

# Research Brief Series #3: Panel Conditioning: The risk of panel conditioning can be managed in a properly curated panel

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When thinking about potential error in panels, it is logical to worry about the potential effect of the most significant difference between a cross-section and a panel: repetition. Is there an effect from taking multiple surveys over time and becoming in short, a person with accumulated experience in participating in surveys? The logic of this concern is so straightforward that it can be all too easy to think the answer is “yes.” But a significant volume of prior research has struggled to find consistent nor powerful effects. NORC set out to explore panel conditioning in its own probability panel, AmeriSpeak, and as we report below, our findings as well show that panel conditioning has, at best, minor effects, and even those are likely limited to certain situations like repeated measures over time.

## What is Panel Conditioning and Its Potential Effects?

Panel conditioning is the effect observed in a panelist’s survey responses that are influenced by their panel tenure and panel experiences. Panel conditioning occurs if and when respondents alter their opinions, behaviors, and/or survey response habits due to having participated in numerous prior surveys (AAPOR Online Panel Task Force, 2010; Cantor, 2008; Kalton et al., 1989). Notably, panel conditioning effects may degrade data quality or improve data quality. Panel conditioning can potentially improve data quality due to increased familiarity with how

to navigate through online survey instruments, answer different types of questions and response options, and overall, be more expert at navigating the overall survey response process. This familiarity can also increase their trust in the research organizations and willingness to accord more cognitive effort and provide more truthful information (Binswanger et al., 2013; Waterton and Lievesley, 1989). Alternatively, panel conditioning may also decrease data quality when respondents start “satisficing” and learn how to get through questionnaires quickly, often simply to obtain monetary incentives. Based on their experience with prior surveys, panelists may increase their prevalence of refusing to answer questions and/or become more expert in recognizing and responding “no” to branching questions, correctly predicting that affirmative answers will likely require them to respond to additional questions (Eckman et al., 2014; Warren and Halpern-Manners, 2012).

Panel conditioning can also lead to potentially positive or negative influences on repeated measures. For example, panel conditioning can improve accuracy of estimates when respondents have the time to think about the inquired topic (Sturgis et al., 2009; Frick et al., 2004). Panel conditioning however can also potentially decrease the data quality and accuracy of survey estimates when the panelists change their true attitudes and behaviors due to exposure to the topic in past surveys (Halpern-Manners, Warren and Torche, 2017; Yan, Datta, and Hepburn, 2011). Accordingly, for any ongoing large-scale national panel or longitudinal sample, it is important to understand whether and to what extent panel conditioning effects exist

in survey outcomes to improve survey design and potentially implement weighting and estimation approaches to mitigate potential biases and report the implications of such effects on both study outcomes and uses of the data (Amaya, Hatley, and Lau, 2021).

## Measuring Panel Conditioning

While panel conditioning is expected to be more pronounced among longitudinal studies with repeated measures, researchers also worry about panel conditioning in any survey panel given that panelists' familiarity with the survey response process increases throughout their panel tenure. Furthermore, past studies have found that panel conditioning is exacerbated when the subsequent surveys are administered quickly and frequently (Halpern-Manners, Warren, and Torche, 2014). Hence, there is reason to believe that panel conditioning occurs in some fashion in multi-client panels.

The key in assessing panel conditioning effects is separating out panel conditioning effects from other effects such as potential bias that may exist due to panel attrition. In order to do so, some studies have used post-stratification or propensity score weighting and statistical matching in their analysis to adjust for potential attrition bias in the sample of panelists that have longer panel tenure (Pineau et al., 2021; 2022; Struminskaya, 2016). Due to the increase in online panel platforms in the last decade there has been an increase in studies that examine panel conditioning in online panel surveys. The results from these studies are relatively mixed. Many studies found little to no evidence of panel conditioning in online panel studies (Axinn, Jennings, and Couper, 2015; Dennis, 2001; Nukulki et al., 2007; Pineau et al., 2021; 2022; Struminskaya, 2016) while others observed modest panel conditioning in online panel surveys specific to certain question types (such as knowledge questions) that are more susceptible to panel conditioning than others (Bartels, 1999; Binswanger, Schunk, and Toepoel, 2013; Dennis et al., 2011; Kruse et al., 2009; Toepoel, Das, and van Soest, 2009). Having said that, there is a lack of systematic research when it comes to panel conditioning in online multi-client panels and further research is needed to assess the existence of, and if present, magnitude of, their positive and negative panel conditioning effects (Adams, Atkeson, and Karp, 2015).

In order to assess panel conditioning in AmeriSpeak, we most recently fielded a two-wave study and administered a multi-topic survey to our sampled panelists. During the

Wave 1 analyses, we compared survey estimates based on AmeriSpeak measurements on topics such as interest in politics, attitudes related to economic growth, climate change, immigration, gun control, terrorism and homeland security, as well as several political knowledge questions between less and more tenured panelists while accounting for socio-demographics associated with panel attrition. For instance, when it comes to political knowledge questions such as *the party that currently has the most members in the U.S. Senate and the U.S. House of Representatives*, *whether abortion is legal during various stages of pregnancy in respondent's state*, *whether marijuana use is legal in respondent's state*, as well as various questions on respondent's interest in politics, no significant panel conditioning effects were found across panelists with varying levels of panel tenure (Pineau, Bilgen, Dutwin and Vemuri, 2021).

We fielded the same survey almost one year later (Wave 2) and compared survey estimates of panelists who completed both Wave 1 and Wave 2 surveys to further consider panel conditioning effects. Based on these study findings, the impact of panel tenure on item nonresponse and don't know responses were very small and mostly statistically insignificant across waves. Additionally, variance of responses and straightlining behaviors were similarly small and insignificant and largely comparable between Wave 1 and Wave 2 estimates. There was also no evidence that panelists were providing more extreme or more moderate opinions when responding to repeated measures in Wave 2. Overall, we largely found little evidence of panel conditioning effects this extensive study utilizing the AmeriSpeak panel (Pineau, Bilgen, Dutwin and Vemuri, 2022).

## The Center's Perspective

Overall, prior literature and our own research finds that panel conditioning in multi-client panels is not a major, nor even minor, concern. Nevertheless, in situations where prior research has found more notable effects, such as with repeated knowledge-based measurements, researchers should continue to be wary of the existence of such effects and consider ways to mitigate them, such as with longer periods between the repetition of questions and/or a design that ensures, if possible, different panelists across waves.

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