

VALIDITY OF AN ON-LINE PANEL APPROACH TO CITIZEN SURVEYS

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ABSTRACT: *On-line panels of volunteer respondents have emerged as a new method of conducting surveys for market and public opinion research with substantial cost and logistical advantages over traditional mail or telephone surveys. However, because they are not based on probability sampling, the results from on-line panels raise serious concerns about their validity in terms of representing the characteristics or views of the population. With support from the Alfred P. Sloan Foundation, the CivilPanel (formerly eTownPanel) project was created to test the validity of an on-line panel approach to citizen surveys about government performance. This article reports on the development of the project, including the growth and composition of the panel, and on the validity of its on-line survey results as defined by comparisons with established, random-sample surveys of public opinion. Implications of the findings for the practice of citizen surveys as well as for the study of public opinion about local government performance are discussed.*

KEYWORDS: *citizen participation, citizen satisfaction, e-government, on-line panel, methodology, surveys*

With support from the Alfred P. Sloan Foundation's program to make municipal government more responsive to citizens (Alfred P. Sloan Foundation, 2008), the CivicPanel (formerly the eTownPanel) project was developed to test the validity of an on-line panel approach to citizen surveys. I examine the background and motivation for the project, including the growing use of on-line panel surveys in the market research industry, the popularity of citizen surveys as a public management tool, and the creation of largely off-line citizen panels in the United Kingdom and elsewhere in Europe to gather regular feedback from citizens. I also present the design and development of the project, with a focus on issues of implementation and especially the challenge of recruiting a representative panel. The results, based on a set of validity studies that compare the findings of the project's on-line surveys with results of more traditional, random-sample telephone surveys of the adult populations of the nation and New York City, provide lessons learned from

the project as well as implications for the future use of on-line panels as an approach to surveying citizens about local government performance.

On-Line Research Panels

On-line panels of volunteer respondents, sometimes referred to as Internet access panels, are essentially managed e-mail lists of volunteers who have signed up to receive e-mail invitations to participate in Web surveys and other forms of on-line research. There are many advantages to conducting surveys on-line. Responses can be gathered very quickly, as e-mail invitations can be sent rapidly to thousands of individuals who often respond in a matter of a few days if not a few hours. Responses feed directly into a computerized database, making real-time access to and analysis of the data possible. Panelists can be profiled in advance, usually at signup, greatly facilitating the task or targeting surveys to special subgroups with certain characteristics of interest. Also, panelists can be tracked so that true panel studies involving collection of survey data on the same individuals at two or more points in time are possible. On-line questionnaires also allow for dynamic features not possible in traditional paper questionnaires or even computer-assisted telephone interviews, such as the presentation of multimedia elements, complex logical skipping or branching patterns, piping of responses from one question to another, and so on. In addition, importantly, the cost of on-line data collection is often a fraction of traditional survey research methods, making it feasible to conduct much larger and more frequent surveys (Smith & Brown, 2005).

In less than a decade, on-line panels have emerged as a major new alternative to more traditional mail or telephone surveys (Faas, Schoen, & de Rouvray, 2006; Smith & Brown, 2005). Some of the major commercial panels have grown quite large; for example Survey Sampling Inc. has over 6 million members worldwide in its panel (Survey Sampling, Inc., 2008). Harris Interactive, Inc. (2008b) reported that its on-line panel has grown to some 6 million panelists in 125 countries, and GMI, a leading provider of panels and survey software, claims to have 13 million panelists in 200 countries (Global Market Insite, 2008). Although it is difficult to put a precise figure on the growth in the use of these on-line panels, financial trends in the survey research industry suggest that it has been dramatic. For example, GMI reported a five-year revenue growth of 1,771 percent from 2002 to 2005, making it one of the fastest-growing technology companies in North America (Global Market Insite, 2007). Harris Interactive, Inc. (2008a), home of the Harris

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Poll, in its most recent annual report states that over 60 percent of its \$200 million in annual revenues in 2007 came from Internet research, compared to only 40 percent from traditional research, and that it has completed 75 million on-line surveys to date. Clearly, on-line panels are now a major method increasingly used in the survey research industry.

Citizen Surveys

Promoted initially in the 1970s as a method of local government performance measurement (Webb & Hatry, 1973), citizen surveys have become a widespread management tool used by local governments in the United States, Europe, and around the globe to gather feedback from citizens on service quality and other issues (Bouckaert & Van de Walle, 2003; Holzer & Yang 2004; Lyons, Lowery, & DeHoog 1992; Miller & Kobayashi-Miller 2000; Stipak 1980). Citizen surveys are seen as a way to produce performance measures that are more citizen-driven and, more generally, as a mechanism to include citizens' views and priorities in the budget and policy-making process (Callahan, 2004; Ho, 2007; Holzer & Rhee, 2005; Watson, Juster, & Johnson, 1991). Most citizen surveys continue to rely on standard methods of data collection, particularly mail and telephone surveys. However, local governments are beginning to turn to the Internet as a way to conduct citizen surveys as well (Miller, Kobayashi, Caldwell, Thurston, & Collett, 2002). For the most part, these efforts, especially by smaller localities with limited budgets, involve posting short surveys on official government Web sites inviting citizens to give their feedback. However, these Web surveys remain open and uncontrolled, and evidence suggests they may be more biased than on-line panels (Faas et al., 2006). In addition, it is difficult to restrict this kind of open Web survey to local citizens or to prohibit citizens from "ballot stuffing." Somewhat surprisingly, given the trends in the survey research industry, local governments seem to be largely unfamiliar with the method of a specially recruited on-line panel for conducting citizen surveys.

Citizen Panels

The idea of organizing a citizen panel that provides regular feedback on local government performance and other issues has become popular in the United Kingdom. The U.K. citizen panels, however, are recruited and surveyed using mostly traditional, off-line methods such as door-to-door interviews or mailed questionnaires. At the urging of the U.K. national government, these citizen panels were created as a means for local authorities to solicit consultation on a range of public services and local policy issues (Wilson, 2001). For example, Bristol, Derbyshire, Glasgow, Leicestershire, and Norfolk are a few of the U.K. local governments, large and small, that have active citizen panels. These U.K. panels

tend to be between 1,000 and 7,000 citizens in size, with the panel recruited by probability sampling from local address registries and refreshed each year with new recruits to replace those who drop out or move away. Angus County in the United Kingdom, however, has opened its panel to all citizens who wish to volunteer to participate in its citizen surveys, and it now conducts more of its survey data collection on-line. Across the channel, in France, the city of Issy-les-Moulineaux, a technologically sophisticated local government outside Paris, runs one of the first entirely on-line *panels citoyens* that recruit and survey residents over the Internet (Legale, 2003). The Issy citizens panel comes closest to the kind of on-line panels that are growing so rapidly in the market research industry (in fact, Issy contracts with a market research company to design and manage its *panel citoyen*).

