

AUDITING CONSISTENCY AND DATA SOURCE QUALITY

The need for Quality standards of online research data-sources and panels is required by the very nature of survey research. There is no way to interpret marketing research results without the assumption of a quality source. This is particularly important for tracking and global studies where consistency is required as well as validity. The speed of the development of online panels and data-sources seems to have outpaced establishment of quality metrics. However, the practice of conservative quality management can be established by way of effective auditing of consistency and data source quality. These procedures require independent assessments based on standardized instruments and procedures capable of a global reach. Mktg, Inc. has developed procedures and techniques to provide data-source suppliers with this type of quality auditing information. We are intending here to introduce the concept and roughly describe the procedures.

ISO 9000 PERSPECTIVE

Total Quality Management, and its derivative Lean Six Sigma, have become guide rules of modern business practices. For good reason it has become the industrial religion. It represents both a means of reducing costs and providing improved customer value. In Europe only firms who are certified as Quality suppliers are preferred. In regards to quality practices there are two elements that makes it vital to establish consistency, reliability and predictability of online panels. The international standards for quality certification ISO 9001 requires both reliable tracking of “customer satisfaction” through market surveys and that vendors¹, including those supplying survey research support also must comply with quality standards including the measurement of product quality and of necessary control of processes.

When fully compliant online data-sources become available, they will most likely be required or at least favored over uncertified sources. This is both for reassurance of the reliability and stability of survey results and to conform to internal company Quality practices.

MEASURING AND CONTROLLING SOURCES

The objective of auditing data sources focuses on the need to track those characteristics of panels over time that are required of them to provide consistent survey results. We know, for example, that respondents that are determined to be “risky” or “bad” produce different results than the remaining group of “good” respondents². This is shown on the chart below. It was

¹ The Praxiom Research Group Limited (a ISO9000 certification firm) described the clarification in requirement of ISO 9001-2008 from the older ISO9001-2000

“While the old standard said that outsourced processes must be controlled, the new standard goes further by expecting you also to specify the type, nature, and extent of control. ISO 9001-2008 also wants you to think carefully about how you’re going to control outsourced processes. How you choose to control an outsourced process should be influenced by the potential impact it could have on your products...”

² Similar results are cited in a recent white paper by M. Courtright and D. Brien *The Devil is in the Data* published by DMS (2009).

based on analysis of over 6,000 respondents using over 15 panels and a standard instrument.

