

AN INNOVATIVE TECHNIQUE FOR ASKING SENSITIVE QUESTIONS: THE THREE-CARD METHOD¹

by

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Résumé – Une technique innovante pour poser des questions sensible – La méthodes des trois cartes: La méthode de trois cartes est une technique d'enquête en développement au General Accounting Office (Cours des comptes) américain pour la collection de données sensibles lors des enquêtes en face-à-face à grande échelle. L'objectif de cette technique est de fournir les statistiques nécessaires tout en respectant au maximum l'anonymat des répondants et en réduisant l'agressivité des questions. Cette technique a ses origines dans la collecte de données personnelles sur la situation des immigrés, mais elle peut être utile dans divers domaines impliquant des questions sensibles. **Thèmes sensibles, Questions sensibles, Base de données sur les méthodes de recherche en sciences sociales, Sociological Abstracts, Littérature scientifique.**

Abstract: The three-card method is a survey technique that is being developed by the U.S. General Accounting Office (GAO) to collect sensitive data in large-scale personal-interview surveys. The technique is intended to allow estimation of the needed statistics while maximizing response privacy and reducing "question threat." The technique was originally devised to collect data on respondents' immigration status; however, it might also prove useful in a variety of other sensitive question areas. **Sensitive Topics, Sensitive Questions, Social Research Methods Data Base, Sociological Abstracts, Research Literature**

In the United States, there has been repeated evidence that -- in certain policy areas -- statistical data to inform certain key debates are lacking or inadequate. When a sensitive topic area such as immigration is at issue, the reason for the information gap may simply be that relevant questions are deemed too threatening to ask in a large-scale survey or census.² The "three-card method" is a relatively new technique that -- though not yet fully validated -- may prove applicable to surveys dealing with a range of sensitive topics. The technique was originally devised for use with foreign-born respondents to estimate the five legal status categories described below, including the sensitive illegal category; while the "less sensitive" categories are measured directly, the sensitive category is measured indirectly,

This article: (1) reviews the logic of the basic three-card method; (2) describes special features of the technique; (3) summarizes GAO's development and testing efforts; (4) explains how two key subcategories of illegal immigrants (surreptitious border-crossers and "visa overstays") can be separately estimated indirectly; (5) indicates possibilities for future applications of the technique in a variety of sensitive areas; and (6) discusses challenges in fielding a nationwide survey using this innovative technique.

BACKGROUND

The three-card method was devised as a way to survey foreign-born residents of the United States about their immigration status. In recent years, U.S. immigration laws have been debated and changed, and new proposals continue to be put forward. However, without reliable data, it has been difficult to assess the impact of previous immigration policies -- or of immigration itself -- on American society. A 1998 report on the quality of immigration statistics (GAO, 1998) found that to be relevant to current laws and debates, information on foreign-born residents of the United States should be "broken down" by legal status. Five key legal statuses³ are:

- legal permanent residents (persons with official green cards);
- refugees and asylees (persons granted asylum);
- persons admitted temporarily who stay (legally) for more than a year;
- illegal immigrants who remain here for more than a year, including two key subcategories -- those who entered surreptitiously and "visa overstays;"⁴ and
- naturalized U.S. citizens.

Neither records from the U.S. Immigration and Naturalization Service (INS), nor data from current surveys provide reliable estimates of these various legal status groups. Naturalized citizens -- only -- can be identified in some current surveys (although even here, there may be some problems; see GAO, 1998). Surveys of the general population do provide some information on foreign-born persons -- but not legal status; the reason is that questions on legal status have been deemed too threatening to ask.⁵ Because of a lack of data, policy researchers cannot track trends in employment or other important outcomes (such as subsequent educational attainment, income/poverty status, or family formation experience) for legal immigrants, illegal aliens, or persons of other immigration statuses. There are, of course, many other sensitive topics where data gaps may occur.⁶

As a first step toward filling data gaps in sensitive policy-relevant areas, GAO devised an original survey technique that was described briefly in a 1998 GAO report and more fully in a subsequent report (GAO, 1999a).⁷ More recently, a paper (Droitcour, Larson, and Scheuren, 2000) described how the technique might be extended to yield separate estimates of two subcategories of illegal immigrants:

- those who entered surreptitiously and
- "visa overstays."