Thus, it would seem that several trends in public management and in the survey research industry point toward the emerging potential of an on-line panel approach to citizen surveys. However, the use of voluntary on-line panels for citizen surveys raises a number of important methodological concerns that require empirical investigation.

Methodological Concerns

To begin, there is the issue of coverage bias, as not all individuals have Internet access or use e-mail, although Internet coverage in the United States and other countries is growing rapidly. According to the Pew Internet and American Life Project (2008), Internet use among U.S. adults rose from only 14 percent in 1995 to 75 percent at the end of 2007. At the same time, declining use of traditional landline phones in favor of cell phones, the greater control people now have to identify and screen calls, as well as other technological and social trends present coverage challenges for traditional telephone survey methods (Dillman, 2002; Groves et al., 2004). Still, Internet coverage remains far from complete at this time, and important subgroups of the population, such as elderly, minority, and low-income households, have lower rates of Internet access (Pew Internet & American Life Project, 2008).

Another methodological issue concerns the recruitment and motivation of panel members. Commercial research panels use a variety of means to recruit participants, including telephone recruiting (either special calling efforts or at the end of other telephone surveys), commercial mailing lists, Web ads, referrals, and partnerships with other on-line panels. Although most commercial panels claim to use some form of random sampling for part of their panel, they do not publish details on the proportions of their panels that come from probability as opposed to nonprobability sampling. However, it would seem that much more of the recruiting likely happens voluntarily on-line, through Web ads or e-mail marketing, rather than probability sampling by telephone or mail (Smith & Brown, 2005). In

fact, independent Web sites promoting paid surveys have become quite common, resulting in concerns about the expanding numbers of professional survey takers, that is, people who join on-line panels purely for the financial incentives (Coen, Lorch, & Piekarski, 2005). These diverse and uncertain sources of recruitment, combined with the financial motivation to join on-line panels, suggest that panel members may well be a highly self-selected group.

Another methodological issue concerns the participation of panel members over time. One aspect of this issue is panel attrition, that is, people who opt out of the panel, change their e-mail address, or simply stop responding to survey invitations. Attrition appears to be a problem in most on-line panels, with various efforts made to combat attrition or "dead wood" by engaging the panel (with regular surveys but also with point systems, newsletters, birthday greetings, etc.) without overburdening respondents (with too many survey invitations or reminders [Smith, 2005]). On the other hand, there are concerns about those panelists who do remain active and participate in many surveys over time, specifically, how frequent survey participation itself changes the nature of the panelists' responses. For example, panelists may become more aware of issues that they were asked about previously, or they may develop response sets or other learned strategies for responding (Coen et al., 2005). This concern is amplified by the fact that some individuals may be members of several panels at the same time and thus may receive numerous survey invitations (Smith & Brown, 2005).

These methodological issues suggest that on-line panels may well include a self-selected group of participants with motivations and characteristics, as well as learned response behaviors, that make them quite different from a probability sample of the population. Indeed, there is research that suggests that on-line panel surveys do produce biased results (Malhotra & Krosnick, 2007). However, much seems to depend on the characteristics of the panel and the survey topics. It is possible that diverse sources of panel recruitment may help attenuate such bias or that the propensity to volunteer for the panel is statistically unrelated (or only weakly related) to the attitudes or other substantive variables of interest. Indeed, several studies have found that on-line panels can produce estimates of various attitudes and behaviors that are quite similar to telephone and other probability sampling methods, although sometimes these similarities depend on the use of weighting schemes and adjustments for mode effects (Braunsberger, Wybenga, & Gates, 2007; Duffy, Smith, Terhanian, & Bremer, 2005; Schillewaert, & Meulemeester, 2005; Thomas, Krane, Taylor, & Terhanian, 2006).

Project Implementation

The CivilPanel project began in 2003 as a pilot project to recruit and survey a panel of adult residents of New York City and the nation. Initially housed at Baruch

College, City University of New York, the project received a planning grant from the Alfred P. Sloan Foundation in 2003 and renewed funding in 2005 that allowed the project to improve its Web site, acquire more sophisticated software, employ a research assistant, and actively recruit panelists and conduct surveys. In 2005, the project entered a partnership with QuestionPro.com, a Seattle-based company that provided a reduced-price software license to the project in exchange for using the project as a test case to design and improve its integrated panel management and survey software system. The project is currently housed at Rutgers University, School of Public Affairs and Administration.

The project has conducted some 25 surveys since it began, many in cooperation with various nonprofit and academic organizations in New York and the nation. Some of these organizations and the topics of the surveys include Citizens for NYC (on neighborhood quality of life and local emergency preparedness), Council on the Environment for New York City (on neighborhood noise), Gotham Gazette (on recycling), InsideSchools (on public schooling), National Civic League (on public interest in performance measures), New Yorkers for Parks (on public parks and beaches), Park University's International Center for Civic Engagement (on social entrepreneurship), and Rutgers University's School of Public Affairs and Administration (on transparency in local government). Several of these surveys have been repeated at regular intervals over the years, such as the neighborhood quality-of-life survey, the parks survey, and the noise survey. Data from the project also have been used for several academic studies about local government performance, including the development of indices of overall citizen satisfaction (Van Ryzin, 2004), modeling the processes citizens use to form satisfaction judgments about municipal services (Van Ryzin, 2006), exploring the determinants of public demand for local government transparency (Piotrowski & Van Ryzin, 2007), and the use of importance performance analysis for interpreting subjective public service ratings (Van Ryzin & Immerwahr, 2007).

The biggest challenge since the start of the project has been recruiting and growing a diverse, engaged panel. The Web site has been listed since 2003 in the Open Directory, Google Directory, and other related Internet directories (under the category "On-line Issues Polls"), and the site has been picked up over the years by various specialized directories of paid surveys (although without the project's request or approval). Since 2003, the project has been posting regular announcements on Craigslist for the New York area as well as running a limited number of Google ads (which appear in relevant Web searches using Google). In addition, the project has asked the nonprofit organizations with which it works to market the project to their members using e-mail blasts, newsletters, and Web ads. An early attempt to use direct mail, both postcards and letters, to recruit a random sample of panelists in New York and the nation proved to have a very low response rate and was not cost effective to continue. Thus, to recruit participants, the project

