4/11/2007

2010 Census Program for Evaluations and Experiments (CPEX)

Summaries of Suggested Research

2010 CPEX Research Topic

Census Coverage Measurement

Statement of Problem

Coverage measurement programs of recent censuses have identified coverage error and differential rates of coverage across population subgroups (e.g., race/Hispanic ethnicity groups). The U.S. Census Bureau is incorporating new technologies and methods into the 2010 Census operations partly in an attempt to address coverage issues identified in Census 2000 such as duplicate enumerations and omissions. Census Coverage Measurement (CCM) in 2010 will provide needed estimates of census coverage that will help assess the success of the new census technologies and methods.

Likewise, evaluations of the Accuracy and Coverage Evaluation 2000 (A.C.E. 2000) revealed errors in this operation, particularly the failure to identify substantial numbers of erroneous enumerations (EEs), including duplicates. In response, new technologies and methods are being incorporated into the 2010 CCM to attempt to address these problems. In addition, the 2010 CCM is attempting to measure census coverage in new ways, including estimating EEs for various census operations and estimating components of coverage error (EEs and omissions) separately (not just estimating net coverage). There is thus a need to evaluate the 2010 CCM to assess the success of the new technologies and methods in providing more accurate data to support the various measurements of census coverage. As the new methods add operational complexities, they particularly need to be evaluated to assure their effectiveness on the large scale of a census environment.

The 2010 census also provides opportunities for investigating new ways to improve CCM. An example would be preliminary investigation into estimating the coverage of Group Quarters (GQs) (both of GQ facilities and the population within GQs). As the GQ population is not uniformly distributed across age groups, GQ coverage error estimates would affect some age groups more than others.

Summary of Suggested Research

Question A.1 – High Priority

Census Coverage Measurement (CCM) is the program that will answer the question: How accurate was the coverage of the population?

Question A.2 – High Priority

How effective is the CCM interview and subsequent processing in determining the members of the household at each housing unit on CCM interview day and the usual residence of each household member on Census Day? When there are errors in determining household membership and usual residence, what are the causes and

what are the possible remedies? What are the effects of recall errors and reporting errors on the CCM interview?

A coverage measurement program relies on the correct determination of correct versus erroneous enumerations, of Census Day residency, and of matches from the CCM independent sample to the census. The design of the 2010 CCM has attempted to address the weaknesses of the A.C.E. 2000 person interview and follow-up in identifying erroneous census enumerations and the census day residence of respondents in the independent sample. In doing so, the CCM person interview, follow-up interview, and matching operations have become more complicated than for previous CCM surveys. Assessing the effectiveness of the new design is important to provide indications of the quality of the 2010 CCM, and also to identify where improvements can be made for coverage measurement in 2020.

Question A. 3 – High Priority

Can we start to learn if comparing the history of census operations with the CCM results in the sample blocks can help us explain how and when errors occur, and also suggest potential remedies?

Coverage measurement in 2010 will be attempting to say more about how various census operations affect coverage through estimating numbers and rates of EEs by census operation. However, simply estimating EEs in the final census count gives a limited picture. For example, an operation may include correct enumerations that a later operation removes, and these details will not show up in the estimates of EEs. A more comprehensive evaluation may reveal something about how errors arise from or are corrected by different census operations. Such an evaluation would take a very detailed look at the history of census operations and compare results from each operation to CCM results. Doing this nationwide or on any large scale appears infeasible for 2010, but this might be attempted on a small scale. Combining all the necessary files into a file suitable for such a comparison for a localized area and comparing the results to the CCM would be a start to improving the evaluation of census operations using data from CCM.

Question A.4 – High Priority

Our knowledge about GQ coverage is very limited. Efforts to estimate GQ overage in 1980 and 1990 were limited (in both scope and success), and the GQ population was out-of-scope for the A.C.E. 2000. Since the GQ population will also be out-of-scope for CCM in 2010, we need to consider that the problems are likely to be different for different types of GQs (e.g., college dorms vs. nursing homes vs. migrant farm worker camps).

The 1980 and 1990 census coverage measurement programs included residents of noninstitutional GQs in their universe, but the methodology was not very effective in resolving the census day residence for this group. As a result, the 2000 and 2010

coverage measurement programs exclude all GQs and all GQ residents. This is a significant omission in the 2010 coverage measurement program, particularly for some age groups. Experiments of the nature of pilot studies during the 2010 Census could start us in the direction of truly being able to measure coverage of GQ facilities and of residents of GQs in 2020, at least for some types of GQs. The appropriate way to do this may differ by the type of GQ.

Question A.5 – Medium Priority

How can we develop a standard of comparison for household membership on CCM interview day and usual residence on Census Day? What are the effects of recall errors and reporting errors on the CCM interview? Candidate methods for developing eh standard include ethnographic study matched to the census and CCM interviews, respondent debriefings following a CCM interview, and an in-depth Living Situation Survey.

Some evaluations of CCM seek to compare CCM estimates or detailed data to something taken as "truth." Getting something that can be suitably interpreted as truth is difficult, and possibly impossible on a large scale, but can be attempted on a small scale. Investigating intensive methods for determining household composition on census day could lead to a more suitable standard of comparison that would further the evaluation of the CCM and census results. Candidate methods for developing the standard include ethnographic studies matched to the census and CCM interviews, respondent debriefings following a CCM interview, and an in-depth Living Situation Survey.