On-going work is aimed at variance reduction for the indirect estimates of the sensitive category.

LOGIC OF THE BASIC THREE-CARD METHOD

A scientific survey involves a representative sample of the population of interest. The three-card method extends this approach to select three independent representative samples, each composed of completely different persons. All persons are asked the same potentially sensitive question. All are presented with answer alternatives printed on an 8-1/2" by 11" card (approximately 210mm by 297mm), using a design that arranges the answer alternatives in different boxes on the card. As explained below, this avoids zeroing in on the sensitive answer category. The logic of the technique involves:

- a three-box answer format, which is used on each card;
- three slightly different cards (cards 1, 2, and 3) -- one for each sample; and
- indirect estimation of the sensitive category.

No respondent is ever directly asked whether he or she is in the sensitive category. Each sample provides a different piece of less sensitive information -- a different piece of the puzzle. The outlines of the missing sensitive piece are apparent for the population as a whole when all other pieces are in place. The key to asking respondents a potentially sensitive question, without zeroing in on the sensitive-answer category, is the three-box format. For example, figure 1 shows Card 1, which has three boxes: Box A, Box B, and Box C. Box A contains one of the less sensitive answer categories. Box B combines the sensitive category with a number of other less sensitive categories. Box C is all other categories -- that is, any answer category not covered in Box A or Box B. Each box is an answer alternative.

Using the example of immigration status, the boxes might be:

- Box A: Legal permanent resident with a valid and official green card issued to me by the U.S. government;
- Box B: U.S. citizen; student, work, or tourist visa; undocumented⁸ (do not have my own valid official green card); and refugee or asylee (without a green card); and
- Box C: Some other category not in Box A or Box B (specify).

Respondents are asked to report *which* Box applies to them. They are told that if it is Box B, we do *not* want to know which specific category applies to them.

Respondents in sample 1 are shown a card like that figure 1. The purpose of gathering information with card 1 is to estimate the percent of persons in the first "less sensitive" category. Cards 2 and 3 are illustrated in figure 2. These cards are for samples 2 and 3, respectively. Comparison of the three cards shown in figures 1 and 2 indicates that the less sensitive categories are rotated between Box A and Box B. When a category appears in Box A, direct estimation is possible. Thus, the percentages of the population in each less sensitive (Box A) category are estimated directly by separate samples. The sensitive category always remains in Box B, together with other less sensitive categories. The sensitive category is not estimated directly.

Although the sensitive category always appears together with other less sensitive categories in Box B, an indirect (and statistically unbiased) estimate of the sensitive category can be obtained by putting together the various pieces of less sensitive information. The size of the missing piece is calculated by subtraction. That is:

$$(100 \text{ percent}) - (\text{Sum of Box A percentages for Cards 1, 2, and 3}) - (\text{Average Box C percentage})$$

If the categories listed in Boxes A, B, and C are mutually exclusive and, taken together, are exhaustive, they should total 100 percent. Subtracting the percentage estimates of the less sensitive categories from 100 percent yields a remainder that represents an indirect estimate of the percentage in the sensitive category. (Note: This procedure is appropriate only when the sensitive item is not too rare. Attempting to obtain an indirect estimate of a rare category would be like trying to find a "needle in a haystack.")

SPECIAL FEATURES OF THE BASIC TECHNIQUE

Detailed information on the less sensitive (Box A) categories is obtained with follow-up questions for only the respondents who choose Box A. Using the immigration example, those who choose Box A on Legal Status Card 1 (shown in Figure 3) are indicating that they are in the legal permanent resident status or "green card" category. These Box A respondents can thus be asked questions concerning the specific program under which they obtained their green card, when they obtained it, how it was issued to them, and so forth.

