Where have the respondents gone? Perhaps we ate them all

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Abstract

Rising rates of nonresponse are one of the most debated issues in contemporary survey research. While early survey research regularly achieved response rates close to 100%, contemporary telephone interviewing methods in the United States regularly obtain response rates below 10% due to a mix of noncontact and refusals. Existing research has examined a number of factors that explain variation in response rates, yet almost all such work considers survey response as an isolated, independent event. This note aims to stimulate debate by suggesting a paradigm shift in theorizing nonresponse is needed. I diagnose the problem of nonresponse not only as an individual-level, survey-specific phenomenon, but as something larger and more collective: namely, as a common pool resource problem. Because researchers acting independently might each seek to maximize their response rate and achieve intended sample sizes, the common pool resource of human respondents can be prone to overextraction. In addition to thinking about "benefit-cost" explanations for why respondents might respond to a specific survey, considering responses as a shared resource focuses attention on cross-level theory on how the survey field might collectively govern responses from human populations. Rather than testing CPR theory directly, I instead describe why thinking of nonresponse as a CPR problem may be useful, use the United States as a case study to demonstrate the possible scale of response extraction, and leverage findings from CPR studies to suggest directions for future research into nonresponse.

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A low response rate does not necessarily mean survey estimates are biased (Groves, 2006; Keeter et al., 2006; Groves and Peytcheva, 2008). Yet AAPOR rules require researchers to report response rates and ongoing declines in response rates give many researchers pause (Curtin, Presser, and Singer, 2005; Singer, 2006). The best explanation for the individual survey response decision is Singer's "benefit-cost theory" (Singer, 2011). In line with this theory, Singer argues that "reducing the number and burden of general population surveys [. . . would . . .] stem or perhaps reverse the secular decline in response rates that has been observed over the last three decades" (390).

Building on this hypothesis, I argue that the aggregate decline of response rates might well be understood as a common pool resource dilemma (Hardin, 1968; Ostrom, 1990). Unlike public goods that are non-rivalrous (Olson, 1965), common pool resources (CPRs) are desired by multiple appropriators at the expense of competitors. Fisheries are a quintessential example. That the shared resource is subtractable (finite even if abundant) and non-excludable (anyone can harvest it) means "when appropriators act independently [. . .], the total net benefits they obtain usually will be less than could have been achieved if they had coordinated their strategies in some other way" (Ostrom, 1990, 38). As applied to response rates, contacting respondents for one survey can negatively affect other surveys.

Taking the United States as a case study, I demonstrate the risk of a CPR dilemma by estimating a conservative lower bound on respondent extraction. I then outline how considering responses as a CPR generates useful predictions about nonresponse, about the survey research field, and about governance of surveyed populations. Rather than definitely test CPR theory using data on nonresponse, I instead call for debate about the collective role of the survey field and for new research that will help better understand that collective response extraction. Respondents are the survey researcher's fish. Perhaps we ate them all.

Respondents as a common pool resource

The facts of the nonresponse problem in the United States are relatively uncontroversial (e.g., Steeh, 1981; Groves and Couper, 1998; Curtin, Presser, and Singer, 2005; Tourangeau and Plewes, 2013; Dutwin and Lavrakas, 2016): response rates have declined over time (but see Smith, 1995). To illustrate, the response rate for the American National Election Study declined from 77% in 1952 to 50% in 2016. Response rates to Pew Research Center telephone surveys have declined from 36% to in 1997 to 9% in 2016 (Keeter et al., 2017). Refusal rates are also increasing, for example due to concerns of identity theft (Brick and Williams, 2013; Williams and Brick, 2017). Low response rates do not strictly translate into nonresponse bias (Groves, 2006; Gummer, 2017), but debate persists. The question troubling many scholars, including Eleanor Singer, has been: why is nonresponse rising?

The prevailing view is that the individual decision to respond is a function of costs and benefits of participation. Suggested solutions focus on lowering burden through changes in the nature, timing, duration, or mode, or through incentives and clarifying the benefits of participation (Singer and Couper, 2008; Singer and Ye, 2013; Groves et al., 1999). A respondent-centric view is useful but incomplete. Respondents may make decisions to participate in a given survey based not simply on features of that survey but also the broader "survey climate" (Brick and Williams, 2013; Gummer, 2017). While societal-level factors have been repeatedly mentioned in the literature, calls for "[r]esearch on the overall level of burden from survey requests and on the role of that burden in the decision to participate in a specific survey" (Tourangeau and Plewes, 2013) have been met with markedly little empirical advancement.

How much resource extraction is there?