Question A.6 – Medium Priority

Can administrative records augment CCM fieldwork from telephone follow-up to reduce cost and improve CCM data quality? For example, administrative records information may aid in confirming which enumerations linked in the computerized search for duplicates are the same person when the determination cannot be made in the field. An evaluation of Accuracy and Coverage Evaluation (A.C.E.) Revision II estimates of duplication in Census 2000 using administrative records information demonstrated potential for improving CCM data quality in this manner.

Administrative records contain a wealth of information but also have their own weaknesses. A question to answer is whether the information in administrative records could provide a way to reduce the cost of CCM follow-up operations and improve the quality of CCM data? For example, administrative records information may aid in confirming which enumerations linked in the computerized search for duplicates are the same person when the determination cannot be made in the field. An evaluation of A.C.E. Revision II estimates of duplication in Census 2000 using administrative records information demonstrated potential for improving CCM data quality in this manner.

2010 CPEX Research Topic

Race and Hispanic Origin

Statement of Problem

In preparation for the 2010 Census, the U.S. Census Bureau conducted tests in 2003and 2005 to develop more accurate and reliable race and Hispanic origin questions. These experiments tested the effects of examples, a simplified three-part question, an added instruction, changes in wording of the question and response categories, and other modifications. Additional experiments are needed to continue evaluating whether or not accuracy and reliability can be further improved. In addition, Census Advisory Committees have made several recommendations for changes to the questions that must be evaluated before they can be incorporated into the census.

The proposed experiments must involve a reinterview to assess reporting reliability and large enough samples to evaluate effects on small groups, features that were lacking in the 2003 National Census Test (NCT) and the 2005 NCT experiments. In addition, studies are needed to better understand respondents' intentions—what they mean to tell us about their racial and ethnic identity—when they provide certain, seemingly inconsistent responses to race or to Hispanic origin. Currently, assumptions are made about respondent intent when race and Hispanic origin write-in entries are edited. Research is needed to provide a firmer empirical basis for such assumptions. Research on respondent intent when write-in entries are provided to the race and Hispanic origin questions will be important in informing future data editing practices.

Summary of Suggested Research

Question B.1 – High Priority

Evaluate alternative race and Hispanic origin questions to include (1) double-banking of response categories, and shared write-in spaces (2) modified examples, to follow the Advisory Panel recommendations, (3) separately evaluate the features of 2005 NCT panel 6, to better understand how each influences Hispanic and race reporting, and to inform future decisions, (4) modified Hispanic question that allows multiple Hispanic reporting, (Y/N, yes multiple types.) The latter must be tested in both Nonresponse Followup (NRFU) and the mailout. Samples must adequately represent small groups. Re-interview is needed to assess data quality.

The Advisory Panels have recommended testing of several features of the race and Hispanic origin questions, including use of modified examples to avoid offending people and improve reporting of specific groups, such as African and Caribbean Blacks, South American Indians, and so on.

In the 2005 NCT, several features intended to simplify the questions and save space on the form were combined in a single panel. This panel had an unexpected effect on the fraction reporting as Hispanic. Experimental research is needed to separately evaluate the features of this panel to better understand which of them affected Hispanic origin reporting in the 2005 NCT, including double-banking of response categories and instructions.

Currently, the Hispanic origin question is intended to elicit one response, but no instruction is provided to respondents. A modified Hispanic origin question that allows reporting of both Hispanic and non-Hispanic origin (Y/N) and of multiple Hispanic origins is needed. Re-interviews will be required to assess data quality. This would require testing in interviewer-administered instrument as well as the mail questionnaire.

This research must be closely coordinated with B.3, below.

Question B.2 – Low Priority

Develop a combined Race and Hispanic origin question.

Stakeholders have recommended testing a combined race and Hispanic origin question. This would require iterative cognitive testing, and evaluation in an Alternative Questionnaire (AQE) panel, with re-interviews to assess data quality.

Question B.3 – High Priority

Conduct research to support rules for editing problematic race and Hispanic origin responses (e.g., Y/N responses to Hispanic origin). A goal is to better understand respondent intent of write-in entries in the presence of, and in the absence of, marking checkboxes.

Research is needed regarding the intent of respondents when write-in entries are provided to the race and Hispanic origin questions, particularly in the "Some other race" write-in line and in the "Other Hispanic" write-in line. This includes investigating respondents' intent when they provide seemingly inconsistent write-in entries to the race and Hispanic origin questions.

2010 CPEX Research Topic

Coverage Improvement

Statement of Problem

Many operations in the Census directly impact coverage. Research in all of these areas should direct us towards changes to procedures and/or new procedures that could improve coverage in future Censuses or help us better understand the current Census. Seven subcategories of Coverage Improvement are included under this larger topic.

The completeness and accuracy of the address list used in the Census is clearly a key to obtaining good coverage of the population. Research suggested in this area covers the maintenance and updating of the Census address list. These topics are suggested both to measure the completeness and accuracy of the final address list and to aid in the development of ways to improve the address list development operations.