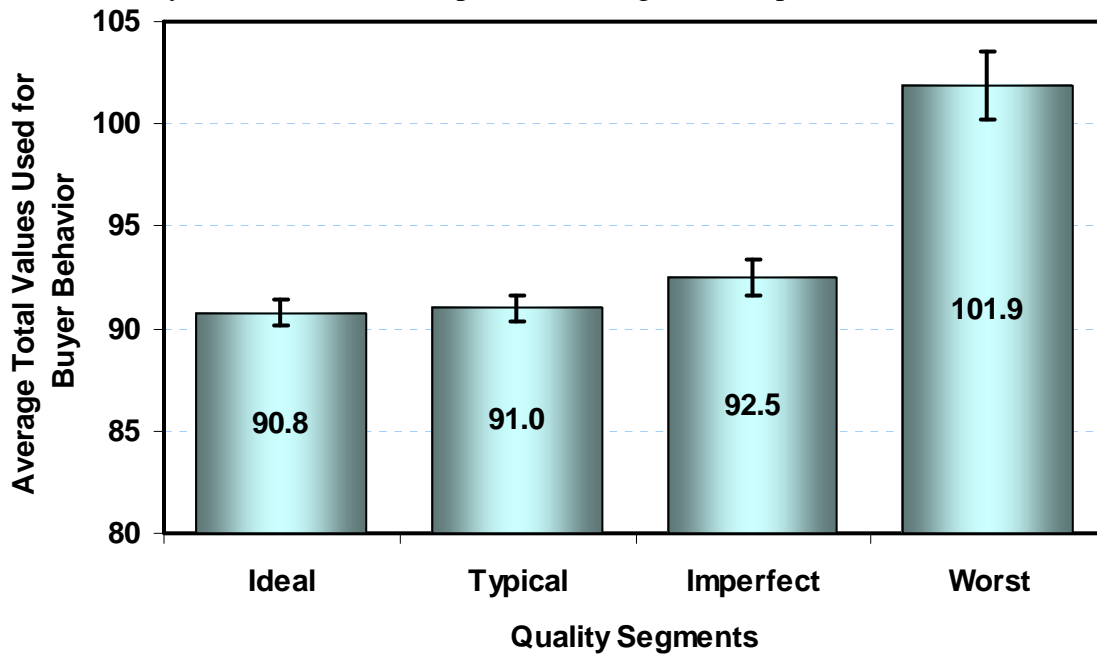


Figure 1, Quality Effects of “Bad” Respondents

It may be self-evident that groups of poorly behaved respondents can affect survey results. More pressing is the inconsistency in their frequency. This can have even more impact on the results. The process of periodic auditing is to track and potentially control these questionable respondents over time. This is the objective of quality control which can be brought into the data source realm through consistency auditing. Below is a typical control chart that would be expected in the routine process of focus on specific groups of “bad” respondents.

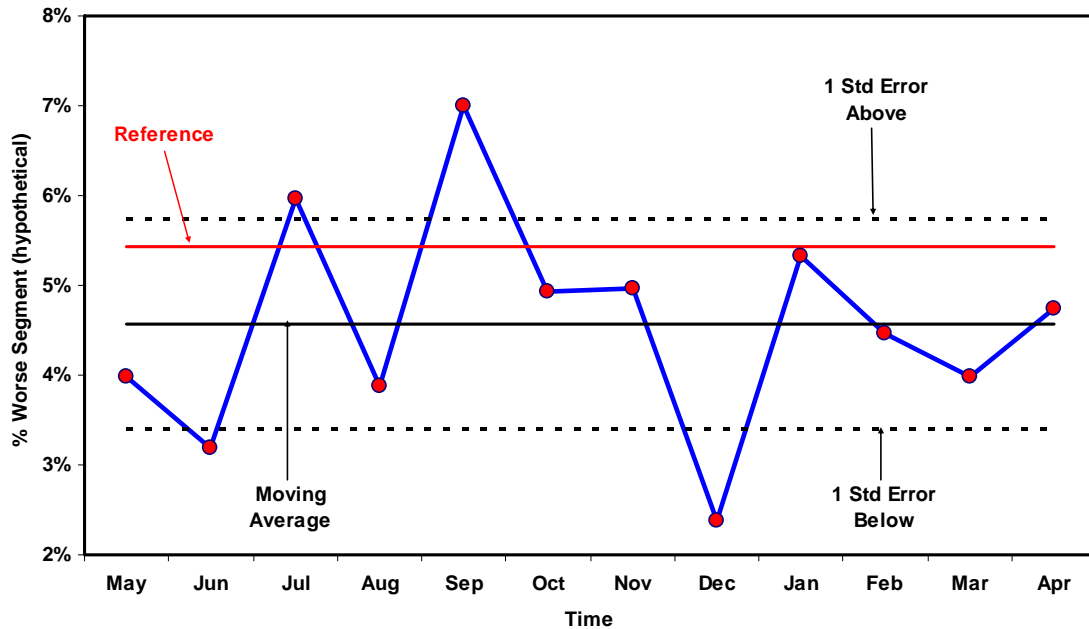


Figure 2, Control Chart of "Bad" Respondents (hypothetical)

Control charts like this are typically used to analyze the process, determining the root- causes and taking further control actions.

PANEL QUALITY REQUIREMENTS

What needs to be measured and tracked? These are the audit requirements that should ultimately be led by customer needs and expectations. However, those expectations themselves are based on having a reliable sample of the targeted population. Our focus is on those things that may detract from such a sample. There are two groups of issues here: (1) faults and perceived deviate behaviors and (2) consistency with a reference to determine reliability.

From a quality management perspective anything that falls outside of expected performance is referred to as a "fault". This does not necessarily mean that the fault results in an unacceptable response but only that it increases the likelihood of such a problem. For the purposes of panel evaluation there are at least nine measures as shown below on the standard Pareto Chart.