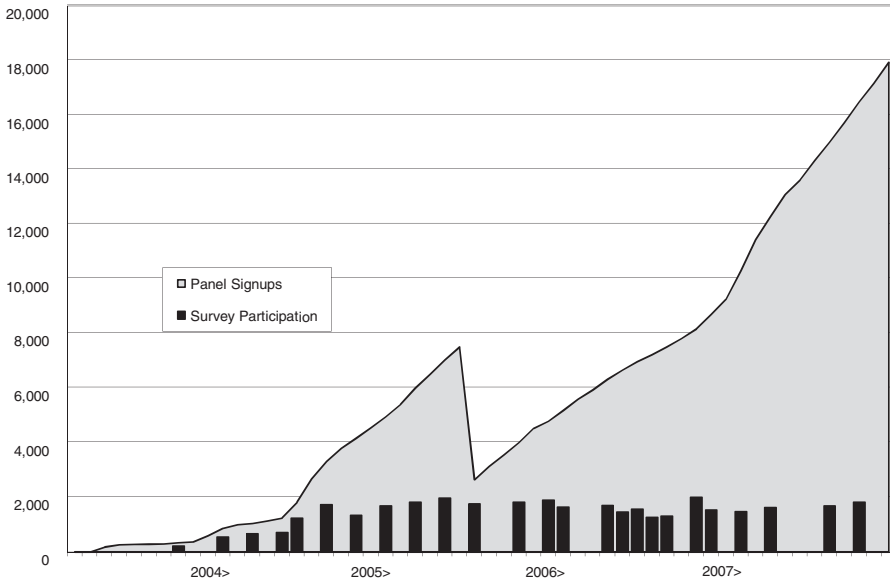


Figure 1. Total Signups and Survey Participation

has relied mostly on on-line directories, Craigslist, Google ads, and cooperation from nonprofit organizations with which it works.

Figure 1 shows the growth of the panel from the middle of 2003 through the end of 2007. The sharp dip in the number of signups in the summer of 2005 reflects the migration of the panel to a new software system (QuestionPro), which, for various reasons, required that panelists individually reenlist in the panel.¹ The number of initial signups has grown steadily to a cumulative level of about 18,000 by the end of 2007, including 1,000 signups from New York City (according to results of a baseline questionnaire). However, some of these initial signups fail to verify their membership in the panel, meaning they do not complete the double opt-in process by replying to an e-mail confirmation message. This double opt-in process is a standard practice of panel management that ensures that people do not sign up with someone else's e-mail address, although sometimes it creates confusion or technical glitches, and confirmation messages can get trapped in spam filters. Thus, only 15,556 of the current (at the time of this writing) 18,164 signups have verified their membership in the panel. It is not possible to track this verification rate over time, but it is reasonable to assume that this rate was about the same throughout the history of the panel. The panel has experienced relatively low attrition rates, with only about 500 members unsubscribed from the panel (with data available from the summer of 2005 when the new software system began recording attrition), even though automatic unsubscribe links are included in e-mail contacts with the panel. This low rate of attrition can perhaps be

attributed to the fact that, in comparison to many market research panels, project surveys are short, fairly interesting, and not that frequent (about one survey every two–three months).

Although the panel is growing and the attrition rate is low, the survey participation rate is clearly declining over time, as Figure 1 indicates. The number of panelists participating in surveys, clicking through to the on-line questionnaire and completing it, has remained below 2,000 despite steady growth in the number of signups. This trend is somewhat puzzling, and the project is currently investigating it further. Many factors are known to affect the level of participation in surveys, such as the time of year, incentives, time requirements, and the topic of the survey (Dillman, 2007; Groves, Dillman, Eltinge, & Little, 2001). There are also possible technological explanations related to e-mail deliverability, spam filtering, and the compatibility of Web-based surveys with various Web browsers. However, it may be possible that panel fatigue, as it is sometimes called in the market research industry (Smith & Brown, 2005), is becoming a factor in the project. That is, people may join, participate in one or two surveys, and then stop responding to further survey invitations even though they do not unsubscribe. Although it is difficult to estimate with precision (because of changes to the project's software system in 2005), it seems that about one-third of the participation in recent surveys comes from longer-term panelists who have been participating in the project's surveys over a year or more, with the remaining two-thirds coming from newer panelists.² Still, it will be important to learn more about this nonparticipating segment of the panel.

Table 1 shows the basic geographic and demographic profile of the panel for the most recent (at the time of writing) survey completed in August 2007, in comparison to U.S. Census figures. Both weighted and unweighted panel profiles are shown. Note that the project uses a simple post-stratification weighting method, which involves weighting the sample first geographically and then demographically by age, sex, race-ethnicity, and income.³ Focusing on the unweighted results for the nation as a whole, the New York emphasis in recruiting is clear, as New Yorkers make up 11.9 percent of the panel but only 2.7 percent of the U.S. population. For this reason, the unweighted distribution by region is also skewed toward the Northeast. The Midwest is also somewhat overrepresented in the panel for reasons that are not entirely clear, and the South and the West are both underrepresented. Weighting the data helps bring both the New York City distribution and the regional distribution into closer alignment with the U.S. Census (but because of the need to trim the weights, this realignment is not exact). Turning to the demographic profile, the unweighted panel clearly includes disproportionately more whites and fewer blacks and Hispanics than the U.S. population. The unweighted panel also includes about twice as many women as men, perhaps not too surprising given the frequently observed tendency of women to participate more often than men

Table 1. Basic Demographic Profile of the Panel (August 2007)

	<i>Nation (n = 1,516)</i>			<i>New York City (n = 180)</i>		
	<i>U.S. Census</i>	<i>Panel Weighted</i>	<i>Panel Unweighted</i>	<i>U.S. Census</i>	<i>Panel Weighted</i>	<i>Panel Unweighted</i>
New York City	2.7	3.5	11.9	100.0	100.0	100.0
Nation						
Northeast	19.0	20.6	28.4	100.0	100.0	100.0
South	35.6	35.8	29.4	0.0	0.0	0.0
Midwest	22.9	21.8	24.7	0.0	0.0	0.0
West	21.9	21.8	17.5	0.0	0.0	0.0
Ethnicity						
White, non-Hispanic	69.1	70.0	83.5	35.0	34.2	71.0
Black or African American	12.3	12.4	6.9	24.5	22.4	10.2
Hispanic or Latino	12.5	10.1	3.7	27.0	23.9	6.8
Asian or Pacific Islander	3.7	5.0	3.5	9.7	14.9	5.7
Other	2.4	2.5	2.3	3.8	4.6	6.3
Sex						
Female	51.0	51.1	73.5	51.0	53.5	61.9
Male	49.0	48.9	26.5	49.0	46.5	38.1
Age						
18–24	13.4	14.5	6.0	13.1	18.7	3.3
25–44	40.7	39.6	48.7	43.5	50.7	35.0
45–64	29.6	29.6	40.2	27.9	22.3	55.0
65+	16.7	16.3	5.1	15.5	8.3	6.7
Income						
>\$25,000	28.7	29.8	16.9	34.9	22.3	12.3
\$25,000–\$49,999	29.3	30.6	35.1	25.7	21.4	19.2
\$50,000–\$74,999	19.5	18.0	26.5	16.7	25.8	22.6
\$75,000+	22.5	21.7	21.6	22.7	30.5	45.9

Note: Census figures from *American FactFinder, 2000 Census Quick Tables* (U.S. Census Bureau, 2000). Weighted results reflect post-stratification adjustments for region, race, sex, age, and income.

in surveys of various kinds (Groves et al., 2001). Disproportionately more people in the panel are in the middle of the age range, and fewer are under 25 or over 64 compared to the U.S. Census. With respect to income, more of the panel falls in the middle of the income range with fewer in the lowest income category, again compared to the U.S. Census. Weighting brings the panel's demographic profile into much closer alignment with the population.

