

Learning from Small Subsamples without Cherry Picking: The Case of Non-Citizen Registration and Voting

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Abstract.

The development of large sample surveys creates new opportunities for analysis of sub-populations that would hitherto have been impossible to examine systematically. But it also raises key challenges. Low level measurement error can potentially lead to substantial biases in estimates drawn from small subsamples. This study details strategies researchers may take to make inferences in the context of this subsample-response-error problem. In the non-citizen voting case, which recently has received substantial attention, we show that attention to any of these strategies -- group-specific response error estimates, correlated higher-frequency events, or test-retest validity -- produces significant evidence that non-citizens participated in recent US elections. Additional hypotheses that follow from the measurement error assumption are also not supported. We identify future steps to improve the reliability of estimates through in-survey test-retest in order to facilitate accurate sub-population identification for analyses.

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Ansolabehere, Luks, and Shaffner (2015) issued a perceptive methodological caution concerning work that aims to use small subsets of large survey datasets to make inferences about sub-populations of interest: error in the identification of subpopulation members may bias measurements. Since one of the advantages of very large survey datasets like the Cooperative Congressional Election Study (CCES) is the opportunity to make inferences concerning subpopulations, our rejoinder to their caution aims to detail strategies researchers may take to evaluate the validity of inferences in this context. These strategies include (1) estimating sub-population specific reliability rates, (2) utilizing multiple retests of the same individuals to increase the reliability of estimates, (3) examining correlated higher-frequency events, and (4) testing auxiliary hypotheses derived from the assumption that measurement error is driving a result.

Turning to the non-citizen voting case examined by Ansolabehere et. al. (2015) we show that all four approaches to assessing the validity of inferences made from a subsample produce results counter to the claim made by Ansolabehere et. al. (2015) that “the likely percent of non-citizen voters in recent US elections is 0.” Differential response error by subpopulations likely substantially biased their reliability estimates. With either adjusted response error estimates, correlated higher-frequency events, or test-retest reliability, there is significant evidence in the CCES that non-citizens participated in the 2012 presidential election. Auxiliary hypotheses that follow from their claim are unsupported. We also highlight future steps in the direction of improving the reliability of estimates through in-survey test-retest in order to facilitate accurate sub-population identification for analyses.

Subpopulations and Subsamples

A challenge for any research design focused on understanding the behavior of a small group within a broader population is accurate identification of members of the group for study. Ansolabehere et. al. (2015) perceptively identify this problem in their discussion of self reports of non-citizen status in the Cooperative Congressional Election Study survey.

Non-citizens make up a small portion of the overall US voting-age population and self-reported non-citizens make up a small portion of the typical CCES sample. This raises substantial risks for inference about the behavior of non-citizens, and these risks are most extreme when the behavior being analyzed is one that is almost certainly much more common among citizens than non-citizens such as voting. Consequently, there is a risk that inferences will be substantially biased by response errors that erroneously identified individuals who were not part of the target group as group members. On these lines, Ansolabehere et. al. (2015) argue that the results of the recent Richman et. al. (2014) study on non-citizen participation “are completely accounted for by very low frequency measurement error.”

Because of the possibility that measurement error could badly bias their results, authors of studies utilizing subsamples of large national surveys should undertake a careful analysis of the characteristics of the subsample and the nature of response error in order to quantify the magnitude of potential biases, and evaluate whether their results can be accounted for by measurement error. We propose four strategies in this study, and apply them to the non-citizen voting case examined by Ansolabehere et. al. (2015).

The first strategy is to test auxiliary hypotheses that follow from a theory that results are due to measurement error. In the non-citizen voting case, attitudes toward immigration among self-reported non-citizens who voted should be distinct from those of other non-citizens (and closer to those of citizens) if all non-citizen voters are in fact citizens as hypothesized by Ansolabehere et. al. (2015).

The second strategy is to analyze behaviors that are higher frequency within the subsample but which should be theoretically correlated with the behavior of interest. In the non-citizen voting case, registration to vote is such a variable—because registration is required for voting, by construction it is a higher frequency behavior. Once again we show that registration occurs at too high a rate to be explained by measurement error in group membership assignment, even using the original reliability estimates of Ansolabehere et. al. (2015).

The third strategy is to look for opportunities to increase the confidence with which individuals can be classified – instances in which individuals repeated their self-classification into the relevant group. We extend the analysis by Ansolabehere et. al. (2015) of individuals who repeatedly classified themselves as non-citizens, identifying several who repeatedly asserted that they were non-citizens and either said they voted or cast validated votes.