Other operations in the Census are geared toward improving person coverage. The coverage improvement efforts embedded in the Coverage Followup (CFU) operations are a major part of this effort. This effort attempts to identify households that should be re-contacted to identify both erroneous omissions and erroneous enumerations of people in the Census. Research is suggested for several components of this operation.

Additional research suggested include on the use of administrative records, implementation of ethnographic studies to understand issues of Census coverage. Finally, research could be conducted on a number of other Census operations to understand their impact on Census coverage.

Summary of Suggested Research

Address List Development

Question C.1 – High Priority

How accurate was the final address list?

Question C.2 – High Priority

How should we deal with updating the address frame coming out of the 2010 Census so that we can avoid a large and expensive address canvassing operation in the future, or so that the operation could be conducted at a much reduced cost?

Question C.2.a – High Priority

How can the quality of the address frame be improved with a more scientific extract process?

Question C.2.b – High Priority

How can we use additional information (like the Delivery Sequence File in rural areas, American Community Survey (ACS) Time of Interview data, Carrier Route data, and the National Change Of Address file) to improve address list maintenance?

Question C.3 – High Priority

Can we target Address Canvassing activities better?

Question C.4 – High Priority

How accurate were the data collected in Address Canvassing? How can we improve Address Canvassing quality?

Question C.4.a – High Priority

How well does automated Global Positioning System (GPS) collection work in terms of completeness and accuracy of GPS coordinate data?

Question C.4.b – High Priority

How can we improve GPS collection – increase human intervention, improve automated collection, both?

Question C.5 – Medium Priority

How can we improve address list maintenance, operational procedures, and enumeration of small multi-unit structures (2-10 units)?

The address list created for the 2010 Decennial Census will be maintained and updated for use as a sampling frame for the American Community Survey (ACS) and the other Demographic surveys conducted by the Census Bureau. It will also form the basis for the address list used in the 2020 Decennial census. The maintenance, updating, and use of this address list are critical and expensive operations. We must understand the accuracy of this list and find ways to improve the list related operations from both a quality and cost perspective. The research suggested in this area attempts to address these issues.

Evaluations are suggested for Address Canvassing in three distinct areas.

1. The accuracy of the Census starts with the Address Canvassing frame. The first set of evaluations focus on the cost of address list development while maintaining the quality and completeness of the address list (See C.2, C.2.b). The next

question then focuses on how we identify those records on the list that represent units where people live without adding the burden of visiting the many addresses that don't represent living quarters. This is usually referred to as defining "extract rules" or "a filter" which identifies the valid units on the address list (See C.2.a). Extracting too many units results in increased costs. While extracting too few units creates a loss in coverage. While it is technically possible to correct the address list with a complete canvass, starting with a more accurate list gives the address canvassing operation a much better chance of being completed correctly. Errors on the list create confusion in the operation. (See C.2, C.2.a, C.2.b, C.5)

2. A related question is how can we target procedures to update the address lists. The current operations involve a large-scale address canvassing operation prior to the Decennial Census. Can this operation be scaled back (targeted) or replaced by ongoing updating operations? (See C.3)
3. For both of the previous issues understanding the accuracy of the address list is critical. The third area deals with this issue. Improvements in methods geared toward quality, accuracy overall, GPS, geocoding, and training for our address list development operations would be the focus of this evaluation. (See C.1, C.4, C.4.a, C.4.b)

Administrative Records

Question C.2.b – High Priority

How can we use additional information (like the Delivery Sequence File in rural areas, ACS Time of Interview data, Carrier Route data, and the National Change Of Address file) to improve address list maintenance?

Question C.6 – High Priority

How can we use administrative records to (and avoid the need for followup):

A. **Identify coverage problems?**
B. **Identify and classify duplicates?**
C. **Resolve potential coverage problems identified by the coverage probes.**

This evaluation could relate to the Address Canvassing and Coverage Followup (CFU) evaluations. Consideration should be given as to the uses of administrative records to improve the address list, improve within household coverage identify CFU cases, identify address and person duplicates, and resolve CFU cases to reduce or eliminate expensive field operations.

Coverage Followup (CFU)

Question C.7 – High Priority

Does Coverage Followup actually work?

- **A. How effective is it?**
- **B. Is CFU effectively identifying omissions?**
- **C. Is it introducing bias?**
- **D. How do recall and reporting errors affect its determination of residency, and hence erroneous enumerations (EEs)?**
- **E. How can we afford to follow up on more coverage improvement cases?**
- **F. Is the expense of CFU worth the coverage gain?**
- **G. Can certain categories of response to coverage questions be automatically coded, or field coded by interviewers to reduce follow up workload? We should specify who the interviewers are (telephone?) and what type of coding they would do. If it was something very simple, I think they might be able to do it.**
- **H. What recall and reporting problems affect CFU's ability to identify: missed people the Respondent had in mind when filling out the undercount Question? Are enumerators screening out people who are eligible to be listed?**
- **I. How to optimize which cases are coded for CFU?**

Question C.8 – High Priority

Develop and experimentally evaluate alternative designs for CFU instruments. Alternative methodologies might involve dependent questions; self-response by all relevant household members; immediate follow-up; and other methodological improvements to facilitate recall and reporting in CFU, (i.e., conduct an integrated experiment).

Question C.9 – High Priority

To what extent did nationwide person matching improve the identification and removal of duplicates of housing units and persons in the census? In particular, what improvements can be made in the identification and removal of census duplicates of persons across some distance given the challenges created by chance agreements of names and birth dates?

