



Program in Survey Methodology

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To the Federal Highway Administration:

This letter is in regards to the Federal Highway Administration's proposal to conduct the Next Generation National Household Travel Survey (Next Gen NHTS): OMB Control Number 2125-0545, ICR Reference Number 202103-2125-001.

As you know, the National Household Travel Survey (NHTS) has for many decades served a critical role in transportation research, providing population inference for a wide variety of analyses beyond the handful of alternatives (such as the commuting variables captured in the Long Form Census, now the American Communities Survey). While costly, the probability sampling design helps to ensure that the NHTS provides accurate inference of the transportation behaviors of the US population, up to the not inconsequential issues of non-response. However, as with all probability samples, there have been no technological advances to drive down costs of the NHTS; indeed, it is likely that costs have risen even after accounting for inflation over the years. In contrast, the costs of other means of data collection have decreased, often dramatically, in recent years. It is our hunch that the proposed Next Gen NHTS design has been made with an eye toward incorporating these cheaper data collection methods – here using a panel frame sample obtained from a probability-based on-line panel who has agreed to receive general surveys when joining the panel. While better than non-probability based online panels, recent evidence suggests that they still suffer relative to probability samples conducted by telephone or mail/internet (Dutwin and Buskirk 2017; MacInnis et al. 2018). This could be due to the fact that the opt-in component of the panel construction leads to selection bias, whereas non-response tends to have less of an impact on bias if kept to a moderate level (Groves and Peytcheva 2008; Rindfuss et al. 2015).

The proposed plan to field both a probability and non-probability survey provides an excellent opportunity for the FHWA to take advantage of the strengths of both probability and non-probability surveys while minimizing the weaknesses of each. There has been quite a bit of activity in the field of combining information from both probability and non-probability surveys in recent years – see Rivers (2007), Lee and Valliant (2009), Elliott et al. (2010), Valliant and Dever (2011), Elliott and Valliant (2017), Chen et al. (2018), Chen et al. (2019), and Rafei et al. (2020), among others. While these approaches have different levels of sophistication and robustness, they share the quality that the probability sample can reduce selection bias in the non-probability sample while retaining the advantage of the larger/cheaper sample size and possibly

better measurement error properties. Our main purpose in writing this letter is to strongly encourage this design, or a variant, going forward in future iterations of the NHTS. Often in these setting the goal is to see whether the non-probability sample is “good enough” to replace the probability sample. While one can choose a number of metrics, particularly post-hoc, to show this is the case, it is rare that the totality of the data collected under both methods will be of even approximately equal quality; even more concerning is that further data collection may not retain its current properties, even in a repeated cross-sectional study. Using a probability survey in conjunction with the panel survey has the advantage of being sure that bias or other errors in the panel survey can be corrected. You have a further advantage here in that, since you are fielding a probability and non-probability sample design together, you can determine which variables may have the most “leverage” in correcting selection bias, and how to “right-size” the probability sample in order to reduce costs or more efficiently allocate resources to the non-probability sample.

Thank you for the opportunity to address the Federal Highway Administration on this important topic. We would be happy to discuss any of these points at greater length if you are interested.

Regards,



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