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Understanding Participant Representativeness in Deliberative Events: A Case Study Comparing Probability and Non-Probability Recruitment Strategies

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Abstract
Deliberative event participants often differ in meaningful ways from the population they are intended to represent; however, less is known about whether various recruitment methods influence participant representativeness. Furthermore, a better understanding of where in the recruitment process lack of representation occurs is needed. We present a framework for understanding why event attendees might not represent the target population and then compare two different recruitment strategies using this framework. Specifically, we consider a Deliberative Poll that used a random-digit-dial telephone recruitment survey and a deliberative event that used a convenience sample web recruitment survey. For two stages in the recruitment process, we calculate nonresponse errors for statistics assessing demographic characteristics and confidence in local government. Notably, both recruitment methods resulted in event attendees that were older and better educated than the population they were intended to represent providing evidence that probability recruitment methods do not necessarily outperform nonprobability methods. Additionally, we demonstrate that aspects of the recruitment process other than the recruitment survey sampling method used can influence participant representativeness. We conclude by discussing adjustments to the recruitment process that might improve the representativeness of event attendees.

Keywords
deliberative event, nonresponse bias, recruitment

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Introduction

Public participation processes are increasingly used to provide input into governance (Schachter & Yang, 2012). The techniques used vary, ranging from town hall meetings, workshops, "world cafés," citizen juries, consensus conferences, and so on (e.g., International Association for Public Participation, 2013). Diverse representation is a major component of most public participation events (Gastil & Black, 2008; Matthews, 1998) and several studies have examined the influence of participant diversity on small group discussions (e.g., McLeod, Lobel & Cox, 1996; Shaw & Barret-Power, 1998) and the experiences of participants (e.g., Abdel-Monem, Bingham, Marincic, & Tomkins, 2010). As public participation methods have become more popular, greater attention is being paid to the representativeness of event participants (Goidel, Freeman, Procopio, & Zewe, 2008).

There are different ways to recruit participants, and these different approaches could impact the extent of representation from the community at the public participation event. For example, some use traditional community organizing techniques in order to include "marginalized" members of the public (e.g., Participatory Budgeting Project, 2013). Others use more traditional survey methods, including recruitment via random-digit-dial (RDD) telephone surveys. Even the use of probability methods for recruitment, however, might not result in a representative sample because of coverage and nonresponse issues. Furthermore, given that a representative sample has been invited to attend, it might be the case that nonresponse in the form of differential attendance is responsible for lack of representativeness. There is little literature addressing which techniques advance or undermine the goals of representativeness.

In this paper, we first present a general framework for examining participant representativeness throughout the recruitment process. Next, we examine the nonresponse properties of two public participation processes as part of a public budgeting engagement in a medium-sized Midwestern city, Lincoln, Nebraska. The events took place in spring 2008 and spring 2009. The first process involved the successful recruitment of 51 participants using random-digit-dial (RDD) sampling using a landline frame;[1] the second process involved the successful recruitment of 93 participants using a convenience sample web survey.

We first estimate how well respondents at each stage of the process represent the target population by comparing respondent characteristics to city-level Census

[1]At this time, it was common practice for survey organizations to exclude wireless telephone numbers from their sample frames (Blumberg & Luke, 2007).

estimates. Nonresponse error is then discussed as it relates to demographic characteristics and confidence in local government. Specifically, within each event, the following comparisons are made: (1) those who agreed to attend the event versus those who did not agree to attend the event and (2) event attendees versus non-attendees.

Background

Deliberative Events

Deliberative events have become a more frequently utilized public input model in recent years. Such events consist of the following basic steps: (1) a (random) sample of the community of interest is surveyed about a policy issue and invited to participate in a deliberative discussion; (2) prior to the discussion, the sub-sample of individuals who agree to participate are provided with balanced, written educational briefing documents about the issue of interest; (3) participants gather in a day-long event to deliberate about the policy issue in facilitated small group discussions; (4) participants ask questions of a panel of experts; (5) a post-event survey is administered after participants have deliberated about the issue (Ackerman & Fishkin, 2004).

The objective of a Deliberative Poll, a specific kind of deliberative event, is to capture the opinions of a *representative* sample of the public about a policy issue after they have become more informed about it (Fishkin, 1995). Note that more general deliberative events might not require the use of a representative sample. In theory, the Deliberative Poll accomplishes a number of important objectives. By utilizing a random sample of respondents, it captures the opinions of a representative segment of the community of interest. As opposed to a traditional town hall forum or public hearing—which might be dominated by organized interest groups or advocates—the Deliberative Poll thus gathers data from all community members affected by a particular policy issue (Fishkin, 1995). As a matter of policy discourse, proper deliberative forums are thus believed to be more democratically legitimate because of their broader representation. Diversity also increases substantive legitimacy because deliberative democracy draws from a free market place of different and competing ideas and viewpoints (Mill, 1999).

Participant Representativeness

Two recent studies have considered participant representativeness in Deliberative Polls using a single recruitment mode (e.g., mail or telephone). For example, Goidel et al. (2008) found that respondents to a RDD telephone recruitment

survey were significantly more likely to be White, better educated, older, married, and to have higher incomes than the population they were representing; event attendees were even less representative of the population than were the recruitment survey respondents. Goidel et al. (2008) also examined psychological variables and found that event attendees were less ideological and placed a greater value on discussion than non-attendees. Karjalainen & Rapeli (2014) found that respondents to a mail recruitment survey were more likely to be older and female. Therefore, even when probability methods are used to recruit participants, deliberation participants are not necessarily representative of the general population.