Question C.10 – High Priority

Develop and experimentally evaluate alternative designs of the undercount (and overcount?) questions in the mail form to effectively identify census coverage errors

for follow-up. Variations might include format (open vs. closed) and wording of questions and response categories, and placement in the form.

CFU is an operation where selected housing units are identified during Census operations as having potential problems with either erroneous enumerations or erroneous omissions. The CFU interview is an attempt to identify and correct those problems. Other than using the original household roster, the CFU interview is an independent interview. Three issues exist with this operation that are subject to evaluation or further research.

1. What is the quality of the CFU interview? Does it correctly identify and resolve coverage issues within the household? (See C.7.c, C.7. h, C.8)
2. How can we better identify cases with coverage issues without adding a large number of false positives? Current measures indicate that a large number of cases are identified for the CFU that do not result in changes in the household roster. It is an expensive operation to follow up these households. Can the Census coverage questions, the Census form, or the CFU case selection process be modified to reduce the number of these cases? (See C.7.a, C.7.b, C.7.d, C.7.e, C.7.g, C.7.h, C.7.i, C.10)
3. How can we improve the efficiency of CFU operations? Current measures indicate that most house units where coverage problems exist are not identified by the Census coverage questions. Are there ways to modify the coverage questions in the Census so as to do a better job of identifying those households with missed persons or with erroneous enumerations? (See C.7.f, C.9)

General

Question C.13 – High Priority

How accurate was vacancy/occupancy status of housing units in Census? Are there ways to improve accuracy?

Coverage Improvement relates to accuracy of vacancy/occupancy status. This could be embedded under another evaluation like Census Coverage Measurement (CCM).

Question C.14 – Medium Priority

Through ethnographic research, can we learn more about American Indian and Alaska Native households, Hispanic households, and immigrant communities that might result in different methods for enumeration? This research could provide insight into CFU and CCM to understand deficiencies.

During the 1990 Census ethnographic studies were conducted to better understand the sources and reasons for coverage errors. During Census 2000 ethnographic studies were conducted to better understand how census field operations were executed, to obtain

information on the sources of residential mobility, and to investigate how complex household structure among ethnic and racial minorities can lead to coverage errors. Ethnographic studies are proposed for conduct during Census 2010 to better understand how CFU and CCM are executed in selected areas where full census coverage has been challenging in the past. The aim is to assess how 2010 CFU and CCM operations are working in the field and to identify ways to improve these operations. Thus research questions that will guide the proposed study include: How was CFU and CCM executed in the selected areas? What elements of CFU and CCM field operations appeared to work well (as intended)? What elements of CFU and CCM appear not to work as intended? How can CFU and CCM field operations be improved?

Residency Rules/Questionnaire Design

Question C.11 – Medium Priority

Implement and experimentally evaluate alternative residence rules and presentation of roster instructions in paper and other modes, including the National Academy of Sciences (NAS) recommendations to ask a sufficient number of residence questions to determine residence, and to obtain alternative addresses. Panels would be included in an Alternative Questionnaire Experiment (AQE) and would require a coverage reinterview. Cognitive testing is needed for development, along with research on respondents' reading behavior and use of flashcards or other ways of presenting instructions. Alternative approaches might include:

A. **de facto approach**
B. **Worksheet approach**
C. **Alternate address elsewhere**

An evaluation of alternative residence rules, presentation of roster instructions, and other modes would address their impact on coverage and CFU operations.

Be Counted

Question C.12 – Low Priority

What effects does the Be Counted Program have in filling gaps in coverage?

A. **Is it worth it?**
B. **Is including it better than trying to ensure people are counted in other ways?**
C. **Does it introduce coverage errors?**

Did "Be Counted" improve coverage or introduce errors? Was it worth the effort?

2010 CPEX Research Topic

Field Activities

Statement of Problem

Beginning in 1790, a decennial census has been conducted in the United States every ten years in years ending in zero. After more than 200 years of counting the American population using paper questionnaires, the 2010 Census will be the first time that census data will be collected by enumerators using hand–held computers. Research is needed to evaluate the effects of the use of the hand-held computers on field operations and to provide information for future planning of automated data collection in 2020. As we modify our traditional approach to data collection to include technology, we also need to explore whether our traditional approach to quality control continues to help to improve the quality of field operations.

Research Topic D, Field Activities, is subdivided into three areas - Automation, Training, and Quality Control.

Summary of Suggested Research

Automation

Question D.1 – High Priority

What was the impact of adding expanded automation to field data collection for Address Canvassing, Nonresponse Followup (NRFU) and Census Coverage Measurement - Personal Interview (CCM-PI)? Did we gain in efficiency? Did we see cost savings? Did automation contribute to operational improvements? Should we use the hand-held computers (HHCs) in operations other than Address Canvassing, NRFU and CCM-PI in 2020 (e.g., U/E)?

Question D.2 – Medium Priority

What was the impact of using HHCs to conduct field data collection operations on field staff? Did using HHCs help us to improve the effectiveness and efficiency of field staff? Did using the HHC help us improve the productivity of field workers? What impact did the HHC have on field staff training?