Immigration status cards 2 and 3 (shown in Figures 4 and 5) are used with samples 2 and 3, respectively. Combining the data from Box-A respondents in all three samples (i.e., using data from all three cards), detailed information is obtained on all the less-

sensitive categories. Because the sensitive category is never asked about directly, there are no follow-up questions for those who choose Box B; the purpose of the technique is to avoid zeroing in the sensitive category. However, a later section of this paper explains how, in the case of immigration, information on two subcategories of illegals - surreptitious border crosser and "visa overstays" -- can be obtained indirectly.

If respondents are asked other kinds of questions in other parts of the interview (e.g., questions about employment, income, education, and family formation -- as well as country of origin), then correlates for each less sensitive category may be obtained directly. The logic of estimating correlates of the sensitive category (indirectly) is as follows: separate indirect estimates can be obtained for major (broad) subgroups defined; for example, by different continents of origin (for a more detailed explanation, see GAO, 1999a, appendix III).

Introductory or training cards are used to familiarize respondents with the three-box answer format; these training cards deal with relatively innocuous topics. They are intended to cue respondents to the fact that the interviewer will not zero in on any specific Box B category. The goal is to enhance the respondent's immediate acceptance and understanding of the immigration status card shown to him or her (see GAO, 1999a, for examples of training cards).

FIELD TESTS

GAO conducted a series of development and testing efforts in which the three-card method was used to ask foreign-born respondents about their legal status. These efforts consisted of three main phases, each of which focused on foreign-born Hispanic respondents: pretests (27 respondents), a field test with farmworkers (81 respondents), and cognitive interviews (8 respondents).⁹

These various tests were conducted using only one legal status card (Card 1) and in only one language foreign to the United States (Spanish). Foreign-born respondents were selected from groups, such as farm-workers and those seeking help from legal clinics, that were thought to over-represent Hispanic illegal immigrants. There were iterative revisions of the survey instruments based on each set of results. Icons illustrated all categories on the cards used in these tests (i.e., the training cards and immigration status Card 1.).

Logically, the three-card method's potential to elicit accurate responses on legal status depends on whether respondents:

- comprehend and accept the three-box format for answering a question;
- generally comprehend the various legal status categories, as represented by

words and icons, and view the icons as appropriate (because we believe the icons are essential aids to some respondents' comprehension); and
- perceive the three-box question on legal status as sensitive -- and if so, whether or not they are willing to choose a box containing the sensitive item.

Our preliminary development and testing has provided some information on each of these points.

First, most respondents appeared to comprehend the three-box format for answering; and they also appeared to accept this answer format at face value. All 116 respondents in the three phases of testing answered the legal status question using the three-box card (Card 1); that is, there was no item-nonresponse to the key question.

Second, some field test respondents and interviewers reacted negatively to the early version of the icons on the training cards and the immigration status card; that is, field test respondents perceived at least some of the icons as childish or indicated that some seemed ambiguous. One of the main reasons for conducting the subsequent cognitive interviews was to improve the icons. By the conclusion of the cognitive interviews, respondents viewed each card as appropriate for adults, and most thought each icon was recognizable without seeing its label.

Third, regarding sensitivity, in only the cognitive interviewing phase were respondents asked about the sensitivity of the legal status question. The majority of these respondents (five of eight) thought the legal status card would be regarded as sensitive by some persons, even when using the three-box format. However, all eight choose Box B (which contained the sensitive illegal category). Overall, two-thirds of the 116 respondents chose Box B.

While these results seem encouraging, only a validity study, conducted under conditions similar to that of a large-scale survey, could determine whether or not -- and to what extent -- respondents actually chose the appropriate boxes.

ESTIMATING VISA OVERSTAYS

By asking one additional question, the three-card method can be used to estimate "visa overstays" -- and their characteristics (no additional cards are needed).

As described above, Sample 3 is shown legal-status Card 3 which features temporary visas in Box A; as with the other subsamples, each respondent in subsample 3 is asked to indicate which box includes his or her legal status. To estimate overstays, respondents in subsample 3 would also be asked an additional question *using the same card*. This question would be: "Which box were you in at the time you *first* came to

the United States to stay?" Data from subsample 3 can thus provide an estimate of a key multi-category group -- the numbers of persons who entered on temporary visas and are now here as U.S. citizens, legal permanent residents, or visa overstays.

