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Synthetic surveys as early-stage analytical tools for survey work in litigation

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Survey evidence is often probative in litigation, particularly in cases involving consumer perceptions, competitive effects, or behavioral responses.[1] For example, surveys are used to assess consumer confusion in trademark disputes, measure willingness to pay or demand substitution in antitrust matters, and evaluate how consumers respond to alternative product or market conditions.

Despite their usefulness, however, surveys can be expensive and time-consuming, and their results cannot be predicted with certainty before fielding.

Decisions about whether to pursue a survey — and how to design it — often must be made early in a case when facts are still developing, and litigation risk is difficult to assess. This creates a familiar challenge: how to evaluate proposed survey approaches and theoretical constructs before committing substantial resources.

While pilot studies can reduce uncertainty, they can themselves be costly and inconclusive. Moreover, they can become prohibitively expensive and time-consuming when multiple competing hypotheses need to be explored.

Survey design is being reimagined in the era of large language models (LLMs), giving rise to so-called synthetic surveys that may serve as early-stage analytical tools.

Rather than serving as evidence, synthetic samples may function as exploratory instruments — informing decisions about whether and how to proceed with a human survey.

LLMs are advanced artificial intelligence systems trained on massive language datasets that learn statistical patterns in text and generate responses to prompts based on those learned patterns. In doing so, LLMs can internalize and mimic patterns of human behavior and preferences, and reproduce textual patterns associated with how people describe or reason about decisions, as reflected in the data on which they were trained.

The pattern-recognition capabilities of LLMs have the potential to enhance numerous aspects of survey research. For example, from a design standpoint, LLMs could be used to review proposed survey questions and suggest alternatives that are less ambiguous and that minimize bias.

Because small wording differences can influence survey results, synthetic samples may assist researchers in evaluating whether proposed questions are clear, balanced, and non-leading.

At a more advanced level, LLMs could be used to generate synthetic survey responses for individuals defined by demographic or behavioral characteristics, drawing on statistical patterns associated with similar profiles in the training data. More ambitiously, LLMs could be conditioned on detailed interviews with particular individuals to construct virtual "doppelgangers" that approximate those individuals' expressed preferences, attitudes, and reasoning styles.

Recent research illustrates the emerging promise of synthetic surveys as exploratory tools. In 2024, for example, researchers, including those from Google DeepMind, trained language models on in-depth interviews with more than 1,000 real individuals to evaluate how well the simulated agents could replicate those individuals' survey responses and behavior across a range of measures.[2]

The results of the study suggest that, under certain conditions, synthetic survey responses can capture complex patterns of attitudes and behavior in ways that may be useful for exploratory analysis and hypothesis testing. Several studies have replicated this general finding

that LLMs can simulate survey responses at scale and at low cost.[3]

To the extent that ongoing research supports their reliability, synthetic surveys have the potential to serve as early-stage analytical tools to assist experts and counsel in evaluating proposed survey approaches before committing substantial resources.

Synthetic panels may offer advantages in terms of time and scale, as they could be accessed on demand and queried repeatedly without respondent fatigue.

For example, they could be used to rapidly simulate how market participants might react to the disclosure of company-specific information, or how consumers might respond to changes in product attributes or branding. Rather than serving as evidence, synthetic samples may function as exploratory instruments — informing decisions about whether and how to proceed with a human survey.

Used in this way, synthetic surveys may complement and, in some circumstances, partially substitute for traditional pilot studies.

Consider any of the following potential applications:

- When the relevant target population for a survey is small, geographically dispersed, or otherwise difficult to sample at scale, synthetic samples may help assess whether meaningful variation or subgroup patterns are likely to be observable, while reserving the human respondents for the actual survey.
- Because small wording differences can influence survey results, synthetic samples may assist researchers in evaluating whether proposed questions are clear, balanced, and non-leading. Used appropriately, they can support adherence to established survey best practices.
- Synthetic samples may help identify areas where results could be sensitive to survey structure or assumptions, enabling experts to refine survey design so that the findings reflect substantive responses rather than artifacts of survey construction.
- It is plausible that market research firms may eventually offer access to synthetic consumer panels built from anonymized personas. Such panels could function as a "try-before-you-buy" option for traditional surveys, allowing researchers to explore preliminary questions — such as the relative importance of product attributes in an intellectual property dispute — before investing in a full survey.
- Synthetic panels may offer advantages in terms of time and scale, as they could be accessed on demand and queried repeatedly without respondent fatigue. This immediacy may allow legal teams to test ideas, explore alternative framings, or respond quickly to new information as a case evolves.