Some attribute lack of representation to a self-selection bias (Ryfe, 2005); however, to the extent that there are coverage or nonresponse issues with the recruitment survey, certain population or sample members might never even have the possibility of selecting themselves out of the final group of event attendees. In fact, the deliberative event recruitment process involves several stages at which lack of representation might occur. Specifically, recruitment typically involves the following four stages: (1) definition of the target population, (2) selection or creation of the sampling frame, (3) sample selection, and (4) administration of the recruitment survey. Following recruitment, the event is convened. From a survey methodological perspective, nonrepresentativeness is due to coverage and/or nonresponse issues that arise throughout the recruitment process and/or occur at the time the event is convened.

Deliberative Event Recruitment Process Error

To better understand the mechanisms underlying lack of participant representativeness, we adapt the total survey error framework developed by Groves (1989). Figure 1 (adapted from Groves et al., 2004) illustrates where and how nonrepresentativeness might enter the deliberative event recruitment process. Movement from the target population to the sampling frame is where coverage error might occur. Similarly, movement from the sample to recruitment survey respondents is where recruitment survey nonresponse might occur. Invitation and attendance nonresponse error, as defined in this paper, occur in the transitions between the last three rectangles. We now define these errors.

Coverage error. Coverage error is a function of the proportion of the population that is not covered by a given sampling frame and the difference between the covered and non-covered populations on the statistic of interest (Groves, 1989). In equation form,

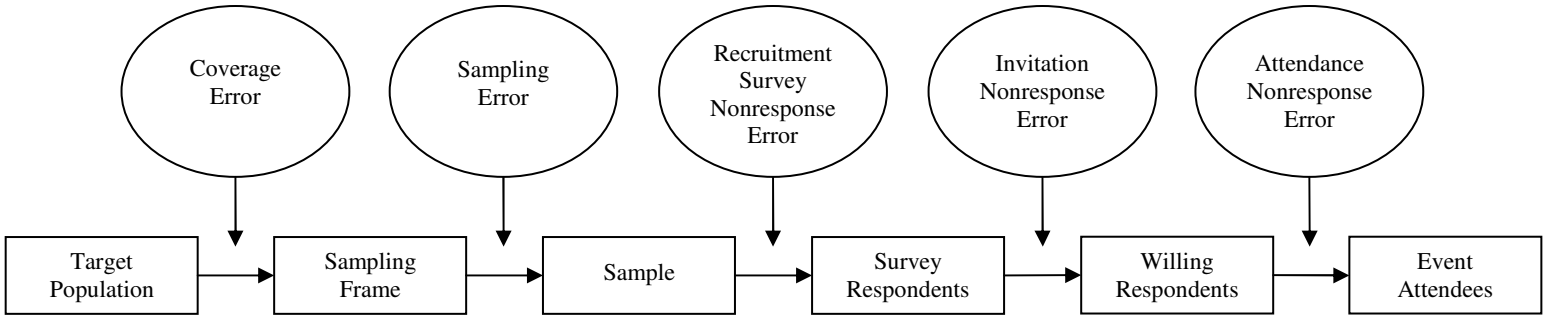

Figure 1. Deliberative event recruitment process error (adapted from Groves, et al. 2004).

$$Y = \frac{n_c}{N} Y_c + \frac{n_{nc}}{N} Y_{nc} \quad (1a)$$

where Y is the value of the statistic for the full target population, n_c is the number of people in the target population covered by the frame, n_{nc} is the number of people in the target population not covered by the frame, N is the total number of people in the target population, Y_c is the value of the statistic for the people covered by the frame, and Y_{nc} is the value of the statistic for the people not covered by the frame. The effect of excluding the non-covered population is more evident when the above equation is written in the following equivalent form:

$$\text{Coverage Error} = Y_c - Y = \frac{n_{nc}}{N}(Y_c - Y_{nc}) \,. \quad (1b)$$

Nonresponse error. Nonresponse error is a function of the proportion of nonrespondents and the difference between respondents and nonrespondents on the statistic of interest (Groves, 1989). In equation form,

$$\text{Nonresponse Error} = Y_r - Y = \frac{n_{nr}}{n}(Y_r - Y_{nr}) \quad (2)$$

where Y is the value of the statistic for the target population, n_{nr} is the number of nonrespondents, n is the number of people in the sample, Y_r is the value of the statistic for respondents, and Y_{nr} is the value of the statistic for nonrespondents.

Unlike recruitment for participation in typical sample surveys, recruitment for participation in deliberative events is a sequential process. As a result, there are several opportunities for nonresponse error to occur. First, a recruitment survey is administered. At this stage, *recruitment survey nonresponse* occurs if interviewers fail to contact a sample member, the sample member refuses to participate in the recruitment survey (and thus cannot be recruited by the interviewer), or if the sample member is unable to participate in the recruitment survey due to health or language barriers. As part of the recruitment survey, respondents are invited to attend the deliberative event. *Invitation nonresponse* occurs when a recruitment survey respondent declines the invitation to attend the eventual deliberative event. Such declinations might be due to explicit refusal or some other barrier to attendance (e.g., health or physical limitations, scheduling conflicts). *Event nonresponse* occurs when survey respondents who have accepted the event invitation do not attend the event. These no-shows might be due to insincere invitation acceptance or unanticipated barriers to attendance. To the extent that respondents and nonrespondents at various stages of the process differ on statistics relevant to the participation process, nonresponse error occurs.

Current Study

That deliberative event attendees differ from the target population they are intended to represent has been documented (Goidel, et al. 2008; Karjalainen & Rapeli, 2014); however, little is known about how other recruitment methods might affect participant representativeness or where in the recruitment process lack of representation occurs. Having presented a general framework for evaluating participant representativeness throughout the recruitment process, we use that framework to evaluate two deliberative events that used different recruitment methods—a RDD telephone survey and a convenience sample web survey. Importantly, because these two case studies were not designed with this particular investigation in mind, we cannot implement the complete framework here; thus, we are limited to a discussion of *invitation nonresponse* operationalized as unwillingness to attend the event at the time of invitation (conditional on receiving an invitation) and *attendance nonresponse* operationalized as nonattendance at the event (conditional on saying "yes" to the invitation). We include a general discussion of the potential effects of coverage error and other nonresponse errors in the discussion section.