To tease out an estimate of visa overstays, it is necessary to obtain and subtract out estimates of those that entered on temporary visas but are now U.S. citizens or legal permanent residents. Estimates of these groups can be obtained from subsamples 1 and 2 -- simply by asking respondents who chose Box A (on legal-status cards 1 and 2) if they entered the United States on temporary visas when they first came here to stay.

APPLYING THE TECHNIQUE TO AREAS OTHER THAN IMMIGRATION

We believe that the three-card method might be applied to a variety of sensitive subject areas other than immigration. To judge whether the technique might be appropriate for a specific question area, one should consider three requirements:

- Potential answers to the key question *must* be organized in a set of mutually exclusive and exhaustive categories (for some applications, drafting an appropriate set of categories might require some creativity).
- Only one of the answer categories can be sensitive.
- Most important, the sensitive item should not be rare within the population surveyed. Some items that appear to be rare at first glance may not be rare within certain definable populations. Thus, in some cases, one must first define a population or group at risk, then screen for that subpopulation, and finally survey its members.

With these considerations in mind, GAO staff brainstormed potential applications¹⁰ ranging from violence (such as road rage among young male drivers) and sensitive personal choices (such as abortion or drug use), to organizational actions (such as manufacturing companies' disposal of hazardous waste). For example, with respect to disposal of a specific type of hazardous waste by companies in a high-risk industry, the sensitive category would refer to illegal disposal of such waste *by the company itself* on one or more occasions; the less sensitive categories might include the waste being deposited of:

- In all instances, by an external contractor.
- In all instances, by the company in accordance with government guidelines.
- In some instances, by an external contractor and, in others, by the company following government guidelines.

For additional examples, see GAO (1999), chapter 4.

CHALLENGES IN APPLYING THE TECHNIQUE

Assuming that a specific application of the three-card method is deemed appropriate for use in a large-scale survey, there would be a number of challenges. Some of these involve efficiency. For example, the cards rule out the option of telephone interviews, and carrying out a large-scale personal interview survey would be costly. Low-cost options that may be feasible in some instances include: (1) "piggyback" insertion of items in an ongoing in-person survey; (2) group administration (e.g., a survey of high school students conducted in schools); and (3) an Internet survey in which the cards are shown on a computer screen. Some surveys are already conducted entirely on the Internet; e.g., GAO used e-mail to administer a questionnaire to some 350 EPA (Environmental Protection Agency) cleanup managers responsible for the 609 sites where cleanups are still under way (see GAO, 1999b).

Other challenges include finding cost-effective ways to screen for the relevant subpopulation and keeping the margin of error at an acceptably low level (see GAO, 1999a). Still other challenges may occur, depending on the context of the particular application. A number of special challenges pertain to the planning of a survey of the foreign-born population. For example, GAO (1998, pp. 57-58) discussed the issue of possible under-coverage of the foreign-born in censuses and surveys and suggested ways of estimating the foreign-born undercount.

NOTES

1. This article reflects the views of the authors; it does not necessarily reflect the views of the U.S. General Accounting Office.
2. "Question threat" refers to questions the respondent may perceive as threatening or incriminating. In such cases, the respondent may not answer the question or may provide distorted answers (Rossi *et al.*, 1983; and Bradburn and Sudman, 1979). See also the research literature overview by van Meter (2000).
3. Most all U.S. laws regarding foreign-born persons apply to these five major legal statuses (or to subcategories of these statuses). An additional status that has recently become important numerically consists of "parolees" and persons granted "temporary protective status" (TSP); these are persons, mostly from Central American countries, who were allowed to stay in the United States for an extended temporary period because of political disruptions and natural disasters.
4. "Visa overstay" are sometimes referred to as nonimmigrant overstay; this subcategory of illegals includes persons who entered the United States legally for a temporary period, but illegally stayed beyond the required departure date.