The final strategy is to evaluate group-level measurement error. If responses by non-group members are differentially more reliable than responses from group members, this can bias overall estimates of the reliability of group assignment. We argue that the Ansolabehere et. al. study's failure to consider differential or group-level measurement error drives their conclusion that the results in Richman et. al. (2014) can be “completed accounted for” by measurement error. Once differential measures of reliability are computed, response error by citizens is too small to account for the observed level of non-citizen voting.

In the case this study focuses on, we find that all four approaches to assessing the validity of inferences made from a subsample produce results counter to the claim made by Ansolabehere et. al. (2015) that “the likely percent of non-citizen voters in recent US elections is 0.”

Auxiliary Hypotheses Follow from the Measurement Error Assumption

If a finding based on analysis of a small subsample is purely the result of measurement error in group assignment then there should often be other observable implications – auxiliary hypotheses that can be tested. Tests of these hypotheses should lead to distinct conclusions depending upon whether measurement error is in fact responsible for a particular finding. For example, if all observed cases of non-citizens voting are the result of response error in the survey such that citizens erroneously claimed to be non-citizens, while all true non-citizens didn't vote, then the self-reported “non-citizens” who voted should be more similar to other survey respondents than non-citizens who do not report voting or cast validated votes. In other words, if Ansolabehere et. al. are correct, then when using a valid comparative metric, it should be possible to (1) reject the hypothesis that voting and non-voting non-citizens are the same, and (2) it should *not* be possible to reject the hypothesis that voting non-citizens and voting citizens are the same.

Arguably a valid set of questions for making this comparison can be found in the CCES question-battery asking respondent attitudes toward immigration policy. Because they are personally impacted by immigration policy in a way that citizens are not, non-citizens should adopt distinctive immigration attitudes. Other survey datasets (e.g. Pew 2012) indicate that there are statistically significant differences in immigration attitudes between non-citizens and naturalized citizens and between non-citizens and all Latino citizens.

If self-reported non-citizens who voted were in fact citizens who misstated their citizenship status, one would expect to see survey responses in this subpopulation more similar to those observed among citizens.

Table 1: Immigration Attitudes Among Self-Reported Citizens and Non-Citizens, 2012 CCES

(Numbers in parentheses are number of respondents in a particular category, e.g. total number of citizens in CCES.)

Question	All Citizens	Naturalized Citizens	Non-Citizens	Validated Non-Voting Non-Citizens	Validated Voting Non-Citizens	Degree to which non-citizens more pro-immigrant than citizens	Degree to which voting non-citizens more pro-immigrant than naturalized citizens	Degree to which non-citizens more pro-immigrant than naturalized citizens	Difference between voting and non-voting non-citizens.
Grant legal status to all illegal immigrants who have held jobs and paid taxes for...	46% (53,622)	59% (2615)	68% (692)	65% (263)	69% (32)	22%*	23%*	9%*	-3%
Increase the number of border patrols on the US-Mexican border	57% (53,622)	45% (2615)	31% (692)	32% (263)	22% (32)	26%*	37%*	14%*	-10%
Allow police to question anyone they think may be in the country illegally	40% (53,622)	26% (2615)	19% (692)	21% (263)	25% (32)	21%*	17%*	7%*	4%
Fine US businesses that hire illegal immigrants	63% (53,622)	45% (2615)	34% (692)	38% (263)	34% (32)	29%*	32%*	10%*	-4%
Prohibit illegal immigrants from using emergency hospital care and public schools	32% (53,622)	21% (2615)	14% (692)	16% (263)	16% (32)	19%*	17%*	7%*	0%
Deny automatic citizenship to American-born children of illegal immigrants	37% (53,622)	24% (2615)	16% (692)	16% (263)	13% (32)	21%*	26%*	8%*	-3%

*Statistically significant difference $p < 0.001$ based upon chi-square test. No un-asterisked differences are significant at $p < 0.10$ level.

Table 1 compares the percentage responding yes to each question for five subsets of the sample: all self-reported citizens, naturalized citizens, all self-reported non-citizens, self-reported non-citizens who did not cast a validated vote, and self-reported non-citizens who cast a validated vote.