The right side of Table 1 shows the profile for just the New York City segment of the panel, compared to U.S. Census figures for the city's population. Whites are substantially overrepresented in the panel compared to New York's population, and blacks and especially Hispanics and Asians are underrepresented. Again, women are substantially overrepresented in the New York City part of the panel, although the gender imbalance is not quite as large as it is in the national panel. The New York segment of the panel overrepresents the middle age categories, with adults over 64 and especially those under 25 substantially underrepresented. In terms of income, the New York part of the panel includes disproportionately more upper-income households and fewer lower-income households. Weighting the data brings the panel's profile closer to the U.S. Census profile for New York City, although because of the initially large differences in some categories and the need to trim the weights (combined with a small sample size), the weighting procedure does not do as good of a job at adjusting the New York profile as it does the national profile.

It is important to note that, in addition to basic geographic and demographic characteristics, there may well be other ways that the panel differs from the general adult population of New York and the nation that can influence survey results. For example, results of a brief baseline survey used at signup, as well as results from various studies conducted over the years using the panel, suggest that the panel includes a disproportionate number of frequent Internet users as well as those who join other on-line panels and participate in other kinds of on-line research. The panel members also seem to be more interested in politics and public affairs and somewhat more liberal than the U.S. population as a whole. Thus, despite the weighting of the data by basic geographic and demographic factors, it becomes important to test the validity of results from the panel for assessing substantive issues about government and society.

Testing the Validity of the Panel

A series of specially designed surveys was conducted from March 2006 through August 2007 to test the validity of the panel. It should be noted that *validity* is defined here in relation to survey findings produced by established public opinion polls using industry-standard probability sampling and telephone interviewing methods. It is what methodologists refer to as *concurrent validity*, that is, a

comparison with another measure of the same construct (various public opinions in this case) at the same point in time (Carmines & Zeller, 1979). Although the telephone polls themselves may have their own validity shortcomings in terms of how well they capture “true” public opinion, they nevertheless provide the best, most scientific results available for purposes of comparison.

Thus, the project’s on-line panel was used to replicate some of the better-known tracking questions employed by national polling organizations such as Gallup and Ipsos. For the New Yorkers in the panel, several tracking questions were asked that replicated items used by the Quinnipiac Polling Institute, which regularly conducts political polls of the city’s registered voters. In addition, in May and June of 2006, Baruch College carried out a small pilot citizen survey of New York City adults by telephone, and it was possible to replicate some of these questions using the New York part of the on-line panel, providing further results for comparison. This section reviews the findings of these various validity tests, with a focus on the magnitude and direction of bias in the panel. All of the panel results presented here are weighted results, using the simple post-stratification methods of geographic and demographic weighting described earlier. The published results of the established polls are typically weighted results as well.

NATIONAL POLLS

The first set of validity tests involves comparing the panel with national polls, particularly Gallup Poll and Ipsos Public Affairs, which ask standard tracking questions about government and society. Table 2 shows the questions that were replicated and the results from the panel and from these national polls. The questions include overall satisfaction with the way things are going in the United States, whether the country is going in the right direction (or off on the wrong track), the presidential approval rating, and a question on the direction of the economy (see Table 2 for exact question wording). These questions are more global and perhaps more political than the kinds of questions asked in a typical citizen survey, but they get asked regularly in established national polls and therefore provide the opportunity for a meaningful comparison at a very similar (although not exactly the same) point in time. All results are rounded to the nearest percentage point because the national polling results are published in this form.

These national polls are telephone interview surveys, and thus the *unsure* response category and other voluntary response categories (i.e., response categories that are not read aloud by interviewers but rather volunteered by respondents) present problems for comparison with a self-administered survey (Dillman, 2007; Groves et al., 2004). In fact, research suggests that the voluntary response categories of *unsure* or *don’t know* will be selected much more frequently in self-administered Web surveys than in live interview surveys (Smith, Li, & Pulliam, 2005). Nearly all of the large, double-digit differences between the panel and the

national polls in Table 2 occur in the *unsure* category or in the *same* category for change in the economy, which is another voluntary response category. To address this mode effect, Table 2 also shows the relative distribution with the *unsure* and other voluntary responses merged in proportion. That is to say, an assumption can be made that those who answered *unsure* would, if forced to choose, select another category in proportion to those who did, in fact, express a preference one way or the other. (This assumption is the same as simply defining the *unsure* or other voluntary responses as missing, then recalculating the distribution.) As can be seen in Table 2, several of the later on-line surveys also tried removing the *unsure* category as an offered response for some of the tracking questions presented to the panel.

Turning to the substantive results, the largest differences between the on-line panel and the national polls again appear in the results without any adjustment for voluntary responses. Indeed, the double-digit differences can be found primarily among those selecting *unsure* for satisfaction and direction of the country and especially the very large percentage of the on-line respondents selecting *same* when asked about the direction of the economy. (In addition, disproportionately larger percentages in these voluntary response categories necessarily produce disproportionately smaller percentages in the other categories.) However, with the voluntary responses of *unsure* and *same* merged in proportion (i.e., treated as missing), the results of the on-line panel and the national polls narrow quite a bit. These adjusted differences are in the range of zero to eight percentage points (in absolute value), with the larger differences appearing mostly in the questions about presidential approval and the direction of the economy (both of which are fairly responsive to media exposure, and hence the timing of data collection). It is interesting to note that the panel differences follow somewhat of a directional pattern: Compared to the national polls, the on-line panel seems less satisfied about the direction of the country, less approving of the president, and less optimistic about the economy. To better illustrate both the magnitude and direction of these discrepancies, Figure 2 presents a box plot of the differences from Table 2, adjusting for voluntary responses and including only the differences for the positive side of the dichotomies (i.e., *satisfied*, *right direction*, *approve*, and *better*). The overall pattern of differences appears negative in Figure 2, meaning that the on-line panel tends to be less positive about the country, the president, and the economy than the national polls. Figure 2 also indicates the no-difference or zero baseline (in dashes), bounded by the published margin of error for the national polls (3 percentage points). Most of the differences between the panel and the polls (14 out of 20 differences) are within the published margin of error for these national polls.

