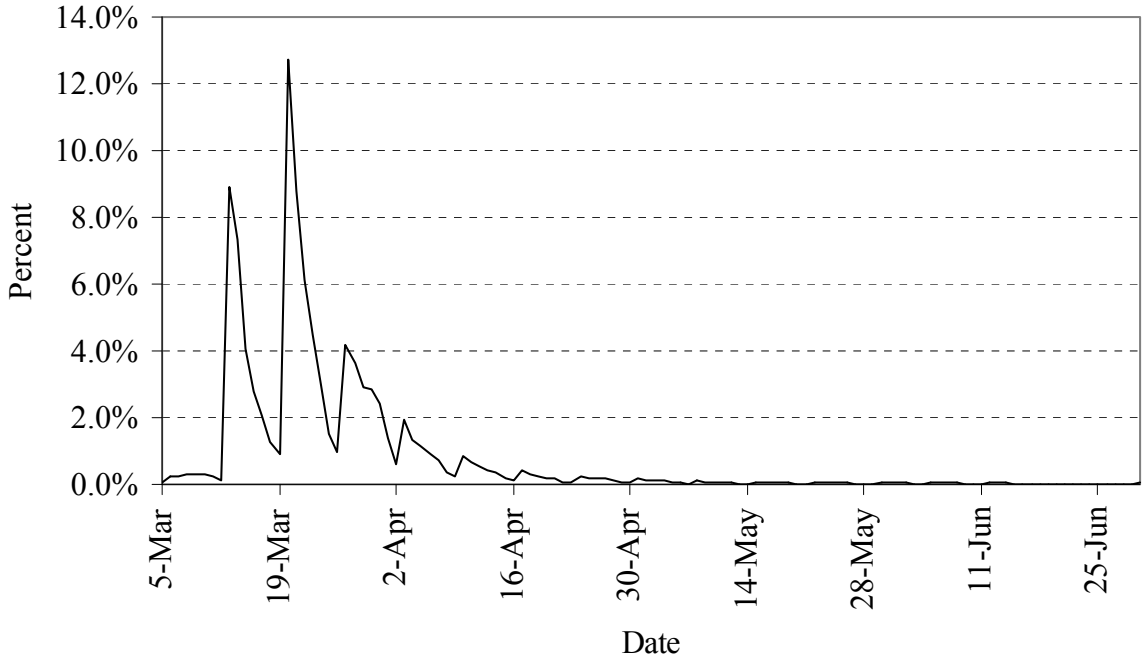
Of the approximately 6 million total calls received by the TQA program over 96.0 percent were

handled by the IVR or an agent. For each of the languages, we see that Chinese had the highest percentage of calls handled (97.7 percent) and Tagalog had the lowest percentage of calls serviced (93.2 percent).

From Figure 5 we see that the daily percent distribution of calls handled is almost identical to the daily percent distribution of call volume seen in Figure 1. This indicates that the volume and/or the distribution of calls blocked at the AT&T level (217,964 blocked calls) did not have an impact on the distribution of calls handled from the original distribution of total call volume. For more information on the number of calls handled by day, see Table C-1 in Appendix C.

Table 8 is similar to Table 3 (the day of week distribution of the total call volume). In general

Figure 5. Daily Distribution of Calls Handled



the majority of calls serviced were handled on Mondays and then, as the week progressed, the call volume dropped slightly each day with Sundays being the lowest call volume day. By language, this trend is followed by the English and Spanish callers, but not by the Asian callers. This may be due to the small call volume that the Asian callers represent. For more information on the number of calls handled by day of week and language, see Table C-2 in Appendix C.

Table 8. Day of the Week Distribution of Calls Handled

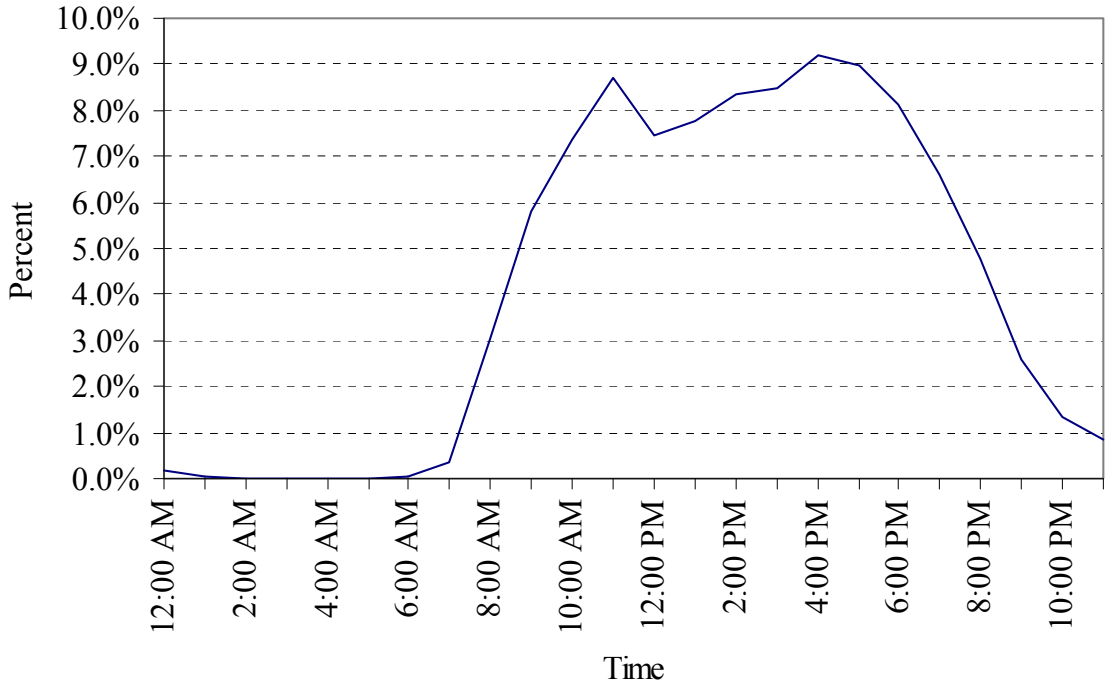
Day of Week	Total	Language					
		English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Sunday	3.2%	3.1%	4.0%	5.5%	6.3%	3.7%	5.5%
Monday	30.1%	31.0%	23.7%	17.8%	20.2%	19.3%	16.5%
Tuesday	23.0%	23.0%	23.2%	21.5%	15.4%	17.4%	15.4%
Wednesday	16.0%	16.0%	15.9%	15.9%	14.2%	17.9%	13.9%
Thursday	12.6%	12.4%	14.1%	15.5%	15.6%	18.3%	17.0%
Friday	9.7%	9.4%	11.9%	14.6%	16.3%	14.3%	21.5%
Saturday	5.3%	5.0%	7.2%	9.1%	11.9%	9.0%	10.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Data Source: AT&T data reported via the Intelligent Call Router

As we would expect, Figure 6 is similar to Figure 2 (hourly distribution of total call volume). Once an English or Spanish caller connected with an IVR system, the caller had the option to connect with an agent, given that the time of the call was during normal operating call center hours. So, English and Spanish callers fall into two categories, those who were transferred to an agent and those who terminated the call while in the IVR. For the purposes of this paper we will term the latter as an "IVR resolved call". A limitation in our definition of an "IVR resolved call" is that callers during non-operating call center hours, and callers who did not actually meet their service needs in the IVR but terminated the call are included in the IVR resolved universe. See Table C-3 in Appendix C for the actual hourly call volumes of calls handled.

In Table 9, we see that almost half (47.3 percent) of the total calls received by the IVR were IVR resolved. This exceeded the Census Bureau and contractor's projected resolution rate of

Figure 6. Hourly Distribution of Calls Handled



40.0 percent (EDS, 2000). This has a positive implication on the program because it represents 2,736,009 calls that were not transferred to an agent, thus resulting in a reduced agent workload. Hypothetically, the reduced agent workload should result in a reduced cost per call due to a lesser demand for agent staffing. This result may also suggest that the IVR worked well in meeting the public's needs in regard to the census, although we cannot say this definitively without assessing customer satisfaction data.

By language we see that the English IVR had a considerably higher percentage of calls that were IVR resolved. This difference indicates that the Spanish IVR did not equally meet the needs of Spanish callers in comparison to the English IVR assuming that callers transferred to an agent because they did not find the information or service they were in need of through the available IVR options. One possible reason for this difference is that the Spanish language IVR did not allow callers to request a Spanish questionnaire where as this service was available in the English language IVR. Therefore, if a significant portion of the Spanish callers were form requests, then these callers would have contributed to the lower Spanish IVR resolution rate. Note that this difference between the Spanish language and English language IVR reflects a policy decision.

Table 9. Distribution of IVR Resolved Calls by Language

	IVR Resolved Calls		
Language	Number	Percent	*Percent Resolved
Total	2,736,009	100.0%	47.3%
English	2,425,160	88.6%	48.5%
Spanish	286,055	10.5%	39.6%
Undetermined[1]	24,794	0.9%	41.4%

Data Source: AT&T

* The denominator is the universe of English and Spanish calls not blocked

[1] Data given for March 3 thru March 8 could not be identified by language

In Figure 7 the daily distribution of IVR Resolved Calls appears to be the same shape as the overall call volume distribution. We have four peaks occurring on Mondays and then volume falling through Sunday. See Table D-1 in Appendix D for daily IVR resolved call volumes.

Figure 7. Daily Distribution of IVR Resolved Calls

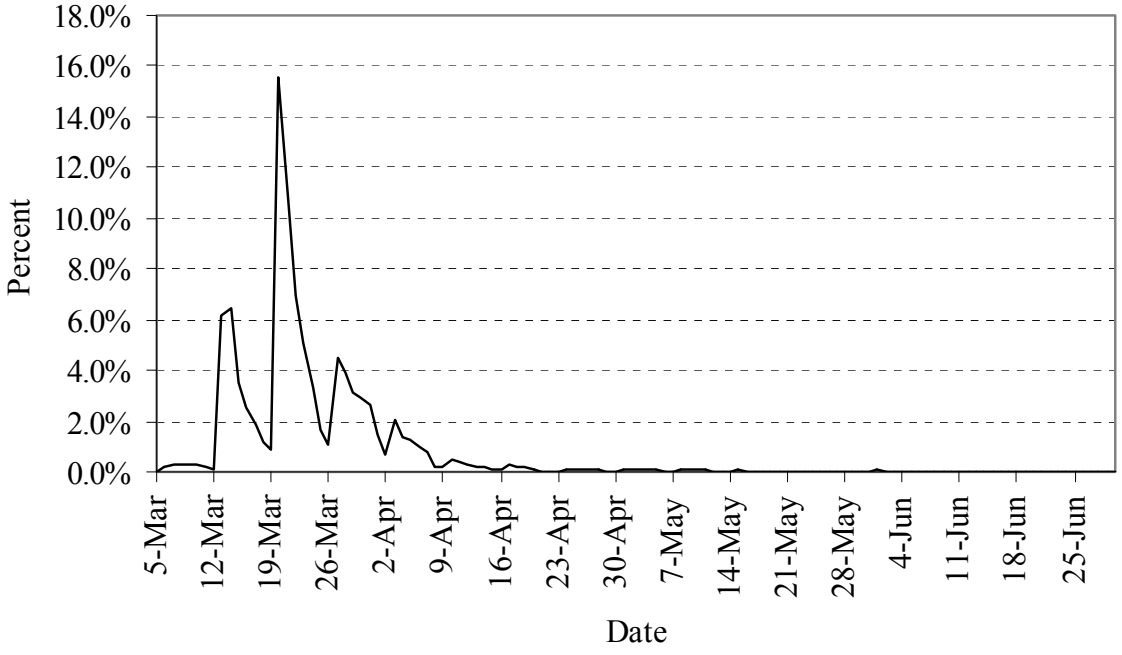


Table 10 gives us the day of week distribution of IVR resolved calls. We observe that the largest portion of IVR resolved calls occurred on Monday, decreasing to a low on Sunday. This resembles the distributions of call volume we have seen thus far. See Table D-2 in Appendix D for day of the week IVR resolved call volumes.

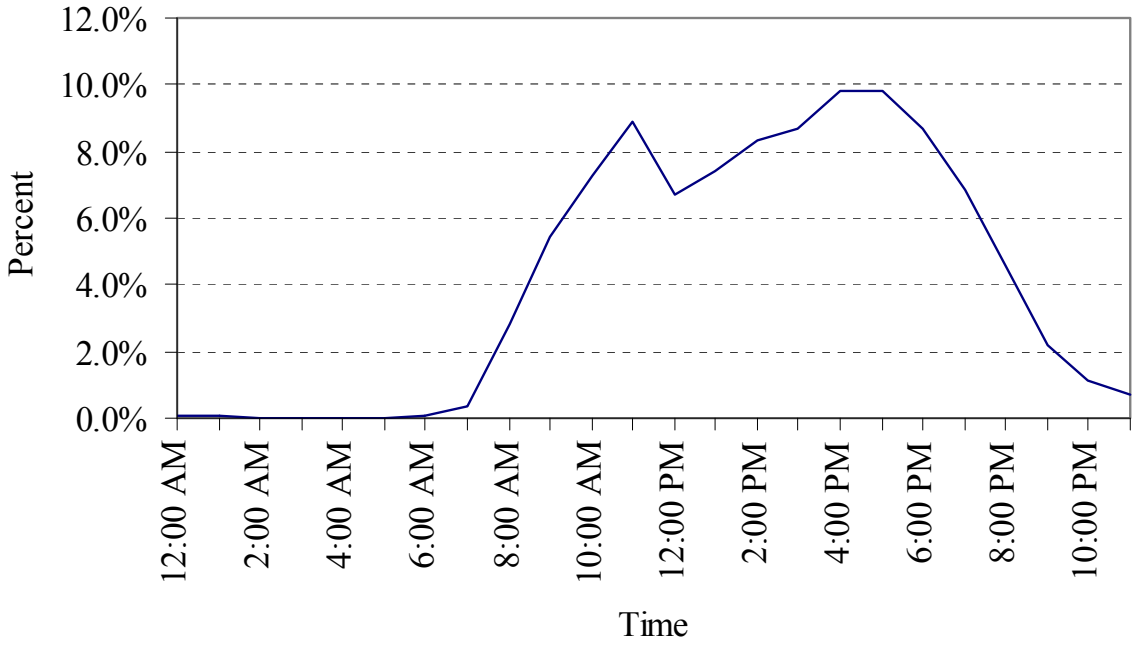
Table 10. Day of the Week Distribution of IVR Resolved Calls

		Language	
Day of Week	Total	English	Spanish
Sunday	3.1%	3.0%	4.0%
Monday	29.6%	30.2%	26.0%
Tuesday	23.8%	24.1%	20.3%
Wednesday	16.1%	15.9%	16.3%
Thursday	12.7%	12.6%	14.5%
Friday	9.6%	9.3%	11.9%
Saturday	5.1%	4.9%	7.0%
Total	100.0%	100.0%	100.0%

Data Source: AT&T

Figure 8 shows the hourly distribution of IVR resolved calls. Again, this distribution resembles the hourly call volume distributions from the previous figures. See Table D-3 in Appendix D for call volumes.
As mentioned in the Background Section 1, three IVR scripts were designed to suit the needs of

Figure 8. Hourly Distribution of IVR Resolved Calls



the public and the Census Bureau, corresponding to the three different phases of Census 2000. These phases were:

- Phase 1 (March 3 - March 21, 2000) - Mailing of questionnaires in Mailout/Mailback areas and Update/Leave Mail Delivery which entailed updating Census Bureau maps and address listings as well as leaving questionnaires at the housing units
- Phase 2 (March 22 - April 7, 2000) - Majority of the questionnaires delivered
- Phase 3 (April 8 - June 30, 2000) - Housing units identified for Nonresponse Followup (NRFU) through the completion of the NRFU operation

Due to the scripting differences across phases, we have an interest in looking at the IVR resolution rates by phase. Note that the major difference across phases was the scripting design for handling a caller requesting a census form.

From Table 11, we see a slight increase in the IVR resolution rate, moving from Phase 1 to Phase 2. When we move into Phase 3, we see a 21.5 percentage point drop in the resolution rate. We also notice the call volume is considerably less for Phase 3, representing only 8.8 percent of the overall call volume. Thus, the drop in resolution rate did not negatively impact the TQA program.

Table 11. IVR Resolved Calls by Census Phase

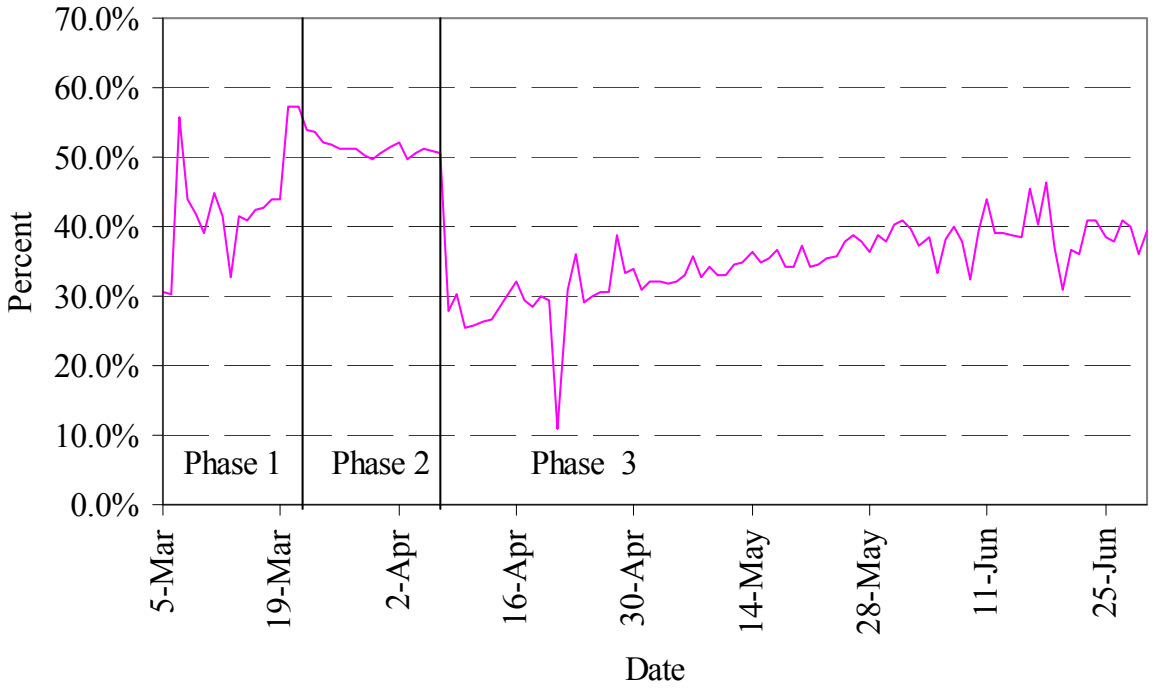
		Census Phase		
	All Phases	Phase 1	Phase 2	Phase 3
IVR Resolution Rate	47.3%	46.8%	51.7%	30.2%
Call Volume	5,783,241	2,956,552	2,317,783	508,906

Data Source: AT&T

To further investigate the drop in IVR resolution rate for Phase 3, we viewed the daily IVR resolution rates. In Figure 9, we see large fluctuations in Phase 1, and then a nice trend in Phase 2 where the rate stays at or above 50 percent. And, as mentioned in the previous table, we see a dramatic drop in the IVR resolution rate at the very beginning of Phase 3 and then a gradual rise through the remainder of the operation. The drop in resolution rate that occurred at the beginning of Phase 3 was anticipated because of the way we designed the scripting to handle callers in need of a questionnaire during Phase 3. This will be discussed in further detail in section 4.2.1 of this report.

The IVR's potential to service callers without the use of an agent is a very desirable trait of using

Figure 9. Daily Distribution of IVR Resolution Rates



IVR technology. Another trait or feature of IVR technology that was made use of in Census 2000 was incorporation of Automatic Number Identification (ANI) technology in the IVR. ANI is a type of commercial caller ID used to identify a caller's address by matching the caller's

phone number to the National Residential Database (NRB). This streamlined the process for the respondent when requesting a census form be mailed to them by allowing the caller to request a form without having to provide a mailing address. From Table 12, we see that when a respondent requested a mailed census form, the ANI process was successful in matching a respondent's phone number to an address 58.3 percent of the time. This is lower than what is typically seen in industry because of our design to exclude post office boxes and rural routes from the database.

Table 12. Automatic Number Identification Results

Total IVR Form Request	Matched	% Matched	Not Matched	% Not Matched
1,037,453	604,764	58.3%	432,689	41.7%

Data source: IVR evaluation file

4.2 What Types of Call Behaviors were Exhibited by TQA Callers?

In section 4.1 we were able to observe the calling patterns experienced during the TQA program using different time scales, i.e. date, day of week, hour, and census phase. In addition, we observed some of the call patterns that were a result of functionality of the TQA system; specifically, calls blocked and calls handled. This gave us a broad picture, in terms of call volume, of what happened during the course of the TQA program. Now, we would like to determine what happened once the callers accessed the IVR or an agent. Agents serviced calls with the aid of the OSS. So, the analysis relating to calls handled by agents is based on data output from the OSS.

4.2.1 Call Behavior in the Interactive Voice Response System

Once a caller accessed the IVR, the caller selected from a series of menu options to find information he or she needed to help complete their census form or to find information about the census in general. Callers also had the option to request that a census form be mailed to them. Note that not all of the menu options were offered across all of the phases since three different IVR scripts were designed to correspond to the three different phases of Census 2000. Table 13 lists the top level menu options available in the IVR system, by phase, and shows the distribution of callers according to their menu selections. For an overall selection distribution of the top level menu options see Appendix H, Table H-1. From Table 13, we see that across all phases a large percentage of the callers made "no selection" when accessing the IVR. A "no selection" is defined as anytime a caller did not make a selection or gave responses out of range from the available options. A caller that made "no selection" was transferred to agent for further assistance. Note that 22.2 percent of these callers were actually transferred to an agent.

Of the callers that made a single menu selection during Phase 1, we see that a larger percentage of these callers used the IVR system to attempt to find an answer to a "Frequently Asked Question" (FAQ). Following the FAQ option, the "reminder postcard" menu option was the next most frequently selected menu option followed by the "general information" option. The "reminder postcard" option explained why a reminder postcard was sent to the caller's housing

unit reminding them to complete their census form. We would have expected the selection frequency of the "reminder postcard" option to be higher since the largest peak in call volume corresponded to the delivery of the reminder postcard (see Figure 1). This indicates that the callers during this peak call volume were not primarily calling to find out why they were sent a reminder postcard. These callers were calling to obtain an answer to an FAQ or obtain service through one of the other menu options or a combination of the options. The other menu options available allowed callers to obtain "general information" about Census 2000, seek "additional help" through an agent, obtain the toll-free number to find out about Census 2000 "jobs", obtain the Census 2000 "internet" address, request a mailed census form (need form), or to report not having received a form (no form).

During Phase 2 callers primarily used the IVR system to request a mailed census form by selecting the "need form" option. The next most single frequently selected menu option was the FAQ option. During Phase 3, callers that made a single top level menu selection primarily selected the FAQ or the "general information" option.

Callers who selected more than one top-level menu option were counted as a "multiple selection" in Table 13. Further analysis was conducted on the callers who gave multiple selections at the top level menu to identify combinations of selections that were of a high frequency relative to other combinations. During Phase 1 of the Census, we found that the following pairs of menu options were of high frequency: (FAQ, General Information), (FAQ, Additional Help), and (FAQ, Postcard). In Phase 2, we had high frequencies for the same pairs as in Phase 1 with the addition of the combination (Need Form, Postcard). In Phase 3, the following combinations had high selection frequencies: (FAQ, General Information), (FAQ, Additional Help), and (No Form, Additional Help).

Table 13. Distribution of IVR Menu Selections by phase of Census 2000*

	Phase 1		Phase 2		Phase 3	
Menu Selection	Number	Percent	Number	Percent	Number	Percent
Total	2,759,305	100.0%	2,282,749	100.0%	498,332	99.9%
Frequently Asked Questions	790,511	28.6%	296,368	13.0%	74,156	14.9%
General Information	150,879	5.5%	63,941	2.8%	33,081	6.6%
Additional help	189,280	6.9%	79,163	3.5%	2,830	0.6%
Jobs	34,302	1.2%	23,377	1.0%	14,498	2.9%
Internet	11,463	0.4%	4,553	0.2%	1,817	0.4%
Postcard	263,768	9.6%	80,644	3.5%	----	----
Need form	----	----	1,062,731	46.6%	----	----
No form	----	----	----	----	13,012	2.6%
Multiple Selection	327,237	11.9%	187,601	8.2%	65,708	13.2%
No Selection	991,865	35.9%	484,371	21.2%	293,230	58.8%

Data Source: IVR evaluation file

** Note that the dashes (----) indicated the menu option was not available*

The menu options available in the IVR system provided access to a variety of Census 2000 related information, however not all callers were completely satisfied either with the menu options or having to deal with a computer and felt the need to opt to speak with an agent. In addition, callers could have been transferred automatically to an agent without specifically choosing this option. From Table 9, we observed that 2,736,009 calls were resolved in the IVR

which represent 47.3 percent of the calls handled by the IVR. Thus 3,047,232 IVR calls were transferred to an agent, representing 52.7 percent of the total calls handled in the IVR.

