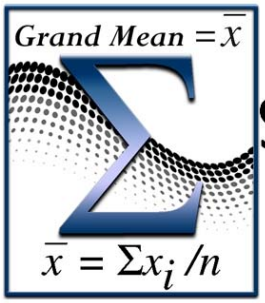


SAMPLE SOURCE AUDITORS™
A DIVISION OF Mktg. Incorporated

Consistency: is your data real or a change in the sampling frame?

Consistency of online samples is the core issue for market researchers. After all, much of the value we provide is in the tracking studies we perform; even one time studies, should relate to some reference and not float in a sea of variability between panels. If your data changes, it is essential to know if the changes are real or the inadvertent product of sample inconsistency.

In the past, we had no reason to fret over sample consistency. At the core of every research career there is a fundamental reliance on probability. Toss a coin, any coin. It will reliably come up half heads and half tails. There is no magic in it; in the coin toss exercise we are matching to known characteristics.

No one would expect to toss a coin a million times in order to prove its "fairness." Market researchers have drawn samples from known commodities for decades always relying on the fairness of a coin toss. Households could reliably be reached by telephone almost 99% of the time and the small fraction of non-phone homes mattered little. Yes, we had to adhere to strict calling regimens, callbacks, refusal conversions and most of all recovering a large percentage of the sample. The key here is that the telephone sample replicated the census because it reached most segments of the population with equal penetration and theoretically equal probability. We knew the composition of the population in advance and could rely on that reference to keep our samples targeted. It was reliable, predictable and repeatable and thus consistent; it earned its name "probability sample".

As refusal rates began to climb and "do not call lists" became good politics, the ability to reach some segments of the population dwindled. The all-sacred concept of a high recovery rate began to crumble. Phone, with an increasing percentage of line cutters and cell phone users, had begun to dwindle, as its ability to replicate the census was impaired.

Why worry about the census now? Where once research was well grounded in a probabilistic framework supported by an underlying census of the population, online market research has moved into a new era, from a probabilistic framework to "working without a net." In the absence of a probabilistic net to anchor samples, non-probabilistic samples can drift without our knowing.

One, now historic, example of this happening was presented by Ron Gailey (IIR 2008), now of Coca Cola, previously of Washington Mutual, who disclosed how 29 studies representing 40,000 online interviews had gone astray due to panel inconsistency. In the WaMu research, the change was due to shifts in respondent tenure that resulted from changes in the panel's constituents over the two-year span of the base research. Gailey's research showed a 30% drop in buyer demand for WaMu's financial products; a result (2006-7) unsupported by sales. His conclusion, after

much study, was that long-term panel members were less optimistic about their purchases than new panel members. Others have since corroborated this finding. The lingering question, now that WaMu is gone, is how the tainted research impacted on critical business decisions.

The affects of hyperactive respondents and other online respondent ills were brushed under the rug. Ron Gailey unknowingly had to use a sample that showed aging affects that took time to evolve.

Ron Gailey had to do a lot of digging to find the root problem within his data. If online samples changed as they aged, then they could not be counted on to provide reliable data through time. And there are a host of reasons that could change them. For example, mergers bring together samples of different sourcing and aging profiles. Management makes decisions influencing the frequency of hyperactive respondents by increasing the number of surveys that they are invited to and allowed to complete. It is evident that a panel that is used many times a month is different from one that has new respondents all the time. Panels differ for a wide variety of reasons, many of which are not disclosed to clients since currently there are no standards.

Luckily, there is a world out there of science that has long ago learned to collect data and make decisions based upon sampling frames that are non-probabilistic. When Charles Darwin hauled himself onto the volcanic shores of the Galapagos Islands he took samples of as many islands as he could reach. For the most part, these isolated little islands were different from one another. Even birds that could theoretically fly from one to the next differed. He didn't have a census to draw his conclusions: He was the census!

Charles took samples of a few islands and wrote a pretty good book. The samples were not grounded in probability theory and he could not generalize from island to island. *Vive la difference!* It was the differences that gave him clues. Each island was an ecosystem unto itself and the differences that species on the islands had to endure shaped them into the specialists that they became.

Our use of online data has much to learn from island biogeography. Think of each online panel as an island. They have similarities but are drawn from different sources. We should not expect them to be identical; we should expect them to be different. Our research has shown them to be quite inconsistent (Gittelman and Trimarchi, Feb 2009 CASRO) and the ARF supports this point. The panels are not interchangeable. The online panels are drawn from different sources, are subject to differing management practices and for a host of reasons yield different results.

Hidden in all of this is the concept of *consistency*. After all, if we measure bias and can't anticipate its shifts over time, then we will not understand which changes are coming from our data or from background noise in the sample. Thus, as the ARF announced in June of 2009, the issue of consistency is the most important area of concern. We must learn to measure not only what the constituent elements of our data sources are but also how they change over time. In other words, we have to enter a new world of consistency analysis.

As we do our research, we must know what the changes in our data mean. Are they the product of shifts in opinions or changes in the sampling frame? To get a grip on this we need parallel studies that document the consistency of our samples.

Consistency is a complex concept. We need to know the differences between panels at any given moment so that we can understand how the panel we use changes through time and events,

confidently switch to a different panel, or use multiple panels in our research. Blending samples is a good way of spreading risk among many to avoid the potential ills of just one. Be prepared for the use of sample blending techniques to become an industry standard for achieving consistency around the globe. Mktg, Inc. has developed almost a thousand blends in eight countries with about a fourth of them within 1% RMS error from the local *Grand Mean.*

Mktg, Inc. has moved onward from its initial study of the American markets and has expanded its research to include over 200 panels in 35 nations. In each, a standard instrument is used in a tracking study that includes a diversity of measures but mostly focuses on buying behavior segmentations. By conducting repeat waves of this consistency study, a local *Grand Mean* is calculated for each market. In addition, using standard quality control techniques an analysis of the consistency of each panel is conducted.