5. For other problems with census and survey data on the foreign-born, including undercount and nonresponse, see GAO, 1998.

6. These include violent behaviors (which may be related to police brutality, road rage, spouse abuse, child abuse, elder abuse, hate crimes, and so forth); sensitive personal choices (such as abortion or drug use); business and tax issues that are illegal or disapproved (such as illegal disposal of hazardous waste or failure to file tax returns); and government workers' noncompliance with laws and regulations (such as failure to report offers of bribes or violations of national security).

7. Earlier indirect survey-based estimation techniques, including "randomized response" (Warner, 1965) and the "item count" (Droitcour *et al.*, 1991), seemed inappropriate for the foreign-born population or for asking about legal status. The three-card method builds on these earlier survey techniques as well as demographic methods of residual estimation (see Schryock and Siegel and Associates, 1980).

8. Undocumented refers to illegal immigrants. This is the sensitive category.

9. By *pretesting* we mean trying out questions on a relatively small number of respondents and making corrections and revisions on the basis of problems that surface in those interviews; pretests include: (1) asking the interview questions; and (2) asking respondents about problems they had in understanding the questions or in answering them. A *field test* is a small-scale preliminary survey, typically conducted under conditions as similar as possible to those to be used in an eventual full-scale survey. *Cognitive interviewing* focuses on the mental processes of the respondent while he or she is answering survey questions. (See DeMaio *et al.*, 1993; Polivka and Rothget, 1993, Willis, 1999, Willis and Schechter, 1997, and see also the special thematic issue of the *Bulletin de Méthodologie Sociologique* on cognitive interviewing by guest editor, Pamela Campanelli, 1997).

10. Although staff tried to keep all three considerations in mind, it was not always clear how prevalent or rare a particular sensitive behavior might be within a defined population.

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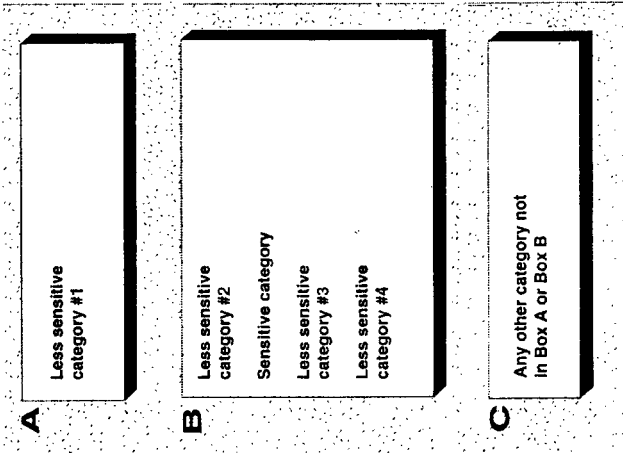
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**Figure 1: Illustration
of Card 1 for
Estimating a Less
Sensitive Category
Using the Three-
Card Method**



Source: GAO. (The actual size of the card is 8-1/2" by 11" or approximately 210mm by 297mm.)