Methods

Data

The data for this paper come from two deliberative processes addressing budgeting priorities convened in Lincoln, Nebraska. Recruitment for the 2008 Deliberative Poll (Study One) began with a RDD telephone survey; recruitment for the 2009 deliberative event (Study Two) began with a convenience sample web survey.[2] See Table 1 for additional details about both studies.

Study One. The target population for this study consisted of city residents ages 19 and older. The recruitment survey sample, generated by Survey Sampling International, was a mixed design including RDD sampling (n=3,386, 62.5%), an RDD oversample of neighborhoods that had a higher-than-average minority population (n=1,831, 33.8%), and a directory-listed oversample of Hispanic and Asian residents (n=201, 3.7%). The recruitment survey data collection targeted the completion of 600 interviews and the recruitment of 60 citizens to attend the budgeting discussion. Of the 5,418 landline telephone numbers sampled, it was determined that 1,586 were likely to be households. Interviewing began March 4,

[2] By definition, Deliberative Polls require that a random representative sample of people participate in the deliberative event. Therefore, because Study Two utilized a convenience sample, it is referred to more generally as a deliberative event.

Table 1. Description of deliberative events

	Study One	**Study Two**
Target Population	City residents ages 19 and older	City residents ages 19 and older
Recruitment Survey Details		
Sample design	Random-digit-dial (RDD); oversample of minority neighborhoods; directory-listed oversample of Hispanic and Asian residents	Convenience sample
Sample size	1,586	
Survey mode	Telephone	Web
Field period	March 4, 2008 – April 6, 2008	April 21, 2009 – May 15, 2009
Survey length	20 minutes	20 minutes
Efforts to increase participation	• Prenotification postcard • Multiple call backs at different times of day and on different days of the week (including weekends)	• Public outreach campaign consisting of media releases and personal appeals by Mayor, mayoral staff, and city department heads • Media advertisements available on city's cable television channel and on YouTube • On-hold telephone message on all city office telephones • Editorial in local newspaper • Commentary on radio talk shows • Recontact of prior year recruitment survey respondents
Interviewer experience	Supervised professional interviewers with prior telephone interviewing experience received study-specific training	Not applicable
Invitation Details		
# of invitations extended	286	1,524
# of invitations accepted	102	379
Event Details		
Event date and time	Saturday, April 12, 2009, 9a – 4p	Saturday, May 16, 2009, 9a – 4p
Structure of event	• Pre-event survey • Mayoral briefing on budget • Small group discussion • Plenary panel discussion • Reconvened small group discussion • Presentation of priorities by small groups • Post-event survey	• Pre-event survey • Mayoral briefing on budget • Small group discussion • Plenary panel discussion • Reconvened small group discussion • Presentation of priorities by small groups • Post-event survey
Accommodations	Lunch provided	Lunch provided
Incentive	$75	$35
# of attendees	51	93

2008 and was completed by the end of the evening on April 6, 2008. Ultimately, 605 respondents completed the recruitment survey resulting in a cooperation rate of 38.1 percent.

Interviewers extended a recruitment invitation to all minority survey respondents and all remaining survey respondents until approximately 100 respondents had agreed to attend the event. Of the 605 survey respondents, 286 were extended an invitation to attend the deliberation event and 102 agreed to attend the event. Ultimately, 51 survey respondents participated in the deliberation held on April 12, 2008. All deliberation participants received $75 for their time.

Study Two. The recruitment survey in Study Two was collected by means of a non-random web survey. Furthermore, unlike in Study One in which the interviewer formally recruited the respondent at the time of the recruitment interview, respondents in Study Two were asked to provide contact information for later telephone recruitment. Therefore, the description of these data is somewhat less straightforward than that presented for Study One.

The target population for this study was city residents age 19 and older. A web recruitment survey, hosted by Qualtrics, Inc., was made available on the city's website as well as the website of the research unit conducting the study. Fielding began April 21, 2009 and ended at 5pm on May 15, 2009. Note that paper surveys were made available to residents at local libraries and via mail upon request; however, only 33 paper surveys were returned. Although the paper survey methodology is also a convenience sample, for clarity of discussion, only web responses will be considered. During that time, 1,839 eligible (and online) responses were collected. Eligibility was determined by respondent age (>= 19 years) and ZIP code (within the city limits). Respondents that did not provide age or ZIP code information were considered ineligible. Of the 1,839 survey respondents, 1,524 were extended an invitation to attend the deliberation (i.e., they made it to the respective question in the web survey). Respondents who said they were willing (n=158) or might be willing (n=221) to attend the event were then asked to provide contact information for a follow-up recruitment call. Of these 379 willing respondents, 93 participated in the deliberation held on May 16, 2009. All deliberation participants received $35 for their time.

Analysis Plan

The available data preclude the estimation of coverage and recruitment survey nonresponse error; thus, for the purposes of this study, we are specifically interested in the following two errors: (1) invitation nonresponse error and (2)

attendance nonresponse error. Specifically, nonresponse error will be estimated for statistics assessing demographic characteristics and confidence in local government. Within each event, the following comparisons are made: (1) those who agreed to attend the event versus those who did not agree to attend the event and (2) event attendees versus non-attendees. Further, for measures of confidence in the local government, we calculate the percentage absolute relative nonresponse bias which is defined as

$$\left|100 * (Y_r - Y) / Y\right| \quad (3)$$

where all symbols are defined as indicated previously. The relative nonresponse bias accounts for the prevalence of the measure such that the same level of nonresponse bias has a larger effect on less prevalent measures (e.g., smaller demographic groups) than on more prevalent measures (e.g., larger demographic groups).