As mentioned, callers were transferred either by the caller's own choice or by automatic transfer. Automatic transfers were performed by the IVR in response to a number of call behaviors. For example, callers who made no selection could have hung up the phone, stayed on the phone, or given a response out of range of the given digits. If either of the latter two were performed by a caller, the caller heard an "invalid response message". After the second invalid response message the caller was transferred to an agent.

Automatic transfers varied by phase of the census. In Phase 1 of the census, callers were transferred to an agent from the IVR if they gave two invalid responses or made a conscious choice to go to an agent by selecting that menu option. In Phase 2, callers were transferred to an agent in the same manner as in Phase 1, with the addition of an automatic transfer in two additional situations . Case one, if a caller selected the send form option, provided a ZIP code, and after the IVR played the ZIP code back to the caller, he or she selected a menu option that indicated the ZIP code was incorrect, the caller was automatically transferred to an agent. Case two, if a caller selected the send form option and when asked for a census ID did not enter an ID and did not select the option indicating they did not have a census form, then they were automatically transferred to an agent. In Phase 3, the transfers that were available in Phase 1 were still available. However, the additional transfers related to the "send form" pathway were not available since requests for mailed forms were not taken during Phase 3. With the introduction of a new menu option "have not received a form", callers were automatically transferred to an agent upon selecting this option, thus they were not considered resolved in the IVR.

Analysis indicated that the majority of transferred IVR callers were transferred through the callers own volition. The primary reason callers were automatically transferred was due to callers not giving an appropriate response or a response at all. This was followed by callers not providing a census ID when prompted. In this case we would suspect that the caller probably had a census form but was not aware of ID location on the form or did not have the form physically in front of them. Not entering a ZIP code resulted in the fewest number of automatic transfers.

To conclude this section on call behavior in the IVR, we will discuss the amount of time callers spent while in the IVR. We would expect the length of a call to vary, depending on the call type. Table 14 shows mean call times for the IVR component of TQA broken down into whether the call was resolved in the IVR or unresolved (transferred to an agent). On average, a caller spent 2 minutes and 21 seconds in the IVR. As you would expect, an IVR resolved call took less time than an IVR unresolved call.

Table 14. IVR Call Times

	Mean Time (mm:ss)
IVR Total	02:21

IVR Resolved	02:01
Info	01:54
Form Request	02:22
IVR Unresolved	02:48
Info	02:48
Form Request	02:50

Data Source: ICR and IVR evaluation files
Maximum Call Time: 0:08:19

For an IVR resolved call, we see an increase in the amount of time a caller spent in the IVR when going from an information only call to a census form request call. For an IVR unresolved call, the average call times for an information only call and a census form request are approximately the same. Thus we see that call type did not affect the amount of time a caller spent in the IVR if the caller was not able to resolve their issue in the IVR.

4.2.2 Call Behavior in the Operator Support System (OSS)

Having discussed some of the general call behaviors exhibited in the IVR, we now observe some general call behaviors exhibited by callers serviced by an agent. Callers could obtain and give information via an agent. The agent in turn used an HTML and Java script based instrument called the OSS to serve the caller. The OSS facilitated the agent by providing an internet browser environment for the agent to click on and access verbatim scripting while assisting in giving and receiving information to and from the caller.

To see the volume of calls serviced by agents by day, day of the week, or hour and by language refer to Appendix E. Note that the data from Appendix E are from the daily ICR reports and do not agree with the other data sources used in the previous sections of this report (refer to the Methodology section for an outline of all data sources). Thus any derivations of the previous data sources to arrive at total calls handled by agents will not agree with the totals given in Appendix E.

At the point a caller opted or automatically transferred to an agent, or any call to one of the toll-free Asian language numbers, the Intelligent Call Router (ICR) routed the call to the most available agent. Sometimes an agent was not immediately available to service a caller, and if this was the case, the caller was placed in a call queue until an agent became available. A call queue allows a caller who has been put on hold for the longest amount of time to be serviced by the next available agent. Some of these queued callers could have abandoned the call. A call abandonment is defined as anytime a caller hung up the phone while waiting to speak to an agent. Callers that called back from the same originating phone number after abandoning a call were given priority in the call queue. However, if these "priority queue" callers encountered a long wait time again, these callers were given a special toll-free number to call.

Table 15 shows that 5.7 percent of the callers that were transferred to an agent abandoned the

phone call. The majority of these abandoned calls were either English or Spanish. Although, the rotary Spanish, Asian, and priority queue callers exhibited a higher abandonment rate. Due to limitations in our data sources, we are not able examine the abandonment rates separately for each of the respective call universes - Rotary Spanish, Asian, and priority queue callers. However, during the TQA program, there were no indications of any major abandonment issues with the rotary Spanish or Asian callers. Therefore, we suspect that the priority queue callers are the main contributing factor of the high abandonment rate exhibited by the rotary Spanish, Asian, and priority queue callers. We may have experienced a small incidence of Asian call abandonments due to technical difficulties experienced by the small businesses that provided the Asian language support. At least one of these small businesses had limitations on its telecommunications switch, in terms of providing the appropriate type of messaging.

Table 15. Total Distribution of Call Abandonments

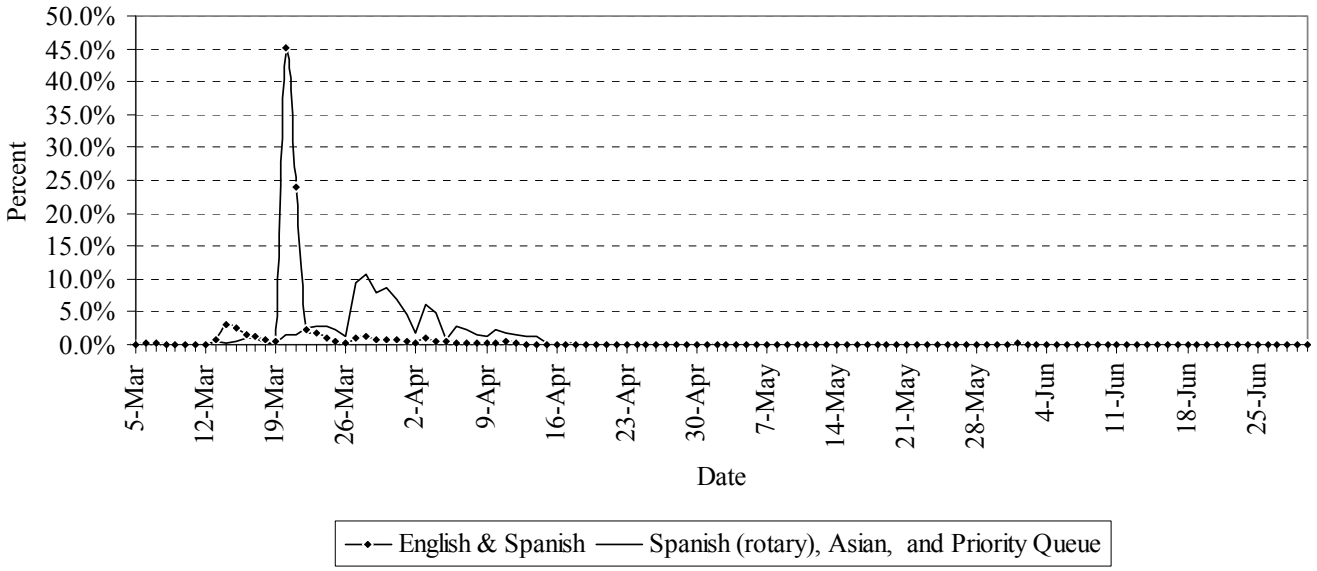
	Calls Abandonments		
Language	Number	Percent	Percent of Agent Calls
Total	134,988	100.0%	5.7%
English or Spanish	126,248	93.5%	5.4%
Rotary Spanish, Asian Languages, and priority queue	8,740	6.5%	32.4%

Data source: Intelligent Call Router reports

The daily distribution of call abandonments (Figure 10) shows that the bulk of the English and Spanish call abandonments occurred on Monday, March 20 and Tuesday, March 21. The first date corresponds to the largest peak in call volume seen in Figure 1. The largest number of call abandonments for the rotary Spanish, Asian, and priority queue callers occurred during the week of Census day April 1. After Census day, we see a gradual decrease. For further detail on daily volumes of call abandonments, see Table F-1 in Appendix F.

From the day of the week perspective (Table 16), we observe that the bulk of the total call abandonments occurred on Mondays. This is also the case for the English and Spanish call abandonments. However, the day of the week for which the bulk of call abandonments occurred

Figure 10. Daily Distribution of Call Abandonments



for Spanish rotary and Asian languages was split between Monday and Tuesday. To see the number of call abandonments by day of the week, refer to Table F-3 in Appendix F.

Table 16. Day of the Week Distribution of Call Abandonments

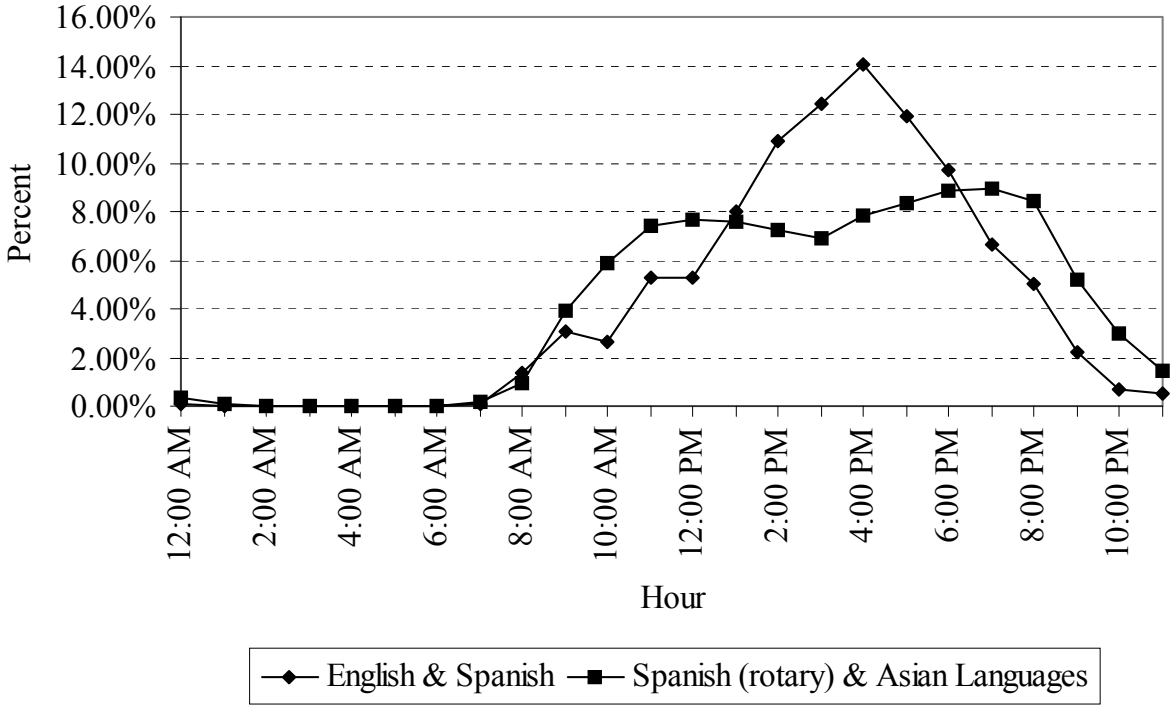
		Language	
Day of Week	Total	English & Spanish	Spanish rotary & Asian Languages
Sunday	1.8%	1.6%	4.7%
Monday	47.1%	49.0%	20.5%
Tuesday	29.3%	29.9%	20.1%
Wednesday	7.7%	7.2%	13.5%
Thursday	6.3%	5.5%	17.0%
Friday	4.9%	4.2%	14.7%
Saturday	3.0%	2.5%	9.6%
Total	100.0%	100.0%	100.0%

Data Source: Intelligent Call Router

In Figure 11, we observe that the peak of call abandonments for English and Spanish callers occurred during the 4 PM hour. The Spanish rotary and Asian language call abandonments peak during the lunch-time hours and we see a slight decline followed by another peak during the evening hours. To see the number of call abandonments by hour, refer to Table F-3 in

Given that a caller did not decide to abandon the call while waiting to speak to an operator, the caller was connected with an agent. The agent then prompted "You've reached the Census 2000 help line. How may I help you?". To address the caller's problem or question concerning the

Figure 11. Hourly Distribution of Call Abandonments



census or completing a census form, the agent clicked on one of the following hyperlinks in the OSS - "Needs Census Form", "Form Questions", "Census FAQ's Menu", or "Complaints Menu". If choosing any of the previous hyperlinks, the agent realized the information or services under that hyperlink did not meet the caller's needs, the agent could access the other hyperlinks via a "toolbar" in the browser and jump to the screen more appropriate to the callers needs.

Table 17 gives the distribution of the top level hyperlinks selected by an agent per call. These hyperlinks were also available via a toolbar throughout the instrument. Note that agents could have selected any combination of the available hyperlinks while servicing a call. We see that the majority of the calls were serviced by an agent selecting the "Need a census form" and the "FAQs about the census" hyperlinks. The number of selections for the "FAQs about the census" hyperlink was slightly lower than the "Needs a census form" hyperlink. The remainder of the hyperlink selections represent a small percentage of the overall selection universe. We see that

cases where the agent selected only the "Form questions" menu represented 8.0 percent of the cases. And, cases where an agent selected only the "Complaint" hyperlink represented 6.3 percent of the cases. Cases where the agent selected a combination of the top-level hyperlinks represent less than 5.0 percent of the selection universe.

Table 17. Operator Support System Top-Level Hyperlink Selection Distribution

Hyperlink(s) Selected	Frequency	Percent
Total	1,704,803	100.0%
Needs Census Form	749,368	44.0%
Form Questions	136,669	8.0%
Census FAQs Menu	634,710	37.2%
Complaints Menu	107,400	6.3%
Needs Census Form/ Complaints	34,173	2.0%
Needs Census Form/ Form Questions	21,035	1.2%
Form Questions/ Complaints	17,892	1.1%
Needs Census Form/ Form Questions/ and Complaints	3,556	0.2%

Data Source: OSS evaluation file

*There was no counter in place to count the number of times the "Census FAQs Menu" link was selected. So, if the evaluation data indicated that none of the other hyperlinks were selected during a call, we assumed that the "Census FAQs Menu" link was selected. In addition, we do not know if this link was selected in combination with the other links.

If an agent selected the "Needs Form" hyperlink, another page opened with the following series of hyperlinks: "Did not receive form," "Needs replacement form," or "Non-English language guide-Large print guide." If the "Form questions" link was selected, the agent was prompted to ask for the form type. Form types were presented as radio buttons (radio buttons act like the buttons on a car radio, the user can only have one button selected at a time and the active setting has a dot in the middle of the button) for this page and, depending on which form type was selected, hyperlinks to specific question numbers appeared. These question numbers accessed bookmarks in the Question Reference Database (QRB). If the caller did not know their form type, the agent selected the "If no form available" hyperlink. This hyperlink accessed information under the topics of population questions or housing questions.

The "Census FAQs Menu" link allowed the operator to access a list of hyperlinks to frequently asked questions on the following topics:

- address problems
- assistance completing forms
- concerns / complaints
- race questions
- general questions about the census, census forms, census data - availability and

use
- conducting the census
- purpose of questions
- phone numbers for census and government agencies

The "Complaints Menu" link allowed agents to respond to a respondent's complaints using the following list of topics: Invasion of privacy, mandatory participation, confidentiality concerns, long form, census worker visit, and non-English language guide. If an agent was not able to respond to the callers complaint from any of the topics in the previous list, the agent could record the caller's complaint as an "Other general complaint" which was then forwarded to the Census Bureau.

An important service TQA provided was the ability for agents to respond to requests for a Language Assistance Guide (LAG) - a brochure or guide available in 49 languages other than English that assisted non-English respondents in filling out their English census form. Agents accessed this service under the "Need Form menu" or the "Complaints menu" by selecting the "non-English language guide" hyperlink. Agents then selected from a choice of 49 languages and a Large print English guide. We received a total of 77,501 (see Appendix G) requests for LAGs. Appendix G shows the distribution of LAG guide selections made by agents. From this distribution, we see that the Spanish LAG was the most requested LAG. Other frequently requested LAGs consisted of the following languages: Albanian (7.0 percent), Dinka (6.0 percent) - a Sudanese language, Chinese (3.0 percent), Creole (2.1 percent), Vietnamese (1.8 percent), and Korean (1.6 percent).

In addition to being able to field requests for LAGs, agents were able to conduct a census short form interview if a caller met certain requirements. Respondents who called after April 7 and claimed they had received a form with an address that did not correspond to their current residence were given a short form interview. Any caller who claimed to have difficulty reading or understanding a form was given a census short form interview given that they did not have a long form census ID and were calling between March 22 and June 8. Callers who wanted to complete their form over the phone and did not have a long form census ID, or callers with a short form ID who wanted to complete their form over the phone and called before April 7 were given an interview. If a caller claimed they needed to add a person to a form they already sent in, the agent would conduct a short form interview. If a caller called after April 7 and claimed they had not received a form, the agent collected their information. Finally, if a caller claimed they had a usual home elsewhere, then we would collect their information over the phone.

We see from Table 18 that we had 253,806 calls that went to a short form interview. This total represents the number of times an agent clicked the option to go to a short form interview. At times, operators may have selected that option unintentionally and thus did not complete an interview. Also, respondents could have hung up once the operator selected the option to conduct an interview with a respondent. Either of these scenarios would have been removed from the production data file sent by EDS to the Census Bureau. These calls represent 11.3 percent of the total calls handled by agents.

Of the total cases where an agent selected the option to conduct a short form interview, Table 18

shows that 209,861 (82.7 percent) of these cases were sent by EDS to the Census Bureau for processing. Cases where the respondent provided a census ID or did not provide a census ID are included in this number. Note that there is a significant discrepancy between the total number and the number processed by Census Bureau. This is due to the reasons mentioned above. In addition, other conditions may have existed that also contributed to the discrepancy. Specifically, during the beginning weeks of the TQA operation, EDS experienced caching problems. As a result of the caching problems, some of the short form interview data may have been lost.

Table 18. Telephone Questionnaire Assistance Census Short Form Interviews

Total	Processed by the Census Bureau	Cases w/o ID	Cases w/ ID
253,806[a]	209,861[b]	199,775[c]	10,086[d]

Data Source: Census Bureau's Be Counted Evaluation Files, Production File, and Telephone Questionnaire Assistance Evaluation File

[a] Source of the data: Telephone Questionnaire Assistance Evaluation File.

[b] Source of the data: Production File.

[c] Source of the data: Be Counted Evaluation Files.

[d] Source of the data: Calculated Statistic, Difference between *Processed by the Census Bureau* and *Cases w/o ID* columns.

Of the cases sent to the Census Bureau for processing, we see that 199,775 did not have a census ID; i.e. the respondent did not provide a valid census ID. Thus, 10,086 did have a census ID. So, the majority of the short form interviews were incidents where the respondent did not provide a valid ID. These non-ID cases were subjected to a Census Bureau non-ID process flow in an attempt to match or assign the non-ID case to a valid Census ID. The details and the results of this process are described in Evaluation A.3 *The Be Counted Campaign of Census 2000* (U.S. Bureau of the Census, 2002). Note that cases where respondents requested a mailed census form without providing a valid census ID were subjected to the same non-ID process flow.

Beyond the census ID data provided by respondents, we are also interested in researching the quality of the data provided by the respondent during a short form interview, i.e. item non-response rates. Further research of this type can found in the Census 2000 Evaluation *B.1 Analysis of the Imputation Process* (U.S. Bureau of the Census, 2001b).

In comparison to the IVR (Table 14), we see from Table 19 that if a caller was serviced by an agent, a caller spent on average 2 minutes longer speaking to an agent than with an IVR. Thus from a "time" statistic, calls were handled more efficiently by the IVR. However, callers who transferred to an operator may not have had their question answered by the IVR and thus may require more explanation or service than what was available in the IVR.

In Table 19 we see a slight increase in the average call time when going from an information only call to a census form request or language assistance guide request. Then we see a large

increase in the average call time for a call whenever an operator conducted a census short form interview. Note for the short form interviews the average call time includes time leading up to an interview. As a comparison, the Census Bureau estimates that, for the average household, the paper census short form takes a respondent about 10 minutes to fill out, 2 minutes longer than the average time it took respondent to give their information through TQA. Note that we assume the average household size of TQA callers is equal to that of the national average household size.

Table 19. OSS/Agent Call Times

	Mean Time (mm:ss)
OSS/Agent Total	04:31
Info (Agent)	03:42
Form Request or Language Assistance Guide (Agent)	03:49
Interview (Total Agent Time)	08:06

Data Source: ICR and OSS evaluation files
Maximum Call Time: 1:23:12

From the Request for Proposal (RFP) for the TQA Program requirements for Census 2000, the Census Bureau estimated that the average time for a call resolved through the use of an IVR is four minutes. For calls resolved by a live agent, the estimated average talk time is four minutes in addition to time in IVR. From Table 14, we see that the actual mean time for IVR resolved calls is one minute and 39 seconds less than the corresponding estimated mean time stated in the TQA RFP. Table 19 shows that the actual mean time for calls resolved by an agent was 31 seconds longer than the corresponding estimated mean time stated in the TQA RFP.

4.3 How much did the TQA Program Cost?

Included in the cost of the TQA contract was a coverage improvement program named Coverage Edit Followup (CEFU). This program was an outbound calling operation designed to correct count discrepancies or to add people to housing units classified as large households (U.S. Bureau of the Census, 2001c). Since some of the item costs for both TQA and CEFU components were not billed separately by the contractor (shared cost), we are not able to accurately report the separated costs for the inbound TQA program for these items.

The TQA contract which includes the cost of the two programs combined was appropriated $102 million. Approximately $89 million was actually spent on the two programs (AT&T cost excluded). The positive variance of $13 million for TQA was the result of lower contractor costs in running the program since the number of inbound calls of 6 million was 45 percent lower than the 11 million calls planned (U.S. General Accounting Office, 2001).

Table 20 shows the known itemized costs for the TQA and CEFU operations. Each task shown can be attributed to CEFU only, TQA only, or to both. Note: This does not include

headquarter's resources or staffing costs.

The task on planning and definition, design and development, training, quality assurance, and FTS2000 phone costs cannot be split out between the two programs. These costs totaled $52,175,089.20. TQA only costs (inbound) included fulfilment development, fulfillment operations, postage for the fulfillment, and inbound operational costs. These totaled to $25,530,403.02. Fulfillment operations are defined as the mailing processes performed to "fulfill" a respondent's request for a census form and/or LAG. The CEFU only (outbound) costs were for agent's pay for outbound operations. This totaled $11,279,575.45.

Table 20. TQA/CEFU Cost Summary

Description	Cost
Total shared costs	**$56,598,904.83**
Planning and definition	$1,634,483.75
Design and development	$35,223,550.56
Training	$9,794,959.56
Quality Assurance	$6,418,592.92
FTS2000 costs	$3,527,318.04
Total TQA only costs (Inbound)	**$25,533,987.64**
Fulfillment Development	$121,168.35
Fulfillment Operations	$253,753.23
Inbound Operations	$24,469,189.06
Postage for fulfillment	$689,877.00
Total CEFU only costs (Outbound)	**$10,380,182.94**
Outbound operations	$10,380,182.94
Total costs for CEFU and TQA combined	$92,513,075.41

Cost reported as of 9/25/01

5. RECOMMENDATIONS

In summary, we were able to obtain an overall picture of the Census 2000 TQA program from a variety of perspectives. Namely, we focused on the call volumes experienced by the TQA system and how well the system handled these call volumes. In addition, we looked at some of the call behaviors exhibited by TQA callers. Finally, we concluded with analysis of the costs of the TQA program. These results allowed us to assess the general functionality of the TQA

system as well as to recognize some of the call behaviors exhibited by TQA respondents. Furthermore, from our assessments, we can make recommendations that will aid in the development of future TQA programs.

Our call volume analysis showed that the Telephone Questionnaire Assistance program received less than the projected call volume of 11 million calls, receiving approximately 6 million calls. Note that the projected call volume was based on the 1990 Census call volume of 7.9 million, with an allowance for growth. Of the 5.8 million calls serviced by the Interactive Voice Response system (English and Spanish), 47.3 percent were resolved in the Interactive Voice Response system. That is, the caller neither opted nor was automatically transferred to an agent. This exceeded the Census Bureau and contractor's projected Interactive Voice Response system resolution rate of 40 percent (EDS, 2000). In addition, approximately 3 million calls (51.0 percent) were serviced by an agent. Finally, 3.6 percent of the calls were blocked at the AT&T network level. Table 23 summarizes these results.