It is also important to consider the panel results in relation to trends over time in the national polls. Figures 3 through 6 show the more detailed trends in the

Table 2. Comparison of Panel with National Polls

	March 2006		August 2006		December 2006		March 2007		August 2007							
	Panel	Poll Diff.	Panel	Poll Diff.	Panel	Poll Diff.	Panel	Poll Diff.	Panel	Poll Diff.						
In general, are you satisfied or dissatisfied with the way things are going in the United States at this time? ^a																
Satisfied	25	29	-4	22	28	-7	32	30	2	30	30	30	30	28	24	4
Dissatisfied	58	68	-10	62	69	-7	68	69	-1	71	68	3	72	73	73	-1
Unsure	17	2	15	16	3	13	—	1	-2	—	2	-2	—	3	3	-3
With unsure merged in proportion																
Satisfied	30	30	0	26	29	-3	32	30	2	30	31	-1	28	25	3	3
Dissatisfied	70	69	1	74	71	3	68	70	-2	71	69	1	72	75	-3	-3
Generally speaking, would you say things in this country are heading in the right direction, or are they off on the wrong track? ^b																
Right direction	25	30	-5	22	26	-4	32	28	4	30	29	1	27	27	0	0
Wrong track	59	67	-8	66	71	-5	68	68	0	70	68	2	73	68	5	5
Unsure	16	3	13	12	3	9	—	4	-5	—	3	-3	—	5	-5	-5
With unsure merged in proportion																
Right direction	30	31	-1	25	27	-2	32	29	3	30	30	0	27	28	-2	-2
Wrong track	70	69	1	75	73	2	68	71	-3	70	70	0	73	72	2	2
Do you approve or disapprove of the way George W. Bush is handling his job as president? ^c																
Approve	29	37	-9	28	37	-9	34	38	-5	31	33	-2	31	31	0	0

Disapprove	56	59	-3	57	59	-2	67	59	8	69	63	6	69	63	6
Unsure	16	5	11	15	4	11	—	4	-6	—	4	-4	—	6	-6
With unsure merged in proportion															
Approve	34	39	-5	33	39	-5	34	40	-6	31	34	-3	31	33	-2
Disapprove	66	62	4	67	61	5	67	61	6	69	66	3	69	67	2
Right now, do you think that economic conditions in the country as a whole are getting better or getting worse? ^{2d}															
Better	23	29	-6	19	22	-3	21	35	-14	15	28	-13	17	20	-3
Worse	50	61	-11	57	68	-11	45	54	-9	49	62	-13	50	72	-22
Same	27	8	19	24	8	16	34	8	26	36	7	29	33	6	27
Unsure	—	2	-2	—	2	-2	—	2	-3	—	3	-3	—	2	-2
With unsure merged in proportion															
Better	31	32	-1	25	24	1	32	39	-7	23	31	-8	26	22	4
Worse	69	68	1	75	76	-1	68	60	8	77	69	8	74	78	-4
^a Gallup/USA Today: March 13-16, 2006; August 7-10, 2006; December 11-14, 2006; March 11-14, 2007; and August 13-16, 2007 (Polling Report, Inc., 2008a).															
^b Associated Press/Ipsos Poll: March 6-8, 2006; August 7-9, 2006; December 4-6, 2006; March 5-7, 2007; August 6-8, 2007 (Polling Report, Inc., 2008a).															
^c Gallup/USA Today: March 13-16, 2006; August 7-10, 2006; December 11-14, 2006; March 11-14, 2007; and August 3-5, 2007 (Polling Report, Inc., 2008c).															
^d Gallup/USA Today: March 13-16, 2006; August 7-10, 2006; December 11-14, 2006; March 11-14, 2007; and August 13-16, 2007 (Polling Report, Inc., 2008b).															
<i>Note:</i> Both the Gallup/USA Today and Associated Press/Ipsos Polls have samples of just over 1,000 and margins of error of +/-3 percentage points.															

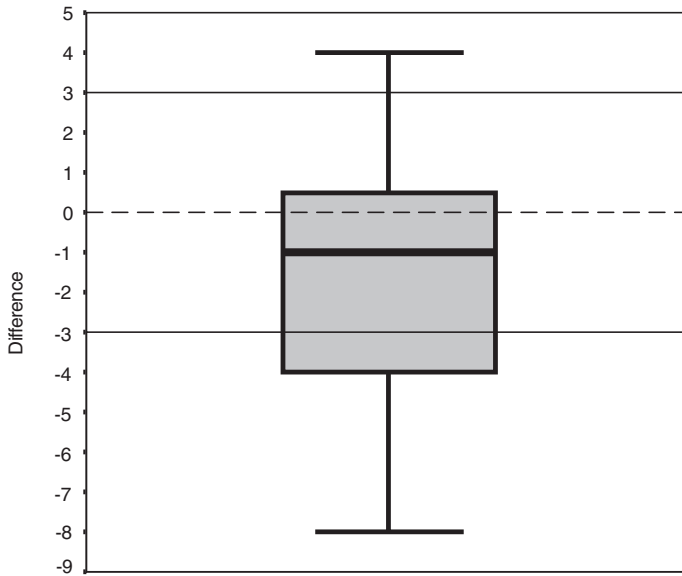


Figure 2. Box Plot of Differences from Table 2 Between the Panel and National Polls

Note: Plot includes 20 differences from only the positive side of the response dichotomy, that is, *satisfied* with the way things are going, *right* direction, *approve* of the president, and economy is getting *better* (see Table 2).

national polls for the key tracking questions, along with bars for the panel results from Table 2 (using the voluntary response-adjusted results). Unfortunately for purposes of analysis, the national trends for satisfaction (Figure 3), right direction (Figure 4), and even presidential approval (Figure 5) remained fairly flat throughout the two-year period covered by the validity testing. For these tracking questions, the on-line panel results appear fairly consistent at about the same level during this period. There is a bit more movement in the polling trend for perceived direction of the economy (Figure 6), with a decline in the outlook evident during the first half of 2006, followed by a short burst of economic optimism in late 2006, and then a gradually more pessimistic outlook throughout the remainder of 2007. This down-up-down pattern is somewhat evident also in the on-line panel results.

NEW YORK CITY POLLS

An effort was made to ask several additional tracking questions only of the New York City residents in the on-line panel, specifically a general *satisfaction* question about New York City as well as an *approval* question about Mayor Michael Bloomberg. These two questions get asked fairly consistently by the Quinnipiac

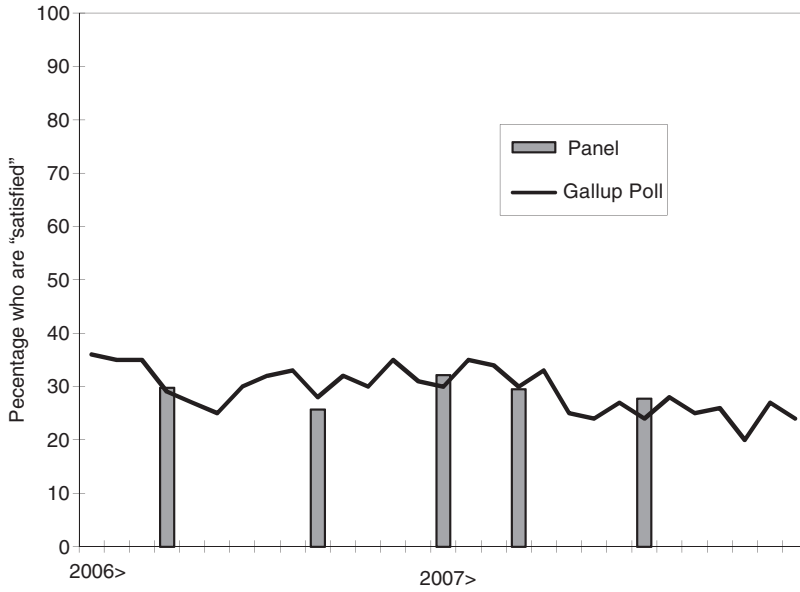


Figure 3. In General, Are You Satisfied or Dissatisfied with the Way Things Are Going in the United States at This Time?