Results

Participant Representativeness

In order to determine how well participants at various stages in the deliberative process represented the target population, we compared demographic characteristics to city-level Census estimates (U.S. Census Bureau, 2009). Specifically, we compared sex,[3] race, education, and age for three groups: (1) recruitment survey respondents, (2) recruitment survey respondents who said they were willing to attend the event (conditional on receiving an invitation) and (2) event attendees (conditional on willingness to attend as reported at the time of the invitation). Table 2 illustrates the demographic characteristics of these three groups in Study One (columns 1, 2a, and 3a) as well as the Census characteristics (column 4) to which they were compared. Significance levels reported in columns 1, 2a, and 3a are based on comparisons to Census data (column 4) using chi-square tests. Table 3 illustrates the same information for Study Two.

Similar to Goidel, et al.'s (2008) findings, *recruitment survey respondents* (column 1) in both studies were more likely to be White, better educated, and older than the target population (column 4). This lack of representation might be attributed to coverage issues with RDD sampling (Study One) or Internet coverage issues (Study Two), nonresponse to the recruitment survey, or some combination of the two. Due to limitations of the available data, however, we were not able to calculate these errors. It is notable, however, that, despite the

[3] Respondent sex was only measured in the recruitment survey for Study One.

Table 2. Comparison of recruitment respondents, willing and unwilling participants, event attendees and nonattendees, and Census demographics (Study One)

	(1) Respondents	(2a) Willing	(2b) Unwilling	(3a) Attendees	(3b) Non-Attendees	(4) ACS Estimates
Sex	—	—	—	**	**	
Male	46.4	52.0	44.0	64.7	40.4	50.1
Female	53.6	48.0	56.0	35.3	59.6	49.9
n	605	102	184	51	52	248967
Race	***	—	—	—	—	
Hispanic (any race)	2.5	3.0	3.3	4.0	2.0	5.0
White	93.4	89.0	90.1	92.0	86.3	85.8
Black	1.2	5.0	0.5	2.0	7.8	3.3
American Indian / Alaska Native	0.5	1.0	1.1	2.0	0.0	0.4
Asian	1.3	0.0	3.8	0.0	0.0	3.5
Native Hawaiian / Pacific Islander	0.2	0.0	0.0	0.0	0.0	0.1
Other	0.8	2.0	1.1	0.0	3.9	1.8
n	594	100	182	50	51	248967
Education (age >= 25)	***	**	—	***	**	
< 9th grade	0.0	0.0	0.0	0.0	0.0	2.5
9-12th, no diploma	2.2	5.0	1.7	4.0	5.8	5.0
High school	15.3	11.9	19.0	4.0	19.2	23.2
Some college	19.3	23.8	21.3	28.0	19.2	23.3
Associate's degree	13.5	13.9	16.1	14.0	15.4	10.1
Bachelor's degree	31.3	26.8	29.3	20.0	32.7	24.1
Graduate or professional degree	18.4	18.8	12.6	20.0	7.7	11.7
n	587	101	174	50	52	153885
Age	***	***	—	***	**	
19-24	2.2	1.0	3.3	2.0	0.0	16.6
25-34	9.8	12.7	13.8	2.0	23.1	22.1
35-44	16.1	16.7	14.4	11.8	21.2	18.0
45-54	25.5	22.5	24.3	19.6	25.0	17.3
55-64	22.6	23.5	21.5	29.4	17.3	12.5
65 and over	23.8	23.5	22.7	35.3	13.5	13.6
n	601	102	181	51	52	184410

Note. Significance levels reported in columns 1, 2a, and 3a are based on comparisons to Census data (column 4) using chi-square tests. Significance levels reported in Column 2b are based on comparisons between willing and unwilling respondents using chi-square tests. Significance levels in Column 3b are based on comparisons between attendance respondents and nonrespondents using chi-square tests.*p < .05, **p<.01, ***p<.001; — no difference.

Table 3. Comparison of recruitment respondents, willing and unwilling participants, event attendees and nonattendees, and Census demographics (Study Two)

	(1) Respondents	(2a) Willing	(2b) Unwilling	(3a) Attendees	(3b) Non-Attendees	(4) ACS Estimates
Race	***	—	**	—	—	
Hispanic (any race)	1.2	1.4	1.1	2.3	1.1	5.0
White	96.1	93.6	97.0	93.1	93.7	85.8
Black	0.6	0.8	0.6	0.0	1.1	3.3
American Indian / Alaska Native	0.4	0.6	0.4	0.0	0.7	0.4
Asian	0.7	1.7	0.4	1.1	1.9	3.5
Native Hawaiian / Pacific Islander	0.0	0.0	0.0	0.0	0.0	0.1
Other	1.0	2.0	0.6	3.4	1.5	1.8
n	1448	357	1090	87	270	248967
Education (age >= 25)	***	**	—	***	—	
< 9th grade	0.0	0.0	0.0	0.0	0.0	2.5
9-12th, no diploma	0.0	0.0	0.0	0.0	0.0	5.0
High school	4.1	3.6	4.3	3.7	3.6	23.2
Some college	14.5	17.2	13.5	15.9	17.7	23.3
Associate's degree	8.8	6.6	9.6	7.3	6.4	10.1
Bachelor's degree	41.9	39.0	43.0	37.8	39.4	24.1
Graduate or professional degree	30.6	33.6	29.6	35.4	32.9	11.7
n	1257	331	926	82	249	153885
Age	***	***	—	***	**	
19-24	3.4	4.1	3.1	3.5	4.2	16.6
25-34	15.4	16.8	14.9	5.9	20.4	22.1
35-44	18.5	15.1	19.7	16.5	14.6	18.0
45-54	23.4	23.5	23.3	16.5	25.8	17.3
55-64	25.7	26.7	25.4	38.8	22.7	12.5
65 and over	13.7	13.9	13.6	18.8	12.3	13.6
n	1306	345	961	85	260	184410