Table 21. Call Volume for Each Call Type

	Call Volume	
Call Type	Number	Percent
Total Calls	6,028,371	100.0%
IVR Resolved	2,736,009	45.4%
Agent	3,074,398	51.0%
Blocked Calls	217,964	3.6%

Data Source: AT&T and ICR

For the most part, TQA experienced very little blockage except for on the two largest peak call volume days March 13 and March 20. Only 1.3 percent of the calls were blocked if we exclude these two days. The blockage on these days occurred by design as a result of the call model not adequately forecasting the call volume levels. This suggests that the call blockage may have been avoided given the existence of better data in estimating call volume for these peak days. In other words, the TQA network could have been better prepared to handle call volume peaks given a more accurate model, thus avoiding any interruptions in customer service. Note that a major limitations in our call model was due to the fact that the model was constructed using data based on different mailing strategies from that of Census 2000. We should also note that the model did work well excluding the peak days March 13 and March 20 (see Appendix A, Table A-1).

Given the contractual situation with the network provider, AT&T, no performance requirements were included in the TQA contract. However, we recommend for the future monitoring the performance of the network provider based on our awareness of their contractual requirements so that we may be aware of any issues that may arise affecting the TQA program.

From the results of our daily call volume analysis we observe an increase in call volume due to the census mailing strategy and due to the day of the week. In general, we observe three large peaks throughout the TQA program. The first peak occurred after the initial mailout of census

questionnaires, the second and largest peak occurred after the mailout of the reminder postcard, and a third smaller peak occurred the week of census day. Interestingly enough, the census mailing strategy was planned such that the census questionnaires and the reminder postcards were delivered starting on Mondays. After these peak days, Mondays continued to be a high call volume day with call volume gradually declining through the remainder of the week to a low volume on Sunday. Thus, we speculate that Monday is a popular day for people to take care of "personal business" phone calls such as getting assistance for completing the Census 2000 questionnaire. The combined effect of the mailing strategy and day of the week factor possibly caused an additive increase in call volume. So, to avoid the potential problem of a combined day of week effect and mailing effect for future TQA programs, we recommend separating the two events to spread the distribution of call volume. Thus, we further recommend delivering the pieces on a day other than Monday.

In our analysis of the call volume experienced by the IVR component of the TQA program, we were able to see from our results the benefits of utilizing IVR technology. The IVR resolution rate exceeded the Census Bureau and contractor's projected resolution rate. A higher resolution rate by the IVR system, thus reduced the volume of calls transferred to an agent. In addition, from our call time analysis we observed that a caller spent on average 2 minutes longer speaking to an agent than with an IVR. Thus from a time statistic standpoint and assuming equal levels of service, the IVR handled calls more efficiently than agents. However, more than likely callers serviced by an agent require a higher level of service than the IVR, thus requiring more talk time. From a cost perspective, clearly calls handled by an IVR cost less than calls handled by an agent. Thus we can conclude the use of IVR provided a cost benefit by reducing the volume of calls handled by an agent. We recommend the continued use of Interactive Voice Response systems in future Telephone Questionnaire Assistance programs.

In addition to call volume, we were able to identify call behaviors exhibited in the IVR and the OSS. The IVR system allowed callers to obtain or enter information by selecting from a series of menu options. More specifically, callers could obtain information about completing a census form, request a form be mailed to the mailing address they entered into the system, or obtain information about the census in general. Through our analysis we found that callers primarily used the IVR system to obtain information on completing a census form. Secondly, they used the IVR to request a mailed census form. Following these two services callers used the IVR to obtain general information and other information pertaining to the census.

A less frequent call behavior exhibited in the IVR, but one which led to a drop in the IVR resolution rate during Phase 3, was selection of the "have not received a form" menu option. The reason this menu selection contributed to the drop in resolution rate was that once a caller selected this option, the caller was automatically transferred to an agent. The Census Bureau designed the IVR system to automatically transfer these callers to an agent to provide a higher level of customer service. Thus, our research should address how we can meet the needs of callers who have not received a census form in the IVR without compromising customer satisfaction. In general, we recommend further research on expanding the services provided through the use of Interactive Voice Response technology to help reduce the need for callers to speak with an agent.

By language we saw that the English IVR had a considerably higher percentage of calls that were IVR resolved. This difference indicates that the Spanish IVR did not equally meet the needs of Spanish callers in comparison to the English IVR assuming that callers transferred to an agent because they did not find the information or service they were in need of through the available IVR options. One possible reason for this difference was that the Spanish language IVR did not allow callers to request a Spanish questionnaire where as this service was available in the English language IVR. Therefore, if a significant portion of the Spanish callers were form requests, then these callers would have contributed to the lower Spanish IVR resolution rate. Note that this difference between the Spanish language and English language IVR reflects a policy decision. We recommend providing equal levels of service in both English and Spanish IVR systems for future TQA programs.

In addition to the call behaviors recognized in the IVR, we were able to characterize call behaviors of callers while waiting or being serviced by an agent. When a caller was transferred to an agent from the IVR, or calling from one of the Asian language toll-free numbers, an agent may not have been readily available to take the call. Thus, some callers may have abandoned their call while waiting for assistance from an agent. In measuring this behavior, we observed an overall 5.7 percent abandonment rate. The bulk of these abandonments occurred on our peak call volume days. Again pointing to our call volume model, if we had anticipated peak volume for these days, we could have increased staffing accordingly, thus reducing our call abandonment rate.

A factor that may have contributed to the incidence of abandoned or blocked calls for the Asian callers was the fact that our Asian language capacity was provided by some small businesses. One of these call centers experienced some technical problems during TQA. As a small business they did not have on-site technical support to resolve these problems immediately, so we generally had a few hours before they got fixed. We recommend providing on-site technical support to all call centers. Clearly this would require additional funding, however we still provide this recommendation as a goal for future TQA programs.

Of the main services provided by an agent, the most frequently requested service was the request for a census form. Forty four percent of callers serviced by an agent requested this service. Following the request for a census form, 37.2 percent were in need of an answer to a frequently asked question about the census; 8.0 percent needed an answer to a specific item on their census questionnaire. Finally, 6.3 percent needed to report a complaint about the census. Less than 5.0 percent requested a combination of two or more these services.
Our evaluation data indicated that 253,806 calls went to a short form interview. This total represents the number of times an agent clicked the option to go to a short form interview.
Of the total cases where an agent selected the option to conduct a short form interview, 209,861 (82.7 percent) of these cases were sent by EDS to the Census Bureau for processing. Note that there is a significant discrepancy between the total number and the number processed by Census Bureau. This is due in part to an agent unintentionally selecting the option to conduct a short form interview. In addition, other conditions may have existed that also contributed to the discrepancy. Specifically, during the beginning weeks of the TQA operation, EDS experienced caching problems. As a result of the caching problems, some of the short form interview data

may have been lost. In response to the uncertainty of the discrepancy between the number of times an agent selected the option to conduct a short form interview and the number of short form cases from TQA processed, we recommend a better control method to ensure proper tracking of these short form cases.

Overall, the TQA program was a success considering 6 million callers were serviced. However, the issues we encountered with report data loss, as illustrated in Table 1, were a negative aspect of the program. This affected the analysis for this evaluation by limiting us to non-probabilistic samples of the population. Also, the lack of reports forced program managers to utilize secondary sources of information, none of which were as specific as the intended reports. Although, the fact that we had access to secondary reports given the problems with the primary reports may be viewed as a success.

The lack of cost reports detailing the separate TQA and CEFU program costs inhibited us from reporting the true cost value of the TQA program. This was due to both programs sharing resources and late cost reporting requirements issued by the Census Bureau. Given that we have multiple telephone operations under the same contract in the future, we recommend providing separate cost reporting requirements for the programs earlier in the schedule where possible.

Another limitation was our inability to fully evaluate the use of the OSS due to the lack of evaluation output variables throughout the instrument. This limitation can be attributed to two factors, a short development schedule and the lack of inter-divisional communication.

Inter-divisional communication played an important role in the success of the TQA program as well as the success of this evaluation. However, there were some incidents where changes in the TQA program took place that impacted evaluations of the TQA program but were not communicated to Census Bureau program areas. Such a case occurred when the program lost about 2,000 call center seats late in the schedule and three call centers were added to the call center network that were not compatible with the ICR technology to fill the missing seats. Even though these cases were minimal, we still recommend improving communication among Census Bureau program areas and contract management to avoid such cases.

We believe these deficiencies as well as other technical difficulties in the TQA program could have been avoided if the TQA program had been incorporated into the overall census design, i.e. schedule the TQA testing and development into Dress Rehearsal so that we can test the functionality of the system before going into production.

In addition, deficiencies and technical difficulties with a system are often avoided by following the principles of the Software Development Life Cycle (SDLC - a commonly used process followed in the software industry to ensure the development of a high quality software product [Warthen, 2001]). Indeed, the prime contractor is a level four CMM (Capability Maturity Model) organization. However, as a result of the timing of the contract award in relation to Census Day followed by late requirements, some components resulted in the contractor having to scale back on the SDLC techniques approved by the Census Bureau. We recommend an early contract award to allow for adequate time to foster a common culture between the Census Bureau and the contractor to reduce the risk of compromising SDLC techniques. Implementation of these recommendations could have potentially prevented problems

experienced during the Census 2000 TQA program.

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Appendix A

Table A-1. Daily Distribution of Calls Received and Estimated Call Volume

		Calls Received			
Day	Date	Estimate	Actual	Ratio (Actual/Estimate)	> 1.25
Friday	3/3	----	5,793	----	----
Saturday	3/4	----	4,243	----	----
Sunday	3/5	----	3,019	----	----
Monday	3/6	5,633	13,641	2.422	x
Tuesday	3/7	7,510	15,793	2.103	x
Wednesday	3/8	22,530	18,006	0.799	
Thursday	3/9	99,508	18,489	0.186	
Friday	3/10	131,425	17,312	0.132	
Saturday	3/11	63,835	13,659	0.214	
Sunday	3/12	45,060	8,823	0.196	
Monday	3/13	231,137	640,555	2.771	x
Tuesday	3/14	250,292	434,579	1.736	x
Wednesday	3/15	241,992	239,752	0.991	
Thursday	3/16	223,475	162,921	0.729	
Friday	3/17	176,815	122,216	0.691	
Saturday	3/18	108,545	74,084	0.683	
Sunday	3/19	44,695	53,208	1.190	
Monday	3/20	579,217	775,106	1.338	x
Tuesday	3/21	470,425	521,365	1.108	
Wednesday	3/22	422,073	357,476	0.847	
Thursday	3/23	388,831	270,581	0.696	
Friday	3/24	411,999	178,725	0.434	
Saturday	3/25	239,745	89,041	0.371	
Sunday	3/26	97,711	55,690	0.570	
Monday	3/27	595,287	246,291	0.414	
Tuesday	3/28	415,652	212,829	0.512	
Wednesday	3/29	428,674	171,189	0.399	
Thursday	3/30	395,984	165,206	0.417	
Friday	3/31	478,590	143,499	0.300	
Saturday	4/1	323,868	79,941	0.247	
Sunday	4/2	146,855	36,551	0.249	
Monday	4/3	502,856	115,239	0.229	
Tuesday	4/4	383,298	78,033	0.204	
Wednesday	4/5	341,545	68,336	0.200	
Thursday	4/6	317,028	53,541	0.169	
Friday	4/7	280,059	43,380	0.155	
Saturday	4/8	185,541	21,710	0.117	
Sunday	4/9	63,673	14,439	0.227	
Monday	4/10	185,880	48,827	0.263	
Tuesday	4/11	141,685	39,694	0.280	
Wednesday	4/12	126,251	32,000	0.253	
Thursday	4/13	117,189	25,497	0.218	
Friday	4/14	103,523	21,753	0.210	
Saturday	4/15	68,585	10,437	0.152	
Sunday	4/16	23,537	5,987	0.254	
Monday	4/17	115,773	23,429	0.202	
Tuesday	4/18	88,247	17,384	0.197	
Wednesday	4/19	78,634	13,803	0.176	
Thursday	4/20	72,990	11,618	0.159	

		Calls Received			
Day	Date	Estimate	Actual	Ratio (Actual/Estimate)	> 1.25
Friday	4/21	64,478	9,349	0.145	
Saturday	4/22	42,717	4,281	0.100	
Sunday	4/23	14,660	2,044	0.139	
Monday	4/24	66,433	12,500	0.188	
Tuesday	4/25	50,638	10,593	0.209	
Wednesday	4/26	45,122	9,995	0.222	
Thursday	4/27	41,883	11,925	0.285	
Friday	4/28	36,999	7,013	0.190	
Saturday	4/29	24,512	4,011	0.164	
Sunday	4/30	8,412	2,696	0.320	
Monday	5/1	32,307	10,005	0.310	
Tuesday	5/2	24,626	7,973	0.324	
Wednesday	5/3	21,944	6,739	0.307	
Thursday	5/4	20,368	6,179	0.303	
Friday	5/5	17,993	4,876	0.271	
Saturday	5/6	11,921	2,392	0.201	
Sunday	5/7	4,091	1,621	0.396	
Monday	5/8	19,397	6,047	0.312	
Tuesday	5/9	14,785	5,006	0.339	
Wednesday	5/10	13,174	4,784	0.363	
Thursday	5/11	12,229	4,238	0.347	
Friday	5/12	10,803	3,381	0.313	
Saturday	5/13	7,157	1,689	0.236	
Sunday	5/14	2,456	830	0.338	
Monday	5/15	13,396	4,360	0.325	
Tuesday	5/16	10,211	3,791	0.371	
Wednesday	5/17	9,099	3,678	0.404	
Thursday	5/18	8,445	3,193	0.378	
Friday	5/19	7,461	2,722	0.365	
Saturday	5/20	4,943	1,387	0.281	
Sunday	5/21	1,696	871	0.514	
Monday	5/22	11,177	3,454	0.309	
Tuesday	5/23	8,520	2,882	0.338	
Wednesday	5/24	7,592	2,569	0.338	
Thursday	5/25	7,047	3,078	0.437	
Friday	5/26	6,225	3,035	0.488	
Saturday	5/27	4,124	1,544	0.374	
Sunday	5/28	1,415	737	0.521	
Monday	5/29	7,395	1,030	0.139	
Tuesday	5/30	5,637	3,565	0.632	
Wednesday	5/31	5,023	3,148	0.627	
Thursday	6/1	4,662	4,455	0.956	
Friday	6/2	4,119	3,056	0.742	
Saturday	6/3	2,729	1,158	0.424	
Sunday	6/4	936	604	0.645	
Monday	6/5	3,697	2,483	0.672	
Tuesday	6/6	2,818	2,293	0.814	
Wednesday	6/7	2,511	2,325	0.926	
Thursday	6/8	2,331	2,152	0.923	
Friday	6/9	2,059	1,772	0.861	
Saturday	6/10	1,364	827	0.606	
Sunday	6/11	468	579	1.237	
Monday	6/12	3,697	2,381	0.644	
Tuesday	6/13	2,818	1,940	0.688	

		Calls Received			
Day	Date	Estimate	Actual	Ratio (Actual/Estimate)	> 1.25
Wednesday	6/14	2,511	1,892	0.753	
Thursday	6/15	2,331	1,565	0.671	
Friday	6/16	2,059	1,367	0.664	
Saturday	6/17	1,364	951	0.697	
Sunday	6/18	468	458	0.979	
Monday	6/19	3,697	1,685	0.456	
Tuesday	6/20	2,818	1,524	0.541	
Wednesday	6/21	2,511	1,468	0.585	
Thursday	6/22	2,331	1,456	0.625	
Friday	6/23	2,059	1,266	0.615	
Saturday	6/24	1,364	647	0.474	
Sunday	6/25	468	336	0.718	
Monday	6/26	3,697	1,608	0.435	
Tuesday	6/27	2,818	1,431	0.508	
Wednesday	6/28	2,511	1,472	0.586	
Thursday	6/29	2,331	1,491	0.640	
Friday	6/30	----	1,828	----	----
Total		11,041,715	6,028,371	0.546	

Data source: AT&T

----'s indicate that there was no data produced from the call model for these dates

Table A-2. Daily Distribution of Calls Received by Language

			Language					
Day	Date	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Friday	3/3	5,793	5,090	685	3	7	3	5
Saturday	3/4	4,243	3,736	503	0	1	2	1
Sunday	3/5	3,019	2,611	400	1	1	3	3
Monday	3/6	13,641	12,184	1,438	3	4	8	4
Tuesday	3/7	15,793	13,595	2,182	2	0	13	1
Wednesday	3/8	18,006	15,576	2,386	2	5	13	24
Thursday	3/9	18,489	16,253	2,225	0	1	4	6
Friday	3/10	17,312	15,376	1,921	6	0	8	1
Saturday	3/11	13,659	12,174	1,480	5	0	0	0
Sunday	3/12	8,823	7,715	1,103	0	2	1	2
Monday	3/13	640,555	549,434	91,061	42	3	14	1
Tuesday	3/14	434,579	365,081	69,247	162	13	58	18
Wednesday	3/15	239,752	199,759	39,787	64	24	107	11
Thursday	3/16	162,921	135,947	26,771	57	33	109	4
Friday	3/17	122,216	101,478	20,569	63	29	69	8
Saturday	3/18	74,084	62,269	11,756	16	10	31	2
Sunday	3/19	53,208	44,117	9,062	11	9	8	1
Monday	3/20	775,106	736,181	38,730	12	59	116	8
Tuesday	3/21	521,365	482,315	38,799	88	45	107	11
Wednesday	3/22	357,476	331,981	25,079	100	65	242	9
Thursday	3/23	270,581	243,953	26,050	209	72	283	14
Friday	3/24	178,725	151,890	26,086	246	232	212	59
Saturday	3/25	89,041	70,008	18,394	159	276	158	46
Sunday	3/26	55,690	46,522	8,880	87	108	69	24
Monday	3/27	246,291	207,925	36,188	938	632	532	76
Tuesday	3/28	212,829	169,948	40,547	1,311	469	496	58
Wednesday	3/29	171,189	138,752	30,620	856	477	436	48
Thursday	3/30	165,206	128,477	34,656	813	650	510	100
Friday	3/31	143,499	115,290	26,351	847	529	363	119
Saturday	4/1	79,941	64,178	14,628	495	329	254	57
Sunday	4/2	36,551	29,582	6,466	238	152	92	21
Monday	4/3	115,239	96,892	16,904	585	423	347	88
Tuesday	4/4	78,033	64,920	12,001	488	311	245	68
Wednesday	4/5	68,336	57,511	9,981	372	235	198	39
Thursday	4/6	53,541	45,904	6,928	348	190	131	40
Friday	4/7	43,380	37,483	5,306	223	166	159	43
Saturday	4/8	21,710	18,682	2,699	126	109	89	5
Sunday	4/9	14,439	12,179	1,994	127	93	40	6
Monday	4/10	48,827	42,879	5,426	218	150	141	13
Tuesday	4/11	39,694	34,674	4,612	161	130	97	20
Wednesday	4/12	32,000	27,573	4,082	127	97	103	18
Thursday	4/13	25,497	21,642	3,520	122	99	99	15
Friday	4/14	21,753	18,143	3,278	166	103	54	9
Saturday	4/15	10,437	8,825	1,429	99	50	29	5
Sunday	4/16	5,987	5,079	763	87	30	26	2
Monday	4/17	23,429	20,462	2,636	116	98	110	7
Tuesday	4/18	17,384	15,207	1,877	94	60	141	5
Wednesday	4/19	13,803	11,933	1,640	87	39	93	11
Thursday	4/20	11,618	10,399	1,083	52	28	49	7
Friday	4/21	9,349	8,496	748	43	21	35	6
Saturday	4/22	4,281	3,836	405	16	9	13	2
Sunday	4/23	2,044	1,704	291	25	17	6	1
Monday	4/24	12,500	11,437	948	48	33	28	6

			Language					
Day	Date	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Tuesday	4/25	10,593	9,392	1,075	81	22	17	6
Wednesday	4/26	9,995	8,754	1,102	75	25	33	6
Thursday	4/27	11,925	10,651	1,150	71	13	29	11
Friday	4/28	7,013	6,290	614	51	18	37	3
Saturday	4/29	4,011	3,602	334	51	6	15	3
Sunday	4/30	2,696	2,447	192	35	13	3	6
Monday	5/1	10,005	9,211	695	48	20	23	8
Tuesday	5/2	7,973	7,345	525	47	27	22	7
Wednesday	5/3	6,739	6,233	437	33	19	11	6
Thursday	5/4	6,179	5,653	453	32	15	19	7
Friday	5/5	4,876	4,543	289	15	14	7	8
Saturday	5/6	2,392	2,238	122	15	12	4	1
Sunday	5/7	1,621	1,489	109	14	3	4	2
Monday	5/8	6,047	5,693	307	15	17	11	4
Tuesday	5/9	5,006	4,695	260	19	12	12	8
Wednesday	5/10	4,784	4,500	232	22	13	10	7
Thursday	5/11	4,238	3,954	244	18	11	10	1
Friday	5/12	3,381	3,157	188	17	7	9	3
Saturday	5/13	1,689	1,563	109	8	3	5	1
Sunday	5/14	830	762	59	4	4	1	0
Monday	5/15	4,360	4,063	253	21	5	15	3
Tuesday	5/16	3,791	3,515	240	15	10	9	2
Wednesday	5/17	3,678	3,423	225	14	6	10	0
Thursday	5/18	3,193	2,974	181	11	11	9	7
Friday	5/19	2,722	2,523	167	9	7	12	4
Saturday	5/20	1,387	1,286	74	11	10	2	4
Sunday	5/21	871	809	51	6	3	0	2
Monday	5/22	3,454	3,201	211	15	5	19	3
Tuesday	5/23	2,882	2,682	167	19	4	7	3
Wednesday	5/24	2,569	2,338	198	15	2	9	7
Thursday	5/25	3,078	2,702	300	17	19	23	17
Friday	5/26	3,035	2,628	282	19	41	35	30
Saturday	5/27	1,544	1,320	144	25	16	24	15
Sunday	5/28	737	606	109	6	5	8	3
Monday	5/29	1,030	796	208	6	10	6	4
Tuesday	5/30	3,565	3,045	459	10	11	26	14
Wednesday	5/31	3,148	2,582	493	30	23	10	10
Thursday	6/1	4,455	3,964	418	22	16	26	9
Friday	6/2	3,056	2,753	256	14	10	12	11
Saturday	6/3	1,158	1,014	122	14	3	3	2
Sunday	6/4	604	543	48	4	7	1	1
Monday	6/5	2,483	2,225	213	14	11	10	10
Tuesday	6/6	2,293	1,978	240	30	18	12	15
Wednesday	6/7	2,325	2,025	207	52	11	17	13
Thursday	6/8	2,152	1,876	212	37	9	15	3
Friday	6/9	1,772	1,544	197	17	5	5	4
Saturday	6/10	827	712	87	12	11	4	1
Sunday	6/11	579	507	55	9	2	2	4
Monday	6/12	2,381	2,154	209	6	3	7	2
Tuesday	6/13	1,940	1,740	181	11	4	2	2
Wednesday	6/14	1,892	1,555	316	10	1	4	6
Thursday	6/15	1,565	1,313	236	8	4	3	1
Friday	6/16	1,367	1,197	157	5	2	4	2
Saturday	6/17	951	791	136	8	12	3	1
Sunday	6/18	458	392	52	7	6	0	1

			Language					
Day	Date	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Monday	6/19	1,685	1,454	214	6	3	6	2
Tuesday	6/20	1,524	1,316	201	4	0	3	0
Wednesday	6/21	1,468	1,217	235	4	2	7	3
Thursday	6/22	1,456	1,260	182	8	0	5	1
Friday	6/23	1,266	1,107	143	6	2	8	0
Saturday	6/24	647	565	75	2	1	4	0
Sunday	6/25	336	301	31	2	2	0	0
Monday	6/26	1,608	1,409	178	7	0	9	5
Tuesday	6/27	1,431	1,228	185	8	2	6	2
Wednesday	6/28	1,472	1,293	170	4	0	5	0
Thursday	6/29	1,491	1,294	182	9	2	2	2
Friday	6/30	1,828	1,485	328	2	3	4	6
Total		6,028,371	5,240,134	760,325	11,828	7,342	7,249	1,493

Data Source: AT&T

Table A-3 Call Volume by Day of the Week by Language

			Language					
Day of Week	Estimate	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Sunday	456,601	188,493	157,365	29,665	663	457	264	79
Monday	2,380,676	1,908,641	1,707,600	195,819	2,100	1,476	1,402	244
Tuesday	1,882,798	1,360,675	1,182,676	172,798	2,550	1,138	1,273	240
Wednesday	1,773,697	938,632	817,005	117,190	1,867	1,044	1,308	218
Thursday	1,718,963	747,585	638,216	104,791	1,834	1,173	1,326	245
Friday	1,736,666	572,343	480,473	87,565	1,752	1,196	1,036	321
Saturday	1,092,314	312,002	256,799	52,497	1,062	858	640	146
Total	11,041,715	6,028,371	5,240,134	760,325	11,828	7,342	7,249	1,493

