



How Reliable is Your Consumer Panel Data?

Best Practices in Panel Management

About The NPD Group, Inc.

NPD offers data, industry expertise, and prescriptive analytics to help our clients grow their businesses in a changing world. Over 2,000 companies worldwide rely on us to help them measure, predict, and improve performance across all channels, including brick-and-mortar, e-commerce, and B2B. We have services in 19 countries worldwide, with operations spanning the Americas, Europe, and APAC. Practice areas include apparel, appliances, automotive, beauty, books, B2B technology, consumer technology, e-commerce, fashion accessories, food consumption, foodservice, footwear, home, home improvement, juvenile products, media entertainment, mobile, office supplies, retail, sports, toys, and video games.

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For much of the last century, marketers and consumer researchers have relied on consumer purchase panels for crucial insight into buyer behavior.

Originating from paper purchase diaries collected door-to-door more than 70 years ago, consumer panel research continues to be transformed by innovation and technology. Advances like phone and email surveys gave rise to more nationally representative samples across diverse geographies and demographics. Widespread adoption of the UPC bar code made possible the in-home scanner panel, generating even more precise data on “who buys what.” **All the while, leaps in computing and statistical methods have redefined panel data analysis — powering faster, less expensive, and more widely available insights for the companies investing in panel research to drive their business decisions.**



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More recently, the smartphone age birthed a new type of consumer purchase panel: **receipt panels**. Members of a receipt panel, such as NPD’s Checkout, use a smartphone app to snap photos of in-store receipts and share e-commerce receipts directly from their email in-boxes, chronicling their purchases across industries, categories, channels, and retailers. Technologies like Optical Character Recognition (OCR) and Artificial Intelligence (AI) enable receipt panel companies to track not just the items a panelist purchases, but also other valuable information, including price paid, discounts/coupons applied, store location, payment method, time and date of purchase, items purchased together, and total receipt ring.



It is important to note that receipt panels, regardless of size, are not created equally.

With cloud-based storage solutions empowering panel research companies to amass colossal databases of information about buyers and their purchases, **panel size** (the number of people sharing receipts with a panel) is quickly becoming the key performance indicator (KPI) by which all receipt panels are judged.

It is important to note that receipt panels, regardless of size, are not created equally. When critical business decisions hinge on the accuracy of insights from a receipt panel partner, market researchers must evaluate not only the size of the panel, but also the quality and reliability of insights produced by that panel. NPD’s Checkout panel is among the largest panels in the industry at 1.5 million recruited panelists (and growing daily), but its size is only one of the reasons Checkout is trusted by the largest and most successful retailers and manufacturers in the general merchandise and foodservice industries.



So how should you evaluate the quality and reliability of a receipt panel like Checkout, looking beyond just its size? Before investing in receipt-based research, informed clients evaluate potential panel partners based on answers to three simple questions:

QUESTION 1:

How are panelists recruited and retained?

QUESTION 2:

How is sample selected from the panel for analysis and reporting?

QUESTION 3:

How well does the resulting data from the panel represent the marketplace?

While receipt panels are relatively new to the research industry, NPD’s leadership is long-established in developing and executing stringent panel management methodologies. Decades of experience managing consumer panels uniquely position NPD’s Checkout service to deliver high-quality, accurate insights the world’s leading brands integrate into their most important marketing and business decisions. This paper answers the three questions outlined above, confirming the quality and reliability of NPD’s receipt-tracking panel.

QUESTION 1: How are panelists recruited and retained?

Checkout Panel by the Numbers



CHECKOUT PANEL RECRUITMENT

NPD has recruited more than 1.5 million U.S. consumers to participate in the Checkout panel since the panel’s 2013 launch. A steady stream of new panelists joins through NPD’s ReceiptPal app every day. NPD continuously invests in **targeted panel recruitment**, because adding more panelists doesn’t always increase marketplace representation and accuracy. Naturally underrepresented groups on



smartphone-powered receipt panels (which may include males, older consumers (65+), and very high-income and low-income groups) are targeted through techniques honed by NPD's panel management experts over two decades of online research. These professionals know what works and what doesn't. Additionally, NPD's Research Sciences team oversees all recruitment strategies to avoid potential biases.