Note. Significance levels reported in columns 1, 2a, and 3a are based on comparisons to Census data (column 4) using chi-square tests. Significance levels reported in Column 2b are based on comparisons between willing and unwilling respondents using chi-square tests. Significance levels in Column 3b are based on comparisons between attendance respondents and nonrespondents using chi-square tests.*p < .05, **p<.01, ***p<.001; — no difference.

minority oversample obtained in Study One, respondents at the first measureable stage were disproportionately White. Such a finding suggests that issues with minority representation might be due to errors at an earlier stage in the recruitment process (e.g., coverage issues with RDD sampling, nonresponse to the recruitment survey, or some combination of the two). *Willing respondents* (column 2a) in both studies were more likely to be better educated and older than the target population (column 4); however, racial differences did not persist at this stage. Finally, *event attendees* (column 3a) in both studies were more likely to be better educated and older than the target population (column 4). Additionally, in Study One, *event attendees* were more likely to be male. See Figure 2 for a summary of these results. Importantly, these demographic differences do not necessarily equate to differences in policy preferences. Because attitudinal data on nonrespondents were not collected as part of this study, we cannot evaluate whether participants' public policy preferences differed from those of the target population.

Having established that event attendees in both studies differed from the population in important ways, we examined two stages of the recruitment process to determine when and why event attendees failed to represent the target population. Specifically, we examined two types of nonresponse error: invitation nonresponse error and attendance nonresponse error. Both errors are summarized pictorially in Figure 3

Nonresponse Error

As defined previously, nonresponse error is a function of the proportion of nonrespondents and the difference between respondents and nonrespondents on the statistic of interest (Groves, 1989). For the purposes of this analysis, we considered nonresponse occurring at two stages: (1) *invitation* nonresponse operationalized as unwillingness to attend the event at the time of invitation (conditional on receiving an invitation) and (2) *attendance* nonresponse operationalized as nonattendance at the event (conditional on saying "yes" to the invitation).

Invitation nonresponse error. Estimates of *invitation* nonresponse are based on the proportion of *invitation* nonrespondents (i.e., those who were unwilling to attend the event conditional on receiving an invitation) and the difference between respondents (i.e., those who were willing to attend the event conditional on receiving an invitation) and nonrespondents on statistics of interest. In Study One, 286 survey respondents were extended an invitation to attend the deliberation event. One hundred and two survey respondents said they would be willing to