Data Source: AT&T

Table A-4 Call Volume by Hour by Language

		Language					
Hour	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
12:00 AM- 12:59 AM	9,680	6,755	2,699	130	44	32	20
1:00 AM -1:59 AM	3,291	2,672	558	29	18	6	8
2:00 AM -2:59 AM	1,101	916	182	0	2	1	0
3:00 AM -3:59 AM	485	398	87	0	0	0	0
4:00 AM -4:59 AM	319	264	55	0	0	0	0
5:00 AM -5:59 AM	487	433	54	0	0	0	0
6:00 AM -6:59 AM	2,026	1,858	150	7	2	7	2
7:00 AM -7:59 AM	19,655	16,084	3,395	73	39	52	12
8:00 AM -8:59 AM	176,353	160,557	15,232	246	140	159	19
9:00 AM -9:59 AM	340,906	313,074	26,889	412	246	251	34
10:00 AM -10:59 AM	432,357	398,147	32,983	498	305	353	71
11:00 AM -11:59 AM	513,251	457,503	53,796	777	530	527	118
12:00 PM -12:59 PM	438,413	389,408	46,564	1,014	641	667	119
1:00 PM -1:59 PM	458,948	407,717	48,854	971	620	683	103
2:00 PM -2:59 PM	497,076	444,102	50,719	887	563	671	134
3:00 PM -3:59 PM	513,728	459,061	52,585	855	543	590	94
4:00 PM -4:59 PM	566,454	501,527	62,713	807	664	630	113
5:00 PM -5:59 PM	558,936	487,550	69,114	926	565	636	145
6:00 PM -6:59 PM	507,999	423,955	81,898	879	596	552	119
7:00 PM -7:59 PM	413,830	337,343	74,526	870	499	493	99
8:00 PM -8:59 PM	291,170	234,024	55,484	707	474	395	86
9:00 PM -9:59 PM	152,561	111,058	40,245	601	360	214	83
10:00 PM -10:59 PM	79,803	53,038	25,562	627	305	202	69
11:00 PM -11:59 PM	49,542	32,690	15,981	512	186	128	45
Total	6,028,371	5,240,134	760,325	11,828	7342	7,249	1,493

Data Source: AT&T data reported through the Intelligent Call Router (note that because of inconsistencies in data sources the totals do not exactly agree with Tables A1 and A2)

Appendix B

Table B-1. Daily Distribution of Blocked Calls by Language

			Language					
Day	Date	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Friday	3/3	43	35	6	0	1	1	0
Saturday	3/4	24	22	2	0	0	0	0
Sunday	3/5	40	36	2	0	0	1	1
Monday	3/6	135	112	9	2	2	7	3
Tuesday	3/7	88	76	9	0	0	2	1
Wednesday	3/8	157	127	17	1	0	9	3
Thursday	3/9	120	102	15	0	0	0	3
Friday	3/10	123	110	12	1	0	0	0
Saturday	3/11	101	92	9	0	0	0	0
Sunday	3/12	69	62	6	0	1	0	0
Monday	3/13	123,472	102,889	20,578	3	1	0	1
Tuesday	3/14	8,212	6,288	1,907	7	0	1	9
Wednesday	3/15	2,489	2,076	388	6	3	9	7
Thursday	3/16	1,890	1,419	459	3	4	3	2
Friday	3/17	1,485	1,173	303	2	2	2	3
Saturday	3/18	644	506	132	2	4	0	0
Sunday	3/19	379	324	50	5	0	0	0
Monday	3/20	34,516	33,230	1,277	4	2	3	0
Tuesday	3/21	10,605	9,874	710	4	8	6	3
Wednesday	3/22	3,082	2,874	198	1	1	7	1
Thursday	3/23	9,666	9,034	621	3	0	8	0
Friday	3/24	2,368	1,945	404	7	4	5	3
Saturday	3/25	646	646	0	0	0	0	0
Sunday	3/26	354	307	42	3	0	1	1
Monday	3/27	2,351	1,863	452	13	11	6	6
Tuesday	3/28	2,250	1,546	641	33	9	16	5
Wednesday	3/29	1,786	1,476	275	13	12	4	6
Thursday	3/30	1,327	963	301	16	35	11	1
Friday	3/31	1,157	947	160	29	8	5	8
Saturday	4/1	502	502	0	0	0	0	0
Sunday	4/2	213	164	40	6	2	1	0
Monday	4/3	1,089	838	216	16	9	9	1
Tuesday	4/4	836	711	97	9	11	6	2
Wednesday	4/5	424	359	59	2	1	3	0
Thursday	4/6	373	292	59	9	6	7	0
Friday	4/7	487	420	46	9	5	5	2
Saturday	4/8	164	164	0	0	0	0	0
Sunday	4/9	113	89	18	6	0	0	0
Monday	4/10	308	249	42	4	1	11	1
Tuesday	4/11	332	270	44	7	1	9	1
Wednesday	4/12	168	128	22	2	3	9	4
Thursday	4/13	137	93	31	5	4	4	0
Friday	4/14	210	167	27	10	3	3	0
Saturday	4/15	218	193	21	2	0	0	2
Sunday	4/16	77	66	9	1	1	0	0
Monday	4/17	155	141	14	0	0	0	0
Tuesday	4/18	205	182	21	1	1	0	0
Wednesday	4/19	115	94	17	2	0	1	1
Thursday	4/20	83	74	8	1	0	0	0
Friday	4/21	59	52	3	1	1	0	2
Saturday	4/22	27	25	2	0	0	0	0

			Language					
Day	Date	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Sunday	4/23	16	13	3	0	0	0	0
Monday	4/24	70	62	7	0	0	1	0
Tuesday	4/25	86	81	2	1	1	1	0
Wednesday	4/26	50	46	2	0	0	2	0
Thursday	4/27	65	63	1	0	1	0	0
Friday	4/28	73	65	6	0	2	0	0
Saturday	4/29	18	11	5	2	0	0	0
Sunday	4/30	22	22	0	0	0	0	0
Monday	5/1	42	38	3	0	0	0	1
Tuesday	5/2	23	19	3	0	1	0	0
Wednesday	5/3	69	66	2	0	0	0	1
Thursday	5/4	14	9	4	1	0	0	0
Friday	5/5	40	32	7	0	0	0	1
Saturday	5/6	16	13	2	0	0	1	0
Sunday	5/7	14	13	1	0	0	0	0
Monday	5/8	31	25	4	0	1	0	1
Tuesday	5/9	25	21	2	0	0	1	1
Wednesday	5/10	18	14	3	1	0	0	0
Thursday	5/11	19	15	3	0	1	0	0
Friday	5/12	78	64	12	1	0	1	0
Saturday	5/13	77	59	18	0	0	0	0
Sunday	5/14	35	30	5	0	0	0	0
Monday	5/15	190	157	31	0	0	2	0
Tuesday	5/16	153	127	25	0	0	0	1
Wednesday	5/17	24	24	0	0	0	0	0
Thursday	5/18	10	9	1	0	0	0	0
Friday	5/19	21	17	1	0	1	1	1
Saturday	5/20	3	2	0	1	0	0	0
Sunday	5/21	14	12	0	1	0	0	1
Monday	5/22	36	33	3	0	0	0	0
Tuesday	5/23	28	26	2	0	0	0	0
Wednesday	5/24	34	32	2	0	0	0	0
Thursday	5/25	26	20	5	0	0	1	0
Friday	5/26	40	28	5	0	3	2	2
Saturday	5/27	8	3	1	2	1	1	0
Sunday	5/28	6	4	2	0	0	0	0
Monday	5/29	9	6	2	0	1	0	0
Tuesday	5/30	22	19	2	0	0	0	1
Wednesday	5/31	22	20	1	0	1	0	0
Thursday	6/1	30	22	1	0	1	3	3
Friday	6/2	17	14	2	0	0	1	0
Saturday	6/3	3	0	2	1	0	0	0
Sunday	6/4	4	2	1	1	0	0	0
Monday	6/5	12	9	0	1	0	1	1
Tuesday	6/6	14	10	1	1	0	1	1
Wednesday	6/7	18	10	4	1	1	1	1
Thursday	6/8	16	12	2	1	1	0	0
Friday	6/9	17	14	1	2	0	0	0
Saturday	6/10	15	12	3	0	0	0	0
Sunday	6/11	17	16	0	1	0	0	0
Monday	6/12	24	21	2	0	0	1	0
Tuesday	6/13	22	21	1	0	0	0	0
Wednesday	6/14	15	11	3	0	1	0	0
Thursday	6/15	27	23	4	0	0	0	0
Friday	6/16	27	23	4	0	0	0	0
Saturday	6/17	27	23	4	0	0	0	0

			Language					
Day	Date	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Sunday	6/18	27	23	4	0	0	0	0
Monday	6/19	27	23	4	0	0	0	0
Tuesday	6/20	20	16	3	0	0	1	0
Wednesday	6/21	15	12	3	0	0	0	0
Thursday	6/22	33	28	5	0	0	0	0
Friday	6/23	9	9	0	0	0	0	0
Saturday	6/24	9	9	0	0	0	0	0
Sunday	6/25	9	9	0	0	0	0	0
Monday	6/26	4	4	0	0	0	0	0
Tuesday	6/27	19	15	2	0	1	0	1
Wednesday	6/28	16	14	1	1	0	0	0
Thursday	6/29	25	23	2	0	0	0	0
Friday	6/30	25	23	2	0	0	0	0
Total		217,964	187,198	30,020	271	176	198	101

Data Source: AT&T data reported through the Intelligent Call Router

Table B-2 Call Blocked by Day of the Week by Language

		Language					
Day of Week	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Sunday	1,409	1,192	183	24	4	3	3
Monday	162,471	139,700	22,644	43	28	41	15
Tuesday	22,940	19,302	3,472	63	33	44	26
Wednesday	8,502	7,383	997	30	23	45	24
Thursday	13,861	12,201	1,522	39	53	37	9
Friday	6,279	5,138	1,001	62	30	26	22
Saturday	2,502	2,282	201	10	5	2	2
Total	217,964	187,198	30,020	271	176	198	101

Data Source: AT&T data reported through the Intelligent Call Router

Table B-3 Calls Blocked by Hour by Language

		Language					
Hour	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
12:00 AM- 12:59 AM	111	66	45	0	0	0	0
1:00 AM -1:59 AM	66	59	7	0	0	0	0
2:00 AM -2:59 AM	61	47	14	0	0	0	0
3:00 AM -3:59 AM	11	10	1	0	0	0	0
4:00 AM -4:59 AM	6	5	1	0	0	0	0
5:00 AM -5:59 AM	11	8	3	0	0	0	0
6:00 AM -6:59 AM	34	33	1	0	0	0	0
7:00 AM -7:59 AM	141	100	38	1	0	2	0
8:00 AM -8:59 AM	1,140	923	209	1	2	5	0
9:00 AM -9:59 AM	4,388	3,946	401	13	10	15	3
10:00 AM -10:59 AM	4,046	3,522	486	14	8	13	3
11:00 AM -11:59 AM	6,717	5,690	965	27	13	16	6
12:00 PM -12:59 PM	6,093	5,359	679	15	15	14	11
1:00 PM -1:59 PM	6,329	5,550	742	11	11	13	2
2:00 PM -2:59 PM	12,452	11,121	1,270	24	7	16	14
3:00 PM -3:59 PM	20,892	18,599	2,238	18	10	18	9
4:00 PM -4:59 PM	32,158	28,758	3,348	24	12	7	9
5:00 PM -5:59 PM	38,396	33,702	4,620	18	12	30	14
6:00 PM -6:59 PM	37,092	31,512	5,512	24	16	18	10
7:00 PM -7:59 PM	29,821	24,523	5,239	25	14	14	6
8:00 PM -8:59 PM	12,936	10,020	2,840	33	28	12	3
9:00 PM -9:59 PM	2,937	2,232	662	20	13	6	4
10:00 PM -10:59 PM	1,319	871	438	3	3	1	3
11:00 PM -11:59 PM	812	541	263	0	5	0	3
Total	217,969	187,197	30,022	271	179	200	100

Data Source: AT&T data reported through the Intelligent Call Router (note that because of inconsistencies in data sources the totals do not exactly agree with Tables B1 and B2)

Table B-4 Calls blocked (English)

Day	Date	Total		AT&T		TQA		Call Centers	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Friday	3/3	35	0.7%	35	0.7%	0	0.0%	0	0.0%
Saturday	3/4	22	0.6%	22	0.6%	0	0.0%	0	0.0%
Sunday	3/5	36	1.4%	36	1.4%	0	0.0%	0	0.0%
Monday	3/6	117	1.0%	112	0.9%	5	0.0%	0	0.0%
Tuesday	3/7	77	0.6%	76	0.6%	1	0.0%	0	0.0%
Wednesday	3/8	130	0.8%	127	0.8%	0	0.0%	3	0.0%
Thursday	3/9	104	0.6%	102	0.6%	2	0.0%	0	0.0%
Friday	3/10	111	0.7%	110	0.7%	1	0.0%	0	0.0%
Saturday	3/11	93	0.8%	92	0.8%	1	0.0%	0	0.0%
Sunday	3/12	63	0.8%	62	0.8%	1	0.0%	0	0.0%
Monday	3/13	102,927	18.7%	102,889	18.7%	38	0.0%	0	0.0%
Tuesday	3/14	6,578	1.8%	6,288	1.7%	290	0.1%	0	0.0%
Wednesday	3/15	2,187	1.1%	2,076	1.0%	111	0.1%	0	0.0%
Thursday	3/16	1,419	1.0%	1,419	1.0%	0	0.0%	0	0.0%
Friday	3/17	1,202	1.2%	1,173	1.2%	29	0.0%	0	0.0%
Saturday	3/18	533	0.9%	506	0.8%	27	0.0%	0	0.0%
Sunday	3/19	336	0.8%	324	0.7%	12	0.0%	0	0.0%
Monday	3/20	33,562	4.6%	33,230	4.5%	332	0.0%	0	0.0%
Tuesday	3/21	20,089	4.2%	9,874	2.0%	10,215	2.2%	0	0.0%
Wednesday	3/22	3,235	1.0%	2,874	0.9%	361	0.1%	0	0.0%
Thursday	3/23	9,034	3.7%	9,034	3.7%	0	0.0%	0	0.0%
Friday	3/24	1,981	1.3%	1,945	1.3%	0	0.0%	36	0.1%
Saturday	3/25	646	0.9%	646	0.9%	------	------	------	------
Sunday	3/26	307	0.7%	307	0.7%	0	0.0%	0	0.0%
Monday	3/27	1,863	0.9%	1,863	0.9%	0	0.0%	0	0.0%
Tuesday	3/28	1,546	0.9%	1,546	0.9%	0	0.0%	0	0.0%
Wednesday	3/29	1,555	1.1%	1,476	1.1%	79	0.1%	0	0.0%
Thursday	3/30	1,073	0.8%	963	0.8%	110	0.1%	0	0.0%
Friday	3/31	1,031	0.9%	947	0.8%	84	0.1%	0	0.0%
Saturday	4/1	560	0.9%	502	0.8%	58	0.1%	0	0.0%
Sunday	4/2	198	0.7%	164	0.6%	34	0.1%	0	0.0%
Monday	4/3	884	0.9%	838	0.9%	46	0.0%	0	0.0%
Tuesday	4/4	745	1.1%	711	1.1%	34	0.1%	0	0.0%
Wednesday	4/5	397	0.7%	359	0.6%	38	0.1%	0	0.0%
Thursday	4/6	326	0.7%	292	0.6%	34	0.1%	0	0.0%
Friday	4/7	443	1.2%	420	1.1%	23	0.1%	0	0.0%
Saturday	4/8	200	1.1%	164	0.9%	36	0.2%	0	0.0%
Sunday	4/9	105	0.9%	89	0.7%	16	0.1%	0	0.0%
Monday	4/10	310	0.7%	249	0.6%	61	0.1%	0	0.0%
Tuesday	4/11	301	0.9%	270	0.8%	31	0.1%	0	0.0%
Wednesday	4/12	161	0.6%	128	0.5%	33	0.1%	0	0.0%
Thursday	4/13	116	0.5%	93	0.4%	23	0.1%	0	0.0%
Friday	4/14	187	1.0%	167	0.9%	20	0.1%	0	0.0%
Saturday	4/15	211	2.4%	193	2.2%	18	0.2%	0	0.0%
Sunday	4/16	71	1.4%	66	1.3%	5	0.1%	0	0.0%
Monday	4/17	158	0.8%	141	0.7%	17	0.1%	0	0.0%
Tuesday	4/18	242	1.6%	182	1.2%	60	0.4%	0	0.0%
Wednesday	4/19	117	1.0%	94	0.8%	23	0.2%	0	0.0%
Thursday	4/20	87	0.8%	74	0.7%	13	0.1%	0	0.0%
Friday	4/21	59	0.7%	52	0.6%	7	0.1%	0	0.0%
Saturday	4/22	25	0.7%	25	0.7%	0	0.0%	0	0.0%
Sunday	4/23	13	0.8%	13	0.8%	0	0.0%	0	0.0%

Day	Date	Total		AT&T		TQA		Call Centers	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Monday	4/24	62	0.5%	62	0.5%	0	0.0%	0	0.0%
Tuesday	4/25	88	0.9%	81	0.9%	7	0.1%	0	0.0%
Wednesday	4/26	56	0.6%	46	0.5%	10	0.1%	0	0.0%
Thursday	4/27	70	0.7%	63	0.6%	7	0.1%	0	0.0%
Friday	4/28	78	1.2%	65	1.0%	13	0.2%	0	0.0%
Saturday	4/29	19	0.5%	11	0.3%	8	0.2%	0	0.0%
Sunday	4/30	25	1.0%	22	0.9%	3	0.1%	0	0.0%
Monday	5/1	38	0.4%	38	0.4%	0	0.0%	0	0.0%
Tuesday	5/2	27	0.4%	19	0.3%	8	0.1%	0	0.0%
Wednesday	5/3	74	1.2%	66	1.1%	8	0.1%	0	0.0%
Thursday	5/4	13	0.2%	9	0.2%	4	0.1%	0	0.0%
Friday	5/5	34	0.7%	32	0.7%	2	0.0%	0	0.0%
Saturday	5/6	14	0.6%	13	0.6%	1	0.0%	0	0.0%
Sunday	5/7	14	0.9%	13	0.9%	1	0.1%	0	0.0%
Monday	5/8	27	0.5%	25	0.4%	2	0.0%	0	0.0%
Tuesday	5/9	27	0.6%	21	0.4%	6	0.1%	0	0.0%
Wednesday	5/10	15	0.3%	14	0.3%	1	0.0%	0	0.0%
Thursday	5/11	17	0.4%	15	0.4%	2	0.1%	0	0.0%
Friday	5/12	65	2.1%	64	2.0%	1	0.0%	0	0.0%
Saturday	5/13	63	4.0%	59	3.8%	4	0.3%	0	0.0%
Sunday	5/14	31	4.1%	30	3.9%	1	0.1%	0	0.0%
Monday	5/15	161	4.0%	157	3.9%	4	0.1%	0	0.0%
Tuesday	5/16	128	3.6%	127	3.6%	1	0.0%	0	0.0%
Wednesday	5/17	26	0.8%	24	0.7%	2	0.1%	0	0.0%
Thursday	5/18	18	0.6%	9	0.3%	9	0.3%	0	0.0%
Friday	5/19	23	0.9%	17	0.7%	6	0.2%	0	0.0%
Saturday	5/20	3	0.2%	2	0.2%	1	0.1%	0	0.0%
Sunday	5/21	13	1.6%	12	1.5%	1	0.1%	0	0.0%
Monday	5/22	36	1.1%	33	1.0%	3	0.1%	0	0.0%
Tuesday	5/23	29	1.1%	26	1.0%	3	0.1%	0	0.0%
Wednesday	5/24	34	1.5%	32	1.4%	2	0.1%	0	0.0%
Thursday	5/25	22	0.8%	20	0.7%	2	0.1%	0	0.0%
Friday	5/26	29	1.1%	28	1.1%	1	0.0%	0	0.0%
Saturday	5/27	5	0.4%	3	0.2%	2	0.2%	0	0.0%
Sunday	5/28	7	1.2%	4	0.7%	3	0.5%	0	0.0%
Monday	5/29	9	1.1%	6	0.8%	3	0.4%	0	0.0%
Tuesday	5/30	20	0.7%	19	0.6%	1	0.0%	0	0.0%
Wednesday	5/31	21	0.8%	20	0.8%	1	0.0%	0	0.0%
Thursday	6/1	22	0.6%	22	0.6%	0	0.0%	0	0.0%
Friday	6/2	14	0.5%	14	0.5%	0	0.0%	0	0.0%
Saturday	6/3	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Sunday	6/4	2	0.4%	2	0.4%	0	0.0%	0	0.0%
Monday	6/5	9	0.4%	9	0.4%	0	0.0%	0	0.0%
Tuesday	6/6	10	0.5%	10	0.5%	0	0.0%	0	0.0%
Wednesday	6/7	12	0.6%	10	0.5%	2	0.1%	0	0.0%
Thursday	6/8	13	0.7%	12	0.6%	1	0.1%	0	0.0%
Friday	6/9	17	1.1%	14	0.9%	3	0.2%	0	0.0%
Saturday	6/10	15	2.1%	12	1.7%	3	0.4%	0	0.0%
Sunday	6/11	20	3.9%	16	3.2%	4	0.8%	0	0.0%
Monday	6/12	44	2.0%	21	1.0%	23	1.1%	0	0.0%
Tuesday	6/13	21	1.2%	21	1.2%	0	0.0%	0	0.0%
Wednesday	6/14	11	0.7%	11	0.7%	0	0.0%	0	0.0%
Thursday	6/15	23	1.8%	23	1.8%	0	0.0%	0	0.0%
Friday	6/16	23	1.9%	23	1.9%	0	0.0%	0	0.0%

Day	Date	Total		AT&T		TQA		Call Centers	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Saturday	6/17	23	2.9%	23	2.9%	0	0.0%	0	0.0%
Sunday	6/18	23	5.9%	23	5.9%	0	0.0%	0	0.0%
Monday	6/19	23	1.6%	23	1.6%	0	0.0%	0	0.0%
Tuesday	6/20	16	1.2%	16	1.2%	0	0.0%	0	0.0%
Wednesday	6/21	21	1.7%	12	1.0%	9	0.7%	0	0.0%
Thursday	6/22	28	2.2%	28	2.2%	0	0.0%	0	0.0%
Friday	6/23	11	1.0%	9	0.8%	2	0.2%	0	0.0%
Saturday	6/24	9	1.6%	9	1.6%	0	0.0%	0	0.0%
Sunday	6/25	9	3.0%	9	3.0%	0	0.0%	0	0.0%
Monday	6/26	5	0.4%	4	0.3%	1	0.1%	0	0.0%
Tuesday	6/27	17	1.4%	15	1.2%	2	0.2%	0	0.0%
Wednesday	6/28	14	1.1%	14	1.1%	0	0.0%	0	0.0%
Thursday	6/29	25	1.9%	23	1.8%	2	0.2%	0	0.0%
Friday	6/30	26	1.8%	23	1.5%	3	0.2%	0	0.0%
Total		199,755	3.8%	187,198	3.6%	12,518	0.2%	39	0.0%

Data Source: AT&T and the Intelligent Call Router

------'s indicate data was not available for that particular date.