At the same time, the responsible use of synthetic surveys depends on understanding their limitations. Synthetic models learn from the data on which they are trained. If the underlying survey data contain systematic measurement errors — such as social desirability bias (SDB), where respondents overstate socially valued traits — it remains unclear whether synthetic data preserve, distort, or amplify those biases.

Before synthetic samples are used more broadly as analytical tools, it is critical to understand if or how such biases propagate through generative models and how survey design choices affect downstream results.

Motivated by this concern, we are undertaking a study that uses experimental survey data to examine whether social desirability bias in human survey responses propagates into synthetic survey data, and whether bias-mitigating survey designs improve the validity of synthetic outputs.

By comparing synthetic datasets trained on surveys that differ only in their exposure to an SDB-reducing framing, the study will aim to provide empirical evidence on how measurement quality affects downstream generative modeling.

In this sense, we view synthetic surveys not as a replacement for traditional surveys, but as part of an early-stage analytical toolkit, one that supports better decision-making early in a case.

By supporting the design of independent and unbiased human surveys — enabling experts and counsel to explore assumptions, test sensitivity, and identify potential pitfalls in advance — these tools may reduce the likelihood of costly detours and improve the efficiency of survey-based litigation analysis.

Notes:

[1] For a discussion of the role of surveys in Lanham Act litigation, see Animesh Giri and Steven Herscovici, "The Use of Surveys in Lanham Act Cases," *Landslide* (American Bar Association Section of Intellectual Property Law). For a broader discussion of the use of surveys in intellectual property and class-action litigation, see Lisa Cameron, Daniel McFadden & Pablo Robles, "Price Premium Damages in Product Market Litigation: Issues in Survey-Based Market Simulations," in *Product Liability 2022: Practical Cross-Border Insights into Product Liability*, ed. Adela Williams & Tom Fox, 20th ed. (London: Global Legal Group, 2022); and Greg M. Allenby et al., "Calculating Reasonable Royalty Damages Using Conjoint Analysis," *AIPLA Quarterly Journal* 45 (2017): 233-278. For discussion of survey evidence in U.S. International Trade Commission proceedings, see Steve Herscovici, Pallavi Seth & Haris Tabakovic, "Use of Survey Analysis in Intellectual Property Cases at the ITC" (2022).

[2] Joon Sung Park et al., "Generative Agent Simulations of 1,000 People," *arXiv* (November 15, 2024), available at https://bit.ly/4dBeCCC.

[3] *See, e.g.,* Argyle, Lisa P., Ethan C. Busby, Nancy Fulda, Joshua R. Gubler, Christopher Rytting, and David Wingate, "Out of One, Many: Using Language Models to Simulate Human Samples." *Political Analysis* 31, no. 3 (2023): 337–51. *See also, e.g.,* Shrestha, P., Krpan, Koaik, F., Schnider, R., Sayess, D. & Binbaz, M. S., "Beyond WEIRD: can synthetic survey participants substitute for humans in global policy research?" Behavioral Science & Policy, (2025), 10(2), 26-45. *See also, e.g.,* Carolin Kaiser, Jakob Kaiser, Vladimir Manewitsch, Lea Rau, and Rene Schallner, 2025, "Simulating Human Opinions with Large Language Models: Opportunities and Challenges for Personalized Survey Data Modeling. In Adjunct Proceedings of the 33rd ACM Conference on User Modeling, Adaptation and Personalization" (UMAP Adjunct'25), *Association for Computing Machinery*, New York, NY, USA, 82–86.

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