If there is little surveying, previous survey experience will be rare and inconsequential for most individuals. But is it rare? Estimating total surveying is difficult, even in the US where much research is publicly archived. Groves and Couper (1998) show that between the 1980s to 1990s

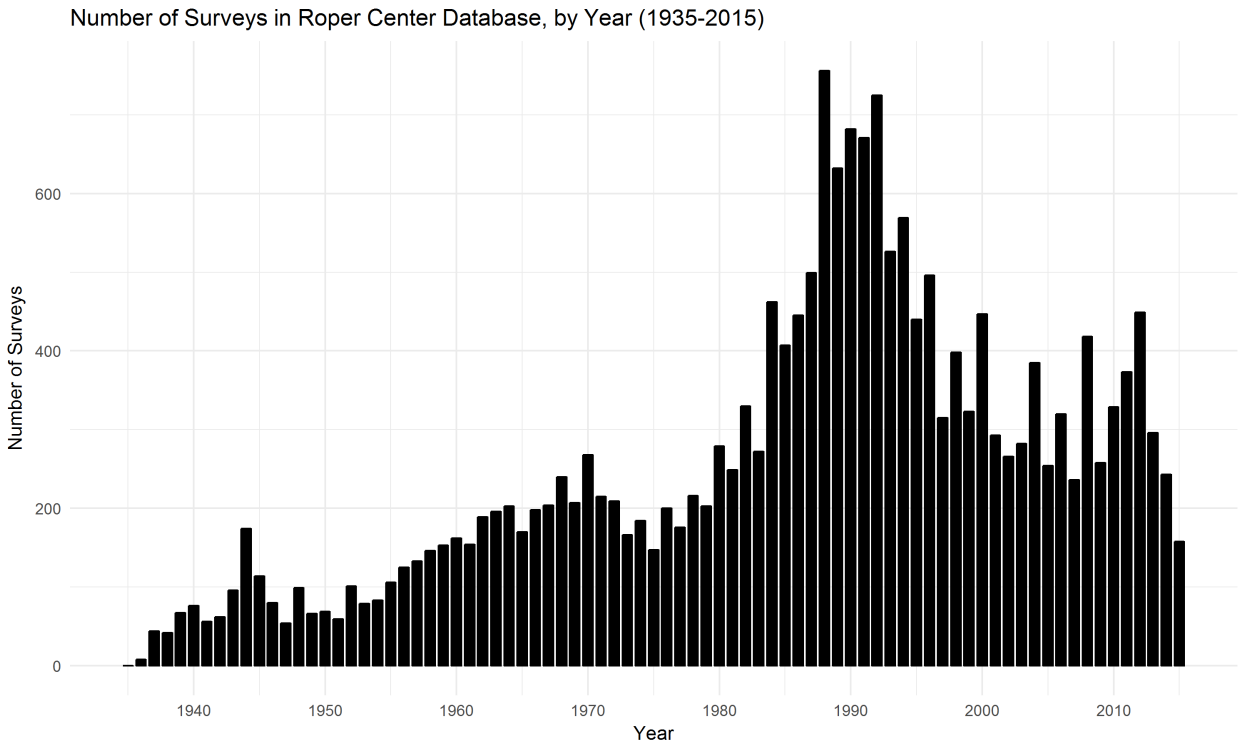

Figure 1: Surveys Recorded in Roper Center Database, by Year

there was a modest increase in the number of people reporting past participation, up to 40% reporting participation in the past year (171). Yet Groves et al. (2009) argue "[d]espite the ubiquity of surveys, in most countries they are not daily (or even frequent) experiences of individual persons" (197). Their estimate of survey experience is from 2001: 60% of respondents report completing at least one other survey. Yet surveys seem more common than they were in the past. How much more common? We don't know. The Roper Center's extensive databank contains no questions measuring previous survey participation. (And we simply have no data from other country contexts.)

Another way to estimate surveying is to combine the number of surveys being conducted annually with sample sizes and response rates. For example, Presser and McCulloch (2011) estimate changes in government surveying, concluding that "surveys increased from 1984 to 2004 at a rate many times greater than the increase in the US population" (1023). But government surveys are only part of all surveying. Figure 1 provides a barplot of the number of US surveys in

the Roper Center's databank since 1935.[1] In the early 1990s, in excess of 600 surveys were being conducted annually. Lower numbers in recent years reflect a lack of archiving — HuffPost Pollster tracked 3,831 polls of Barack Obama's approval during his eight years in office (or 479 per year); 630 presidential approval polls were indexed in 2018 alone.

Conservatively estimating the average sample size of these surveys at $n = 1,500$ means that upwards of $600 * 1500 = 900,000$ survey interviews are conducted annually by commercial pollsters. Factoring in the greater than 10 million government survey interviews per year (Presser and McCulloch, 2011), the conservative lower bound on the size of US survey research is very high, with no less double-digit millions of interviews completed annually. And this ignores all private and academic surveying.