Table B-5 Calls blocked (Spanish)

		Total		AT&T		TQA		Call Centers	
Day	Date	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Friday	3/3	7	1.0%	6	0.9%	1	0.1%	0	0.0%
Saturday	3/4	3	0.6%	2	0.4%	1	0.2%	0	0.0%
Sunday	3/5	9	2.3%	2	0.5%	4	1.0%	3	0.8%
Monday	3/6	9	0.6%	9	0.6%	0	0.0%	0	0.0%
Tuesday	3/7	9	0.4%	9	0.4%	0	0.0%	0	0.0%
Wednesday	3/8	18	0.8%	17	0.7%	1	0.0%	0	0.0%
Thursday	3/9	20	0.9%	15	0.7%	2	0.1%	3	0.3%
Friday	3/10	14	0.7%	12	0.6%	2	0.1%	0	0.0%
Saturday	3/11	10	0.7%	9	0.6%	1	0.1%	0	0.0%
Sunday	3/12	6	0.5%	6	0.5%	0	0.0%	0	0.0%
Monday	3/13	20,581	22.6%	20,578	22.6%	3	0.0%	0	0.0%
Tuesday	3/14	1,908	2.8%	1,907	2.8%	1	0.0%	0	0.0%
Wednesday	3/15	417	1.0%	388	1.0%	29	0.1%	0	0.0%
Thursday	3/16	459	1.7%	459	1.7%	0	0.0%	0	0.0%
Friday	3/17	327	1.6%	303	1.5%	20	0.1%	4	0.0%
Saturday	3/18	140	1.2%	132	1.1%	3	0.0%	5	0.1%
Sunday	3/19	59	0.7%	50	0.6%	3	0.0%	6	0.1%
Monday	3/20	1,324	3.4%	1,277	3.3%	44	0.1%	3	0.0%
Tuesday	3/21	743	1.9%	710	1.8%	15	0.0%	18	0.1%
Wednesday	3/22	218	0.9%	198	0.8%	14	0.1%	6	0.1%
Thursday	3/23	621	2.4%	621	2.4%	0	0.0%	0	0.0%
Friday	3/24	404	1.5%	404	1.5%	0	0.0%	0	0.0%
Saturday	3/25	0	0.0%	0	0.0%	------	------	------	------
Sunday	3/26	69	0.8%	42	0.5%	0	0.0%	27	0.5%
Monday	3/27	461	1.3%	452	1.2%	0	0.0%	9	0.0%
Tuesday	3/28	650	1.6%	641	1.6%	0	0.0%	9	0.0%
Wednesday	3/29	288	0.9%	275	0.9%	7	0.0%	6	0.0%
Thursday	3/30	317	0.9%	301	0.9%	1	0.0%	15	0.1%
Friday	3/31	190	0.7%	160	0.6%	12	0.0%	18	0.1%
Saturday	4/1	34	0.2%	0	0.0%	13	0.1%	21	0.2%
Sunday	4/2	61	0.9%	40	0.6%	9	0.1%	12	0.3%
Monday	4/3	222	1.3%	216	1.3%	3	0.0%	3	0.0%
Tuesday	4/4	104	0.9%	97	0.8%	1	0.0%	6	0.1%
Wednesday	4/5	69	0.7%	59	0.6%	4	0.0%	6	0.1%
Thursday	4/6	64	0.9%	59	0.9%	5	0.1%	0	0.0%
Friday	4/7	46	0.9%	46	0.9%	0	0.0%	0	0.0%
Saturday	4/8	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Sunday	4/9	18	0.9%	18	0.9%	0	0.0%	0	0.0%
Monday	4/10	44	0.8%	42	0.8%	2	0.0%	0	0.0%
Tuesday	4/11	46	1.0%	44	1.0%	2	0.0%	0	0.0%
Wednesday	4/12	22	0.5%	22	0.5%	0	0.0%	0	0.0%
Thursday	4/13	31	0.9%	31	0.9%	0	0.0%	0	0.0%
Friday	4/14	31	0.9%	27	0.8%	4	0.1%	0	0.0%
Saturday	4/15	21	1.5%	21	1.5%	0	0.0%	0	0.0%
Sunday	4/16	9	1.2%	9	1.2%	0	0.0%	0	0.0%
Monday	4/17	14	0.5%	14	0.5%	0	0.0%	0	0.0%
Tuesday	4/18	52	2.8%	21	1.1%	10	0.5%	21	1.8%
Wednesday	4/19	17	1.0%	17	1.0%	0	0.0%	0	0.0%
Thursday	4/20	13	1.2%	8	0.7%	2	0.2%	3	0.4%
Friday	4/21	5	0.7%	3	0.4%	2	0.3%	0	0.0%
Saturday	4/22	2	0.5%	2	0.5%	0	0.0%	0	0.0%
Sunday	4/23	3	1.0%	3	1.0%	0	0.0%	0	0.0%
Monday	4/24	7	0.7%	7	0.7%	0	0.0%	0	0.0%
Tuesday	4/25	9	0.8%	2	0.2%	7	0.7%	0	0.0%

		Total		AT&T		TQA		Call Centers	
Day	Date	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Wednesday	4/26	11	1.0%	2	0.2%	9	0.8%	0	0.0%
Thursday	4/27	30	2.6%	1	0.1%	29	2.5%	0	0.0%
Friday	4/28	7	1.1%	6	1.0%	1	0.2%	0	0.0%
Saturday	4/29	5	1.5%	5	1.5%	0	0.0%	0	0.0%
Sunday	4/30	7	3.6%	0	0.0%	7	3.6%	0	0.0%
Monday	5/1	6	0.9%	3	0.4%	0	0.0%	3	0.7%
Tuesday	5/2	3	0.6%	3	0.6%	0	0.0%	0	0.0%
Wednesday	5/3	2	0.5%	2	0.5%	0	0.0%	0	0.0%
Thursday	5/4	8	1.8%	4	0.9%	1	0.2%	3	1.1%
Friday	5/5	7	2.4%	7	2.4%	0	0.0%	0	0.0%
Saturday	5/6	3	2.5%	2	1.6%	1	0.8%	0	0.0%
Sunday	5/7	6	5.5%	1	0.9%	2	1.9%	3	5.5%
Monday	5/8	5	1.6%	4	1.3%	1	0.3%	0	0.0%
Tuesday	5/9	2	0.8%	2	0.8%	0	0.0%	0	0.0%
Wednesday	5/10	3	1.3%	3	1.3%	0	0.0%	0	0.0%
Thursday	5/11	3	1.2%	3	1.2%	0	0.0%	0	0.0%
Friday	5/12	12	6.4%	12	6.4%	0	0.0%	0	0.0%
Saturday	5/13	18	16.5%	18	16.5%	0	0.0%	0	0.0%
Sunday	5/14	5	8.5%	5	8.5%	0	0.0%	0	0.0%
Monday	5/15	31	12.3%	31	12.3%	0	0.0%	0	0.0%
Tuesday	5/16	25	10.4%	25	10.4%	0	0.0%	0	0.0%
Wednesday	5/17	3	1.3%	0	0.0%	3	1.3%	0	0.0%
Thursday	5/18	5	2.8%	1	0.6%	4	2.2%	0	0.0%
Friday	5/19	5	3.0%	1	0.6%	4	2.4%	0	0.0%
Saturday	5/20	2	2.7%	0	0.0%	2	2.7%	0	0.0%
Sunday	5/21	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Monday	5/22	12	5.7%	3	1.4%	6	2.9%	3	2.6%
Tuesday	5/23	3	1.8%	2	1.2%	1	0.6%	0	0.0%
Wednesday	5/24	3	1.5%	2	1.0%	1	0.5%	0	0.0%
Thursday	5/25	9	3.0%	5	1.7%	1	0.3%	3	2.0%
Friday	5/26	10	3.5%	5	1.8%	5	1.8%	0	0.0%
Saturday	5/27	17	11.8%	1	0.7%	7	4.9%	9	11.8%
Sunday	5/28	19	17.4%	2	1.8%	14	13.1%	3	5.3%
Monday	5/29	18	8.7%	2	1.0%	16	7.8%	0	0.0%
Tuesday	5/30	78	17.0%	2	0.4%	76	16.6%	0	0.0%
Wednesday	5/31	109	22.1%	1	0.2%	108	22.0%	0	0.0%
Thursday	6/1	2	0.5%	1	0.2%	1	0.2%	0	0.0%
Friday	6/2	2	0.8%	2	0.8%	0	0.0%	0	0.0%
Saturday	6/3	2	1.6%	2	1.6%	0	0.0%	0	0.0%
Sunday	6/4	1	2.1%	1	2.1%	0	0.0%	0	0.0%
Monday	6/5	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Tuesday	6/6	1	0.4%	1	0.4%	0	0.0%	0	0.0%
Wednesday	6/7	13	6.3%	4	1.9%	9	4.4%	0	0.0%
Thursday	6/8	22	10.4%	2	0.9%	20	9.5%	0	0.0%
Friday	6/9	22	11.2%	1	0.5%	18	9.2%	3	2.7%
Saturday	6/10	7	8.0%	3	3.4%	4	4.8%	0	0.0%
Sunday	6/11	8	14.5%	0	0.0%	8	14.5%	0	0.0%
Monday	6/12	38	18.2%	2	1.0%	36	17.4%	0	0.0%
Tuesday	6/13	14	7.7%	1	0.6%	13	7.2%	0	0.0%
Wednesday	6/14	34	10.8%	3	0.9%	31	9.9%	0	0.0%
Thursday	6/15	28	11.9%	4	1.7%	24	10.3%	0	0.0%
Friday	6/16	9	5.7%	4	2.5%	5	3.3%	0	0.0%
Saturday	6/17	8	5.9%	4	2.9%	4	3.0%	0	0.0%
Sunday	6/18	10	19.2%	4	7.7%	6	12.5%	0	0.0%
Monday	6/19	16	7.5%	4	1.9%	12	5.7%	0	0.0%
Tuesday	6/20	20	10.0%	3	1.5%	17	8.6%	0	0.0%

		Total		AT&T		TQA		Call Centers	
Day	Date	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Wednesday	6/21	35	14.9%	3	1.3%	32	13.8%	0	0.0%
Thursday	6/22	13	7.1%	5	2.7%	8	4.5%	0	0.0%
Friday	6/23	14	9.8%	0	0.0%	14	9.8%	0	0.0%
Saturday	6/24	5	6.7%	0	0.0%	2	2.7%	3	5.9%
Sunday	6/25	1	3.2%	0	0.0%	1	3.2%	0	0.0%
Monday	6/26	20	11.2%	0	0.0%	20	11.2%	0	0.0%
Tuesday	6/27	19	10.3%	2	1.1%	17	9.3%	0	0.0%
Wednesday	6/28	14	8.2%	1	0.6%	13	7.7%	0	0.0%
Thursday	6/29	29	15.9%	2	1.1%	24	13.3%	3	2.8%
Friday	6/30	85	25.9%	2	0.6%	77	23.6%	6	5.2%
Total		31,209	4.1%	30,020	3.9%	943	0.1%	246	0.1%

Data Source: AT&T and the Intelligent Call Router

------'s indicate data was not available for that particular date.

Table B-6 Calls blocked (Chinese)

		Total		AT&T		Call Centers	
Day	Date	Number	Percent	Number	Percent	Number	Percent
Friday	3/3	0	0.0%	0	0.0%	0	0.0%
Saturday	3/4	0	N/A	0	N/A	0	N/A
Sunday	3/5	0	0.0%	0	0.0%	0	0.0%
Monday	3/6	2	66.7%	2	66.7%	0	0.0%
Tuesday	3/7	0	0.0%	0	0.0%	0	0.0%
Wednesday	3/8	1	50.0%	1	50.0%	0	0.0%
Thursday	3/9	0	N/A	0	N/A	0	N/A
Friday	3/10	1	16.7%	1	16.7%	0	0.0%
Saturday	3/11	0	0.0%	0	0.0%	0	0.0%
Sunday	3/12	0	N/A	0	N/A	0	N/A
Monday	3/13	3	7.1%	3	7.1%	0	0.0%
Tuesday	3/14	7	4.3%	7	4.3%	0	0.0%
Wednesday	3/15	6	9.4%	6	9.4%	0	0.0%
Thursday	3/16	3	5.3%	3	5.3%	0	0.0%
Friday	3/17	2	3.2%	2	3.2%	0	0.0%
Saturday	3/18	2	12.5%	2	12.5%	0	0.0%
Sunday	3/19	5	45.5%	5	45.5%	0	0.0%
Monday	3/20	4	33.3%	4	33.3%	0	0.0%
Tuesday	3/21	4	4.5%	4	4.5%	0	0.0%
Wednesday	3/22	1	1.0%	1	1.0%	0	0.0%
Thursday	3/23	4	1.9%	3	1.4%	1	0.5%
Friday	3/24	7	2.8%	7	2.8%	0	0.0%
Saturday	3/25	0	0.0%	0	0.0%	------	------
Sunday	3/26	3	3.4%	3	3.4%	0	0.0%
Monday	3/27	13	1.4%	13	1.4%	0	0.0%
Tuesday	3/28	33	2.5%	33	2.5%	0	0.0%
Wednesday	3/29	13	1.5%	13	1.5%	0	0.0%
Thursday	3/30	16	2.0%	16	2.0%	0	0.0%
Friday	3/31	29	3.4%	29	3.4%	0	0.0%
Saturday	4/1	0	0.0%	0	0.0%	0	0.0%
Sunday	4/2	6	2.5%	6	2.5%	0	0.0%
Monday	4/3	16	2.7%	16	2.7%	0	0.0%
Tuesday	4/4	9	1.8%	9	1.8%	0	0.0%
Wednesday	4/5	2	0.5%	2	0.5%	0	0.0%
Thursday	4/6	15	4.3%	9	2.6%	6	1.8%
Friday	4/7	9	4.0%	9	4.0%	0	0.0%
Saturday	4/8	0	0.0%	0	0.0%	0	0.0%
Sunday	4/9	6	4.7%	6	4.7%	0	0.0%
Monday	4/10	4	1.8%	4	1.8%	0	0.0%
Tuesday	4/11	10	6.2%	7	4.3%	3	1.9%
Wednesday	4/12	2	1.6%	2	1.6%	0	0.0%
Thursday	4/13	20	16.4%	5	4.1%	15	12.8%
Friday	4/14	10	6.0%	10	6.0%	0	0.0%
Saturday	4/15	5	5.1%	2	2.0%	3	3.1%
Sunday	4/16	1	1.1%	1	1.1%	0	0.0%
Monday	4/17	0	0.0%	0	0.0%	0	0.0%
Tuesday	4/18	1	1.1%	1	1.1%	0	0.0%
Wednesday	4/19	2	2.3%	2	2.3%	0	0.0%
Thursday	4/20	1	1.9%	1	1.9%	0	0.0%
Friday	4/21	1	2.3%	1	2.3%	0	0.0%
Saturday	4/22	0	0.0%	0	0.0%	0	0.0%
Sunday	4/23	0	0.0%	0	0.0%	0	0.0%
Monday	4/24	0	0.0%	0	0.0%	0	0.0%
Tuesday	4/25	1	1.2%	1	1.2%	0	0.0%

		Total		AT&T		Call Centers	
Day	Date	Number	Percent	Number	Percent	Number	Percent
Wednesday	4/26	0	0.0%	0	0.0%	0	0.0%
Thursday	4/27	0	0.0%	0	0.0%	0	0.0%
Friday	4/28	0	0.0%	0	0.0%	0	0.0%
Saturday	4/29	2	3.9%	2	3.9%	0	0.0%
Sunday	4/30	0	0.0%	0	0.0%	0	0.0%
Monday	5/1	0	0.0%	0	0.0%	0	0.0%
Tuesday	5/2	0	0.0%	0	0.0%	0	0.0%
Wednesday	5/3	0	0.0%	0	0.0%	0	0.0%
Thursday	5/4	1	3.1%	1	3.1%	0	0.0%
Friday	5/5	0	0.0%	0	0.0%	0	0.0%
Saturday	5/6	0	0.0%	0	0.0%	0	0.0%
Sunday	5/7	0	0.0%	0	0.0%	0	0.0%
Monday	5/8	0	0.0%	0	0.0%	0	0.0%
Tuesday	5/9	0	0.0%	0	0.0%	0	0.0%
Wednesday	5/10	1	4.5%	1	4.5%	0	0.0%
Thursday	5/11	3	16.7%	0	0.0%	3	16.7%
Friday	5/12	1	5.9%	1	5.9%	0	0.0%
Saturday	5/13	0	0.0%	0	0.0%	0	0.0%
Sunday	5/14	0	0.0%	0	0.0%	0	0.0%
Monday	5/15	0	0.0%	0	0.0%	0	0.0%
Tuesday	5/16	0	0.0%	0	0.0%	0	0.0%
Wednesday	5/17	0	0.0%	0	0.0%	0	0.0%
Thursday	5/18	0	0.0%	0	0.0%	0	0.0%
Friday	5/19	0	0.0%	0	0.0%	0	0.0%
Saturday	5/20	1	9.1%	1	9.1%	0	0.0%
Sunday	5/21	4	66.7%	1	16.7%	3	60.0%
Monday	5/22	0	0.0%	0	0.0%	0	0.0%
Tuesday	5/23	0	0.0%	0	0.0%	0	0.0%
Wednesday	5/24	0	0.0%	0	0.0%	0	0.0%
Thursday	5/25	0	0.0%	0	0.0%	0	0.0%
Friday	5/26	0	0.0%	0	0.0%	0	0.0%
Saturday	5/27	2	8.0%	2	8.0%	0	0.0%
Sunday	5/28	0	0.0%	0	0.0%	0	0.0%
Monday	5/29	0	0.0%	0	0.0%	0	0.0%
Tuesday	5/30	0	0.0%	0	0.0%	0	0.0%
Wednesday	5/31	0	0.0%	0	0.0%	0	0.0%
Thursday	6/1	0	0.0%	0	0.0%	0	0.0%
Friday	6/2	0	0.0%	0	0.0%	0	0.0%
Saturday	6/3	1	7.1%	1	7.1%	0	0.0%
Sunday	6/4	1	25.0%	1	25.0%	0	0.0%
Monday	6/5	1	7.1%	1	7.1%	0	0.0%
Tuesday	6/6	1	3.3%	1	3.3%	0	0.0%
Wednesday	6/7	1	1.9%	1	1.9%	0	0.0%
Thursday	6/8	1	2.7%	1	2.7%	0	0.0%
Friday	6/9	2	11.8%	2	11.8%	0	0.0%
Saturday	6/10	0	0.0%	0	0.0%	0	0.0%
Sunday	6/11	1	11.1%	1	11.1%	0	0.0%
Monday	6/12	0	0.0%	0	0.0%	0	0.0%
Tuesday	6/13	6	54.5%	0	0.0%	6	54.5%
Wednesday	6/14	0	0.0%	0	0.0%	0	0.0%
Thursday	6/15	0	0.0%	0	0.0%	0	0.0%
Friday	6/16	0	0.0%	0	0.0%	0	0.0%
Saturday	6/17	0	0.0%	0	0.0%	0	0.0%
Sunday	6/18	0	0.0%	0	0.0%	0	0.0%
Monday	6/19	0	0.0%	0	0.0%	0	0.0%
Tuesday	6/20	0	0.0%	0	0.0%	0	0.0%

		Total		AT&T		Call Centers	
Day	Date	Number	Percent	Number	Percent	Number	Percent
Wednesday	6/21	4	100.0%	0	0.0%	4	100.0%
Thursday	6/22	0	0.0%	0	0.0%	0	0.0%
Friday	6/23	0	0.0%	0	0.0%	0	0.0%
Saturday	6/24	2	100.0%	0	0.0%	2	100.0%
Sunday	6/25	0	0.0%	0	0.0%	0	0.0%
Monday	6/26	0	0.0%	0	0.0%	0	0.0%
Tuesday	6/27	0	0.0%	0	0.0%	0	0.0%
Wednesday	6/28	4	100.0%	1	25.0%	3	100.0%
Thursday	6/29	0	0.0%	0	0.0%	0	0.0%
Friday	6/30	0	0.0%	0	0.0%	0	0.0%
Total		320	2.7%	271	2.3%	49	0.4%

Data Source: AT&T and the Intelligent Call Router

Note that percent values equal to N/A indicate there was no call volume for that day.

------'s indicate data was not available for that particular date.

Table B-7 Calls blocked (Vietnamese)

		Total		AT&T		Call Centers	
Day	Date	Number	Percent	Number	Percent	Number	Percent
Friday	3/3	1	14.3%	1	14.3%	0	0.0%
Saturday	3/4	0	0.0%	0	0.0%	0	0.0%
Sunday	3/5	0	0.0%	0	0.0%	0	0.0%
Monday	3/6	2	50.0%	2	50.0%	0	0.0%
Tuesday	3/7	0	N/A	0	N/A	0	N/A
Wednesday	3/8	0	0.0%	0	0.0%	0	0.0%
Thursday	3/9	0	0.0%	0	0.0%	0	0.0%
Friday	3/10	0	N/A	0	N/A	0	N/A
Saturday	3/11	0	N/A	0	N/A	0	N/A
Sunday	3/12	1	50.0%	1	50.0%	0	0.0%
Monday	3/13	1	33.3%	1	33.3%	0	0.0%
Tuesday	3/14	0	0.0%	0	0.0%	0	0.0%
Wednesday	3/15	3	12.5%	3	12.5%	0	0.0%
Thursday	3/16	4	12.1%	4	12.1%	0	0.0%
Friday	3/17	5	17.2%	2	6.9%	3	11.1%
Saturday	3/18	7	70.0%	4	40.0%	3	50.0%
Sunday	3/19	0	0.0%	0	0.0%	0	0.0%
Monday	3/20	2	3.4%	2	3.4%	0	0.0%
Tuesday	3/21	8	17.8%	8	17.8%	0	0.0%
Wednesday	3/22	1	1.5%	1	1.5%	0	0.0%
Thursday	3/23	0	0.0%	0	0.0%	0	0.0%
Friday	3/24	4	1.7%	4	1.7%	0	0.0%
Saturday	3/25	0	0.0%	0	0.0%	------	------
Sunday	3/26	0	0.0%	0	0.0%	0	0.0%
Monday	3/27	35	5.5%	11	1.7%	24	3.9%
Tuesday	3/28	9	1.9%	9	1.9%	0	0.0%
Wednesday	3/29	12	2.5%	12	2.5%	0	0.0%
Thursday	3/30	38	5.8%	35	5.4%	3	0.5%
Friday	3/31	8	1.5%	8	1.5%	0	0.0%
Saturday	4/1	12	3.6%	0	0.0%	12	3.6%
Sunday	4/2	2	1.3%	2	1.3%	0	0.0%
Monday	4/3	9	2.1%	9	2.1%	0	0.0%
Tuesday	4/4	11	3.5%	11	3.5%	0	0.0%
Wednesday	4/5	1	0.4%	1	0.4%	0	0.0%
Thursday	4/6	6	3.2%	6	3.2%	0	0.0%
Friday	4/7	5	3.0%	5	3.0%	0	0.0%
Saturday	4/8	0	0.0%	0	0.0%	0	0.0%
Sunday	4/9	0	0.0%	0	0.0%	0	0.0%
Monday	4/10	1	0.7%	1	0.7%	0	0.0%
Tuesday	4/11	1	0.8%	1	0.8%	0	0.0%
Wednesday	4/12	3	3.1%	3	3.1%	0	0.0%
Thursday	4/13	4	4.0%	4	4.0%	0	0.0%
Friday	4/14	3	2.9%	3	2.9%	0	0.0%
Saturday	4/15	0	0.0%	0	0.0%	0	0.0%
Sunday	4/16	1	3.3%	1	3.3%	0	0.0%
Monday	4/17	0	0.0%	0	0.0%	0	0.0%
Tuesday	4/18	1	1.7%	1	1.7%	0	0.0%
Wednesday	4/19	0	0.0%	0	0.0%	0	0.0%
Thursday	4/20	0	0.0%	0	0.0%	0	0.0%
Friday	4/21	1	4.8%	1	4.8%	0	0.0%
Saturday	4/22	0	0.0%	0	0.0%	0	0.0%
Sunday	4/23	0	0.0%	0	0.0%	0	0.0%
Monday	4/24	0	0.0%	0	0.0%	0	0.0%
Tuesday	4/25	1	4.5%	1	4.5%	0	0.0%

		Total		AT&T		Call Centers	
Day	Date	Number	Percent	Number	Percent	Number	Percent
Wednesday	4/26	0	0.0%	0	0.0%	0	0.0%
Thursday	4/27	1	7.7%	1	7.7%	0	0.0%
Friday	4/28	2	11.1%	2	11.1%	0	0.0%
Saturday	4/29	0	0.0%	0	0.0%	0	0.0%
Sunday	4/30	0	0.0%	0	0.0%	0	0.0%
Monday	5/1	0	0.0%	0	0.0%	0	0.0%
Tuesday	5/2	1	3.7%	1	3.7%	0	0.0%
Wednesday	5/3	0	0.0%	0	0.0%	0	0.0%
Thursday	5/4	0	0.0%	0	0.0%	0	0.0%
Friday	5/5	0	0.0%	0	0.0%	0	0.0%
Saturday	5/6	0	0.0%	0	0.0%	0	0.0%
Sunday	5/7	0	0.0%	0	0.0%	0	0.0%
Monday	5/8	1	5.9%	1	5.9%	0	0.0%
Tuesday	5/9	0	0.0%	0	0.0%	0	0.0%
Wednesday	5/10	0	0.0%	0	0.0%	0	0.0%
Thursday	5/11	3	27.3%	1	9.1%	2	20.0%
Friday	5/12	0	0.0%	0	0.0%	0	0.0%
Saturday	5/13	0	0.0%	0	0.0%	0	0.0%
Sunday	5/14	0	0.0%	0	0.0%	0	0.0%
Monday	5/15	0	0.0%	0	0.0%	0	0.0%
Tuesday	5/16	0	0.0%	0	0.0%	0	0.0%
Wednesday	5/17	0	0.0%	0	0.0%	0	0.0%
Thursday	5/18	0	0.0%	0	0.0%	0	0.0%
Friday	5/19	1	14.3%	1	14.3%	0	0.0%
Saturday	5/20	0	0.0%	0	0.0%	0	0.0%
Sunday	5/21	0	0.0%	0	0.0%	0	0.0%
Monday	5/22	0	0.0%	0	0.0%	0	0.0%
Tuesday	5/23	0	0.0%	0	0.0%	0	0.0%
Wednesday	5/24	0	0.0%	0	0.0%	0	0.0%
Thursday	5/25	0	0.0%	0	0.0%	0	0.0%
Friday	5/26	3	7.3%	3	7.3%	0	0.0%
Saturday	5/27	1	6.3%	1	6.3%	0	0.0%
Sunday	5/28	0	0.0%	0	0.0%	0	0.0%
Monday	5/29	1	10.0%	1	10.0%	0	0.0%
Tuesday	5/30	0	0.0%	0	0.0%	0	0.0%
Wednesday	5/31	1	4.3%	1	4.3%	0	0.0%
Thursday	6/1	1	6.3%	1	6.3%	0	0.0%
Friday	6/2	0	0.0%	0	0.0%	0	0.0%
Saturday	6/3	0	0.0%	0	0.0%	0	0.0%
Sunday	6/4	0	0.0%	0	0.0%	0	0.0%
Monday	6/5	0	0.0%	0	0.0%	0	0.0%
Tuesday	6/6	0	0.0%	0	0.0%	0	0.0%
Wednesday	6/7	1	9.1%	1	9.1%	0	0.0%
Thursday	6/8	1	11.1%	1	11.1%	0	0.0%
Friday	6/9	0	0.0%	0	0.0%	0	0.0%
Saturday	6/10	0	0.0%	0	0.0%	0	0.0%
Sunday	6/11	0	0.0%	0	0.0%	0	0.0%
Monday	6/12	0	0.0%	0	0.0%	0	0.0%
Tuesday	6/13	0	0.0%	0	0.0%	0	0.0%
Wednesday	6/14	1	100.0%	1	100.0%	0	N/A
Thursday	6/15	0	0.0%	0	0.0%	0	0.0%
Friday	6/16	0	0.0%	0	0.0%	0	0.0%
Saturday	6/17	9	75.0%	0	0.0%	9	75.0%
Sunday	6/18	0	0.0%	0	0.0%	0	0.0%
Monday	6/19	0	0.0%	0	0.0%	0	0.0%
Tuesday	6/20	0	N/A	0	N/A	0	N/A

		Total		AT&T		Call Centers	
Day	Date	Number	Percent	Number	Percent	Number	Percent
Wednesday	6/21	2	100.0%	0	0.0%	2	100.0%
Thursday	6/22	0	N/A	0	N/A	0	N/A
Friday	6/23	0	0.0%	0	0.0%	0	0.0%
Saturday	6/24	0	0.0%	0	0.0%	0	0.0%
Sunday	6/25	0	0.0%	0	0.0%	0	0.0%
Monday	6/26	0	N/A	0	N/A	0	N/A
Tuesday	6/27	1	50.0%	1	50.0%	0	0.0%
Wednesday	6/28	0	N/A	0	N/A	0	N/A
Thursday	6/29	0	0.0%	0	0.0%	0	0.0%
Friday	6/30	0	0.0%	0	0.0%	0	0.0%
Total		234	3.2%	176	2.4%	58	0.8%

Data Source: Intelligent Call Router

Note that percent values equal to N/A indicate there was no call volume for that day.