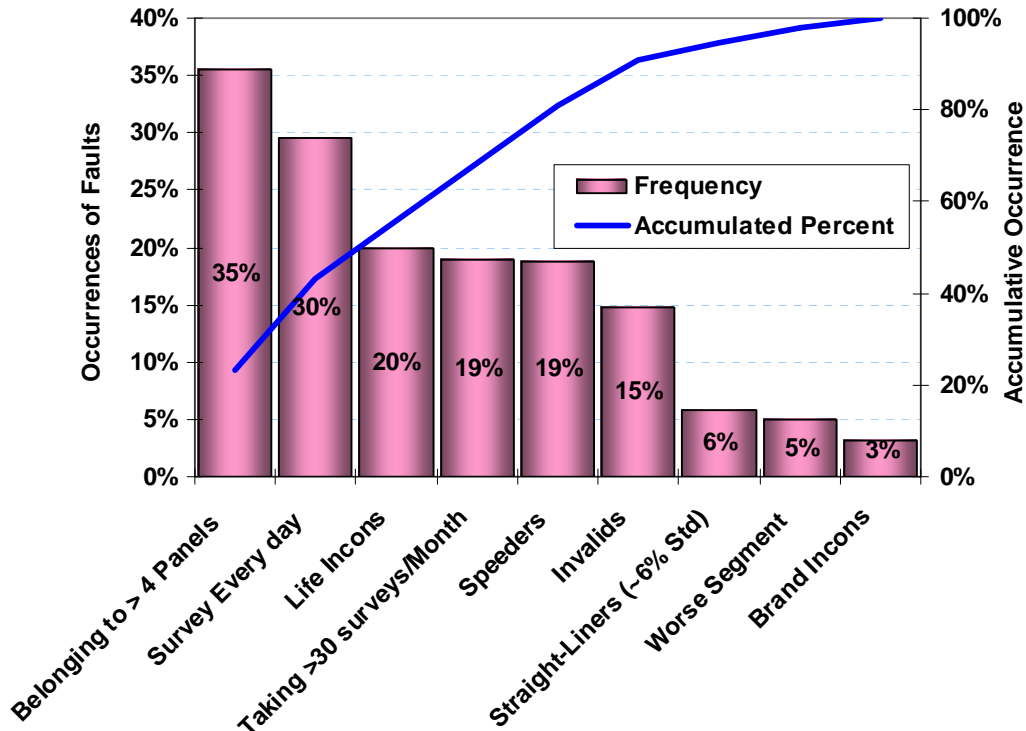


Figure 3, Pareto Chart of Panel Faults

These errors divide into four groups; (1) errors in response, (2) suspected deviate behavior, (3) professionalism and (4) a composite risk measure. These are fairly standard measures. Errors include the failure to follow instructions and inconsistencies in specifically designed questions. Suspected deviate behavior includes “speeders” and “straight-liners. Professionalism is detected by the number of surveys taken over time and panel membership. And the composite measure combines all of these. Each of these form standardized measures³.

STRUCTURED SEGMENTS AND COMPARATIVE METRICS

Comparative metrics focus on consistency rather than performance. Here we are interested in the relative value of characteristics compared to references. Note that these references can include: base-line standards, the historical tracking series, and potentially some external cross-panel references.

These comparisons include fault frequencies, demographics and population standards. We use structured segments to characterize the population based on expected behavior. The present standard instrument allows for three types of structured segmentations focused on Buyer Behavior, Sociographic factors and Media Use factors. Each is based on thirty to forty variables and act as a structural fingerprint of the sample. Note that these distributions vary by country (see the chart below), but are expected to be stable within a panel.

³ These are discussed in a White Paper by S. H. Gittelman, *Metrics for Panel Combinations: a Non Probabilistic Platform*, available from Mktg. Inc. This paper has been submitted to AAPOR (2009) for publication.