Source: Gallup/USA Today Poll (Polling Report, Inc., 2008a).

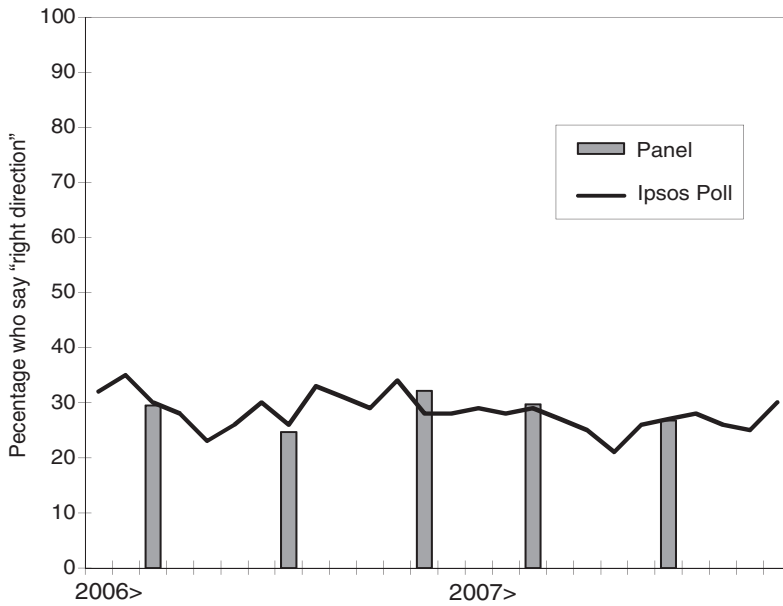


Figure 4. Generally Speaking, Would You Say Things in This Country Are Heading in the Right Direction, or Are They Off on the Wrong Track?

Source: Associated Press/Ipsos Poll (Polling Report, Inc., 2008a).

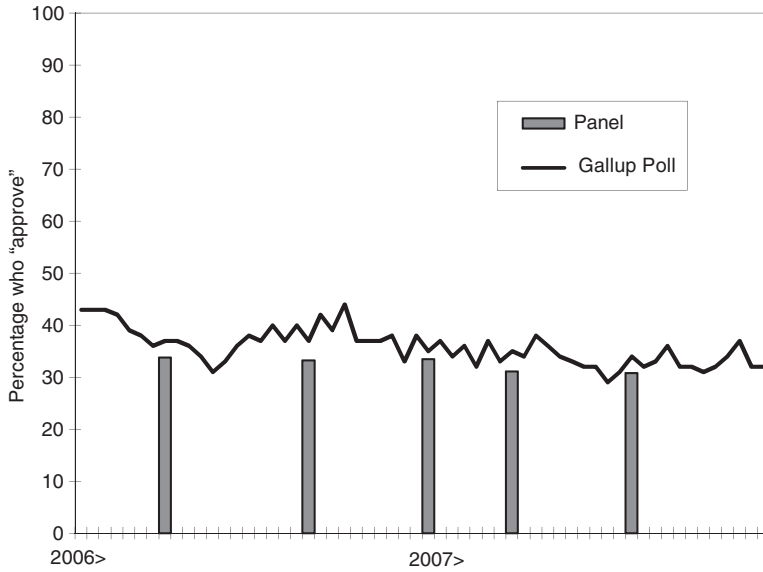


Figure 5. Do You Approve or Disapprove of the Way George W. Bush Is Handling His Job as President?

Source: Gallup/USA Today Poll (Polling Report, Inc., 2008c).

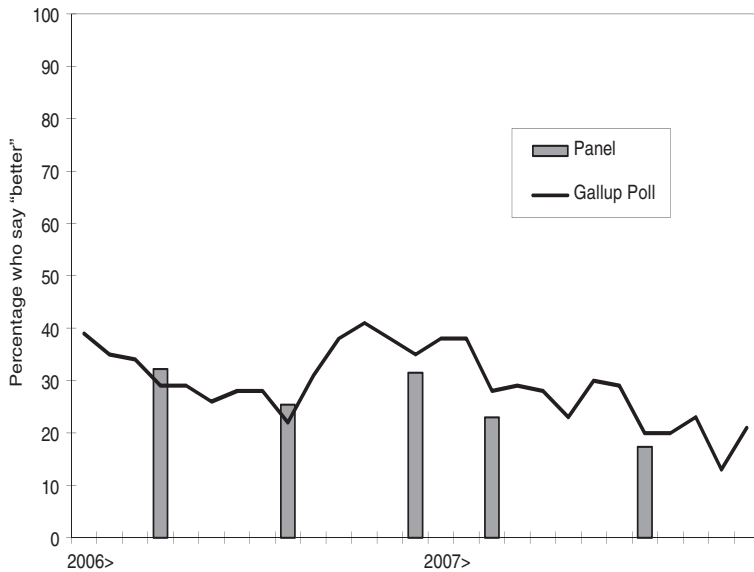


Figure 6. Right Now, Do You Think Economic Conditions in the Country as a Whole Are Getting Better or Getting Worse?

Source: Gallup/USA Today Poll (Polling Report, Inc., 2008b).

Polling Institute, which runs the most frequent polls of the city's population (focused on registered voters for the most part), although not nearly as frequently or consistently as the national polls. For example, the satisfaction question did not get asked by Quinnipiac for an entire year between July 2006 and July 2007. Thus, the comparisons of the on-line panel and the New York City polls are not as close in time as they are for the national polls. Table 3 presents the results, with both the original distributions and the voluntary response-adjusted distributions. The on-line panel results are all weighted using post-stratification weighting by age, sex, race-ethnicity, and income against U.S. Census figures for the city as previously described.

Overall, the differences between the on-line panel and the polls are much larger for New York City than for the nation. When adjusting for voluntary responses and collapsing categories, the average difference in the satisfaction question is 4.3 percentage points,⁴ with the highest discrepancy at 9 points. The average difference in mayoral approval is 9.6 percentage points,⁵ again focusing on the voluntary response-adjusted results, with discrepancies as large as 14 and 18 points in two of the surveys.