------'s indicate data was not available for that particular date.

Table B-8 Calls blocked (Korean)

Day	Date	Total		AT&T		Call Centers	
		Number	Percent	Number	Percent	Number	Percent
Friday	3/3	1	33.3%	1	33.3%	0	0.0%
Saturday	3/4	0	0.0%	0	0.0%	0	0.0%
Sunday	3/5	1	33.3%	1	33.3%	0	0.0%
Monday	3/6	7	87.5%	7	87.5%	0	0.0%
Tuesday	3/7	2	15.4%	2	15.4%	0	0.0%
Wednesday	3/8	9	69.2%	9	69.2%	0	0.0%
Thursday	3/9	0	0.0%	0	0.0%	0	0.0%
Friday	3/10	0	0.0%	0	0.0%	0	0.0%
Saturday	3/11	0	N/A	0	N/A	0	N/A
Sunday	3/12	0	0.0%	0	0.0%	0	0.0%
Monday	3/13	0	0.0%	0	0.0%	0	0.0%
Tuesday	3/14	1	1.7%	1	1.7%	0	0.0%
Wednesday	3/15	12	11.2%	9	8.4%	3	3.1%
Thursday	3/16	3	2.8%	3	2.8%	0	0.0%
Friday	3/17	9	13.0%	2	2.9%	7	10.4%
Saturday	3/18	0	0.0%	0	0.0%	0	0.0%
Sunday	3/19	0	0.0%	0	0.0%	0	0.0%
Monday	3/20	3	2.6%	3	2.6%	0	0.0%
Tuesday	3/21	9	8.4%	6	5.6%	3	3.0%
Wednesday	3/22	7	2.9%	7	2.9%	0	0.0%
Thursday	3/23	9	3.2%	8	2.8%	1	0.4%
Friday	3/24	5	2.4%	5	2.4%	0	0.0%
Saturday	3/25	0	0.0%	0	0.0%	------	------
Sunday	3/26	1	1.4%	1	1.4%	0	0.0%
Monday	3/27	6	1.1%	6	1.1%	0	0.0%
Tuesday	3/28	16	3.2%	16	3.2%	0	0.0%
Wednesday	3/29	4	0.9%	4	0.9%	0	0.0%
Thursday	3/30	11	2.2%	11	2.2%	0	0.0%
Friday	3/31	5	1.4%	5	1.4%	0	0.0%
Saturday	4/1	0	0.0%	0	0.0%	0	0.0%
Sunday	4/2	1	1.1%	1	1.1%	0	0.0%
Monday	4/3	9	2.6%	9	2.6%	0	0.0%
Tuesday	4/4	6	2.4%	6	2.4%	0	0.0%
Wednesday	4/5	3	1.5%	3	1.5%	0	0.0%
Thursday	4/6	7	5.3%	7	5.3%	0	0.0%
Friday	4/7	5	3.1%	5	3.1%	0	0.0%
Saturday	4/8	0	0.0%	0	0.0%	0	0.0%
Sunday	4/9	0	0.0%	0	0.0%	0	0.0%
Monday	4/10	11	7.8%	11	7.8%	0	0.0%
Tuesday	4/11	9	9.3%	9	9.3%	0	0.0%
Wednesday	4/12	9	8.7%	9	8.7%	0	0.0%
Thursday	4/13	4	4.0%	4	4.0%	0	0.0%
Friday	4/14	3	5.6%	3	5.6%	0	0.0%
Saturday	4/15	0	0.0%	0	0.0%	0	0.0%
Sunday	4/16	0	0.0%	0	0.0%	0	0.0%
Monday	4/17	0	0.0%	0	0.0%	0	0.0%
Tuesday	4/18	0	0.0%	0	0.0%	0	0.0%
Wednesday	4/19	1	1.1%	1	1.1%	0	0.0%
Thursday	4/20	0	0.0%	0	0.0%	0	0.0%
Friday	4/21	0	0.0%	0	0.0%	0	0.0%
Saturday	4/22	0	0.0%	0	0.0%	0	0.0%
Sunday	4/23	0	0.0%	0	0.0%	0	0.0%

Day	Date	Total		AT&T		Call Centers	
		Number	Percent	Number	Percent	Number	Percent
Monday	4/24	1	3.6%	1	3.6%	0	0.0%
Tuesday	4/25	1	5.9%	1	5.9%	0	0.0%
Wednesday	4/26	2	6.1%	2	6.1%	0	0.0%
Thursday	4/27	0	0.0%	0	0.0%	0	0.0%
Friday	4/28	0	0.0%	0	0.0%	0	0.0%
Saturday	4/29	0	0.0%	0	0.0%	0	0.0%
Sunday	4/30	0	0.0%	0	0.0%	0	0.0%
Monday	5/1	0	0.0%	0	0.0%	0	0.0%
Tuesday	5/2	0	0.0%	0	0.0%	0	0.0%
Wednesday	5/3	0	0.0%	0	0.0%	0	0.0%
Thursday	5/4	0	0.0%	0	0.0%	0	0.0%
Friday	5/5	0	0.0%	0	0.0%	0	0.0%
Saturday	5/6	1	25.0%	1	25.0%	0	0.0%
Sunday	5/7	0	0.0%	0	0.0%	0	0.0%
Monday	5/8	0	0.0%	0	0.0%	0	0.0%
Tuesday	5/9	1	8.3%	1	8.3%	0	0.0%
Wednesday	5/10	6	60.0%	0	0.0%	6	60.0%
Thursday	5/11	0	0.0%	0	0.0%	0	0.0%
Friday	5/12	1	11.1%	1	11.1%	0	0.0%
Saturday	5/13	0	0.0%	0	0.0%	0	0.0%
Sunday	5/14	0	0.0%	0	0.0%	0	0.0%
Monday	5/15	2	13.3%	2	13.3%	0	0.0%
Tuesday	5/16	0	0.0%	0	0.0%	0	0.0%
Wednesday	5/17	0	0.0%	0	0.0%	0	0.0%
Thursday	5/18	0	0.0%	0	0.0%	0	0.0%
Friday	5/19	1	8.3%	1	8.3%	0	0.0%
Saturday	5/20	0	0.0%	0	0.0%	0	0.0%
Sunday	5/21	0	N/A	0	N/A	0	N/A
Monday	5/22	0	0.0%	0	0.0%	0	0.0%
Tuesday	5/23	0	0.0%	0	0.0%	0	0.0%
Wednesday	5/24	0	0.0%	0	0.0%	0	0.0%
Thursday	5/25	1	4.3%	1	4.3%	0	0.0%
Friday	5/26	2	5.7%	2	5.7%	0	0.0%
Saturday	5/27	1	4.2%	1	4.2%	0	0.0%
Sunday	5/28	0	0.0%	0	0.0%	0	0.0%
Monday	5/29	0	0.0%	0	0.0%	0	0.0%
Tuesday	5/30	0	0.0%	0	0.0%	0	0.0%
Wednesday	5/31	0	0.0%	0	0.0%	0	0.0%
Thursday	6/1	3	11.5%	3	11.5%	0	0.0%
Friday	6/2	1	8.3%	1	8.3%	0	0.0%
Saturday	6/3	0	0.0%	0	0.0%	0	0.0%
Sunday	6/4	0	0.0%	0	0.0%	0	0.0%
Monday	6/5	1	10.0%	1	10.0%	0	0.0%
Tuesday	6/6	1	8.3%	1	8.3%	0	0.0%
Wednesday	6/7	1	5.9%	1	5.9%	0	0.0%
Thursday	6/8	0	0.0%	0	0.0%	0	0.0%
Friday	6/9	0	0.0%	0	0.0%	0	0.0%
Saturday	6/10	0	0.0%	0	0.0%	0	0.0%
Sunday	6/11	0	0.0%	0	0.0%	0	0.0%
Monday	6/12	1	14.3%	1	14.3%	0	0.0%
Tuesday	6/13	0	0.0%	0	0.0%	0	0.0%
Wednesday	6/14	0	0.0%	0	0.0%	0	0.0%
Thursday	6/15	0	0.0%	0	0.0%	0	0.0%
Friday	6/16	0	0.0%	0	0.0%	0	0.0%

Day	Date	Total		AT&T		Call Centers	
		Number	Percent	Number	Percent	Number	Percent
Saturday	6/17	0	0.0%	0	0.0%	0	0.0%
Sunday	6/18	0	N/A	0	N/A	0	N/A
Monday	6/19	0	0.0%	0	0.0%	0	0.0%
Tuesday	6/20	1	33.3%	1	33.3%	0	0.0%
Wednesday	6/21	6	85.7%	0	0.0%	6	85.7%
Thursday	6/22	0	0.0%	0	0.0%	0	0.0%
Friday	6/23	6	75.0%	0	0.0%	6	75.0%
Saturday	6/24	4	100.0%	0	0.0%	4	100.0%
Sunday	6/25	0	N/A	0	N/A	0	N/A
Monday	6/26	0	0.0%	0	0.0%	0	0.0%
Tuesday	6/27	0	0.0%	0	0.0%	0	0.0%
Wednesday	6/28	0	0.0%	0	0.0%	0	0.0%
Thursday	6/29	0	0.0%	0	0.0%	0	0.0%
Friday	6/30	0	0.0%	0	0.0%	0	0.0%
Total		234	3.2%	198	2.7%	36	0.5%

Data Source: Intelligent Call Router
Note that percent values equal to N/A indicate there was no call volume for that day.
------'s indicate data was not available for that particular date.

Table B-9 Calls blocked (Tagalog)

		Total		AT&T		Call Centers	
Day	Date	Number	Percent	Number	Percent	Number	Percent
Friday	3/3	0	0.0%	0	0.0%	0	0.0%
Saturday	3/4	0	0.0%	0	0.0%	0	0.0%
Sunday	3/5	1	33.3%	1	33.3%	0	0.0%
Monday	3/6	3	75.0%	3	75.0%	0	0.0%
Tuesday	3/7	1	100.0%	1	100.0%	0	N/A
Wednesday	3/8	3	12.5%	3	12.5%	0	0.0%
Thursday	3/9	3	50.0%	3	50.0%	0	0.0%
Friday	3/10	1	100.0%	0	0.0%	1	100.0%
Saturday	3/11	90	N/A	0	N/A	90	N/A
Sunday	3/12	0	0.0%	0	0.0%	0	0.0%
Monday	3/13	1	100.0%	1	100.0%	0	N/A
Tuesday	3/14	9	50.0%	9	50.0%	0	0.0%
Wednesday	3/15	11	100.0%	7	63.6%	4	100.0%
Thursday	3/16	2	50.0%	2	50.0%	0	0.0%
Friday	3/17	3	37.5%	3	37.5%	0	0.0%
Saturday	3/18	0	0.0%	0	0.0%	0	0.0%
Sunday	3/19	0	0.0%	0	0.0%	0	0.0%
Monday	3/20	0	0.0%	0	0.0%	0	0.0%
Tuesday	3/21	3	27.3%	3	27.3%	0	0.0%
Wednesday	3/22	1	11.1%	1	11.1%	0	0.0%
Thursday	3/23	0	0.0%	0	0.0%	0	0.0%
Friday	3/24	3	5.1%	3	5.1%	0	0.0%
Saturday	3/25	0	0.0%	0	0.0%	------	------
Sunday	3/26	7	29.2%	1	4.2%	6	26.1%
Monday	3/27	18	23.7%	6	7.9%	12	17.1%
Tuesday	3/28	5	8.6%	5	8.6%	0	0.0%
Wednesday	3/29	6	12.5%	6	12.5%	0	0.0%
Thursday	3/30	1	1.0%	1	1.0%	0	0.0%
Friday	3/31	8	6.7%	8	6.7%	0	0.0%
Saturday	4/1	0	0.0%	0	0.0%	0	0.0%
Sunday	4/2	0	0.0%	0	0.0%	0	0.0%
Monday	4/3	16	18.2%	1	1.1%	15	17.2%
Tuesday	4/4	2	2.9%	2	2.9%	0	0.0%
Wednesday	4/5	0	0.0%	0	0.0%	0	0.0%
Thursday	4/6	0	0.0%	0	0.0%	0	0.0%
Friday	4/7	2	4.7%	2	4.7%	0	0.0%
Saturday	4/8	0	0.0%	0	0.0%	0	0.0%
Sunday	4/9	0	0.0%	0	0.0%	0	0.0%
Monday	4/10	1	7.7%	1	7.7%	0	0.0%
Tuesday	4/11	1	5.0%	1	5.0%	0	0.0%
Wednesday	4/12	4	22.2%	4	22.2%	0	0.0%
Thursday	4/13	0	0.0%	0	0.0%	0	0.0%
Friday	4/14	0	0.0%	0	0.0%	0	0.0%
Saturday	4/15	2	40.0%	2	40.0%	0	0.0%
Sunday	4/16	0	0.0%	0	0.0%	0	0.0%
Monday	4/17	0	0.0%	0	0.0%	0	0.0%
Tuesday	4/18	0	0.0%	0	0.0%	0	0.0%
Wednesday	4/19	1	9.1%	1	9.1%	0	0.0%
Thursday	4/20	0	0.0%	0	0.0%	0	0.0%
Friday	4/21	2	33.3%	2	33.3%	0	0.0%
Saturday	4/22	0	0.0%	0	0.0%	0	0.0%
Sunday	4/23	0	0.0%	0	0.0%	0	0.0%
Monday	4/24	0	0.0%	0	0.0%	0	0.0%
Tuesday	4/25	0	0.0%	0	0.0%	0	0.0%

		Total		AT&T		Call Centers	
Day	Date	Number	Percent	Number	Percent	Number	Percent
Wednesday	4/26	0	0.0%	0	0.0%	0	0.0%
Thursday	4/27	0	0.0%	0	0.0%	0	0.0%
Friday	4/28	0	0.0%	0	0.0%	0	0.0%
Saturday	4/29	0	0.0%	0	0.0%	0	0.0%
Sunday	4/30	0	0.0%	0	0.0%	0	0.0%
Monday	5/1	1	12.5%	1	12.5%	0	0.0%
Tuesday	5/2	0	0.0%	0	0.0%	0	0.0%
Wednesday	5/3	1	16.7%	1	16.7%	0	0.0%
Thursday	5/4	0	0.0%	0	0.0%	0	0.0%
Friday	5/5	1	12.5%	1	12.5%	0	0.0%
Saturday	5/6	0	0.0%	0	0.0%	0	0.0%
Sunday	5/7	0	0.0%	0	0.0%	0	0.0%
Monday	5/8	4	100.0%	1	25.0%	3	100.0%
Tuesday	5/9	1	12.5%	1	12.5%	0	0.0%
Wednesday	5/10	0	0.0%	0	0.0%	0	0.0%
Thursday	5/11	1	100.0%	0	0.0%	1	100.0%
Friday	5/12	0	0.0%	0	0.0%	0	0.0%
Saturday	5/13	0	0.0%	0	0.0%	0	0.0%
Sunday	5/14	0	N/A	0	N/A	0	N/A
Monday	5/15	0	0.0%	0	0.0%	0	0.0%
Tuesday	5/16	1	50.0%	1	50.0%	0	0.0%
Wednesday	5/17	0	N/A	0	N/A	0	N/A
Thursday	5/18	0	0.0%	0	0.0%	0	0.0%
Friday	5/19	1	25.0%	1	25.0%	0	0.0%
Saturday	5/20	0	0.0%	0	0.0%	0	0.0%
Sunday	5/21	1	50.0%	1	50.0%	0	0.0%
Monday	5/22	0	0.0%	0	0.0%	0	0.0%
Tuesday	5/23	0	0.0%	0	0.0%	0	0.0%
Wednesday	5/24	0	0.0%	0	0.0%	0	0.0%
Thursday	5/25	0	0.0%	0	0.0%	0	0.0%
Friday	5/26	2	6.7%	2	6.7%	0	0.0%
Saturday	5/27	0	0.0%	0	0.0%	0	0.0%
Sunday	5/28	0	0.0%	0	0.0%	0	0.0%
Monday	5/29	0	0.0%	0	0.0%	0	0.0%
Tuesday	5/30	1	7.1%	1	7.1%	0	0.0%
Wednesday	5/31	0	0.0%	0	0.0%	0	0.0%
Thursday	6/1	3	33.3%	3	33.3%	0	0.0%
Friday	6/2	0	0.0%	0	0.0%	0	0.0%
Saturday	6/3	0	0.0%	0	0.0%	0	0.0%
Sunday	6/4	0	0.0%	0	0.0%	0	0.0%
Monday	6/5	1	10.0%	1	10.0%	0	0.0%
Tuesday	6/6	1	6.7%	1	6.7%	0	0.0%
Wednesday	6/7	1	7.7%	1	7.7%	0	0.0%
Thursday	6/8	0	0.0%	0	0.0%	0	0.0%
Friday	6/9	0	0.0%	0	0.0%	0	0.0%
Saturday	6/10	0	0.0%	0	0.0%	0	0.0%
Sunday	6/11	0	0.0%	0	0.0%	0	0.0%
Monday	6/12	0	0.0%	0	0.0%	0	0.0%
Tuesday	6/13	0	0.0%	0	0.0%	0	0.0%
Wednesday	6/14	0	0.0%	0	0.0%	0	0.0%
Thursday	6/15	0	0.0%	0	0.0%	0	0.0%
Friday	6/16	0	0.0%	0	0.0%	0	0.0%
Saturday	6/17	0	0.0%	0	0.0%	0	0.0%
Sunday	6/18	0	0.0%	0	0.0%	0	0.0%
Monday	6/19	0	0.0%	0	0.0%	0	0.0%
Tuesday	6/20	0	N/A	0	N/A	0	N/A

		Total		AT&T		Call Centers	
Day	Date	Number	Percent	Number	Percent	Number	Percent
Wednesday	6/21	6	200.0%	0	0.0%	6	200.0%
Thursday	6/22	0	0.0%	0	0.0%	0	0.0%
Friday	6/23	0	N/A	0	N/A	0	N/A
Saturday	6/24	0	N/A	0	N/A	0	N/A
Sunday	6/25	0	N/A	0	N/A	0	N/A
Monday	6/26	0	0.0%	0	0.0%	0	0.0%
Tuesday	6/27	1	50.0%	1	50.0%	0	0.0%
Wednesday	6/28	0	N/A	0	N/A	0	N/A
Thursday	6/29	0	0.0%	0	0.0%	0	0.0%
Friday	6/30	0	0.0%	0	0.0%	0	0.0%
Total		239	16.0%	101	6.8%	138	9.9%

Data Source: Intelligent Call Router

Note that percent values equal to N/A indicate there was no call volume for that day.

------'s indicate data was not available for that particular date.

Appendix C

Table C-1 Daily Distribution of Calls Received by the TQA Network by Language

Day	Date	Total	Language					
			English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Friday	3/3	5,750	5,055	679	3	6	2	5
Saturday	3/4	4,219	3,714	501	0	1	2	1
Sunday	3/5	2,979	2,575	398	1	1	2	2
Monday	3/6	13,506	12,072	1,429	1	2	1	1
Tuesday	3/7	15,705	13,519	2,173	2	0	11	0
Wednesday	3/8	17,849	15,449	2,369	1	5	4	21
Thursday	3/9	18,369	16,151	2,210	0	1	4	3
Friday	3/10	17,189	15,266	1,909	5	0	8	1
Saturday	3/11	13,558	12,082	1,471	5	0	0	0
Sunday	3/12	8,754	7,653	1,097	0	1	1	2
Monday	3/13	517,083	446,545	70,483	39	2	14	0
Tuesday	3/14	426,367	358,793	67,340	155	13	57	9
Wednesday	3/15	237,263	197,683	39,399	58	21	98	4
Thursday	3/16	161,031	134,528	26,312	54	29	106	2
Friday	3/17	120,731	100,305	20,266	61	27	67	5
Saturday	3/18	73,440	61,763	11,624	14	6	31	2
Sunday	3/19	52,829	43,793	9,012	6	9	8	1
Monday	3/20	740,590	702,951	37,453	8	57	113	8
Tuesday	3/21	510,760	472,441	38,089	84	37	101	8
Wednesday	3/22	354,394	329,107	24,881	99	64	235	8
Thursday	3/23	260,915	234,919	25,429	206	72	275	14
Friday	3/24	176,357	149,945	25,682	239	228	207	56
Saturday	3/25	88,395	69,362	18,394	159	276	158	46
Sunday	3/26	55,336	46,215	8,838	84	108	68	23
Monday	3/27	243,940	206,062	35,736	925	621	526	70
Tuesday	3/28	210,579	168,402	39,906	1,278	460	480	53
Wednesday	3/29	169,403	137,276	30,345	843	465	432	42
Thursday	3/30	163,879	127,514	34,355	797	615	499	99
Friday	3/31	142,342	114,343	26,191	818	521	358	111
Saturday	4/1	79,439	63,676	14,628	495	329	254	57
Sunday	4/2	36,338	29,418	6,426	232	150	91	21
Monday	4/3	114,150	96,054	16,688	569	414	338	87
Tuesday	4/4	77,197	64,209	11,904	479	300	239	66
Wednesday	4/5	67,912	57,152	9,922	370	234	195	39
Thursday	4/6	53,168	45,612	6,869	339	184	124	40
Friday	4/7	42,893	37,063	5,260	214	161	154	41
Saturday	4/8	21,546	18,518	2,699	126	109	89	5
Sunday	4/9	14,326	12,090	1,976	121	93	40	6
Monday	4/10	48,519	42,630	5,384	214	149	130	12
Tuesday	4/11	39,362	34,404	4,568	154	129	88	19
Wednesday	4/12	31,832	27,445	4,060	125	94	94	14
Thursday	4/13	25,360	21,549	3,489	117	95	95	15
Friday	4/14	21,543	17,976	3,251	156	100	51	9
Saturday	4/15	10,219	8,632	1,408	97	50	29	3
Sunday	4/16	5,910	5,013	754	86	29	26	2
Monday	4/17	23,274	20,321	2,622	116	98	110	7
Tuesday	4/18	17,179	15,025	1,856	93	59	141	5
Wednesday	4/19	13,688	11,839	1,623	85	39	92	10
Thursday	4/20	11,535	10,325	1,075	51	28	49	7
Friday	4/21	9,290	8,444	745	42	20	35	4
Saturday	4/22	4,254	3,811	403	16	9	13	2