The analysis demonstrates that there are substantial and statistically significant differences ($p < 0.001$ using a chi-square test) between self-reported non-citizens and citizens. In no case is this difference less than 19 percentage points. There are also substantial and statistically significant differences ($p < 0.001$ using a chi-square test) between self-reported non-citizens and naturalized citizens. In no case is this difference less than seven points.

If (as Ansolabehere et. al. hypothesize) all or nearly all voting non-citizens are citizens who mis-reported their citizenship status, then responses by non-citizens who voted would be quite different from those of other non-citizens – and these responses would be much more similar to responses by citizens. In fact we don't observe this pattern. In no case is there a statistically significant difference between the immigration attitudes of non-citizens who cast a validated vote and non-citizens who did not cast such a vote. The pattern of responses reported in Table 1 is inconsistent with the claim that self-reported non-citizens who cast validated votes were in fact citizens who mistakenly self-identified as non-citizens. In only one of the six questions were non-citizens who cast validated votes less pro-immigrant in their stances than non-citizens who were coded as verified non-voters by Catalist. Across all questions non-citizens who cast a validated vote had significantly more pro-immigrant attitudes than citizens.

Correlated Higher-Frequency Events

Ansolabehere et. al. estimate the reliability of the citizenship status measure, and conclude that citizens would make enough errors on the citizen-status question to account for the observed level of validated voting by self-reported non-citizens in the CCES. However, their error estimate is too low to account for the observed rate of voter registration among non-citizens in the CCES.

Our second approach is to analyze higher frequency behaviors that correlate with the behavior or interest. To the extent that such behaviors occur at a rate too high to be accounted for by group assignment measurement error, they provide another way to infer the presence of particular activities. We consider voter registration as a candidate measure. In all US states save North Dakota, registration is a precondition for electoral participation. Hence, registration to vote necessarily occurs at a higher frequency than voting.

**Table 2. Estimated Registration by Non-Citizens
(Number of individuals registered divided by sample size in parentheses.)**

	(1) 2012 Cross- Section	(2) 2012 Panel (test-retest non- citizens)	(3) 2014 Panel (test-retest- retest non- citizens)
Self-reported registration as a percentage of all non-citizens.	14.5% (100/692)**	14.2% (12/85)**	13.0% (3/23)**
Validated registration as a percentage of Catalist matched respondents.	22.0% (65/295)*	10.6% (5/47)**	6.3% (1/16)**

** Binomial probability that this result could have been generated entirely by citizen response error <0.000001.

* Binomial probability result generated entirely by citizen response error <0.05.

Table 2 reports analysis of the frequency of voter registration (self-reported and Catalist verified) for the 2012 cross-sectional as well as the 2012 and 2014 panel studies. As discussed more thoroughly below, although the sample size in the panel study is smaller, it offers the advantage that we can be very confident that individuals are in fact non-citizens as they twice (2012 panel) or thrice (2014 panel) repeated that they were non-citizens.

Estimates of binomial probability that the observed results reflect citizenship self assignment error use the reliability estimate calculated by Ansolabehere et. al. (2015). Ansolabehere et. al. 2015 report that the citizenship status question on the CCES has a high level of reliability – 99.9 percent.¹ If 99.9 percent of responses to this question are reliable, this suggests that the chances of an error being made twice – in particular a citizen responding twice that he or she was a non-citizen – is $(1-.999)^2 = 0.000001$. In the larger population of survey respondents this process of a citizen randomly making (or not making) a mistaken response to the citizenship question twice can be modeled using the binomial distribution. The cumulative binomial distribution can be used to calculate the probability that a particular outcome or set of outcomes will occur. In particular our interest is in the probability that no citizens will repeatedly make the mistake of asserting that they are non-citizens. In the 2010-2012 panel there are 18,878 respondents who each either made this mistake twice or not. The binomial probability that no citizen will twice misstate his or her citizenship status is very high even across 18,878 trials (98.1 percent), and the probability of at least one respondent who twice indicated he or she was a non-citizen in fact being a citizen is low: 0.0189. The likelihood is therefore very high that all of the respondents who twice indicated they were non-citizens in the 2010 to 2012 CCES Panel (Column 2 of Table 2) were in fact non-citizens. And the probability is even higher that all of the respondents who three times reaffirmed that they were non-citizens (Column 3 of Table 2) were in fact non-citizens.

¹ Although we present evidence below that this estimate was likely too low for citizens and too high for non-citizens, this section works on the basis of their original measurement.