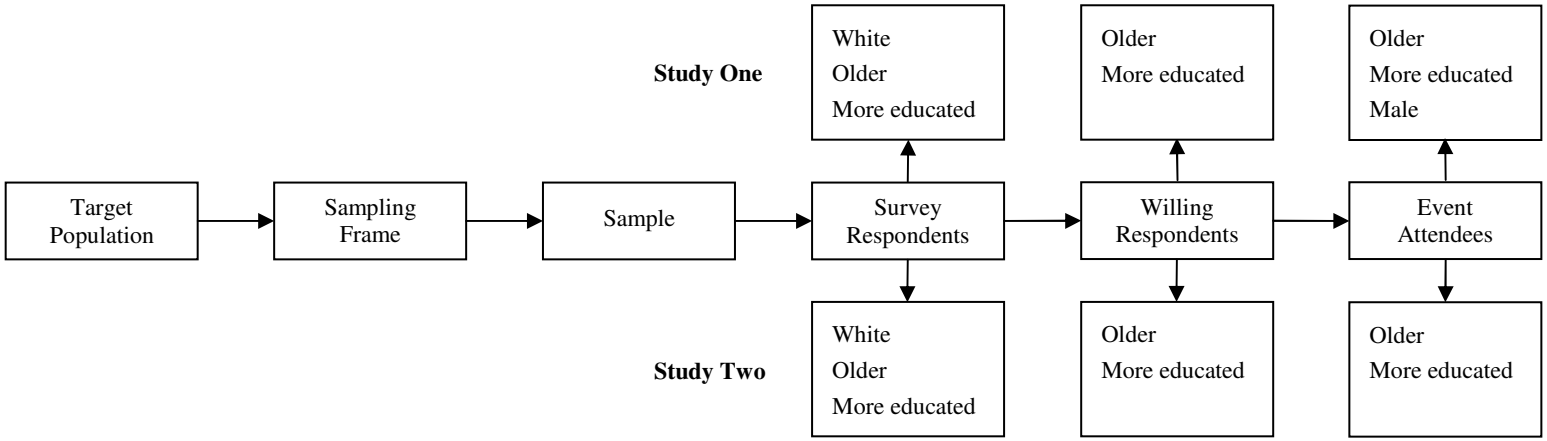

Figure 2. Participant representativeness via Census comparisons

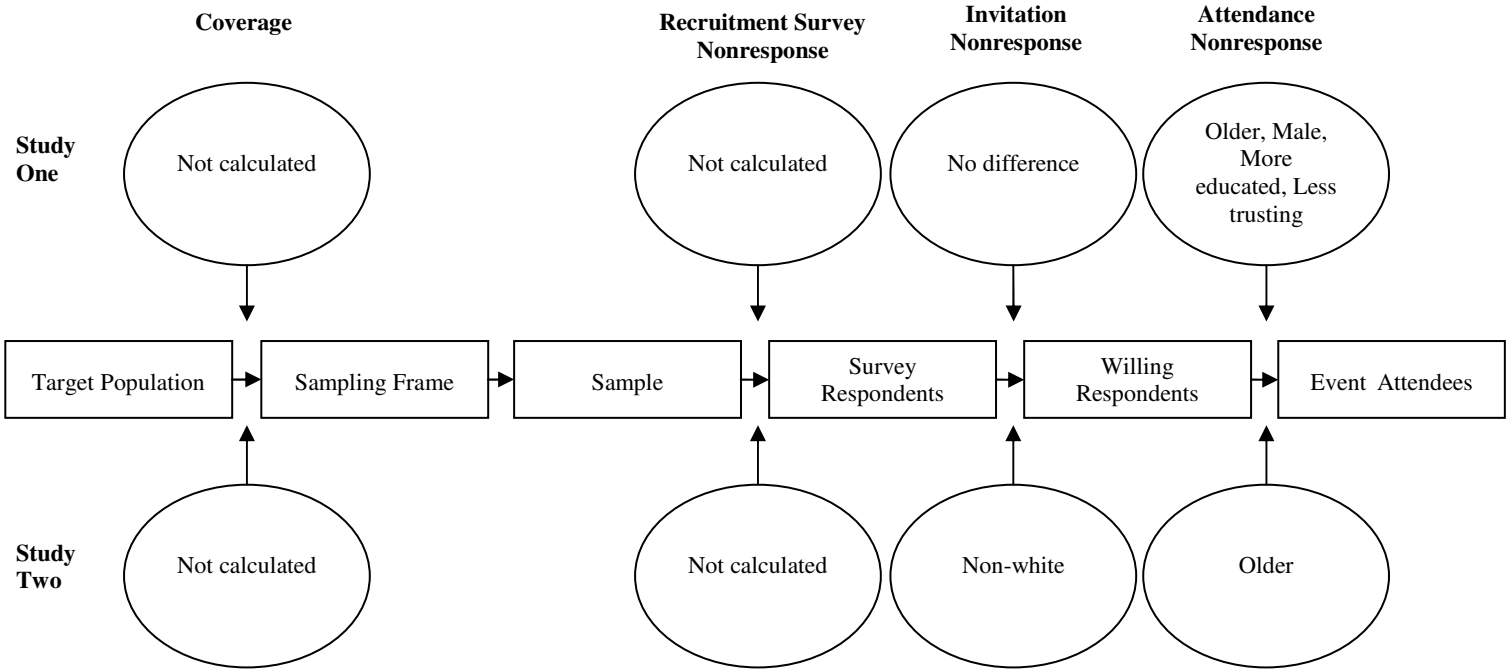

Figure 3. Summary of coverage and nonresponse errors.

attend the event whereas 180 respondents said they would not be willing to attend the event. Four survey respondents said "don't know" and are classified as invitation nonrespondents. In Study Two, 1,524 survey respondents were extended an invitation to attend the deliberation event. One hundred and fifty-eight survey respondents said they would be willing to attend, 221 said they might be willing to attend, and 1,145 said they would not be willing to attend. In the following analyses, respondents are classified as those who said yes or maybe and nonrespondents are classified as those who said no.[4]

First, we examined demographic differences between respondents and nonrespondents. Four demographic variables were compared: sex, race, education, and age. Columns 2a and 2b in Table 2 contain the relevant information regarding these comparisons for Study One; columns 2a and 2b in Table 3 contain the same information for Study Two. Recall that the significance levels in Column 2a pertain to Census comparisons. For these analyses, then, the significance levels in Column 2b are based on comparisons between willing and unwilling respondents using chi-square tests. As Table 2 illustrates, there were no demographic differences between willing (column 2a) and unwilling (column 2b) respondents in Study One; thus, willingness to attend the event at the time of the invitation does not appear to be related to demographic characteristics. As in Study One, there were no differences between willing (column 2a) and unwilling (column 2b) respondents by education or age in Study Two; however, willing respondents were less likely to be White than their unwilling counterparts. Therefore, there are mixed results as to whether race is a predictor of willingness to participate in deliberative events. Notably, contrary to the self-selection hypothesis, we did not find strong predictors of willingness to participate in the deliberation given response to the initial recruitment survey.

Next, we examined substantive differences—measures of trust of and confidence in the city government—between respondents and nonrespondents. Because response sets were randomized, it was not possible to use MANOVA; thus, group differences were calculated using ANOVA. As Table 4 illustrates, there were no significant differences between invitation respondents and invitation nonrespondents in either study on the three trust and confidence measures analyzed. Therefore, agreement to attend the event does not appear to be related to trust and confidence.

[4]Although it is possible for those who said yes to differ from those who said maybe, there were no differences in the demographic or substantive results based on how those two responses were treated. Thus, for simplicity of presentation, only the comparisons between the collapsed set of respondents (i.e., yes and maybe) and nonrespondents are presented.

Table 4. Invitation nonresponse error

Item		Proportion of Nonrespondents (nr/n)	Respondent Mean (*SD*)	Nonrespondent Mean (*SD*)	*F* (*df*)	*p*	Relative Nonresponse Bias (%)
Study One							
A. City government officials treat residents with respect.		.693	2.55 (.968)	2.59 (.905)	.060 (1)	.807	1.08
	n	137	42	95			
B. City government officials have residents' best interests in mind when they make decisions.		.586	2.95 (1.048)	2.76 (.934)	1.250 (1)	.265	3.92
	n	145	60	85			
C. City government can usually be trusted to make decisions that are right for the residents as a whole.		.593	2.71 (1.068)	2.66 (.941)	.085 (1)	.771	1.11
	n	145	59	86			
Study Two							
A. City government officials treat residents with respect.		.757	3.34 (1.009)	3.38 (.925)	.314 (1)	.575	0.90
	n	1019	248	771			
B. City government officials have residents' best interests in mind when they make decisions.		.736	2.86 (1.030)	2.97 (1.031)	2.016 (1)	.156	2.75
	n	787	208	579			
C. City government can usually be trusted to make decisions that are right for the residents as a whole.		.736	2.96 (1.160)	2.95 (1.067)	.010 (1)	.922	0.25
	n	764	202	562			