			Language					
Day	Date	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Sunday	4/23	2,028	1,691	288	25	17	6	1
Monday	4/24	12,430	11,375	941	48	33	27	6
Tuesday	4/25	10,507	9,311	1,073	80	21	16	6
Wednesday	4/26	9,945	8,708	1,100	75	25	31	6
Thursday	4/27	11,860	10,588	1,149	71	12	29	11
Friday	4/28	6,940	6,225	608	51	16	37	3
Saturday	4/29	3,993	3,591	329	49	6	15	3
Sunday	4/30	2,674	2,425	192	35	13	3	6
Monday	5/1	9,963	9,173	692	48	20	23	7
Tuesday	5/2	7,950	7,326	522	47	26	22	7
Wednesday	5/3	6,670	6,167	435	33	19	11	5
Thursday	5/4	6,165	5,644	449	31	15	19	7
Friday	5/5	4,836	4,511	282	15	14	7	7
Saturday	5/6	2,376	2,225	120	15	12	3	1
Sunday	5/7	1,607	1,476	108	14	3	4	2
Monday	5/8	6,016	5,668	303	15	16	11	3
Tuesday	5/9	4,981	4,674	258	19	12	11	7
Wednesday	5/10	4,766	4,486	229	21	13	10	7
Thursday	5/11	4,219	3,939	241	18	10	10	1
Friday	5/12	3,303	3,093	176	16	7	8	3
Saturday	5/13	1,612	1,504	91	8	3	5	1
Sunday	5/14	795	732	54	4	4	1	0
Monday	5/15	4,170	3,906	222	21	5	13	3
Tuesday	5/16	3,638	3,388	215	15	10	9	1
Wednesday	5/17	3,654	3,399	225	14	6	10	0
Thursday	5/18	3,183	2,965	180	11	11	9	7
Friday	5/19	2,701	2,506	166	9	6	11	3
Saturday	5/20	1,384	1,284	74	10	10	2	4
Sunday	5/21	857	797	51	5	3	0	1
Monday	5/22	3,418	3,168	208	15	5	19	3
Tuesday	5/23	2,854	2,656	165	19	4	7	3
Wednesday	5/24	2,535	2,306	196	15	2	9	7
Thursday	5/25	3,052	2,682	295	17	19	22	17
Friday	5/26	2,995	2,600	277	19	38	33	28
Saturday	5/27	1,536	1,317	143	23	15	23	15
Sunday	5/28	731	602	107	6	5	8	3
Monday	5/29	1,021	790	206	6	9	6	4
Tuesday	5/30	3,543	3,026	457	10	11	26	13
Wednesday	5/31	3,126	2,562	492	30	22	10	10
Thursday	6/1	4,425	3,942	417	22	15	23	6
Friday	6/2	3,039	2,739	254	14	10	11	11
Saturday	6/3	1,155	1,014	120	13	3	3	2
Sunday	6/4	600	541	47	3	7	1	1
Monday	6/5	2,471	2,216	213	13	11	9	9
Tuesday	6/6	2,279	1,968	239	29	18	11	14
Wednesday	6/7	2,307	2,015	203	51	10	16	12
Thursday	6/8	2,136	1,864	210	36	8	15	3
Friday	6/9	1,755	1,530	196	15	5	5	4
Saturday	6/10	812	700	84	12	11	4	1
Sunday	6/11	562	491	55	8	2	2	4
Monday	6/12	2,357	2,133	207	6	3	6	2
Tuesday	6/13	1,918	1,719	180	11	4	2	2
Wednesday	6/14	1,877	1,544	313	10	0	4	6
Thursday	6/15	1,538	1,290	232	8	4	3	1
Friday	6/16	1,340	1,174	153	5	2	4	2
Saturday	6/17	924	768	132	8	12	3	1

			Language					
Day	Date	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Sunday	6/18	431	369	48	7	6	0	1
Monday	6/19	1,658	1,431	210	6	3	6	2
Tuesday	6/20	1,504	1,300	198	4	0	2	0
Wednesday	6/21	1,453	1,205	232	4	2	7	3
Thursday	6/22	1,423	1,232	177	8	0	5	1
Friday	6/23	1,257	1,098	143	6	2	8	0
Saturday	6/24	638	556	75	2	1	4	0
Sunday	6/25	327	292	31	2	2	0	0
Monday	6/26	1,604	1,405	178	7	0	9	5
Tuesday	6/27	1,412	1,213	183	8	1	6	1
Wednesday	6/28	1,456	1,279	169	3	0	5	0
Thursday	6/29	1,466	1,271	180	9	2	2	2
Friday	6/30	1,803	1,462	326	2	3	4	6
Total		5,810,407	5,052,936	730,305	11,557	7,166	7,051	1,392

Data source: AT&T data reported through the Intelligent Call Router

Table C-2 Day of the Week Distribution of Calls Received by the TQA Network by Language

		Language					
Day of Week	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Sunday	187,084	156,173	29,482	639	453	261	76
Monday	1,746,170	1,567,900	173,175	2,057	1,448	1,361	229
Tuesday	1,337,735	1,163,374	169,326	2,487	1,105	1,229	214
Wednesday	930,130	809,622	116,193	1,837	1,021	1,263	194
Thursday	733,724	626,015	103,269	1,795	1,120	1,289	236
Friday	566,064	475,335	86,564	1,690	1,166	1,010	299
Saturday	309,500	254,517	52,296	1,052	853	638	144
Total	5,810,407	5,052,936	730,305	11,557	7,166	7,051	1,392

Data source: AT&T data reported through the Intelligent Call Router

Table C-3 Hourly distribution of Calls Received by the TQA Network by Language

		Language					
Hour	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
12:00 AM- 12:59 AM	9,569	6,689	2,654	130	44	32	20
1:00 AM -1:59 AM	3,225	2,613	551	29	18	6	8
2:00 AM -2:59 AM	1,040	869	168	0	2	1	0
3:00 AM -3:59 AM	474	388	86	0	0	0	0
4:00 AM -4:59 AM	313	259	54	0	0	0	0
5:00 AM -5:59 AM	476	425	51	0	0	0	0
6:00 AM -6:59 AM	1,992	1,825	149	7	2	7	2
7:00 AM -7:59 AM	19,514	15,984	3,357	72	39	50	12
8:00 AM -8:59 AM	175,213	159,634	15,023	245	138	154	19
9:00 AM -9:59 AM	336,518	309,128	26,488	399	236	236	31
10:00 AM -10:59 AM	428,311	394,625	32,497	484	297	340	68
11:00 AM -11:59 AM	506,534	451,813	52,831	750	517	511	112
12:00 PM -12:59 PM	432,320	384,049	45,885	999	626	653	108
1:00 PM -1:59 PM	452,619	402,167	48,112	960	609	670	101
2:00 PM -2:59 PM	484,624	432,981	49,449	863	556	655	120
3:00 PM -3:59 PM	492,836	440,462	50,347	837	533	572	85
4:00 PM -4:59 PM	534,296	472,769	59,365	783	652	623	104
5:00 PM -5:59 PM	520,540	453,848	64,494	908	553	606	131
6:00 PM -6:59 PM	470,907	392,443	76,386	855	580	534	109
7:00 PM -7:59 PM	384,009	312,820	69,287	845	485	479	93
8:00 PM -8:59 PM	278,234	224,004	52,644	674	446	383	83
9:00 PM -9:59 PM	149,624	108,826	39,583	581	347	208	79
10:00 PM -10:59 PM	78,484	52,167	25,124	624	302	201	66
11:00 PM -11:59 PM	48,730	32,149	15,718	512	181	128	42
Total	5,810,402	5,052,937	730,303	11,557	7,163	7,049	1,393

Data Source: AT&T data reported through the Intelligent Call Router (note that because of inconsistencies in data sources the totals do not exactly agree with Tables B1 and B2)

Appendix D

Table D-1. Daily Distribution of IVR Resolved Calls by Language

		Total		Language			
				English		Spanish	
Day	Date	Number	Percent	Number	Percent	Number	Percent
Friday	3/3	1,946	33.9%	------	------	------	------
Saturday	3/4	1,248	29.6%	------	------	------	------
Sunday	3/5	913	30.7%				
Monday	3/6	4,109	30.4%				
Tuesday	3/7	8,737	55.7%				
Wednesday	3/8	7,841	44.0%				
Thursday	3/9	7,698	41.9%	6,685	41.4%	1,013	45.8%
Friday	3/10	6,738	39.2%	5,879	38.5%	859	45.0%
Saturday	3/11	6,099	45.0%	5,398	44.7%	701	47.7%
Sunday	3/12	3,619	41.4%	3,186	41.6%	433	39.5%
Monday	3/13	168,819	32.7%	148,928	33.4%	19,891	28.2%
Tuesday	3/14	176,623	41.4%	159,763	44.5%	16,860	25.0%
Wednesday	3/15	96,691	40.8%	82,540	41.8%	14,151	35.9%
Thursday	3/16	68,403	42.5%	58,252	43.3%	10,151	38.6%
Friday	3/17	51,562	42.8%	43,202	43.1%	8,360	41.3%
Saturday	3/18	32,219	43.9%	27,572	44.6%	4,647	40.0%
Sunday	3/19	23,121	43.8%	19,557	44.7%	3,564	39.5%
Monday	3/20	424,763	57.4%	395,321	56.2%	29,442	78.6%
Tuesday	3/21	292,414	57.3%	274,319	58.1%	18,095	47.5%
Wednesday	3/22	191,267	54.0%	177,171	53.8%	14,096	56.7%
Thursday	3/23	139,771	53.7%	127,322	54.2%	12,449	49.0%
Friday	3/24	91,635	52.2%	81,041	54.0%	10,594	41.3%
Saturday	3/25	45,340	51.7%	38,408	55.4%	6,932	37.7%
Sunday	3/26	28,245	51.3%	24,834	53.7%	3,411	38.6%
Monday	3/27	123,706	51.2%	109,233	53.0%	14,473	40.5%
Tuesday	3/28	106,635	51.2%	91,538	54.4%	15,097	37.8%
Wednesday	3/29	84,443	50.4%	73,124	53.3%	11,319	37.3%
Thursday	3/30	80,574	49.8%	68,244	53.5%	12,330	35.9%
Friday	3/31	71,113	50.6%	61,158	53.5%	9,955	38.0%
Saturday	4/1	40,368	51.6%	34,661	54.4%	5,707	39.0%
Sunday	4/2	18,715	52.2%	16,147	54.9%	2,568	40.0%
Monday	4/3	56,007	49.7%	49,367	51.4%	6,640	39.8%
Tuesday	4/4	38,430	50.5%	33,863	52.7%	4,567	38.4%
Wednesday	4/5	34,329	51.2%	30,472	53.3%	3,857	38.9%
Thursday	4/6	26,731	50.9%	24,009	52.6%	2,722	39.6%
Friday	4/7	21,465	50.7%	19,324	52.1%	2,141	40.7%
Saturday	4/8	5,904	27.8%	4,969	26.8%	935	34.6%
Sunday	4/9	4,277	30.4%	3,582	29.6%	695	35.2%
Monday	4/10	12,239	25.5%	10,585	24.8%	1,654	30.7%
Tuesday	4/11	10,093	25.9%	8,761	25.5%	1,332	29.2%
Wednesday	4/12	8,361	26.5%	7,124	26.0%	1,237	30.5%
Thursday	4/13	6,660	26.6%	5,638	26.2%	1,022	29.3%
Friday	4/14	6,021	28.4%	5,005	27.8%	1,016	31.3%
Saturday	4/15	3,051	30.4%	2,585	29.9%	466	33.1%
Sunday	4/16	1,846	32.0%	1,548	30.9%	298	39.5%
Monday	4/17	6,744	29.4%	5,864	28.9%	880	33.6%
Tuesday	4/18	4,834	28.6%	4,176	27.8%	658	35.5%
Wednesday	4/19	4,049	30.1%	3,528	29.8%	521	32.1%
Thursday	4/20	3,352	29.4%	3,001	29.1%	351	32.7%
Friday	4/21	997	10.9%	911	10.8%	86	11.5%
Saturday	4/22	1,307	31.0%	1,167	30.6%	140	34.7%

		Total		Language			
				English		Spanish	
Day	Date	Number	Percent	Number	Percent	Number	Percent
Sunday	4/23	715	36.1%	592	35.0%	123	42.7%
Monday	4/24	3,592	29.2%	3,249	28.6%	343	36.5%
Tuesday	4/25	3,104	29.9%	2,745	29.5%	359	33.5%
Wednesday	4/26	3,005	30.6%	2,630	30.2%	375	34.1%
Thursday	4/27	3,606	30.7%	3,194	30.2%	412	35.9%
Friday	4/28	2,658	38.9%	2,400	38.6%	258	42.4%
Saturday	4/29	1,301	33.2%	1,174	32.7%	127	38.6%
Sunday	4/30	889	34.0%	804	33.2%	85	44.3%
Monday	5/1	3,050	30.9%	2,772	30.2%	278	40.2%
Tuesday	5/2	2,516	32.1%	2,277	31.1%	239	45.8%
Wednesday	5/3	2,119	32.1%	1,953	31.7%	166	38.2%
Thursday	5/4	1,937	31.8%	1,754	31.1%	183	40.8%
Friday	5/5	1,533	32.0%	1,391	30.8%	142	50.4%
Saturday	5/6	776	33.1%	708	31.8%	68	56.7%
Sunday	5/7	567	35.8%	516	35.0%	51	47.2%
Monday	5/8	1,961	32.8%	1,816	32.0%	145	47.9%
Tuesday	5/9	1,687	34.2%	1,573	33.7%	114	44.2%
Wednesday	5/10	1,551	32.9%	1,440	32.1%	111	48.5%
Thursday	5/11	1,375	32.9%	1,256	31.9%	119	49.4%
Friday	5/12	1,126	34.4%	1,055	34.1%	71	40.3%
Saturday	5/13	557	34.9%	518	34.4%	39	42.9%
Sunday	5/14	286	36.4%	270	36.9%	16	29.6%
Monday	5/15	1,433	34.7%	1,305	33.4%	128	57.7%
Tuesday	5/16	1,279	35.5%	1,160	34.2%	119	55.3%
Wednesday	5/17	1,325	36.6%	1,207	35.5%	118	52.4%
Thursday	5/18	1,076	34.2%	995	33.6%	81	45.0%
Friday	5/19	912	34.1%	832	33.2%	80	48.2%
Saturday	5/20	506	37.3%	465	36.2%	41	55.4%
Sunday	5/21	289	34.1%	270	33.9%	19	37.3%
Monday	5/22	1,168	34.6%	1,080	34.1%	88	42.3%
Tuesday	5/23	1,000	35.4%	924	34.8%	76	46.1%
Wednesday	5/24	899	35.9%	830	36.0%	69	35.2%
Thursday	5/25	1,129	37.9%	988	36.8%	141	47.8%
Friday	5/26	1,112	38.7%	985	37.9%	127	45.8%
Saturday	5/27	554	37.9%	494	37.5%	60	42.0%
Sunday	5/28	258	36.4%	222	36.9%	36	33.6%
Monday	5/29	386	38.8%	326	41.3%	60	29.1%
Tuesday	5/30	1,318	37.8%	1,117	36.9%	201	44.0%
Wednesday	5/31	1,227	40.2%	982	38.3%	245	49.8%
Thursday	6/1	1,783	40.9%	1,573	39.9%	210	50.4%
Friday	6/2	1,192	39.8%	1,086	39.7%	106	41.7%
Saturday	6/3	424	37.4%	363	35.8%	61	50.8%
Sunday	6/4	226	38.4%	200	37.0%	26	55.3%
Monday	6/5	806	33.2%	701	31.6%	105	49.3%
Tuesday	6/6	843	38.2%	731	37.1%	112	46.9%
Wednesday	6/7	889	40.1%	774	38.4%	115	56.7%
Thursday	6/8	783	37.8%	697	37.4%	86	41.0%
Friday	6/9	557	32.3%	489	32.0%	68	34.7%
Saturday	6/10	308	39.3%	271	38.7%	37	44.0%
Sunday	6/11	239	43.8%	210	42.8%	29	52.7%
Monday	6/12	918	39.2%	814	38.2%	104	50.2%
Tuesday	6/13	743	39.1%	660	38.4%	83	46.1%
Wednesday	6/14	723	38.9%	618	40.0%	105	33.5%
Thursday	6/15	587	38.6%	502	38.9%	85	36.6%
Friday	6/16	602	45.4%	553	47.1%	49	32.0%

		Total		Language			
				English		Spanish	
Day	Date	Number	Percent	Number	Percent	Number	Percent
Saturday	6/17	364	40.4%	318	41.4%	46	34.8%
Sunday	6/18	193	46.3%	169	45.8%	24	50.0%
Monday	6/19	606	36.9%	530	37.0%	76	36.2%
Tuesday	6/20	463	30.9%	401	30.8%	62	31.3%
Wednesday	6/21	527	36.7%	435	36.1%	92	39.7%
Thursday	6/22	509	36.1%	435	35.3%	74	41.8%
Friday	6/23	508	40.9%	453	41.3%	55	38.5%
Saturday	6/24	259	41.0%	237	42.6%	22	29.3%
Sunday	6/25	124	38.4%	114	39.0%	10	32.3%
Monday	6/26	599	37.8%	540	38.4%	59	33.1%
Tuesday	6/27	572	41.0%	501	41.3%	71	38.8%
Wednesday	6/28	581	40.1%	509	39.8%	72	42.6%
Thursday	6/29	522	36.0%	473	37.2%	49	27.2%
Friday	6/30	705	39.4%	572	39.1%	133	40.8%
Total		2,736,009	47.3%	2,425,160	48.5%	286,055	39.6%

Data Source: AT&T

------ Data was not available by language for those dates.

Note: The English and Spanish Percent resolved were not calculated with the data values for dates 3/3 thru 3/8.

Table D-2. IVR Resolved Calls by Day of the Week

	Total		Language			
			English		Spanish	
Day of Week	Number	Percent	Number	Percent	Number	Percent
Sunday	84,522	45.5%	72,221	47.0%	11,388	39.2%
Monday	810,906	46.6%	732,431	47.1%	74,366	43.3%
Tuesday	651,291	48.9%	584,509	50.8%	58,045	34.7%
Wednesday	439,827	47.5%	385,337	48.5%	46,649	41.0%
Thursday	346,496	47.5%	305,018	48.7%	41,478	40.2%
Friday	262,382	46.7%	226,336	48.1%	34,100	39.7%
Saturday	140,585	45.8%	119,308	47.6%	20,029	38.7%
Total	2,736,009	47.3%	2,425,160	48.5%	286,055	39.6%

Data Source: AT&T

Note: The English and Spanish Percent resolved were not calculated with the data values for dates 3/3 thru 3/8.

Table D-3 Hourly Distribution of IVR Resolved Calls

	Total		Language			
			English		Spanish	
Hour	Number	Percent	Number	Percent	Number	Percent
12:00 AM- 12:59 AM	2,637	28.2%	2,337	34.9%	676	25.5%
1:00 AM -1:59 AM	1,223	38.7%	1,084	41.5%	188	34.1%
2:00 AM -2:59 AM	721	69.5%	639	73.5%	102	60.7%
3:00 AM -3:59 AM	361	76.2%	320	82.5%	54	62.8%
4:00 AM -4:59 AM	240	76.7%	213	82.2%	35	64.8%
5:00 AM -5:59 AM	365	76.7%	324	76.2%	33	64.7%
6:00 AM -6:59 AM	1,490	75.5%	1,321	72.4%	95	63.8%
7:00 AM -7:59 AM	10,053	52.0%	8,911	55.7%	1423	42.4%
8:00 AM -8:59 AM	77,250	44.2%	68,473	42.9%	4496	29.9%
9:00 AM -9:59 AM	149,477	44.5%	132,494	42.9%	7163	27.0%
10:00 AM -10:59 AM	198,806	46.5%	176,219	44.7%	9221	28.4%
11:00 AM -11:59 AM	242,706	48.1%	215,131	47.6%	21596	40.9%
12:00 PM -12:59 PM	183,931	42.8%	163,034	42.5%	16898	36.8%
1:00 PM -1:59 PM	203,307	45.2%	180,208	44.8%	17845	37.1%
2:00 PM -2:59 PM	227,463	47.1%	201,620	46.6%	18912	38.2%
3:00 PM -3:59 PM	237,659	48.4%	210,658	47.8%	19928	39.6%
4:00 PM -4:59 PM	268,692	50.5%	238,165	50.4%	24629	41.5%
5:00 PM -5:59 PM	269,174	51.9%	238,592	52.6%	27068	42.0%
6:00 PM -6:59 PM	237,758	50.7%	210,745	53.7%	32333	42.3%
7:00 PM -7:59 PM	187,521	49.1%	166,216	53.1%	30329	43.8%
8:00 PM -8:59 PM	125,151	45.2%	110,932	49.5%	22043	41.9%
9:00 PM -9:59 PM	60,025	40.4%	53,205	48.9%	15265	38.6%
10:00 PM -10:59 PM	31,423	40.7%	27,853	53.4%	9939	39.6%
11:00 PM -11:59 PM	18,576	38.8%	16,466	51.2%	5,785	36.8%
Total	2,736,009	47.3%	2,425,160	48.0%	286,056	39.2%

Data Source: AT&T data reported through the intelligent call router

Note that the totals due not agree with tables D-1 and D-2 due to discrepancies between the two data sources used to derive the tables.

Also note that the numerators of the English and Spanish percent resolved values contains data for the dates of 3/3 thru 3/9 where as the denominator does not.

Appendix E

Table E-1. Daily Distribution of Calls Handled by Call Centers

			Language					
Day	Date	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Friday	3/3	2,337	1,939	381	5	1	3	8
Saturday	3/4	2,159	1,817	334	0	4	3	1
Sunday	3/5	1,606	1,476	125	0	1	2	2
Monday	3/6	6,286	5,697	539	14	10	15	11
Tuesday	3/7	7,993	7,334	626	6	5	21	1
Wednesday	3/8	7,766	7,006	729	1	5	21	4
Thursday	3/9	9,712	8,806	892	3	3	5	3
Friday	3/10	8,469	7,689	769	4	0	7	0
Saturday	3/11	6,895	6,314	577	4	0	0	0
Sunday	3/12	4,800	4,337	462	0	0	0	1
Monday	3/13	35,829	32,930	2,878	9	2	10	0
Tuesday	3/14	72,143	64,348	7,573	151	15	50	6
Wednesday	3/15	107,260	90,894	16,216	49	19	81	1
Thursday	3/16	86,738	75,918	10,711	24	21	64	0
Friday	3/17	63,982	55,976	7,927	29	16	32	2
Saturday	3/18	38,796	34,210	4,561	7	1	17	0
Sunday	3/19	27,971	24,627	3,334	3	5	2	0
Monday	3/20	206,352	187,696	18,525	47	27	51	6
Tuesday	3/21	166,265	146,232	19,916	42	20	49	6
Wednesday	3/22	150,808	133,564	17,043	52	34	110	5
Thursday	3/23	111,743	98,389	13,028	109	41	164	12
Friday	3/24	76,750	65,256	11,012	144	155	128	55
Saturday	3/25	39,925	31,061	8,438	84	182	119	41
Sunday	3/26	25,296	21,261	3,860	51	60	43	21
Monday	3/27	111,019	93,790	15,892	556	355	360	66
Tuesday	3/28	95,521	77,058	17,094	720	292	313	44
Wednesday	3/29	78,657	63,551	14,000	485	297	287	37
Thursday	3/30	71,430	54,662	15,469	457	377	384	81
Friday	3/31	66,398	53,883	11,274	520	352	271	98
Saturday	4/1	35,705	29,104	5,896	295	189	171	50
Sunday	4/2	16,914	13,936	2,616	159	110	73	20
Monday	4/3	46,833	38,775	7,166	301	269	248	74
Tuesday	4/4	35,898	30,157	5,078	247	181	176	59
Wednesday	4/5	31,457	26,373	4,319	331	216	183	35
Thursday	4/6	24,547	21,268	2,829	202	126	89	33
Friday	4/7	19,474	16,749	2,364	110	102	112	37
Saturday	4/8	12,956	11,484	1,270	74	67	56	5
Sunday	4/9	9,379	8,290	937	73	47	26	6
Monday	4/10	34,608	31,369	2,938	125	90	78	8
Tuesday	4/11	27,797	25,082	2,479	84	88	47	17
Wednesday	4/12	22,376	19,992	2,166	85	62	59	12
Thursday	4/13	17,868	15,797	1,863	72	55	67	14
Friday	4/14	14,871	12,945	1,708	94	74	42	8
Saturday	4/15	6,884	6,021	712	87	37	24	3
Sunday	4/16	3,809	3,341	334	79	29	25	1
Monday	4/17	15,949	14,320	1,316	109	92	105	7
Tuesday	4/18	11,802	10,597	938	91	55	117	4
Wednesday	4/19	9,244	8,221	812	77	37	91	6
Thursday	4/20	7,841	7,176	537	47	27	47	7
Friday	4/21	6,428	5,955	379	40	19	34	1
Saturday	4/22	2,830	2,587	206	14	9	13	1