In each column the pattern is consistent – more registration is observed than can be accounted for by the Ansolabehere et. al. (2015) estimate of the reliability of citizen status self-reporting.² Thus, their evidence of response bias in citizen-status self-assignment cannot account for the observed level of voter registration among non-citizens. Since registration is a precondition for and correlate with voting, this provides indirect evidence that non-citizens participate in U.S. elections.

One potential rejoinder would be to note the possibility that Catalist mismatched all of the non-citizens with validated registration status. For 2012, 2 of the test-retest non-citizens with validated registration status also self-reported that they were registered to vote, and in 2014 the test-retest-retest non-citizen with validated voter status also indicated that he or she was registered. Note that this is an individual with a very high probability of being a non-citizen as non-citizen status was reconfirmed in 2010, 2012, and 2014. As noted in the table the probability that this individual was a citizen who thrice randomly misstated citizenship status is (on the basis of the Ansolabehere et. al. (2015) reliability estimate) less than 0.000001. For these individuals we can be even more confident that they were in fact genuine non-citizen registrants.

Test-Retest Reliability

We have already begun to introduce the third strategy for addressing the risk of group assignment bias – to focus on respondents for whom repeated measurement of group membership allows for more confident group assignment. As should already be clear from the discussion above, participation by even a few test-retest non-citizens in the CCES sample presents a major problem for the claim by Ansolabehere et. al. (2015) that no non-citizens participate in US elections.

Table 3. Estimated Voter Turnout by Non-Citizens (Number of voters / total sample parentheses.)		
	2012 Panel (test-retest)	2014 Panel (test-retest- retest)
Self-reported voting as a percentage of all non-citizens	11.8% (10/85)**	8.7% (2/23)**
Validated voting as a percentage of Catalist matched respondents	2.1% (1/47)*	0% (0/16)

**Binomial probability result generated entirely by citizen response error <0.000001.

*Binomial probability result generated entirely by citizen response error <0.05.

Ansolabehere et. al. (2015) do consider participation by such test-retest non-citizens. Table 2 of their paper focusses on validated voting in the 2010 election. This is convenient for their argument, as none of the four non-citizens with validated voter-registration status cast a validated vote in 2010 (and none were asked whether they voted). A display of the same table

² Obviously if the adjusted reliability estimate for citizens proposed in the section below was used instead, these results would be even more strongly statistically significant.

for 2012 would have provided less support for their claim. In the 2012 election one of the five test-retest non-citizens with validated voter registration status cast a validated vote. Table 3 of this paper provides this data. The probability that this validated vote was cast by a citizen rather than a non-citizen is quite low. 87.1 percent of respondents in the overall survey who had a Catalist match cast a verified vote. Therefore the probability of any given survey respondent being a citizen who twice reported being a non-citizen and cast a verified vote is only 0.000000871. Even with 17,831 respondents with a Catalist match, the cumulative binomial distribution gives probability of one or more false positives arising from measurement error on the citizenship question as only 0.015.

Table 3 also examines self-reported voting among test-retest non-citizens. Among the 85 test-retest non-citizens in the 2010-2012 CCES panel, all were asked if they voted in 2010, and 15 were asked if they voted in 2012. In 2010 6 (7.1 percent) selected the “yes I definitely voted” option, in 2012 10 (11.8 percent of the 85) selected the “I definitely voted” option, and in 2014 two of the 23 (8.7 percent) of individuals who had thrice indicated they were non-citizens selected the “I definitely voted” option. In all cases the probability that these results merely reflect response error on the immigration status question by citizens is vanishingly small ($p < 0.000001$), even using Ansolabehere et. al.’s arguably biased (see below) measure of the reliability of citizens’ self-reports. Some individuals who are in fact non-citizens clearly do report that they are voting in U.S. elections.

We note in passing that other survey responses sometimes provide opportunities to re-measure citizenship status in the 2012 cross-sectional study. For example, when asked why they didn’t self-report voting, a substantial number of self-identified non-citizens indicated that the reason was that they were “not a citizen” or some variant thereof. Open ended questions in the 2012 CCES invited respondents who indicated some “other” reason for not voting to provide up to two explanations for the decision to not vote. A substantial number of self-reported non-citizens indicated that they had not voted because of their immigration status (i.e. “not a citizen” or “no soy ciudadano,” “have a green card” or “permanent resident”, or “I do not have my GC yet”). Of the 412 self-reported non-citizen respondents asked why they didn’t vote almost half (47%) indicated that their non-citizen status was a reason for not having voted. A high level of confidence is warranted that these 192 respondents are indeed non-citizens as they at least twice indicated their citizenship status, including at least once in an open ended response. Catalist found a file match for 102 of these repeatedly self-identified non-citizens. And despite it being nearly certain that they were in fact non-citizens, 11 (10.8%) had active voter registration status, and 2 of the 102 (1.96%) cast validated votes.³