The *Grand Mean* is an aggregate statistic. It is a measurement of consistency that should be reliable and yield a sense of predictable change. No panel represents the universe as well as the census but the sum of many panels represents it better than any single panel alone. Think of the *Grand Mean* as a group of indices that are measured from the sample of each panel over and over again: tracking panel quality through time.

When we relied on the census we assumed that if we matched its numbers through quotas we would be within the realm of reality. We knew that the census was a once in a decade count and had to weight for some changes. The further we drifted from the census the weaker our reliability became. We could not anticipate seasonal changes from the census, we had to calibrate for that.

It is quite predictable that buying behavior will shift on a seasonal basis. It is also predictable that the ice will melt in spring and that the rains will come. We bet on it all the time. They say that the only thing that you can count on is death and taxes…wrong! Predictability is as much a part of consistency as is reliability. Consistency does not mean staying the same but rather having predictable patterns of change. The census did not provide us with that.

If all panels were required by their users to show that they were consistent, we would have both a measure of quality in their samples as well as a new set of indices to replace the absence of a usable online census. Certainly, if all panels provided data on how their members responded to a battery of purchasing questions and the segmentations were tracked, Ron Gailey would have had a reference to consider when his panel's composition began to change. Right now there is no such reference. The census has very little relationship to the online community, and even less to the online community that participate in panels. The offline population is different from those online and the panels themselves are a disparate group with almost no guiding standards. The whole process of belonging to a panel filters out an unknown sector of the population and no one knows how to weight them or what problematic and un-weightable variables might be hidden in the data.

Through Consistent Track® we test panels regularly for consistency: each participates in at least four waves of audit per year. This provides end users with assurances regarding the stability of panel output. Their combined consistency data is compiled to generate a *Grand Mean* within a market as a new metric to anchor panels and tracking studies alike. The composite data provides rich insights into shifting in the sample universe and inconsistencies within individual panels. If needed, source blending using optimization modeling is employed to correct drift.

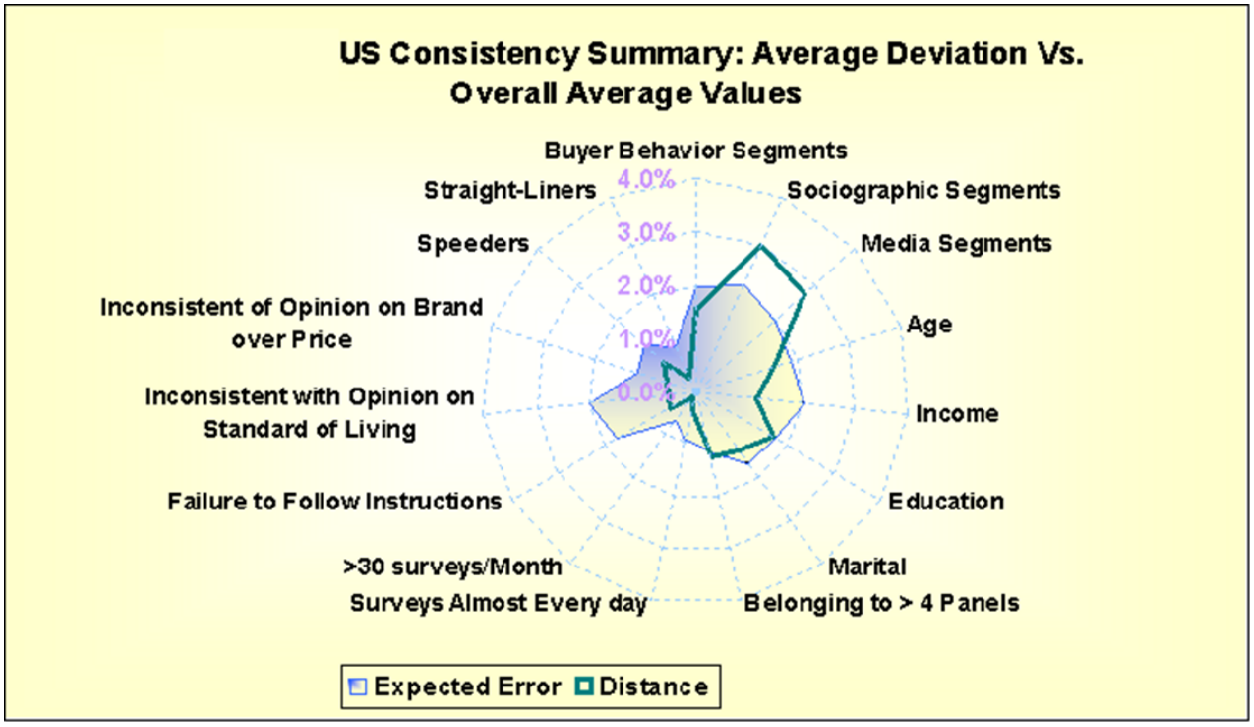
The *Grand Mean* metric itself is anchored to a battery of outside benchmarks (we have collected data on over thirty such measures). Consistent bias is monitored against the metric. We anchor online research, bringing light to a situation that currently lacks transparency.

Each panel company participates in one multi-wave consistency audit. Participating companies are free to distribute the audit report to all of its clients.

We suggest that end user companies require a standardized form of *consistency analysis* from all of their sample source providers.

Are changes in data real or sample shifts?

This "radar" plot summarizes changes over time in a multiple wave consistency analysis. Also shown is the expected sampling error. Values greater than the expected error are viewed as potential important issues of inconsistency.



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