How extraction produces more extraction

The value of thinking of human responses as a common pool resource is that it places attention on the costs and benefits to researchers of extracting responses. If desired sample sizes are fixed, nonresponse increases the number of individuals contacted and may also increase the number of contact attempts made on sampled individuals, driving up survey costs. While a 90% response rate for a target sample size of 1,000 means $\frac{1}{.9} = 1,111$ contact attempts, a response rate of 10% for a target of the same size requires attempting to contact $\frac{1}{.1} = 10,000$ potential respondents. If firms working individually attempt to conduct 600 surveys of $n = 1,500$ in a given year, then under conditions of 90% response rates one million individuals are contacted whereas with a 10% response rate nine million such attempts are made.[2]

Figure 2 demonstrates the implication of nonresponse on total extraction for a range of possible number of annual surveys (of size $n = 1000$) and response rates. If response rates fall below 10% (the present rate in US telephone interviewing), a mere 1,000 surveys per year

[1] These are mostly major, periodic commercial surveys but also a mix of other surveys archived by Roper.

[2] Independent sampling means an individual may be sampled multiple times but this is unlikely in large populations. By contrast, repeated sampling from survey panels may increase burden per respondent while decreasing the number of unique individuals sampled.

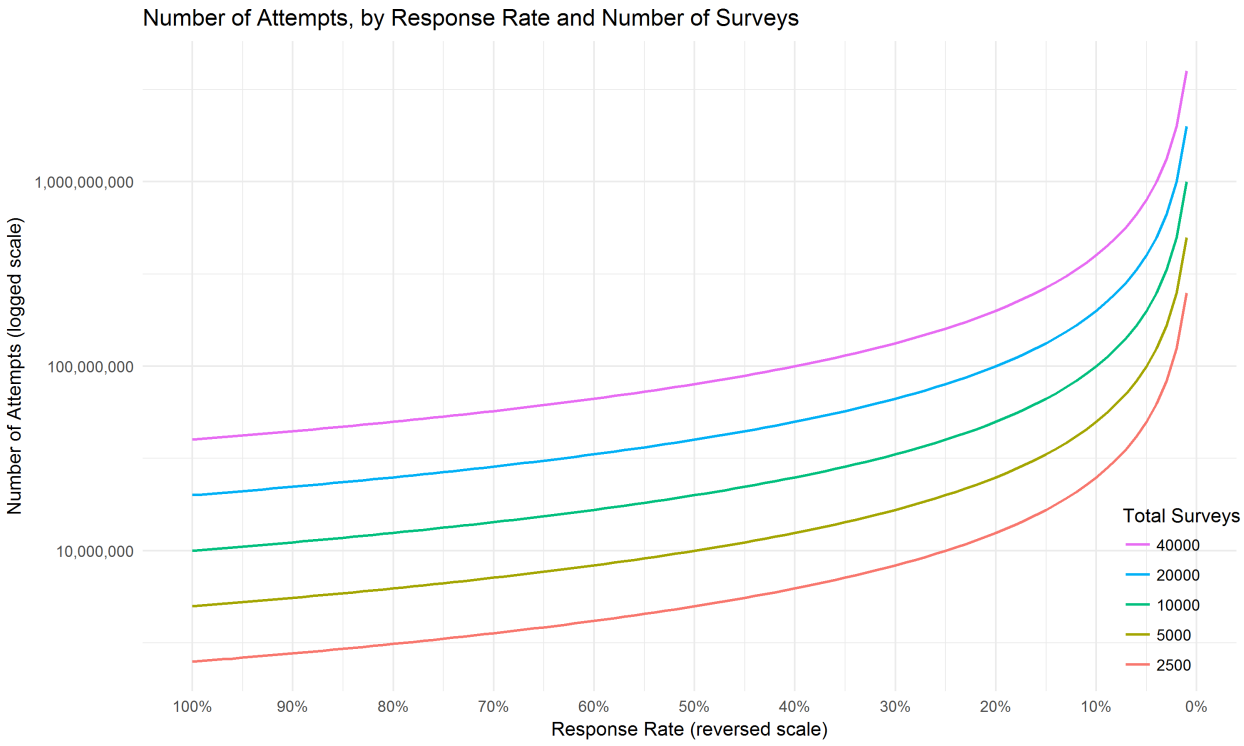

Figure 2: Implied Number of Potential Respondents Contacted to Achieve x Number of $n = 1000$ Samples, by Response Rate and Total Number of Surveys

generates attempts to reach in excess of 10 million phone numbers, 10,000 surveys at the same response rate generate 100 million such actions (the equivalent of 40% of the US adult population). If multiple contact attempts are made per potential respondent, these numbers multiply. A study of the telephone-based Survey of Consumer Attitudes showed that 10 calls were made on average to each potential respondent (Singer, van Hoewyk, and Maher, 2000). Factoring this into the previous estimates means 1,000,000,000 phone calls might be made for a mere 10,000 surveys.