An additional opportunity to test the validity of the New York part of the on-line panel presented itself in May and June 2006, when the Baruch Survey Research Unit conducted a pilot survey about citizen satisfaction with local government, based on an earlier survey conducted by Baruch College for the New York City Council (Muzzio & Van Ryzin, 2000, 2001). Unfortunately the full survey was never completed, but results from 165 telephone interviews of a random sample of adults conducted as a pretest provide a useful point of comparison. Thus, an on-line panel survey using some of the same questions was conducted shortly after the telephone interviews were completed, and the results are presented in Table 4. The margins of error for each category are shown, and the significant differences are noted. The biggest differences can be seen in the neighborhood satisfaction question, but significant differences are found in the other questions as well. One reason for the larger difference in the neighborhood question may be that it is more personal, more of a reflection of self, and thus more prone to social desirability bias in the context of a live telephone interview as compared with a self-administered on-line questionnaire (Taylor, Krane, & Thomas, 2005). Still, a total of 13 of the 30 marginal percentages from the on-line panel are statistically different from the telephone survey (at the 5 percent level of significance), with an average discrepancy across questions of 4.5 points.

Discussion and Implications

What do these various results imply for the use of on-line panels as an approach to surveying citizens about local government performance, community quality of

Table 3. Comparison of Panel with New York City Polls

	March 2006			August 2006			December 2006			March 2007			August 2007		
	Panel	Poll	Diff.	Panel	Poll	Diff.	Panel	Poll	Diff.	Panel	Poll	Diff.	Panel	Poll	Diff.
In general, are you satisfied or dissatisfied with the way things are going in New York City? ^a															
Very satisfied	14	14	-1	18	16	2	6	—	—	8	—	—	18	10	8
Somewhat satisfied	46	54	-8	51	51	0	63	—	—	44	—	—	49	54	-5
Somewhat dissatisfied	25	20	5	27	22	5	17	—	—	32	—	—	24	22	2
Very dissatisfied	16	12	4	5	10	-5	15	—	—	17	—	—	10	12	-2
Don't know/no answer	—	1	0	—	1	-1	—	—	—	—	—	—	—	1	-1
With categories collapsed and don't know/no answer merged in proportion															
Very/somewhat satisfied	60	68	-9	69	67	2	68	—	—	52	—	—	66	64	2
Somewhat/very dissatisfied	41	32	9	32	32	-1	32	—	—	48	—	—	34	34	0
Don't know/no answer	—	1	0	—	1	-1	—	—	—	—	—	—	—	1	-1
Do you approve or disapprove of the way Michael Bloomberg is handling his job as mayor? ^b															
Approve	41	73	-32	58	72	-14	70	72	-2	66	73	-7	76	70	6
Disapprove	26	19	7	21	19	2	30	20	10	34	19	15	24	21	3
Unsure	33	8	25	21	9	12	—	8	-8	—	8	-8	—	10	-10
With unsure merged in proportion															
Approve	61	79	-18	73	79	-6	70	78	-8	66	79	-14	76	78	-2
Disapprove	39	21	18	27	21	6	30	22	8	34	21	14	24	23	1

Source: Quinnipiac Polling Institute (2008).

Note: Quinnipiac Polls include just over 1,000 New York City registered voters, with a margin of error of +/- 3 percentage points.

^aSpecific polling dates are March 8, 2006, July 12, 2006, and July 25, 2007.

^bSpecific polling dates March 8, 2006, July 12, 2006, November 14, 2006, March 14, 2007, and August 29, 2007.

life, and related issues? To begin, it is important to acknowledge the limitations of the panel and of the type of validity testing reported herein. Despite steady growth over the years, the panel remains quite small by industry standards, and the participation rate has dropped over time for reasons that are not entirely clear. Although the national panel seems adequate enough to get a fairly diverse and perhaps more representative pool of respondents, the New York City part of the panel remains very small and much more limited. In addition, with the exception of the New York City pretest data (see Table 4), the types of questions used for comparison are somewhat different from the questions usually asked in a citizen survey about local government performance. Still, the standard polling questions employed here do relate to public affairs and government in general and thus provide at least some indication of what types of bias might be expected in citizen surveys using an on-line panel. Finally, the national and New York City polls that serve as points of comparison were all telephone surveys in contrast to the self-administered on-line panel, and thus mode effects are clearly evident in the results. It would be informative in the future to use a probability-sample mail survey, which is also self-administered, as a point of comparison.

Overall, the panel results do differ from the national and especially the New York City polls, reflecting the fact that the panel is not a proper probability sample of the population. With respect to the national results, with weighting and after adjustment for voluntary responses, the differences are mostly small, often within the margin of error for the national polls, and the trends in the panel seem to track moderately well with the national polls. There seems to be somewhat of a negative bias in the panel, compared to the national polls, in the sense that panel respondents are less satisfied, less approving, and less optimistic about the economy. This negative bias may reflect the self-selection of the panel, but it is more likely to be a mode effect, as telephone surveys as well as in-person interview surveys are known to be susceptible to social desirability bias and thus often produce more upbeat or positive answers than do self-administered surveys (Christian, Dillman, & Smyth, 2006; Dennis, Chatt, Li, Motta-Stanko, & Pulliam, 2005). Again, it would be useful to conduct further validity tests on the panel using a mail survey for comparison instead of telephone surveys.

Regarding a focus on New York City, the validity results were less encouraging. At times there were large differences from the reported Quinnipiac polls, and the comparison with the Baruch citizen survey pretest also revealed numerous significant differences. Part of the problem is simply panel size, as the responses from the New York part of the panel are still only in the range of 150 to 200 responses to any one survey. With such small samples, the weighting is less successful and the results can vary substantially from survey to survey. In addition, the recruiting methods differed substantially for the New York part of the panel, with much more emphasis on nonprofit membership lists as opposed to Web directories or other