Note. 1=Strongly Disagree, 2=Disagree, 3=Neither Agree nor Disagree, 4=Agree, 5=Strongly Agree

Attendance nonresponse error. Estimates of *attendance* nonresponse are based on the proportion of *attendance* nonrespondents (i.e., nonattendees who initially agreed to attend the event) and the difference between respondents (i.e., attendees who initially agreed to attend the event) and nonrespondents on statistics of interest. In Study One, 102 survey respondents were invited to and said they would be willing to attend the event. Of these 102 survey respondents, 50 ultimately attended the event. Note that the 51st attendee initially said "don't know" and is not included in these analyses. In Study Two, 379 survey respondents were invited to attend the event and either said they would be willing or might be willing to attend. Of these 379 survey respondents, 93 ultimately attended the event.

First, we examined demographic differences between respondents and nonrespondents. Four demographic variables were compared: sex, race, education, and age. Columns 3a and 3b in Table 2 contain the relevant information regarding these comparisons for Study One; columns 3a and 3b contain the same information for Study Two. Recall that the significance levels in Column 3a pertain to Census comparisons. For these analyses, then, the significance levels in Column 3b are based on comparisons between attendance respondents and nonrespondents using chi-square tests. In both studies, attendees (column 3a) were more likely to be older than non-attendees (column 3b). Additionally, in Study One, attendees (column 3a) were more likely to be male and better educated than non-attendees (column 3b). Recall that non-attendees are respondents who said they were willing to attend the event but did not ultimately attend the event. Event non-attendance might be due to false reporting of intent to attend at the time of the invitation or an unanticipated inability to attend the event despite a true intent to intend.

Next, we examined substantive differences—measures of trust of and confidence in the city government—between respondents and nonrespondents. Three measures of trust and confidence were analyzed. Because response sets were randomized, it was not possible to use MANOVA; thus, group differences were calculated using ANOVA. As Table 5 illustrates, in Study One, attendance respondents and nonrespondents had significantly different mean scores on the item assessing whether or not city government officials have residents' best interests in mind when making decisions. Specifically, attendance respondents (i.e., attendees) agreed less strongly that government officials have residents' best interests in mind than did attendance nonrespondents (i.e., nonattendees). Such a result might suggest that event attendees are motivated to participate because they do not believe that city government officials have residents' best interests in

Table 5. Attendance nonresponse error

Item		Proportion of Nonrespondents (nr/n)	Respondent Mean (*SD*)	Nonrespondent Mean (*SD*)	*F* (*df*)	*p*	Relative Nonresponse Bias (%)
Study One							
A. City government officials treat residents with respect.		.500	3.67 (1.017)	3.24 (.889)	2.115 (1)	.154	3.46
	n	42	21	21			
B. City government officials have residents' best interests in mind when they make decisions.		.517	2.76 (1.123)	3.32 (.909)	4.600 (1)	.036	3.05
	n	60	29	31			
C. City government can usually be trusted to make decisions that are right for the residents as a whole.		.517	3.31 (1.072)	3.42 (1.361)	.118 (1)	.733	3.37
	n	60	29	31			
Study Two							
A. City government officials treat residents with respect.		.742	3.31 (1.052)	3.35 (.997)	.058 (1)	.810	3.34
	n	248	64	184			
B. City government officials have residents' best interests in mind when they make decisions.		.750	2.87 (1.085)	2.85 (1.015)	.006 (1)	.938	2.86
	n	208	52	156			
C. City government can usually be trusted to make decisions that are right for the residents as a whole.		.728	2.96 (1.201)	2.95 (1.149)	.004 (1)	.951	2.95
	n	202	55	147			

Note. 1=Strongly Disagree, 2=Disagree, 3=Neither Agree nor Disagree, 4=Agree, 5=Strongly Agree

mind. That is, event attendance might be driven by the desire to inform government officials of residents' best interests or to persuade government officials to base their decisions on such interests. As illustrated in Table 5, there were no such substantive differences in Study Two.

Discussion

To the extent that the purpose of a deliberative event is to understand how opinions change in the presence of new information, participant representativeness is only relevant to the extent that the effect of new information on opinion is expected to differ among various groups. If, however, the purpose of a deliberative event is to obtain a set of informed opinions that are representative of a larger population, it is critical that participants actually represent that population. To that end, this paper examined the extent to which participants at various stages of the deliberative event recruitment protocol represented the population they were intended to represent. Furthermore, we differentiated between the contributions of invitation and attendance nonresponse errors to the lack of representation of deliberation attendees.

The studies presented were fundamentally different in that Study One utilized a random sampling mechanism whereas Study Two utilized a convenience sampling mechanism. Despite this fundamental difference, both studies resulted in a set of deliberation attendees who were older and better educated than the population. This finding is not, in itself, surprising; these two groups are known to have greater participation in public participation processes generally (e.g., voting; The Pew Research Center For The People & The Press, 2006) and in more specific public participation processes like deliberative events (see Goidel, et al., 2008). What is notable, however, is the finding that the less expensive non-probability recruitment methods used in Study Two performed as well as the more expensive probability recruitment methods used in Study One. Thus, the reputation or theoretical expectation of these particular recruitment methods was not necessarily borne out in practice. Furthermore, because meaningful invitation nonresponse occurred in Study Two and meaningful attendance nonresponse occurred in both studies, there is evidence that aspects of the recruitment process other than the recruitment survey sampling method used can influence participant representativeness. Although these findings might be the result of idiosyncrasies of the two data collection efforts, there is at least some evidence that alternative recruitment methods should be considered.