Revisiting the Reliability Estimate

The inconsistent self-identification of citizenship status upon which the Ansolabehere critique of Richman et. al. (2014) rests assumes that the probability of a citizen misstating her status as non-citizen equals the probability of a non-citizen misstating his status as a citizen. In

³ One respondent was explicit that although registered there was no intention to cast a vote. “I am not a U.S. citizen, but was mistakenly sent a voter registration card anyway. Will not take advantage of mistake to vote illegally.”

the sections above, we used their estimate, and found strong evidence of non-citizen participation in elections with their estimated probabilities. This section goes further and challenges the accuracy of their reliability estimate.

There are theoretical reasons to think that non-citizens are much more likely to misreport citizenship status than citizens are. We present empirical evidence below that citizens' self-reports are indeed significantly more reliable than non-citizens' self-reports. For this reason, the much lower rate of measurement error among citizens cannot account for the reported frequency of non-citizen voting as Ansolabehere et. al. 2015 claim it does.

Why should the accuracy of self-reports be different? In the context of U.S. politics, a citizen has no motive to misstate citizenship status. A non-citizen does. And the motive to misstate status is greatest when other survey responses in conjunction with this statement constitute in-effect an admission of illegal activity. Claiming to be a citizen (when not one) avoids any appearance of impropriety, particularly in contexts where revealing non-citizen status can be a legally sensitive issue. Hence, not all non-citizens are willing to admit to their citizenship status. Decisions to obscure citizenship status may account for a substantial portion of the error reported by Ansolabehere et. al., thereby undermining their inferences. It is also possible, then, that the CCES also under-reports the number of non-citizens in the sample.

If in fact non-citizens are much more likely to claim to be citizens than citizens are to claim to be non-citizens, this should be apparent across repeated measures in the 2010 through 2014 CCES panel. The relevant quantities here are conditional probabilities – the probability that a respondent, having stated a particular status in two of the three panels, will state a different status in a third panel. We expect to observe a much higher rate of stating a different status for those who twice stated they were non-citizens than for those who twice stated they were citizens.

The strongest comparisons are those involving individuals who reported that they were citizens in 2010 and 2012 and individuals who reported they were non-citizens in 2012 and 2014. In both cases there is no commonly experienced change in legal immigration or citizenship status that could account for survey response error in the third year.⁴ Hence, almost any deviation from consistency in the third year (2010 for twice-asserted non-citizens and 2014 for twice-asserted citizens) can only be accounted for on the basis of unintentional or intentional measurement error.

⁴ Renunciation of US citizenship could theoretically account for some of the observed error among twice-reported citizens. If present, this would lead to an even higher difference in group reliability estimates.

Table 4: Three Wave Citizenship Status Response Consistency in the CCES

	Citizen in 2014	Non- Citizen in 2014	Portion inconsistent in third measurement
Claimed to be a citizen in 2010 and in 2012	9426	4	0.00042
	Citizen in 2010	Non- Citizen in 2010	
Claimed to be a non- citizen in 2012 and 2014	3	23	0.13

Table 4 reports three-wave response consistency in the 2010 through 2014 CCES panel study. Ansolabehere et. al. (2015) report a citizenship status reliability of 99.9 percent. However, our analysis suggests that the reliability is even higher. For individuals who stated they were citizens in 2010 and 2012, a consistent response was provided 99.958 percent of the time in 2014. The reliability estimate by Ansolabehere et. al. (2015) appears to have been biased downward by the much lower reliability of self-reported citizenship status among non-citizens. For individuals who twice stated they were non-citizens in 2012 and 2014, a consistent response in 2010 was provided only 86.96 percent of the time. The difference between these proportions is statistically significant with a difference of proportions z-test ($p < 0.05$).

The key implication is that a large portion of the respondents with inconsistent citizenship self-reported status are in fact likely to be non-citizens. It follows that the expected portion of respondents in the CCES cross-sectional surveys who are citizens and misreport that citizenship status as non-citizen is substantially lower than the estimates reported by Ansolabehere et. al. (2015) imply.