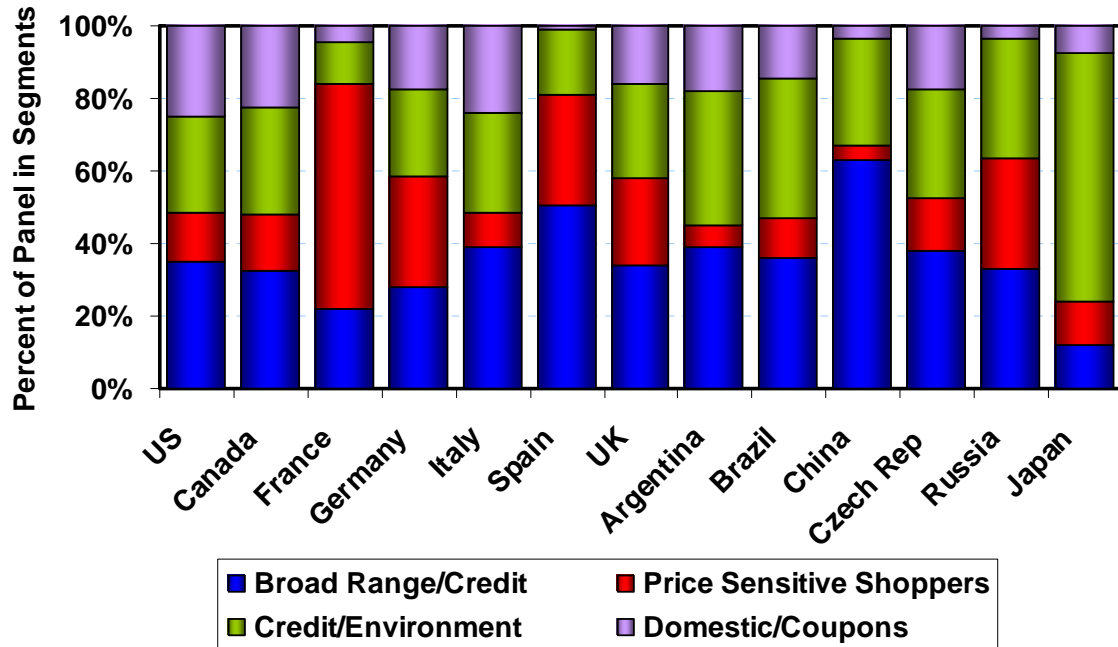


Figure 4, Distribution of Buyer Behavior Segments by Country

For quality control purposes these deviations from references are viewed as faults and are analyzed using standard charts such as the Pareto chart shown below. The size of these deviations can be much smaller than the performance measures. These comparative analyzes once again focus on consistency rather than overall performance. Note that the deviate characteristics, such as professionalism, may not have a great impact on the overall panel performance. However, inconsistency can be expected to be more sensitive.

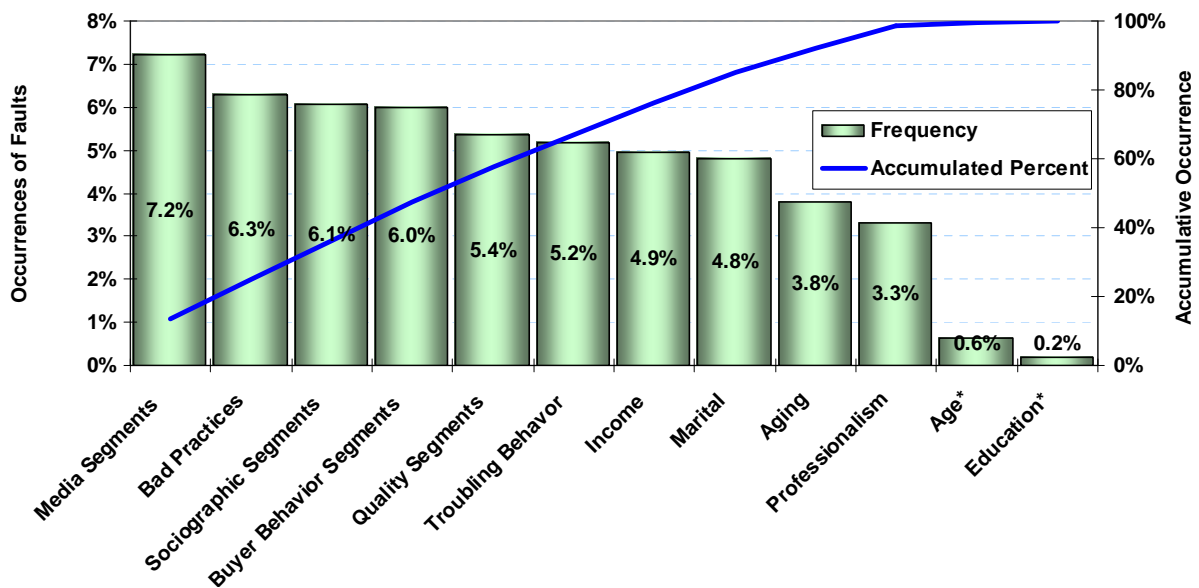


Figure 5, Pareto Chart of Comparative Deviations

STANDARD INSTRUMENT AND PROCEDURE

Maintaining a standardized instrument and procedures are required to assure consistency of results. However, standardization needs to go far beyond than that of assuring consistency of auditing a single panel. As a standardized metric, it provides cross panel and even global comparisons. This allows for the use of optimum mixing of panels to further stabilize samples and to allow for more detailed control.