Because these two data collection efforts were not designed with this particular investigation in mind, the data to adequately assess the effects of coverage and

nonresponse to the recruitment survey were not available. Both types of error, however, likely contributed meaningfully to the lack of representativeness of deliberative event attendees. For example, the RDD sample used in Study One did not include cell phones—a practice that was common at the time (Blumberg & Luke, 2007). Although a minority oversample was included to increase the representativeness of respondents, only minorities with landline phones had a nonzero probability of selection (i.e., minorities in no-phone or wireless-only households were still uncovered). To the extent that minorities in wireless-only households differed from minorities in landline households on the statistics of interests, coverage error might have existed. In fact, national estimates from that time indicate that members of wireless-only households were more likely to be renting, not owning, their home; more likely to be between 18 and 29 years old; more likely to be living in poverty or near poverty; and more likely to be Hispanic or non-Hispanic Black than non-Hispanic White (Blumberg & Luke, 2009).

Similarly, coverage error might have been an issue in the convenience web sample used in Study Two. Unfortunately, no estimates of state-level adult Internet access are available for that time. Furthermore, national estimates of adult Internet use were based on whether or not an adult had Internet access at home (rather than some other location) (Horrigan, 2009). Still, national household estimates provide some insight into the population potentially missed by a convenience sample web survey. Specifically, at the time, adults with home Internet access were more likely to be White, male, younger, and better educated than adults without home Internet access (Horrigan, 2009). Therefore, to the extent that respondents to Study Two completed the survey at home, important demographic groups were missed. However, it is possible that respondents completed the survey at their place of employment or some other location with Internet access.

Nonresponse to the recruitment survey (conditioning on coverage by the sample frame) also likely contributed to the lack of representativeness of deliberative event attendees. It stands to reason that people who are unwilling to participate in a screening questionnaire are likely unwilling to participate in a day-long deliberation event. Notably, research has demonstrated that civic engagement, voting, and volunteering are positively associated with survey participation (Groves, 2014, p. 13). Thus, to the extent that nonresponse to the recruitment survey was a result of distrust of the government or the political process or relatively low levels of altruism, bias would enter the recruitment process at this very early stage.

With the knowledge that deliberative event attendees vary from the general population, it bolsters the argument for improving the representativeness of recruitment survey respondents so that nonrepresentativeness is magnified as little as possible in each layer of the data collection process. Recent research has indicated that gains can be made in reducing coverage error with the use of multiple sampling frames (e.g., an RDD that includes both landlines and cell phones) (Lessler & Kalsbeek, 1992; Peytchev, Carley-Baxter, & Black, 2008). A somewhat more recent sample design is the address-based sample design (ABS). Such designs use the U.S. Postal Service (USPS) Computerized Delivery Sequence File (CSD)—a file that contains addresses to which the USPS makes deliveries (United States Postal Service, 2013)—as a frame. When used in conjunction with a mail survey, this design has been found to improve coverage of cell phone-only households; however, non-Hispanic whites and those with higher levels of education were overrepresented (Link, Battaglia, Frankel, Osborn, & Mokdad, 2008). An ABS design could also be used with a two-phase design in which the first phase is intended to create a complete frame of telephone numbers and the second phase involves a telephone survey. Specifically, a mail survey requesting telephone numbers is sent to a sample selected from an ABS frame.

Nonresponse can be reduced, at both the interview and noninterview stages, by applying techniques often used by survey researchers. For example, researchers can implement the tailored design method (Dillman, Smyth, & Christian, 2009) by adjusting or "tailoring" the research request in a way that increases the perceived rewards, reduces perceived costs, and fosters trust, particularly among targeted communities.

It might be the case, however, that improvements to probability recruitment methods still fail to obtain a representative group of event attendees. To that end, practitioners might consider the use of nonprobability methods. As outlined in the Report of the American Association for Public Opinion Research (AAPOR) Task Force on Non-Probability Sampling (Baker, Brick, Bates, Couper, Dever, Gile, & Tourangeau, 2013), there are a wide variety of non-probability designs that are often employed by other research disciplines. Quota sampling—one method of sample matching—is one non-probability design that might be useful in the context of deliberative event recruitment. The goal of this sampling method is to obtain a group of event attendees that matches the target population of interest on key characteristics. Typically, the sample is matched to the population based on demographic characteristics like sex or age because such information is readily available about both the sample and the population of interest. To minimize nonresponse error, the matching must be based on characteristics that are

correlated with key outcomes of interest (that is, the substantive attitudes in question). Thus, it is important to first determine whether demographic characteristics are, in fact, correlated with the specific attitudes in question.

Future research should focus on collecting the information necessary to estimate all potential error sources, particularly coverage and recruitment survey nonresponse error, so that representativeness can be better understood. For example, due to the increasing popularity of web-based deliberative discussions, a better understanding of convenience sample web surveys is necessary (Price & Cappella, 2002; Witschge, 2004). Similarly, to determine the mechanisms behind nonresponse to recruitment surveys, projects might consider conducting a small nonresponse follow-up survey.

The practical impact of undercoverage and nonresponse is that they exacerbate the exclusion of groups—such as the young, those from lower socioeconomic backgrounds, and racial/ethnic minorities—that are traditionally marginalized in public discourse and who are likely to have less trust and confidence in government (e.g., Rahn & Rudolph, 2005: Rottman & Tomkins, 1999), but who, with appropriate coaxing and support, are likely to be willing to contribute to civil society activities (e.g., Callahan, 2007; Fox, 2009; Macedo, et al., 2005). Research in survey methodology provides potential solutions for the deliberative recruitment process' coverage and nonresponse issues hindering ultimate attendee representation.

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