These two questions seek to examine whether efficiencies and process improvements in field operations resulted from the use of the hand-held computers and whether improvements that accrued as a result of the automation of the 2010 Census field operations would be duplicated if implemented in other field operations in 2020. The first question seeks to examine the extent to which adding more and more automated functionalities over the decade actually resulted in operational improvements and

efficiencies. The second question examines whether any improvements and efficiencies that were seen would be duplicated if automation were expanded to other field operations

Field Training

Question D. 3 – High Priority

How can enumerator training be improved?

A. Can we make enumerator training more efficient/effective through the redesign of enumerator training materials and job aids?

B. Can we make enumerator training more effective by expanding the use of technology--based training?

Question D. 4 – High Priority

How can we better prepare enumerators to help ensure they are effective and efficient in their job? What is the optimal contact strategy for NRFU? How many contacts should we make for NRFU? (Requires experimental design).

Question D.5 – Medium Priority

How can enumerator training be improved to reduce/minimize errors that may be introduced by interviewers? The focus is on interviewers' contributions to coverage errors (in NRFU, CFU, and CCM-PI) in particular, but also errors in other short form items. Possible research approaches might include: an interviewer variance study, in which interviewers' assignments are randomized, or assigning a sample of mail returns to NRFU enumerators for reinterview.

These three questions seek to explore issues that have been raised by survey methodologists in the paper environment, but seek to determine how automation may impact the answers to the questions. The research based on each of these questions will help us determine what changes could be made to field training and field procedures that would result in reductions in field costs or improvements in the effectiveness and efficiency of field operations. The first question under this section would explore opportunities for the effective redesign of training materials and job aids, as well as the census data collection instruments, based on the availability of technology-based solutions. The second question would examine the age old issue of when is it cost-effective to stop going back to a respondent to get the interview without impacting the quality of the data, to determine if automation might impact or aid in this decision to "stop trying." The results would be used to help improve interviewer training on contact strategies. The third question looks at data quality errors that may result from interviewer behavior based on their knowledge (or lack thereof) gained and implemented from training or from their following or not following existing field procedures.

Quality Control (QC)

Question D.6 – High Priority

How can Global Positioning System (GPS) Technology be used as a QC tool for field work, e.g., to identify curb stoning or inefficient field work?

Question D.7 – Medium Priority

How can the QC design for field operations be improved to be more effective/efficient?

- **A. How much does the QC improve the quality of the census operations? Does the QC have a high probability of identifying data falsification and/or violation of procedures?**
- **B. Is there an efficient way to verify the QC work? Is it worth it to verify the QC work?**

Question D.8 – Low Priority

Can a batch level approach to re-interview sampling improve efficiency and/or effectiveness of field re-interview operations?

These three questions related to QC seek to determine if our traditional approach to QC actually improves the quality of field operations (i.e., identifies data falsification and violation procedures) and is the most effective/efficient approach. The first question regarding the use of the new GPS technology as a tool for QC, was assigned a high priority due to the potential cost savings.

2010 CPEX Research Topic

Language

Statement of the Problem

Research has found that the inability to speak English is a barrier to enumeration. The 2010 Census Language Program has several features designed to address this barrier, to provide high quality data in an efficient and cost effective fashion from individuals for whom English is not the first language. Given the increasing diversity of this Nation's population it is important to evaluate the effectiveness of these features. Several features of the Language Program are new for 2010 and should be highlighted for evaluation.

Summary of Suggested Research

Question E.1 – High Priority

Can an alternative design for the bilingual English/Spanish questionnaire result in improved data?

Data from the 1993 Spanish Language Form Availability Test (SFAT) and the 2005 National Census Test (NCT) have suggested that mailing a bilingual form can result in improved mail response rates, particularly in hard to enumerate areas. The data also suggest, however, that a bilingual form can result in higher item nonresponse. We are testing two alternative designs of the "swim lane" form in the 2007 Census Bilingual Forms Study, but the next step is to see how a bilingual English/Spanish census form performs in a census environment.

The U.S. Census Bureau developed for use in the 2010 Census a bilingual (English/Spanish) census form through several rounds of cognitive testing. This cognitive research revealed that the best format for the bilingual census form was a side-by-side or swim lane version with English text in the left column and the Spanish translation on the right column. A panel in the 2005 NCT was devoted to the bilingual (English/Spanish) swim lane census form. Results showed that while the bilingual form had a higher overall response rate than the control, item nonresponse was higher for certain items in the bilingual form than for the control panel. The Census Bureau is planning an additional mailout/mailback study using the bilingual form in 2007 to attempt to correct this item non-response issue.

We are proposing to field test the English/Spanish bilingual census form in a census 2010 Census Program for Evaluations and Experiments **(**CPEX). Including an alternative English/Spanish bilingual form in CPEX will allow us to: (a) determine if having a bilingual form in a census environment will produce an increase in mail response rates from Spanish speaking populations with little or no knowledge of English and (b) determine if there are gains in data quality.

Question E.2 - Medium Priority

Is there a better or more efficient way to stratify the mailing of the bilingual forms?

The Census Bureau will develop a stratification plan for use in the 2010 Census to direct the mailing of bilingual forms to housing units that we believe most require this form. The plan is to use American Community Survey (ACS) data to identify Spanish Assistance tracts; tracts that have a high concentration of households that we believe may require assistance in Spanish, and to use Census 2000 data to validate those tracts. The question is whether an alternative stratification plan could better meet the Census Bureau's objectives.