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CHECKOUT PANELIST INCENTIVES

NPD's incentive system is generous, leading to very low panelist turnover and strong participation, with panelists submitting an average of 36 receipts per month.

THIS CAREFULLY DESIGNED INCENTIVE SYSTEM ENCOURAGES RESEARCH-QUALITY REPORTING BY NPD PANELISTS:

All receipts are incented equally, regardless of receipt size or location of purchase. This reduces selection biases by avoiding higher rewards on receipts from certain retailers and not others.

The more receipts a panelist submits, the more rewards are earned, encouraging comprehensive receipt capture across all of a panelist's transactions.

Panelists connect their email in-boxes to the app for automated e-receipt scraping. This convenient feature also unlocks greater rewards in the incentive system and ensures a complete omnichannel measurement of each panelist's purchases.

Consistent reporting over time yields the highest panelist rewards, incenting long-term, consistent panel participation.

Fraud detection systems identify and eliminate those who are "gaming the system" (e.g., submitting duplicate receipts or "dumpster diving" for others' discarded receipts). Years of constant improvement related to fraud detection limits misreporting of buyer behaviors on NPD's panel.

PANELIST ENGAGEMENT AND PANEL SURVEYS

Checkout panelists engage with the ReceiptPal app in multiple ways, including sweepstakes and participating in short, engaging surveys. Receipt panels like Checkout offer an attractive sample source for gathering information from targeted buyer groups. This can include people who purchased a specific category or brand, lapsed buyers who haven't purchased from a given store in a while, and even specific demographic groups.

Maintaining a panel of consistently engaged, quality panelists requires more than attractive receipt incentives.



Without proper safeguards, surveys administered to a research panel can easily create bias in panelists' future buying decisions, exposing them to brands or retailers they otherwise wouldn't have known or thought about, or simply implying the availability of additional incentives for purchasing from certain brands, retailers, or categories. **NPD manages its surveys** carefully and thoughtfully to ensure the survey topic doesn't skew the ability to confidently report panelists' purchase behaviors. Additionally, **NPD has tested and refined** the frequency with which individual panelists are invited to participate in surveys to avoid fatigue that could lead to attrition. Finally, a **Survey Governance Board reviews** all candidate surveys and uses its authority to reject any surveys or individual survey questions that have potential to bias the Checkout panel sample.



QUESTION 2: How is sample selected from the panel for analysis and reporting?

While a larger receipt panel provides larger sample sizes that can lead to more detailed and precise insights, a larger panel is better only if the additional panelists are participating well. Not all members of receipt panels share a complete picture of their receipts over time. Long-tenured panelists who consistently share their receipts are essential to delivering the reliable insights NPD clients trust for their business decision-making.

Though new people join the panel every day, only the best reporters are included in the samples used for purchase tracking and behavioral analytics.

NPD SCREENS FOR PANELISTS PROVEN TO BE CONSISTENT, HIGH-QUALITY PROVIDERS OF THEIR RECEIPTS IN THE FOLLOWING WAYS:

New panelists are given a non-reporting "burn-in" period so they have time to learn how the system works and connect their in-boxes and other online accounts to the app.

Panelists' receipt-submission behavior is continuously reviewed; outliers and outright fraudsters are revealed and removed through this screening.

NPD employees, clients, and competitors who have joined the panel (regardless of intent) are identified and filtered out.

Minimum and maximum thresholds on the number of submitted receipts per panelist filter out those who do not share complete purchase activity or share receipts that do not accurately reflect their own purchases.

In addition to connecting their email accounts to the ReceiptPal app, to be included in reporting, panelists must also submit paper receipts each month. Panelists who submit only email receipts are not considered full omnichannel reporters and are removed from reporting.

Data collection errors, such as unreadable receipts and duplicated paper/e-receipts from the same purchase, can lead to misrepresentation of buyer behavior. Those receipts are corrected or cleaned by NPD's system prior to reporting.

Every receipt not successfully transcribed by NPD's OCR systems is manually reviewed.



Because of these screening criteria, when quoting panel size to clients and in the press, NPD generally cites only those panelists whose data is ultimately reported (i.e., those who have met these screening criteria).