The revised estimate of the frequency with which citizens misidentify as non-citizens makes a significant difference for the inferences one draws from the cross-sectional CCES data of the sort examined by Richman et. al. (2014). Consider for instance the 2012 CCES cross-sectional survey. In the 2012 CCES cross-sectional survey 32 respondents who identified as non-citizens cast a verified vote. If we assume that the portion of citizens erroneously reporting that they are non-citizens is that estimated in the first row of Table 4, then we are in a position to estimate the probability that 32 citizens with verified votes erroneously misstated their citizenship to account for the entirety of the apparent electoral participation by non-citizens.

**Table 5. Estimated Voter Turnout by Non-Citizens in 2012 CCES Cross-Section
(Number of voters/total in sample in parentheses.)**

Self-reported voting as a percentage of all non-citizens	8.8% (61/692)**
Validated voting as a percentage of Catalist matched respondents	12.2% (32/295)*

** Binomial probability result generated entirely by citizen response error <0.000001.

* Binomial probability result generated entirely by citizen response error <0.0005.

Table 5 reports the number of self-reported non-citizens who cast validated votes and self-reported votes, and the probability that these estimated levels of non-citizen voting could be accounted for entirely by response error on the part of citizens. The math is straightforward. For instance, 81 percent of self-reported citizens with a Catalist-file match voted in 2012. Thus, the probability that any given citizen will both have a verified vote and have erroneously stated non-citizen status is only 0.00034. Working out the binomial probabilities across all 45221 respondents with a voter file match yields a probability of only 0.00017 that 32 or more such individuals were present in the 2012 survey. Hence, by our estimate the probability is very small indeed that all of the instances of self-reported non-citizens who cast verified votes in the 2012 cross-sectional CCES survey were in fact instances of citizens who cast a verified vote and misstated their citizenship status.

Thus the conclusion by Ansolabehere et. al. (2015) that “the likely percent of non-citizen voters in recent US elections is 0” appears to depend upon an untested estimate of the reliability of citizenship status self-reports by citizens because it did not examine the differential extent of response error by citizens and non-citizens. With a corrected measure of citizenship status self-report reliability among citizens, the level of participation observed in the CCES cross sectional survey among self-reported non-citizens cannot be accounted for by measurement error in group assignment.

Conclusion

Ansolabehere et. al. (2015) make a useful point – that group-membership measurement error rates must be considered very carefully when analyzing small subsamples. However, there are ways to estimate this error rate, and to validate the estimated error rate using other measures. We have shown that each of four independent approaches to evaluating electoral participation by non-citizens indicates that in fact a small number of non-citizens do most likely participate in US elections. Analysis of group-specific error rates, repeatedly measured individuals, higher frequency behaviors, and hypotheses that follow from the assumption that responses are driven by group-identification errors all yield the same independent conclusion, refuting the Ansolabehere et.al. (2015) contention that the Richman et. al. (2014) non-citizen participation results “are completely accounted for by very low frequency measurement error” among citizens.

A more thorough analysis of the data makes clear that response error in the citizen-status question cannot account for the entirety of observed non-citizen verified and reported voting in

the CCES. Hence, the CCES survey does provide substantial evidence that in the United States non-citizens hold verified registration status, cast verified votes, report they are registered, and report they are voters.

The analysis offered above should not be a stopping point, however. There are design choices that can improve the capability to engage in test-retest validation of group status and assessment of differential group-level rates of measurement error. Inclusion of specific follow-up questions aimed at verifying group membership status in the CCES should be pursued by those interested in making specific inferences about small subpopulations in large sample surveys. In the context of the non-citizen subsample such questions could include closed-ended and open-ended follow-up inquiries aimed at confirming or disconfirming self-identified non-citizen status and thereby ensuring that measurement error does not contaminate estimates of non-citizen sub-population behaviors.

Works Cited

Stephen Ansolabehere, Samantha Luks, and Brian F. Schaffner. 2015. "The perils of cherry picking low frequency events in large sample surveys." *Electoral Studies*. 40, 409-410.

Jesse T. Richman, Gulshan A. Chattha, and David C. Earnest. 2014. "Do non-citizens vote in US elections?" *Electoral Studies*. 39, 149-57.

Pew. 2012. Bilingual dual-frame (cell phone and landline) telephone survey of Latino adults residing in the U.S., conducted September 7, 2012-October 4, 2012.