			Language					
Day	Date	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Sunday	4/23	1,287	1,118	125	25	13	5	1
Monday	4/24	8,565	7,969	484	46	33	27	6
Tuesday	4/25	7,150	6,454	580	75	19	16	6
Wednesday	4/26	6,641	5,975	540	69	22	30	5
Thursday	4/27	7,919	7,262	547	67	12	27	4
Friday	4/28	5,951	5,531	323	48	14	34	1
Saturday	4/29	2,616	2,393	158	43	6	15	1
Sunday	4/30	1,684	1,549	84	31	13	3	4
Monday	5/1	6,712	6,295	328	46	18	20	5
Tuesday	5/2	5,242	4,894	266	42	20	16	4
Wednesday	5/3	4,351	4,071	215	33	18	9	5
Thursday	5/4	4,022	3,740	226	26	11	15	4
Friday	5/5	3,148	2,980	129	14	14	7	4
Saturday	5/6	1,543	1,438	81	11	10	2	1
Sunday	5/7	970	907	41	13	5	4	0
Monday	5/8	3,880	3,699	144	14	12	10	1
Tuesday	5/9	3,146	2,965	137	18	11	10	5
Wednesday	5/10	3,038	2,830	161	22	12	9	4
Thursday	5/11	2,727	2,562	129	16	9	9	2
Friday	5/12	2,065	1,941	97	12	5	8	2
Saturday	5/13	966	888	60	10	3	4	1
Sunday	5/14	466	431	27	2	4	2	0
Monday	5/15	2,575	2,418	117	21	5	11	3
Tuesday	5/16	2,202	1,956	218	11	7	9	1
Wednesday	5/17	2,162	2,010	122	14	6	10	0
Thursday	5/18	1,958	1,816	110	9	10	7	6
Friday	5/19	1,648	1,520	105	8	5	9	1
Saturday	5/20	811	741	50	9	7	2	2
Sunday	5/21	529	481	39	5	3	0	1
Monday	5/22	2,071	1,855	182	12	5	16	1
Tuesday	5/23	1,744	1,585	130	17	4	6	2
Wednesday	5/24	1,513	1,350	142	12	0	7	2
Thursday	5/25	1,717	1,530	155	9	6	10	7
Friday	5/26	1,623	1,422	158	9	13	13	8
Saturday	5/27	790	711	63	1	4	8	3
Sunday	5/28	394	348	40	2	2	1	1
Monday	5/29	530	444	80	2	2	2	0
Tuesday	5/30	1,976	1,780	168	5	6	12	5
Wednesday	5/31	1,657	1,535	94	11	9	4	4
Thursday	6/1	2,047	1,860	162	9	5	10	1
Friday	6/2	1,602	1,427	160	2	4	4	5
Saturday	6/3	642	581	50	6	2	2	1
Sunday	6/4	325	299	22	2	2	0	0
Monday	6/5	1,489	1,361	113	6	4	2	3
Tuesday	6/6	1,276	1,100	149	9	9	3	6
Wednesday	6/7	1,217	1,065	119	20	3	7	3
Thursday	6/8	1,199	1,010	164	14	3	7	1
Friday	6/9	1,110	934	159	7	4	3	3
Saturday	6/10	450	376	52	11	10	1	0
Sunday	6/11	274	233	30	6	1	1	3
Monday	6/12	1,320	1,144	164	4	3	5	0
Tuesday	6/13	1,088	915	156	11	3	1	2
Wednesday	6/14	1,043	861	168	9	0	3	2
Thursday	6/15	870	725	134	6	3	1	1
Friday	6/16	759	638	109	5	2	4	1
Saturday	6/17	508	397	93	6	10	1	1

			Language					
Day	Date	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Sunday	6/18	219	183	23	6	6	0	1
Monday	6/19	959	786	160	5	2	5	1
Tuesday	6/20	863	719	138	4	0	2	0
Wednesday	6/21	832	607	216	4	1	4	0
Thursday	6/22	819	676	131	6	0	5	1
Friday	6/23	676	561	101	5	2	7	0
Saturday	6/24	350	281	63	2	1	3	0
Sunday	6/25	181	148	29	2	2	0	0
Monday	6/26	906	774	121	4	0	6	1
Tuesday	6/27	774	650	110	7	1	6	0
Wednesday	6/28	819	715	97	3	0	4	0
Thursday	6/29	843	699	130	8	2	2	2
Friday	6/30	983	807	173	1	1	1	0
Total		2,242,808	1,941,186	283,399	7,402	4,745	5,004	1,072

Data Source: Intelligent Call Router daily reports

Table E-2. Day of Week Distribution of Calls Handled by Call Centers

		Language					
Day of Week	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
Sunday	96,104	82,965	12,128	459	303	187	62
Monday	485,883	431,322	51,147	1,321	929	971	193
Tuesday	442,880	383,826	55,756	1,540	736	854	168
Wednesday	430,841	370,620	57,159	1,277	741	919	125
Thursday	354,000	303,896	47,217	1,084	711	913	179
Friday	278,274	238,153	37,328	1,057	783	719	234
Saturday	154,826	130,404	22,664	664	542	441	111
Total	2,242,808	1,941,186	283,399	7,402	4,745	5,004	1,072

Data Source: Intelligent Call Router daily reports

Table E-3. Hourly Distribution of Calls Handled by Call Centers

		Language					
Hour	Total	English	Spanish	Chinese	Vietnamese	Korean	Tagalog
12:00 AM- 12:59 AM	6132	4,386	1,598	81	29	22	16
1:00 AM -1:59 AM	1630	1,331	257	19	12	4	7
2:00 AM -2:59 AM	100	90	8	0	1	1	0
3:00 AM -3:59 AM	3	2	1	0	0	0	0
4:00 AM -4:59 AM	0	0	0	0	0	0	0
5:00 AM -5:59 AM	0	0	0	0	0	0	0
6:00 AM -6:59 AM	49	35	0	5	2	6	1
7:00 AM -7:59 AM	6408	5,149	1,135	51	30	37	6
8:00 AM -8:59 AM	74502	66,102	8,002	175	97	110	16
9:00 AM -9:59 AM	141639	125,701	15,302	285	160	168	23
10:00 AM -10:59 AM	169103	150,177	18,094	330	206	246	50
11:00 AM -11:59 AM	190089	169,711	19,085	493	347	372	81
12:00 PM -12:59 PM	192507	171,429	19,482	639	416	461	80
1:00 PM -1:59 PM	187537	165,743	20,224	615	399	473	83
2:00 PM -2:59 PM	187994	166,629	19,892	550	375	451	97
3:00 PM -3:59 PM	182751	162,195	19,187	543	351	404	71
4:00 PM -4:59 PM	183870	161,549	20,872	500	428	440	81
5:00 PM -5:59 PM	169599	145,917	22,209	580	363	442	88
6:00 PM -6:59 PM	160927	133,647	25,884	538	382	386	90
7:00 PM -7:59 PM	139522	116,327	21,922	535	327	334	77
8:00 PM -8:59 PM	115059	95,813	18,218	412	279	271	66
9:00 PM -9:59 PM	71356	54,828	15,743	351	224	148	62
10:00 PM -10:59 PM	37519	27,144	9,602	387	198	139	49
11:00 PM -11:59 PM	24512	17,281	6,682	313	119	89	28
Total	2,242,808	1,941,186	283,399	7,402	4,745	5,004	1,072

Data Source: Intelligent Call Router daily reports

Appendix F

Table F-1. Daily Distribution of Call Abandonments

		English & Spanish				Spanish (rotary), Chinese, Vietnamese, Korean, and Tagalog			
Day	Date	All Cases	Percent	After 20 sec	Percent	All Cases	Percent	After 20 sec	Percent
Friday	3/3	268	10.4%	195	7.8%	0	0.0%	0	0.0%
Saturday	3/4	150	6.5%	114	5.0%	0	0.0%	0	0.0%
Sunday	3/5	82	4.9%	59	3.6%	0	0.0%	0	0.0%
Monday	3/6	236	3.6%	99	1.6%	13	20.6%	5	9.1%
Tuesday	3/7	296	3.6%	163	2.0%	2	5.7%	2	5.7%
Wednesday	3/8	157	2.0%	71	0.9%	11	26.2%	11	26.2%
Thursday	3/9	142	1.4%	89	0.9%	5	26.3%	0	0.0%
Friday	3/10	83	1.0%	50	0.6%	2	15.4%	1	8.3%
Saturday	3/11	90	1.3%	48	0.7%	1	20.0%	0	0.0%
Sunday	3/12	90	1.8%	49	1.0%	4	80.0%	1	50.0%
Monday	3/13	912	2.5%	426	1.2%	38	64.4%	34	61.8%
Tuesday	3/14	3,760	5.0%	2,629	3.5%	25	10.1%	21	8.6%
Wednesday	3/15	3,209	2.9%	1,997	1.8%	35	18.9%	25	14.3%
Thursday	3/16	1,987	2.2%	990	1.1%	86	44.1%	83	43.2%
Friday	3/17	1,622	2.5%	815	1.3%	79	50.0%	71	47.3%
Saturday	3/18	915	2.3%	515	1.3%	32	56.1%	29	53.7%
Sunday	3/19	621	2.2%	201	0.7%	17	63.0%	15	60.0%
Monday	3/20	57,117	21.7%	54,798	21.0%	130	49.8%	128	49.4%
Tuesday	3/21	30,427	15.5%	28,481	14.6%	126	51.9%	121	50.8%
Wednesday	3/22	2,916	1.9%	1,385	0.9%	216	51.8%	207	50.7%
Thursday	3/23	2,377	2.1%	1,132	1.0%	239	42.3%	231	41.5%
Friday	3/24	1,274	1.6%	519	0.7%	248	34.0%	239	33.1%
Saturday	3/25	774	1.9%	392	1.0%	211	33.1%	195	31.4%
Sunday	3/26	471	1.8%	153	0.6%	105	37.5%	105	37.5%
Monday	3/27	1,395	1.3%	502	0.5%	820	38.0%	801	37.5%
Tuesday	3/28	1,562	1.6%	691	0.7%	941	40.7%	912	40.0%
Wednesday	3/29	1,116	1.4%	458	0.6%	682	38.1%	660	37.4%
Thursday	3/30	1,066	1.5%	405	0.6%	750	36.6%	728	35.9%
Friday	3/31	979	1.5%	541	0.8%	597	32.5%	568	31.4%
Saturday	4/1	557	1.6%	374	1.1%	394	35.9%	371	34.5%
Sunday	4/2	264	1.6%	111	0.7%	151	29.4%	142	28.2%
Monday	4/3	1,132	2.4%	809	1.7%	524	37.0%	504	36.1%
Tuesday	4/4	569	1.6%	329	0.9%	433	39.5%	417	38.6%
Wednesday	4/5	683	2.2%	508	1.6%	61	7.4%	47	5.8%
Thursday	4/6	397	1.6%	263	1.1%	241	34.9%	239	34.7%
Friday	4/7	316	1.6%	210	1.1%	206	36.3%	200	35.7%
Saturday	4/8	274	2.1%	178	1.4%	136	40.2%	130	39.2%
Sunday	4/9	231	2.4%	128	1.4%	113	42.6%	110	42.0%
Monday	4/10	347	1.0%	212	0.6%	211	41.2%	198	39.7%
Tuesday	4/11	493	1.8%	393	1.4%	163	40.9%	158	40.1%
Wednesday	4/12	301	1.3%	212	0.9%	123	36.1%	112	33.9%
Thursday	4/13	135	0.8%	76	0.4%	116	35.8%	112	35.0%
Friday	4/14	120	0.8%	61	0.4%	109	33.3%	101	31.7%
Saturday	4/15	73	1.1%	27	0.4%	24	13.7%	15	9.0%
Sunday	4/16	51	1.4%	30	0.8%	4	2.9%	3	2.2%
Monday	4/17	124	0.8%	55	0.4%	19	5.7%	3	0.9%
Tuesday	4/18	115	1.0%	62	0.5%	31	10.4%	17	6.0%
Wednesday	4/19	129	1.4%	77	0.8%	6	2.8%	0	0.0%
Thursday	4/20	109	1.4%	53	0.7%	3	2.3%	0	0.0%
Friday	4/21	95	1.5%	46	0.7%	3	3.1%	0	0.0%

		English & Spanish				Spanish (rotary), Chinese, Vietnamese, Korean, and Tagalog			
Day	Date	All Cases	Percent	After 20 sec	Percent	All Cases	Percent	After 20 sec	Percent
Saturday	4/22	57	2.0%	30	1.1%	4	9.8%	0	0.0%
Sunday	4/23	9	0.7%	2	0.2%	3	6.4%	3	6.4%
Monday	4/24	68	0.8%	26	0.3%	1	0.9%	0	0.0%
Tuesday	4/25	76	1.1%	26	0.4%	3	2.5%	1	0.9%
Wednesday	4/26	92	1.4%	48	0.7%	10	7.4%	0	0.0%
Thursday	4/27	97	1.2%	45	0.6%	7	6.0%	0	0.0%
Friday	4/28	61	1.0%	22	0.4%	6	5.8%	0	0.0%
Saturday	4/29	17	0.7%	3	0.1%	9	12.2%	2	3.0%
Sunday	4/30	43	2.6%	7	0.4%	2	3.8%	0	0.0%
Monday	5/1	114	1.7%	47	0.7%	6	6.3%	2	2.2%
Tuesday	5/2	50	1.0%	2	0.0%	12	12.8%	0	0.0%
Wednesday	5/3	93	2.1%	19	0.4%	2	3.0%	0	0.0%
Thursday	5/4	82	2.0%	21	0.5%	11	16.4%	1	1.8%
Friday	5/5	66	2.1%	4	0.1%	3	7.1%	1	2.5%
Saturday	5/6	44	2.8%	1	0.1%	6	20.0%	0	0.0%
Sunday	5/7	48	4.8%	13	1.4%	2	8.3%	0	0.0%
Monday	5/8	63	1.6%	20	0.5%	5	11.9%	0	0.0%
Tuesday	5/9	59	1.9%	19	0.6%	3	6.4%	0	0.0%
Wednesday	5/10	77	2.5%	41	1.4%	5	9.6%	1	2.1%
Thursday	5/11	42	1.5%	7	0.3%	0	0.0%	0	0.0%
Friday	5/12	39	1.9%	1	0.0%	4	12.9%	0	0.0%
Saturday	5/13	74	7.2%	53	5.3%	0	0.0%	0	0.0%
Sunday	5/14	16	3.4%	0	0.0%	0	0.0%	0	0.0%
Monday	5/15	44	1.7%	7	0.3%	1	2.4%	0	0.0%
Tuesday	5/16	60	2.7%	20	0.9%	5	15.2%	1	3.4%
Wednesday	5/17	54	2.5%	8	0.4%	0	0.0%	0	0.0%
Thursday	5/18	37	1.9%	16	0.8%	5	13.5%	0	0.0%
Friday	5/19	46	2.8%	12	0.7%	2	8.0%	1	4.2%
Saturday	5/20	20	2.5%	7	0.9%	5	20.0%	0	0.0%
Sunday	5/21	12	2.3%	1	0.2%	0	0.0%	0	0.0%
Monday	5/22	75	3.6%	13	0.6%	3	8.1%	2	5.6%
Tuesday	5/23	38	2.2%	8	0.5%	3	9.4%	1	3.3%
Wednesday	5/24	50	3.2%	19	1.3%	8	27.6%	1	4.5%
Thursday	5/25	66	3.8%	46	2.7%	3	8.6%	0	0.0%
Friday	5/26	68	4.1%	28	1.7%	9	17.3%	0	0.0%
Saturday	5/27	69	8.2%	57	6.9%	4	20.0%	0	0.0%
Sunday	5/28	22	5.4%	5	1.3%	4	40.0%	0	0.0%
Monday	5/29	26	4.7%	8	1.5%	2	25.0%	0	0.0%
Tuesday	5/30	88	4.3%	49	2.5%	1	3.4%	0	0.0%
Wednesday	5/31	81	4.7%	48	2.9%	5	15.2%	1	3.4%
Thursday	6/1	269	11.7%	201	9.0%	6	19.4%	0	0.0%
Friday	6/2	115	6.8%	83	5.0%	6	28.6%	1	6.3%
Saturday	6/3	31	4.7%	2	0.3%	0	0.0%	0	0.0%
Sunday	6/4	12	3.6%	2	0.6%	2	33.3%	1	20.0%
Monday	6/5	57	3.7%	25	1.7%	6	28.6%	0	0.0%
Tuesday	6/6	42	3.3%	16	1.3%	7	20.6%	1	3.6%
Wednesday	6/7	76	6.0%	35	2.9%	6	15.4%	0	0.0%
Thursday	6/8	58	4.7%	33	2.7%	4	13.8%	1	3.8%
Friday	6/9	28	2.5%	13	1.2%	3	15.0%	0	0.0%
Saturday	6/10	19	4.3%	2	0.5%	4	15.4%	1	4.3%
Sunday	6/11	32	10.8%	27	9.3%	1	8.3%	0	0.0%
Monday	6/12	51	3.8%	21	1.6%	5	29.4%	1	7.7%
Tuesday	6/13	47	4.2%	24	2.2%	1	5.6%	0	0.0%
Wednesday	6/14	41	3.8%	18	1.7%	2	12.5%	0	0.0%
Thursday	6/15	41	4.6%	25	2.8%	3	21.4%	0	0.0%

		English & Spanish				Spanish (rotary), Chinese, Vietnamese, Korean, and Tagalog			
Day	Date	All Cases	Percent	After 20 sec	Percent	All Cases	Percent	After 20 sec	Percent
Friday	6/16	27	3.5%	7	0.9%	1	7.7%	0	0.0%
Saturday	6/17	18	3.5%	5	1.0%	5	21.7%	1	5.3%
Sunday	6/18	2	1.0%	0	0.0%	0	0.0%	0	0.0%
Monday	6/19	48	4.8%	24	2.5%	2	13.3%	1	7.1%
Tuesday	6/20	51	5.6%	29	3.3%	0	0.0%	0	0.0%
Wednesday	6/21	52	5.9%	36	4.2%	5	35.7%	3	25.0%
Thursday	6/22	44	5.2%	29	3.5%	2	14.3%	1	7.7%
Friday	6/23	44	6.2%	23	3.4%	1	6.7%	1	6.7%
Saturday	6/24	11	3.1%	4	1.1%	1	14.3%	0	0.0%
Sunday	6/25	10	5.3%	5	2.7%	0	0.0%	0	0.0%
Monday	6/26	34	3.7%	19	2.1%	8	42.1%	1	8.3%
Tuesday	6/27	27	3.4%	10	1.3%	0	0.0%	0	0.0%
Wednesday	6/28	23	2.8%	7	0.9%	1	12.5%	0	0.0%
Thursday	6/29	40	4.6%	25	2.9%	1	6.7%	0	0.0%
Friday	6/30	46	4.5%	29	2.9%	7	70.0%	0	0.0%
Total		126,248	5.4%	103,769	4.5%	8,740	32.4%	8,104	30.8%

Data Source: Intelligent Call Router daily reports (Note that the Spanish rotary call volume handled by call centers is not included in the denominator of the percent calculations)

Table F-2. Day of the Week Distribution of Call Abandonments

	English & Spanish				Spanish (rotary), Chinese, Vietnamese, Korean, and Tagalog			
Day of Week	All Cases	Percent	After 20 sec	Percent	All Cases	Percent	After 20 sec	Percent
Sunday	2,016	2.1%	793	0.8%	408	28.8%	380	27.3%
Monday	61,843	11.4%	57,111	10.6%	1,794	34.4%	1,680	33.0%
Tuesday	37,760	7.9%	32,951	7.0%	1,756	34.7%	1,652	33.4%
Wednesday	9,150	2.1%	4,987	1.2%	1,178	27.8%	1,068	25.9%
Thursday	6,989	2.0%	3,456	1.0%	1,482	33.9%	1,396	32.6%
Friday	5,297	1.9%	2,659	1.0%	1,286	31.5%	1,184	29.8%
Saturday	3,193	2.0%	1,812	1.2%	836	32.2%	744	29.7%
Total	126,248	5.4%	103,769	4.5%	8,740	32.4%	8,104	30.8%

Data Source: Intelligent Call Router daily reports (Note that the Spanish rotary call volume handled by call centers is not included in the denominator of the percent calculations)

Table F-3. Hourly Distribution of Call Abandonments

	English & Spanish				Spanish (rotary), Chinese, Vietnamese, Korean, and Tagalog			
Hour	All Cases	Percent	After 20 sec	Percent	All Cases	Percent	After 20 sec	Percent
12:00 AM- 12:59 AM	99	1.6%	87	1.4%	27	15.4%	22	12.9%
1:00 AM -1:59 AM	25	1.6%	19	1.2%	4	8.7%	1	2.3%
2:00 AM -2:59 AM	14	12.5%	13	11.7%	0	0.0%	0	0.0%
3:00 AM -3:59 AM	0	0.0%	0	0.0%	0	N/A	0	N/A
4:00 AM -4:59 AM	0	N/A	0	N/A	0	N/A	0	N/A
5:00 AM -5:59 AM	0	N/A	0	N/A	0	N/A	0	N/A
6:00 AM -6:59 AM	0	0.0%	0	0.0%	2	12.5%	0	0.0%
7:00 AM -7:59 AM	147	2.3%	111	1.7%	13	9.5%	2	1.6%
8:00 AM -8:59 AM	1,719	2.3%	1,216	1.6%	84	17.4%	65	14.0%
9:00 AM -9:59 AM	3,871	2.7%	3,021	2.1%	341	34.9%	314	33.1%
10:00 AM -10:59 AM	3,377	2.0%	2,359	1.4%	516	38.3%	484	36.8%
11:00 AM -11:59 AM	6,656	3.4%	5,279	2.7%	648	33.4%	621	32.4%
12:00 PM -12:59 PM	6,665	3.4%	5,104	2.6%	667	29.5%	619	27.9%
1:00 PM -1:59 PM	10,127	5.2%	8,146	4.2%	662	29.7%	594	27.4%
2:00 PM -2:59 PM	13,741	6.9%	11,908	6.0%	634	30.1%	592	28.7%
3:00 PM -3:59 PM	15,682	8.0%	13,851	7.1%	600	30.5%	555	28.8%
4:00 PM -4:59 PM	17,696	8.8%	15,749	7.9%	687	32.2%	636	30.5%
5:00 PM -5:59 PM	15,080	8.2%	13,225	7.3%	731	33.2%	679	31.6%
6:00 PM -6:59 PM	12,266	7.1%	10,178	6.0%	770	35.5%	728	34.3%
7:00 PM -7:59 PM	8,368	5.7%	6,438	4.5%	783	38.1%	745	36.9%
8:00 PM -8:59 PM	6,387	5.3%	4,693	4.0%	733	41.6%	698	40.4%
9:00 PM -9:59 PM	2,823	3.8%	1,667	2.3%	451	36.5%	420	34.9%
10:00 PM -10:59 PM	860	2.3%	426	1.1%	260	25.2%	232	23.1%
11:00 PM -11:59 PM	645	2.6%	279	1.2%	127	18.8%	97	15.0%
Total	126,248	5.4%	103,769	4.5%	8,740	32.4%	8,104	30.8%

Data Source: Intelligent Call Router daily reports (Note that percent values equal to N/A indicate there was no calls handled at a call center for that hour. Also note that the Spanish rotary call volume handled by call centers is not included in the denominator of the percent calculations.)

Appendix G

Table G-1. Language Assistance Guide Selection Distribution

	Language	Frequency	Percent
1	Albanian	5,388	7.0%
2	Amaharic	9	0.0%
3	Arabic	71	0.1%
4	Armenian	65	0.1%
5	Bengali	14	0.0%
6	Burmese	7	0.0%
7	Cambodian	41	0.1%
8	Chammorro	9	0.0%
9	Chinese	2,326	3.0%
10	Creole	1,645	2.1%
11	Croatian	61	0.1%
12	Czech	256	0.3%
13	Dari	96	0.1%
14	Dinka	4,630	6.0%
15	Dutch	11	0.0%
16	Farsi	49	0.1%
17	French	83	0.1%
18	German	39	0.1%
19	Greek	27	0.0%
20	Hebrew	232	0.3%
21	Hindi	23	0.0%
22	Hmong	37	0.0%
23	Hungarian	28	0.0%
24	Ilcano	724	0.9%
25	Italian	68	0.1%
26	Japanese	60	0.1%
27	Korean	1,244	1.6%
28	Kurdish	4	0.0%
29	Laotian	20	0.0%
30	Large Print (English)	310	0.4%
31	Polish	58	0.1%
32	Portuguese	102	0.1%
33	Roma	2	0.0%
34	Romanian	143	0.2%
35	Russian	219	0.3%
36	Samoan	14	0.0%
37	Serbian	12	0.0%
38	Slovak	11	0.0%
39	Somali	110	0.1%

	Language	Frequency	Percent
40	Spanish	57,563	74.3%
41	Swahili	130	0.2%
42	Tagalog	63	0.1%
43	Thai	15	0.0%
44	Tibetan	40	0.1%
45	Tigrean	4	0.0%
46	Tongan	4	0.0%
47	Ukrainian	11	0.0%
48	Urdu	15	0.0%
49	Vietnamese	1,394	1.8%
50	Yiddish	14	0.0%
Total		77,501	100.0%

Data Source: IVR evaluation file

* Note that percentages less than 0.1 percent appear as 0.0 percent

Appendix H

Table H-1. Distribution of IVR Menu Selections

Phase Available	Menu Selection	Number	Selection Distribution Percent
Total		5,540,386	100.0%
1, 2, 3	Frequently Asked Questions	1,161,035	21.0%
1, 2, 3	General Information	247,901	4.5%
1, 2, 3	Additional help	271,273	4.9%
1, 2, 3	Jobs	72,177	1.3%
1, 2, 3	Internet	17,833	0.3%
1, 2	Postcard	344,412	6.2%
2	Need form	1,062,731	19.2%
3	No form	13,012	0.2%
	Multiple Selection	580,546	10.5%
	No Selection	1,769,466	31.9%