AS OF THIS WRITING, THOSE QUOTED SAMPLE SIZES INCLUDE:

350,000

panelists are included in NPD’s monthly omnichannel sample representing U.S. buyer behavior over the past three years (since January 2018).

150,000

panelists are included in the single-month omnichannel sample.

85,000

panelists are included in the annual omnichannel sample, qualifying through sufficiently consistent, complete receipt-sharing over a full 12-month period.

QUESTION 3: How well does the resulting data from the panel represent the marketplace?

Sample bias and other potential skews are natural in consumer research; receipt panels are no exception. Certain demographic groups are simply more likely to participate in panels than others.

To ensure the representativeness of reporting, panelists and their purchases are demographically balanced and projected to represent the U.S. population of adults aged 18+. As an expert in this methodology, NPD has participated in and led industry-wide efforts to improve panel and sample quality at the Advertising

Research Foundation (ARF) and is a founding member of the Council of American Survey Research Organizations (CASRO). A large team of specially trained research scientists carefully monitors the Checkout panel’s composition and trends every month.

NPD is an industry expert and leader in correcting such sample skews and projecting panel behavior to represent the entire marketplace.



NPD’s Checkout panel is projected to represent individuals and reflect the U.S. Census.

Importantly, NPD’s Checkout panel is projected to represent individuals and reflect the U.S. Census. Other receipt panels are balanced to households and designed to represent “primary household shoppers.” With multi-generational households becoming more common as more young adults share a home with parents or grandparents, the notion that a single panelist member can reliably report purchases for all their household members is considered outdated. Likewise, with most adults owning their own smartphone and maintaining their own email in-boxes, it is inevitable that other household members’ purchases will be underrepresented by a household-based receipt panel.



Moreover, while a household-based panel might adequately measure certain grocery, drug, and consumer packaged goods categories where a single household member may make the majority of purchases, this “primary household shopper” projection methodology is suboptimal for measuring consumer purchases within the general merchandise and restaurant industries. A household-projected panel balances female heads of household to represent as much 75% of buyers, for example. This raises significant concerns in categories like technology, automotive aftermarket, home improvement, video games, and foodservice, where male buyers often contribute most of a household’s spending. By comparison, NPD’s individual-based projection methodology represents the nearly 50-50 gender split of the overall U.S. population, ensuring robust measurement of the specialized industries NPD tracks.

NPD’s unique position as a supplier of point-of-sale (POS) purchase data results in unparalleled knowledge of precise, category-level sales volumes in the industries NPD tracks, both in-store and online.

Of course, after controlling for demographic skews, certain behavioral skews may remain within any panel. A panel of smartphone-connected, web-savvy panelists, for example, may overrepresent online purchases.

NPD USES THIS PROPRIETARY POS DATA, ALONG WITH PUBLIC INFORMATION SOURCES, TO FURTHER CALIBRATE SALES DATA AND BUYER BEHAVIORS REPORTED BY THE CHECKOUT PANEL USING A PROPRIETARY BENCHMARKING METHODOLOGY:

Projected panel results are corroborated with NPD’s actual POS sales data utilizing proprietary algorithms. This improves alignment of the final results to the industries and categories tracked.

Other proprietary and public information, such as public financial releases, further inform benchmarking of final marketplace reporting.

Benchmarking is also applied to buyer analytics, enabling more accurate reporting of performance KPIs such as penetration, purchase frequency, spend per buyer, and more.

A final word on The NPD Group’s commitment to panel and research quality

Consumers’ buying habits are shifting faster than ever — they’re spending more online, gravitating to growing retail channels like direct-to-consumer (DTC) and third-party delivery services, and their traditional loyalties are being disrupted by upstart brands and private labels. Retail marketers are quickly discovering “good enough” research methods are simply no longer sufficient. Leaders demand higher quality and more reliability from their research partners.

As you evaluate potential research partners, consider the three questions outlined here. They provide a simple framework for understanding not just the size of a consumer receipt panel like NPD’s Checkout, but also, critically, its quality and reliability.

NPD will continue to earn clients’ business by delivering the consistent, reliable, and trusted insights that lead to successful and profitable business decisions. As NPD invests aggressively in its Checkout panel and the revolutionary technologies behind it, the priorities remain, as always, research quality and reliability.