We propose to implement an alternative stratification plan in the 2010 Census environment. The goal of this effort is to determine whether the alternative stratification plan is feasible, and whether it is more effective.

Question E. 3 – Medium Priority

What information can systematic observations yield about how census enumerators are obtaining information from households with little or no understanding of English? Are there changes we can or should make to our methodologies and practices to improve these interviews?

A sizeable number of linguistically isolated households in the decennial census and ACS are interviewed through in person interviews in the field. Yet there is only anecdotal information on how these interviews are conducted by field representatives. While every effort is made to assign enumerators with the appropriate language skills to areas where the dominant language is not English, it is unclear how non-English language interviews are conducted. Field representatives receive guidance from regional offices regarding the use of interpreters but it is unclear if the guidance is provided and followed in a consistent manner. It is also unclear the extent to which the guidance provided is useful.

We propose to conduct systematic observations in a census environment of census enumerators who interview non-English speaking households. The goal is to obtain an understanding on how these interviews are conducted and to identify areas where improvement may be needed.

Question E.4 – High Priority

Can we obtain better mail response and/or higher quality data by mailing a Language Assistance Guide Booklet that depicts the questionnaire in Five (5) languages?

Language Continued

In the 2010 Census we plan to mail bilingual forms to Spanish Assistance tracts. The goal is to increase mail back rates for these areas and also to reduce the volume of "fulfillment" requests, requests to have a Spanish language form mailed to the respondent. An alternative methodology to achieve these same goals (and also meet the needs of respondents who speak a foreign language other than Spanish) is to mail a Language Assistance Guide instead of a bilingual form.

We propose to test this alternative methodology in the 2010 Census by mailing a Language Assistance Guide instead of a bilingual form to some of the tracts identified to receive a bilingual form. The test would compare mail response rates and distributions.

2010 CPEX Research Topic

Mode Effects

Statement of Problem

The U.S. Census Bureau has been focusing various efforts to better understand and minimize potential mode effects stemming from the use of multiple instruments and modes. It is important to recognize, however, that while mode differences can and should be minimized, they cannot be completely eliminated for a number of reasons. For example, respondent data collected during Nonresponse Followup (NRFU) will differ from respondent data collected from mail returns, even if the questionnaire instruments are identical, because the universes are different. This research attempts to control for the mode self-selection so that we can better understand and improve Census data collection instruments and related materials.

Summary of Suggested Research

Question F.1 – High Priority

What is the magnitude of the effects of mode on responses to 2010 census questions? This research would compare the 2010 mail mode content to the adaptation of the specific content items for other modes used in the 2010 census. An example would be comparing the 2010 mail form relationship question, which shows all 14 categories, to the proposed 2010 telephone-adapted version, which asks an open-ended question. In general, this study would examine response distributions (or reliability and other data quality measures) for the 2010 mail items compared to the adapted versions used in 2010 for other modes; comparable random samples would be ideal to avoid self-selection confounds.

Question F.2 – Medium Priority

What are the effects of mode for alternative adaptations of the 2010 census questions in non-mail modes? This research would compare the 2010 mail mode content to alternative adaptations of the specific content items for other modes. These alternative versions for the non-mail modes are adaptations, which show promise in terms of providing comparable data to the mail form, but were not used in the 2010 census. We would examine response distributions (or reliability and other data quality measures) for the 2010 mail items compared to the alternative adapted versions for other modes; comparable random samples would be ideal to avoid self-selection confounds.

This research would compare the 2010 mail mode content to the adaptation of the specific content items for other modes used in the 2010 census. An example would be comparing the 2010 mail form relationship question, which shows all 14 categories, to the proposed 2010 telephone-adapted version, which asks an open-ended question. In general, this study would examine response distributions (or reliability and other data

quality measures) for the 2010 mail items compared to the adapted versions used in 2010 for other modes; comparable random samples would be ideal to avoid self-selection confounds. A second aspect of this test would be designed to estimate the mode effects related to non-mail mode adaptations which showed promise, but were not used in the 2010 census (we would compare the 2010 mail mode content to alternative adaptations of the specific content items for other modes).

2010 CPEX Research Topic

Content

Statement of Problem

It is essential that the U.S. Census Bureau evaluate and inform users about the quality and comparability of the data it collects. In addition, evidence about the reliability and consistency of reporting may point to areas in which future research and development are needed to improve questions and data collection procedures. This topic includes both general evaluations of data quality, and experiments intended to address specific problems (see G.5). (Additional specific problems may come up; it is assumed that an Alternative Questionnaire Experiment (AQE) will be conducted in 2010 that would permit them to be evaluated. Questions G1, G5, B1, B2 all require an AQE.)

The Census Bureau also needs information about how well census questions actually perform in the field—in other words, whether they are asked as intended by interviewers, and answered adequately by respondents. The Census Bureau expends much effort pretesting and reviewing the instruments used in Nonresponse Followup (NRFU), Coverage Followup (CFU), Census Coverage Measurement (CCM), and other decennial data collection operations, in order to ensure that questions are comparable and work well. It is important to further evaluate how well the instruments are administered by interviewers.