INHERENT RESPONSE DYNAMICS

In addition to changes in the underlying data-source membership, there are other changes that need to be either captured or controlled in order to understand the consistency, reliability and predictability of the source. These are associated with drift or the gradual change in the underlying measures and seasonality that reflects the periodic changes in the willingness of members to participate.

Drift is an inherent problem dealing with any subjective responses. Demographics and descriptive characteristics should remain stable but the underlying opinions and attitudes may fluctuate over time. The use of structural segmentations which is based on ensembles of attributes is expected to minimize this effect and provide a stable measurement platform even though some of the values may drift over time. Furthermore, the basic data model will be recalibrated annually to correct for any drift over this time period.

Seasonality may or may not be an effect. However, if it is, it will need to be addressed through analysis; separating periodic shifts from longer term trends. Ultimately, seasonality corrections will be applied. These would act both as a correction on the data and as panel management tools to balance against these effects.

THE GLOBAL IMPERATIVE

On-line data-source and panel based research is global. And it is therefore critical that the assessment of panels be based on consistent methodologies which must also be globally applicable. The methods and tools need to be therefore consistent. This requires the standardized instrument, previously discussed, must be available in multiple languages and forms for wide spread and consistent application. Furthermore the methods and approaches that are parochial to one country or region can obviously not be included. In particular, participant validation⁴ which has been promoted as a correction tool can not be used since

⁴ Some data-source vendors such as MarketTools® have promoted participant validation as a solution to panel quality. However, we believe that participant validation provides a weak test of acceptability. It is based on a comparison of participants with an established list. Failure to be on the list, disqualifies the respondent. Unfortunately, this is likely to be more a measure of the quality of the list than that of the participants. In a recent, white paper by MarketTools indicated that almost 25% of their panel did not qualify under these conditions and were considered fraudulent, [Michael Conklin, *What Impact Do "Bad" Respondents have on Business Decisions*, published by MarketTools (2009)]. This is highly unlikely. Not only would it be costly to unjustly remove that large a fraction of the respondents, it also is likely to adversely affect the integrity of the remaining panel.

available comparative lists cover only a very limited region. However, other methods such as source Fingerprinting⁵, which is used to identify duplications, may be used since it does not rely on regional information.

PATH FORWARD

The expected performances of panels and data sources are fluid in their dynamics and must be monitored on a consistent basis. Furthermore, sampling must be adequate to assure good statistical precision and to allow for subpopulations to be examined. A Quality and Consistency program should consist of at least four activities:

1. **Base Line Analysis:** This is an in-depth measurement of the data-source over a number of months to allow for assessment of the characteristics and to establish reliable metrics. This measurement may involve weekly monitoring and eventually consist of many thousands of respondents. Sufficient data is used to allow for examination of segments and of filtering protocols.
2. **Continuing Continuity Analysis:** This is the on-going monitoring program of the data-source. It provides the dynamic view of the panel and direct information regarding control and consistency. The methods of assessment are based on the results of the Base-line analysis.
3. **Sourcing analysis:** If multiple sources are involved in the creation of the collective panel then separate analyzes of the sources may be required to be able to management the panel results.
4. **Market positioning:** Strategically, the performance and characteristics of the panel allow for its positioning in the marketplace. In this perspective, the differential characteristics, those that may differ between data sources represent potential competitive advantages. Capitalizing on these advantages may require targeted optimum blending of data sources to meet specific client needs. For example, while age, income and gender may be governed by quotas a panel may chose to offer a number of blends that achieve certain end user objectives: media purchasing behaviors, education thresholds, upscale income profiles and the like. Considerations for strategic branding may be appropriate at this point.

⁵ Fingerprinting involves measuring the characteristics of the browser source for the responds to a questionnaire. Software then checks to see if this is a duplicate. While this is not restricted to any country or region, it might produce a problem in countries where computer and IP addresses are being shared. However, with mixed panels some mechanism for removing duplicates are likely to be necessary.