The number of surveys and responses underlying these calculations are conservative lower bounds. Less clear is the degree to which contact diminishes future participation. If individuals only complete one survey per lifetime, 600 commercial surveys plus government surveys would expend the entire US adult population in 12.25 years; 1,000 surveys per year would do the same in about two years. Individuals can and do complete multiple surveys and populations are

replenished (Gummer, 2017), but the decision to compensate for nonresponse through additional extraction is costly for a given survey project and also costly for other researchers because even modest numbers of interviews require ever-more extraction.[3]

Implications for survey practice

Common pool resources are not always over-extracted. But thinking about collective costs expands Singer's decision-theoretic theory of participation into a cross-level framework involving multiple strategic actors who face costs that depend on the costs imposed by other researchers. From this cross-level framework, we can identify several avenues for research to better understand patterns of nonresponse, consider ways of collectively managing survey research, and explain recent phenomena in the history of survey research.

As Ostrom (1990) shows, the first step of coordinating governance of a CPR is measuring total extraction. This article suggests a lower bound for the US of tens of millions of interviews per year. What of other, smaller populations outside the US? The risk of a CPR dilemma requires a much more serious effort at measuring the amount of surveying everywhere. Accounting for all surveying and accounting for how often particular individuals are contacted and participate, across all surveys, is an obvious first step. Similarly useful would be to estimate to degree to which contact, participation, and refusal impact future participation, and the variation in this effect across individuals. Without more detailed data on how much surveying there is and how likely any individual is to be contacted repeatedly, efforts to measure these effects will remain difficult.

A particularly fruitful path for new research relates to subpopulations, like competitive districts, subgroups, twins, or political elites. Oversampling of demographic minorities is often rational for a given survey project but collectively costly if other surveys also oversample the same group. Twins provide particularly desirable statistical properties for certain kinds of

[3]These figures presume that all individuals are eligible for extraction. Rising refusals highlight that some individuals may be permanently (self-)excluded from survey participation, diminishing the denominator against which extraction is counted.

research but are scarce. Particularly concerning are the increasing "audit studies" of the tiny population of public officials (Butler and Broockman, 2011; White, Nathan, and Faller, 2015). While an cost-benefit perspective alone would emphasize incentivizing participation in a given survey, cross-level theory adds that coordination between researchers is needed to maximize sustainability of participation from these groups.

Cross-level theory may also invite concrete changes to survey practice in these areas. Lessons from CPR governance for survey research could include increasing collaboration between researchers in generating samples from populations in ways that minimize attempts to repeatedly extract the same individuals. More elaborate forms of shared governance might involve shared panels of respondents, research pooling through omnibus surveys, and increased use of administrative data linkage. At an extreme, survey research may benefit from a degree of triage, prioritizing some research that maximizes collective benefits to the field and to respondents.

Another strategy for CPR governance is government intervention. Governments might license the use of a CPR and sanction those using the resource without a license. Though not a solution for human populations, governments can provide coordination and data linkage. For example, Sinibaldi and Örn Karlsson (2016) link Icelandic administrative surveys to study how the length of rest period since last survey impacts current participation. Such meta-research is only possible when samples are shared across survey projects. Leveraging government-provided administrative data to reduce survey length and number of surveys (Kreuter, 2012) is another way for governments to facilitate resource management. The substantial risks to privacy and the accompanying legal challenges of doing so merit further consideration, but lessons from contexts outside the US suggest the approach shows promise (see, for example, Kreiner, Lassen, and Leth-Petersen, 2015).

Finally, a cross-level perspective also helps explain trends in the survey research field. In the face of overextraction, appropriators acting in isolation attempt to maximize their own utility. One strategy for doing so is through attempts at resource privatization. We already see attempts at this in survey research. By impanelling respondents (see Callegaro et al., 2014), firms attempt to

privatize the respondent resource and regulate their own extraction. Yet, the right to interview human populations is not something that can be privatized because the resource is ultimately non-excludable. The consequences of these attempts at privatization for other survey researchers and for survey climate merit further research.

Conclusion

Researchers already recognize that survey response depends in part upon a positive "survey climate" (Groves and Couper, 1998), which all survey researchers benefit from as a collective good (see Olson, 1965). Yet this note has argued that there may be value in a substantial paradigm shift in how survey researchers think about nonresponse bridging individual-level benefit-cost theory (Singer, 2011) with theories about the collective impact of efforts to maximize response to any given survey. Common pool resource theory predicts that without monitoring and shared governance, populations will collapse as rivalrous appropriators expend ever more effort to obtain ever smaller shares of a resource. It may be time to think about just how many respondents we have eaten and about how we might work together to sustain future populations.

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