See Topic B (Race and Ethnicity) for additional content-related issues.

Summary of Suggested Research

Question G.1 - High Priority

What are the combined effects on the data of all questionnaire changes made in the 2010 mail questionnaire?

By replicating the Census 2000 (and 1990?) mail questionnaire in its entirety (including question wording, layout, etc.) as an alternative questionnaire in an experiment in the 2010 census, the Census Bureau will be able to evaluate the combined effects of questionnaire changes on the data. This allows us to answer questions about the comparability of current and past census data. It helps us distinguish real intercensal changes in population characteristics from artifacts of questionnaire differences.

Content Continued

Question G.2 - High Priority

What are the consistency and reliability of reporting in the 2010 census?

Conduct a content reinterview study to evaluate data quality. Ideally, the sample should be adequately designed to represent small groups such as the Native Hawaiian and Pacific Islander (NHOPI) and American Indian/Alaskan Native (AIAN).

Question G.3 - Medium Priority

How well do questions perform in interviews?

In order to learn how well census enumerators/interviewers ask, and how well respondents answer, census questions, behavior coding studies should be conducted for all interviewer-administered instruments NRFU, CFU, CCM, etc. The purpose is to calibrate how well survey instruments are administered by interviewers, and to identify problems with how interviewers ask and respondents answer questions.

By conducting behavior-coding for all interviewer-administered instruments, this study will tell us whether census questions are being asked as intended and will identify problems with the questions and with interviewer training. This study can further help the Census Bureau interpret apparent disparities in data that may arise between different operations.

Question G.4 - High Priority

How comparable are Census 2010 data and American Community Survey (ACS) data?

Conduct an ACS-Census match, to assess reliability and to assess reporting differences between ACS and Census.

Question G.5 - Medium Priority

Do current methods for identifying the householder/Person 1 perform well in all modes? If not, can improved method(s) be developed?

Possible problems include misidentification of the householder and coverage errors. Possible solutions might include instructing respondents to list themselves as Person 1, improving the instruction, developing new procedures in one or more modes, or revising the concept. Experimental evaluation of current and alternative procedures is needed.

2010 CPEX Research Topic

Self-Response Options

Statement of Problem

The primary goal of the Self-Response Options (SRO) research program for the 2010 Census was to review, develop, and test ways to improve overall cooperation rates and data quality for the mailout universe. Many options were tested in the early research cycle including offering alternative data collection modes and various reminder contact strategies.

Specifically, placing notification of a 'due date' or deadline message of varying degrees on various mailing pieces was originally planned for 2004 and 2006 testing but was excluded due to budget limitations. However, a small multi-purpose test was conducted in 2006, which showed positive results for deadline messaging. Results showed increased cooperation rates for mail contacts that included deadline messages, within a compressed mailing schedule. We need to determine if results hold (and to what magnitude) within the context of a census environment, where media events, advertising, and partnership can interact with the deadline messaging included in the mailings.

We also seek to determine whether an added contact following the replacement questionnaire would have significantly positive effects on the cooperation rates in the presence of a census environment.

Summary of Suggested Research

Question H.1 - High Priority

How can we improve alternatives for increasing mail response? An experiment for 2006 showed that a deadline + delayed mailing of questionnaires improved the mail response rate by 2 percentage points? This should be replicated in the 2010 census as an experiment to see if results hold up in a census environment, and to get good data on timing of returns under a deadline. If design permits, effect of deadline messaging and compressed schedule could be teased out.

Question H.2 - High Priority

Experiment testing an additional contact reminder after replacement questionnaire. This contact would contain stronger language, relative to the reminder postcard and replacement questionnaire, indicated that failure to comply would mean inclusion in the Nonresponse Followup (NRFU) workload (more expense, etc). Different types of contacts could be tested such as postcard, full size letter, phone message, etc.

2010 CPEX Research Topic

Special Places/Group Quarters

Statement of Problem

The primary goal of the Group Quarters (GQ) research program for the 2010 Census was to review, develop, and test ways to improve the identification, enumeration and processing of GQs. This included such topics as determining which types of living quarters should be in the GQ universe versus the housing unit universe, appropriate classification of GQ types, identifying ways to improve the GQ frame development and geocoding of GQs, and identifying better ways to control the GQ operation. The main objective of the definitions work was to review and recommend changes to concepts, definitions, and classifications of GQs to reduce classification errors. The main objective of the frame development work was to recommend ways to improve the address file of GQs.

The tabulation of the population in correctional facilities has been discussed since Census 2000. Some stakeholders want the population in correctional facilities to be tabulated at an address other than the correctional facility. Other stakeholders disagree. The Census residence rule states the population should be tabulated at the correctional facility.

Summary of Suggested Research

Question I.1 – High Priority

Did the revised GQ definitions improve the identification and classification of GQs (GQs versus housing units, and by type)?

From Census 2000 we learned that the definitions of group quarters needed to be revised. In preparation for the 2010 Census and based upon research conducted after Census 2000, the Census Bureau revised GQ definitions to improve the identification and classification of GQs. There is one question on whether the revised definitions did improve the identification and classification of GQs (GQs versus housing units, and by type).