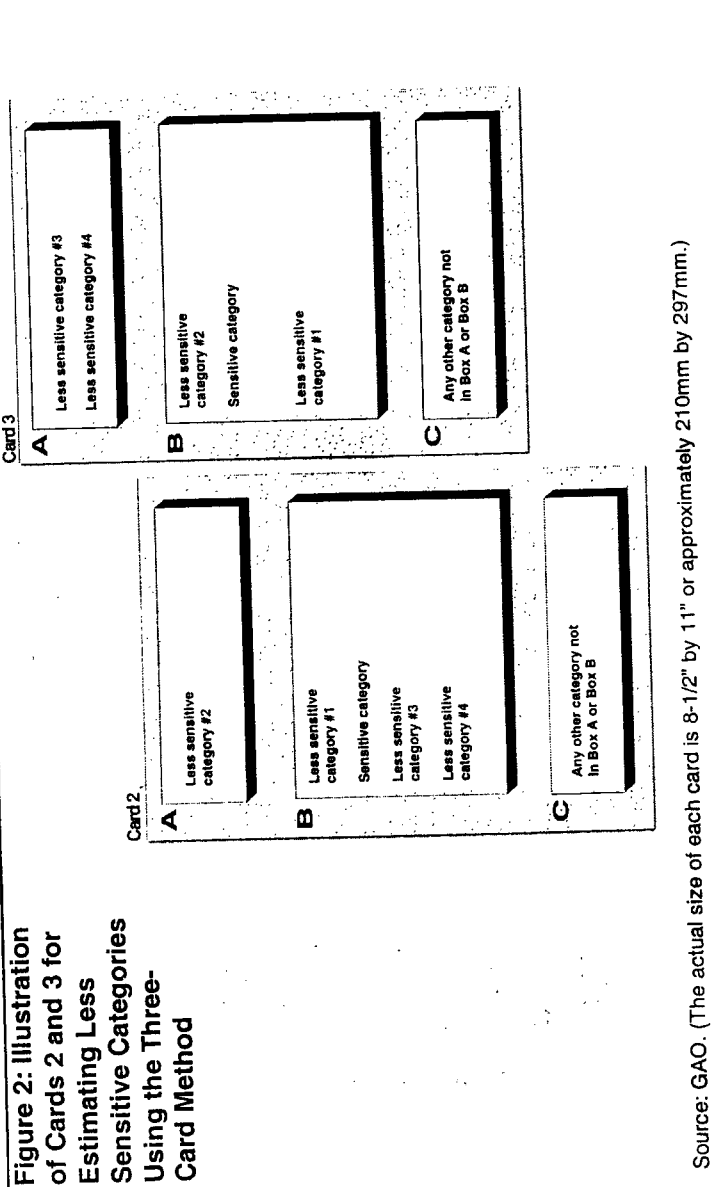
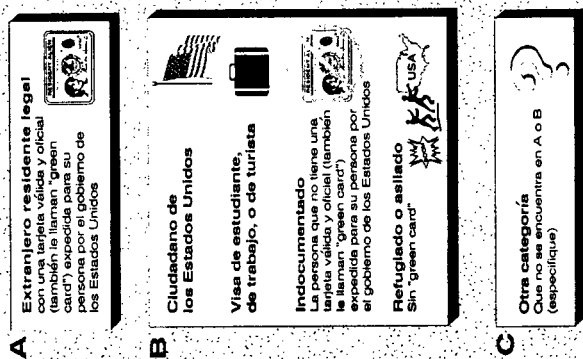







Figure 3:
Illustration of
Immigration
Status Card 1



Source: GAO. (The actual size of each card is 8-1/2" by 11" or approximately 210mm by 297mm.)

Figure 4:
Illustration of
Immigration
Status Card 2

<p>A</p>  <p>Ciudadano de los Estados Unidos</p>	<p>B</p> <div>  <p>Extranjero residente legal</p> </div> <div>  <p>Visa de estudiante, de trabajo, o de turista</p> </div> <div>  <p>Indocumentado</p> </div> <div>  <p>Refugiado o sellado Sin "green card"</p> </div>	<p>C</p> <p>Otra categoría Que no se encuentra en A o B (especifique)</p> <p>2</p>
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Source: GAO. (The actual size is 8-1/2" by 11" or approximately 210mm by 297mm.)

Figure 5: Illustration
of Immigration
Status Card 3

<p>A</p> <p>Visa de estudiante, de trabajo, o de turista Válida actualmente, no expirado</p> <p>Refugiado o asilado Con aprobado oficial vivir en los Estados Unidos Sin "green card"</p>	<p>B</p> <p>Ciudadano de los Estados Unidos</p> <p>Extranjero residente legal</p> <p>Visa expirado o indocumentado</p>	<p>C</p> <p>Otra categoría Que no se encuentra en A o B (especifique)</p>
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Source: GAO. (The actual size of each card is 8-1/2" by 11.")