**Table 4. Comparison of the Panel with Results
from a New York City Citizen Survey**

	<i>Panel</i> (<i>n</i> = 127)	<i>NYC</i> <i>survey</i> (<i>n</i> = 165)	<i>Diff.</i>	<i>Error</i> <i>margin</i>	<i>Absolute</i> <i>diff.</i>	<i>p-value</i>
Overall, how would you rate your neighborhood as a place to live?						
Excellent	14.3	31.5	-17.3*	7.1	17.3	0.32
Good	56.2	40.6	15.6*	7.5	15.6	0.41
Only fair	18.6	18.8	-0.2	6.0	0.1	0.19
Poor	10.9	9.1	1.8	4.4	1.8	0.09
Don't know/ refuse to answer	—	0.0	0.0	0.0		
Overall, how would you rate your city or town as a place to live?						
Excellent	26.1	18.2	7.9*	5.9	7.9	0.18
Good	52.2	52.7	-0.5	7.6	0.5	0.53
Only fair	11.9	18.8	-6.9*	6.0	6.9	0.19
Poor	9.8	7.3	2.5	4.0	2.6	0.07
Don't know/ refuse to answer	—	3.0	-3.0*	2.6	3.0	0.03
How would you rate your city or town as a place for work and economic opportunity?						
Excellent	33.3	33.5	-0.3	7.2	0.3	0.34
Good	33.7	38.4	-4.7	7.4	4.7	0.38
Only fair	23.7	17.1	6.7*	5.7	6.7	0.17
Poor	9.3	7.9	1.4	4.1	1.4	0.08
Don't know/ refuse to answer	—	3.0	-3.0*	2.6	3.0	0.03
Looking back over the last few years, would you say your city or town has become a better place to live, has gotten worse, or is about the same?						
A better place	42.7	32.3	10.3*	7.1	10.35	0.32
Gotten worse	25.9	26.8	-1.0	6.8	0.97	0.27
About the same	31.5	39.6	-8.2*	7.5	8.16	0.40
Don't know/ refuse to answer	—	1.2	-1.2	1.7	1.20	0.01
Considering what people in your city or town pay in local taxes, how good a value are the services provided by local government?						
A very good value	7.2	9.1	-2.0	4.4	1.99	0.09
A fairly good value	48.8	45.1	3.7	7.6	3.68	0.45
Not such a good value	35.1	25.0	10.1*	6.6	10.13	0.25
Not a good value at all	8.9	14.6	-5.7*	5.4	5.72	0.15
Don't know/ refuse to answer	—	6.1	-6.1*	3.7	6.1	0.06

	<i>Panel</i> (<i>n</i> = 127)	<i>NYC</i> <i>survey</i> (<i>n</i> = 165)	<i>Diff.</i>	<i>Error</i> <i>margin</i>	<i>Absolute</i> <i>diff.</i>	<i>p-value</i>
How much confidence do you have in the people running your local government?						
Complete confidence	1.9	4.9	-3.0	3.3	3.0	0.05
A great deal of confidence	25.6	17.7	7.9*	5.8	7.9	0.18
Some confidence	42.5	43.9	-1.4	7.6	1.4	0.44
Very little confidence	21.2	22.0	-0.8	6.3	0.8	0.22
No confidence at all	8.9	9.8	-0.9	4.5	0.9	0.10
Don't know/refuse to answer	—	1.8	-1.8	2.0	1.8	0.02

* Significance at the 0.05 level.

more general approaches. As a result, the New Yorkers in the panel may well be more civically engaged, perhaps more liberal politically, and in other ways distinct from the general population (in addition to being demographically different, as previously noted). This sample issue poses a difficult challenge for the project, as the partnerships with nonprofits in the city was an important feature and a cost-effective method of growing the panel in the New York City area. Perhaps new partnerships need to be forged with a broader range of New York City organizations and institutions, including perhaps city government itself if possible, to recruit participants. Also, it may be necessary to spend more resources on Web advertising and other means of mass promotion of the project, particularly given the size of New York as a community (now over 8 million people).

It might be worth testing the on-line panel approach to citizen surveys in several small or medium-size U.S. cities where it could prove easier to recruit a large local panel, despite a much smaller population. In small cities, for example, it may be less difficult to promote public awareness of the panel and more feasible to obtain the active cooperation of local government. One possibility would be to consider cities that already use the National Citizen Survey, a standardized citizen survey developed by the National Research Center and the International City/County Management Association and conducted by mail in several hundred localities in the U.S. (National Research Center, 2008). These cities have a demonstrated interest in citizen surveys, and the National Citizen Survey—because it is a self-administered survey—would provide a good point of comparison for testing the validity of a voluntary on-line panel. Indeed, Miller et al. (2002) have already done some interesting methodological research comparing mail and Web administration of the National Citizen Survey, in which postcards with the survey URL were mailed instead of paper questionnaires to a parallel random sample. Extending this research by also including a voluntary on-line panel would provide

for interesting and useful comparisons of both sampling and mode effects.

In conclusion, it is important to acknowledge that it is not realistic to expect that a voluntary sample—no matter how diverse its elements, how sophisticated the methods of weighting or adjustment, or how similar the substantive results turn out to be empirically—can accomplish what is achieved by random sampling and its associated statistical theory. As Graham Kalton explained:

The major strength of probability sampling is that the probability selection mechanism permits the development of statistical theory to examine the properties of sample estimators. Thus estimators with little or no bias can be used, and estimates of the precision of sample estimates can be made. The weakness of all nonprobability methods is that no such theoretical development is possible; as a consequence, nonprobability samples can be assessed only by subjective evaluation. Moreover, even though experience may have shown that a nonprobability method has worked well in the past, this provides no guarantee that it will continue to do so. (1983, p. 90)

Kalton (1983) provided a sobering reminder of the limits of all forms of nonprobability sampling methods, including voluntary on-line panels. However, the realities of technological change, modern communications, and the growing costs of traditional modes of data collection require that—at least for some forms of survey research that may not call for the same level of scientific rigor needed, for example, by the major federal health and economic surveys—consideration be given to new, cost-effective alternatives that produce results that are sufficient for their intended purposes. Given the resource constraints on local governments, which operate with very limited budgets for citizen surveys, not to mention the lack of funds to be had by citizen groups and nonprofits that also seek feedback from the communities they serve, on-line panels at least deserve further consideration. With more development and testing, the on-line panel approach to citizen surveys could potentially become a useful tool for city governments, nonprofit organizations, and researchers interested in understanding how citizens view the performance of government and in making government more responsive to their priorities and needs.

Notes

1. The old software system could not successfully export all of the e-mail addresses. In addition, the new system (QuestionPro) allowed for the inclusion of a more detailed baseline questionnaire that all panelists were asked to complete on signing up for the panel. To get baseline information on those already registered under the old system, it was necessary to ask them to re-register for the panel using the new system. This process was done with several e-mail invitations sent over a three-week period during the summer of 2005.

2. For example, 36 percent of participants in the fall 2007 Neighborhood Quality of Life Survey also participated in the earlier spring 2006 Neighborhood Quality of Life Survey; 32 percent of participants in the fall 2006 Neighborhood Noise Survey also participated in the earlier summer 2005 Neighborhood Noise Survey; and 34 percent of participants in the fall 2006 Parks Survey also participated in the fall 2005 Parks Survey.

3. For the national weights, I use a two-step process to calculate the geographic weighting. I first calculate a weight to bring down the disproportionately large number of New York

City residents and then a weight to bring the sample into balance with the four major census regions (shown in Table 1). Then, with the geographic weights applied, the sample demographics are examined and a set of weights for age, sex, race-ethnicity, and income are created. These weights are then combined with the geographic weights to produce the final weight for purposes of national-level analysis. The New York City-level results reflect weighting by demographics only (i.e. age, sex, race-ethnicity, and income) based on U.S. Census figures for the city. Both national and New York City weights are trimmed at .20 and 5.0, with 1.0 representing an original unweighted observation.

4. This is the average of the differences in *very/somewhat satisfied* across three surveys.

5. This is the average of the differences in *approve* across five surveys. When adjusting for voluntary responses and collapsing categories, the average difference in the satisfaction question is 4.3 percentage points.

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