Question I.2 - Medium Priority

Evaluate methods for improving GQ data collections by: 1) assessing the yield from the various sources used to update the MAF/TIGER database (MTDB) as well as assessing how the various census operations update the MTDB; 2) studying the effects of allowing a Usual Home Elsewhere in more types of GQs; and 3) collecting additional information to assist with unduplication of college students.

These questions seek to identify ways to improve the GQ enumeration methodology and tabulation. The research proposes to answer questions on the effectiveness of updates

made to the address list of GQs, effects of allowing a Usual Home Elsewhere in more types of GQs, and the ability and usability of collecting additional information from college students to assist with unduplication.

Question I.3 - Low Priority

The National Academy of Sciences recommends, "The U.S. Census Bureau should participate in a comprehensive review of the consistency of content and availability of prison records. The accuracy of prisoner-reported prior addresses is uncertain, and should be assessed as a census experiment. A research and testing program, including experimentation as part of the 2010 census, should be initiated by the Census Bureau to evaluate the feasibility and cost of assigning incarcerated and institutionalized individuals, who have another address, to the other location." (National Academy of Sciences (NAS) report entitled, "Once, Only Once, and In the Right Place – Residence Rules in the Decennial Census, September 2006, pp 9-10)."

Background: In late 2005, Congress directed the Census Bureau to study tabulating prisoners at the address of their "permanent home of record" rather than at their place of incarceration. In February 2006, the Census Bureau issued a report that documented a range of options and data sources that were considered if prisoners were to be tabulated at their "permanent home of record" rather than at their place of incarceration. The report identified several uncertainties and challenges with this approach.

2010 CPEX Research Topic

Marketing/Publicity/Paid Advertising/Partnerships

Statement of Problem

We need to evaluate the success and effectiveness of the integrated communications program that we implement for the 2010 Census. This evaluation will seek to quantify the costs and benefits of the communications program so we can determine if the extensive resources are worth devoting to the program.

Summary of Suggested Research

Question J.1 – High Priority

How effective was the communication strategy for improving response and accuracy of the Census?

- **A. How do the separate components of the communications strategy contribute to the improvements (e.g., advertising, partnerships, etc.)?**
- **B. How effective were the targeted messages at reaching specific audiences?**
- **C. Did the communications strategy change attitudes, or behavior toward and/or increase awareness of or participation in the Census?**

This topic consists of only one question, with three sub-questions. The questions seek to determine what effect, if any, the communications program and its individual components (e.g., advertising, marketing, partnerships, etc.) had on the response to and/or accuracy of the Census. There is also a question regarding the effectiveness of the targeted messaging at reaching special populations. All of the questions were rated as high priority due to the demand for evaluation of the costs and benefits of the communications program.

2010 CPEX Research Topic

Privacy

Statement of Problem

Research conducted over the past three censuses demonstrates that an association between privacy concerns and response rates has emerged only in the past two decades. Trust in the U.S. Census Bureau's assurance of confidentiality did not predict census mail response in the 1980 census, but it did in 1990and 2000. In the 2000 census, high privacy concerns, negative views on the Census Bureau's confidentiality practices, disapproval of data sharing, and a lack of willingness to provide Social Security Numbers proved to be reliable negative predictors of whether respondents returned their forms. Research supports the conclusion that *general* concerns about privacy impact response rates in the census.

The Census Bureau's possible use of administrative records in the census (to improve data quality or population coverage, for example) has and will continue to arouse concerns and fears about privacy. Research is needed on how to explain such uses so as to allay respondents' fears.

Privacy concerns focused on the census are rather easily aroused by current events and publicized statements. Just after census forms were mailed out in 2000, for example, politicians' remarks about the intrusiveness of long form questions were widely publicized and led to elevated concerns about privacy. There were increased privacy concerns during both the 1990 and 2000 censuses. It would be useful to have better strategies for addressing privacy concerns raised by unforeseen events and statements that the Census Bureau cannot control.

Communications about privacy and confidentiality have complex and variable effects on respondents' behavior. A meta-analysis found that confidentiality assurances may have positive, negative, or no effects on response rates. In general, confidentiality assurances improve response when the data asked about are sensitive, but such messages can backfire if they arouse suspicion rather than increase trust.

Research suggests that the sensitivity of the questions, and the purpose for asking them, influence respondents' privacy concerns and their reactions to communications about privacy and confidentiality.

The Hispanic Advisory committee has recommended developing a communication and education program to alleviate fears about privacy/confidentiality breaches. This research would help inform such a program, if the Census Bureau adopts this recommendation.

Summary of Suggested Research

Question K.1 – High Priority

Test alternative presentation and placement of privacy messages in cover letter etc.

Test alternative presentation and placement of privacy messages in cover letters to respondents. More broadly, develop and evaluate means of communicating privacy policies and protections that are better understood by respondents and reduce nonresponse arising from concerns about privacy and confidentiality.

Question K.2 – High Priority

Monitor public concerns about privacy and confidentiality in a series of quick-turnaround surveys conducted during the census to provide Census Bureau executives with timely information about emerging concerns and issues. Data from monitoring surveys can also augment (or replace) traditional outreach evaluation surveys, which are slow and do not provide useful information on a timely basis.

It would be desirable to be able to add questions to ask about emerging issues, and to test alternative messages to address them. Such surveys might be modeled after the web-based surveys conducted by Knowledge Networks during the 2000 census.