

Enumerator and Respondent Challenges in the Context of Straight Lining Issues Using Kurtosis Analysis

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Abstract: *To ensure the representativeness of the data, it is imperative for the researcher to collect data from multiple regions, necessitating the involvement of third-party individuals known as enumerators. Due to the researcher's inability to accompany these enumerators in the data collection process, the phenomenon known as the enumerator effect comes into play. This effect can lead to various outcomes such as identical responses, straight lining, or flatlining of data across the indicators of any particular constructs. Subsequently, the utilization of Microsoft Excel becomes crucial for visually detecting instances of straight lining and conducting subsequent kurtosis analyses to further examine the data. Strategies for mitigating the occurrence of straight lining within the data will also be explored and discussed in this context.*

Keywords: Enumerator Effect, Respondent Frustration, Straight Lining, Kurtosis

1. Introduction

The predicament faced by the researcher arises when conducting a quantitative survey that spans across various regions simultaneously, posing a significant challenge. Consequently, the utilization of enumerators emerges as a valuable solution, facilitating the researcher in conducting data collection concurrently and expediting the process of completing both the Pilot-Test and the Actual Survey within a shorter time frame, as to conform the representativeness of the data gathered.

According to Shakespeare (2024), the benefits associated with conducting a Pilot-Test are manifold and include: (a) assessing the validity of the study; (b) gaining insights into the comprehensive scope of the project; (c) determining the readiness of a product for implementation or the necessity for updates; (d) offering an opportunity for practice; (e) evaluating reliability; (f) assessing timing; and (g) capturing data that may prove useful in the future.

Prior to embarking on data analysis for the Pilot-Test, the researcher must ensure that the data meets the minimum required number of rows for Pilot-Test and that SmartPLS is capable of performing bootstrapping. As suggested by Viechtbauer et al. (2015) calculator (Crutzen, 2024), a minimum of 59 respondents is recommended for the Pilot-Test to achieve a confidence level of 95% and a probability of 0.05. The tool SmartPLS introduced by Ringle et al. (2024) enables the testing of the statistical significance of various PLS-SEM results, including path coefficients, Cronbach's alpha, HTMT, and R² values. However, in cases where the sample

data is insufficient and exhibits straight lining issues, the process of bootstrapping may encounter singularity errors. These errors can be attributed to the presence of identical responses, flatlining or straight lining among the indicators of constructs, which may be influenced by the handling of respondents by enumerators in an inadequate manner.

In the context of this conceptual paper, the researcher aims to investigate the potential relationship between straight lining issues and kurtosis analysis to identify the underlying causes associated with enumerators and their corresponding respondents. As described by Turney (2024), kurtosis serves as a metric for the tailedness of a distribution, reflecting the frequency of outliers. Excess kurtosis indicates the tailedness of a distribution concerning a normal distribution, with tails representing the likelihood or frequency of values that deviate significantly from the mean. Tails categorize distributions into three groups: (a) mesokurtic distributions with moderate kurtosis; (b) platykurtic distributions with low kurtosis and thin tails; and (c) leptokurtic distributions with high kurtosis and fat tails.

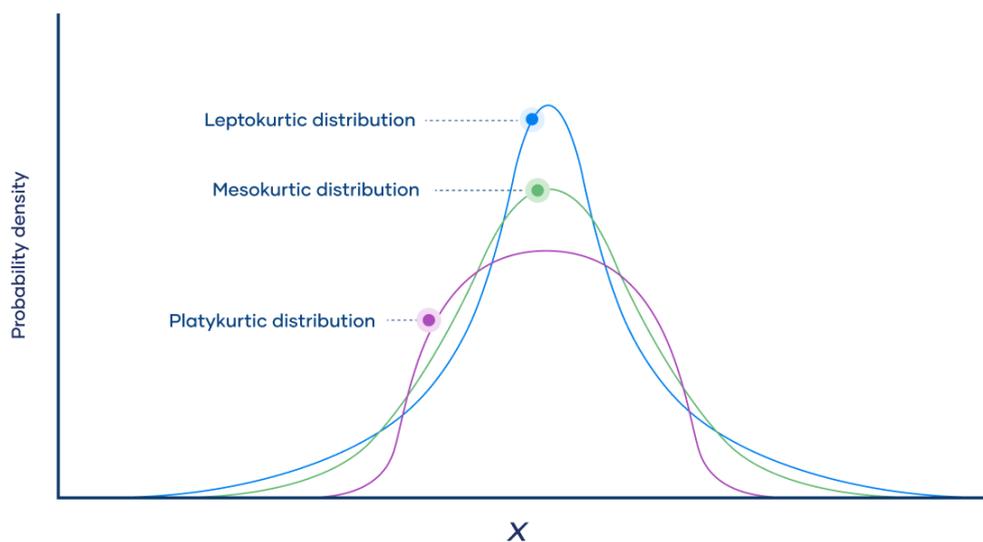


Figure 1: Type of Kurtosis (Turney, 2024)

2. Problem Statement

The process of data collection by means of administering a questionnaire by a third party, commonly known as an enumerator, entails a complex social interaction between the interviewer and the respondent. This interaction is susceptible to various factors that have the potential to influence the quality of the data obtained during the interview, encompassing both direct and indirect effects on the respondent. An example of a passive influence is the respondent's perception of the interviewer based on their visible characteristics, while an active influence could be the demeanor and personality traits exhibited by the interviewer. It is imperative to recognize the significance of assessing how this interaction may impact the accuracy and reliability of the data gathered, especially for individuals engaged in conducting surveys or utilizing survey data. Di Maio & Fiala (2020) have referred to these influences as enumerator effects, emphasizing the need to address them. Consequently, instances of identical responses, straight lining, or flatlining could arise.

Identical responses, straight lining, or flatlining may be attributed to errors made by either the respondents or the enumerators, or possibly a combination of both, as proposed by Thompson (2023). This could indicate a lack of attentiveness on the part of respondents towards a particular set of questions, or it could signify their frustration with an excessively lengthy

indicators, will be excluded from the analysis of the Actual Survey at the end of this quantitative research study.

Table 2: Occurrence of identical responses, straight lining, or flatlining

	B2	PE	EE	SI	FC	HM	PV	HA	TD	BI	TOT
Johor	1	1	1	1	1	1	1	1	1	1	9
Johor	1	1	1	1	1	1	1	1	1	1	9
Johor	1	1	1	1	1	1	1	1	1	1	9
Johor	1	1	1	1	1	1	1	1	1	1	9
Johor	1	1	1	1	1	1	1	1	1	1	9
Penang	1	1	1	1	1	1	1	1	1	1	9
Penang	1	1	1	1	1	1	1	1	1	1	9
Penang	1	1	1	1	1	1	1	1	1	1	9
Penang	1	1	1	1	1	1	1	1	1	1	9
Selangor	1	1	1	1	1	1	1	1	1	1	9
Selangor	1	1	1	1	1	1	1	1	1	1	9

The researcher, in the subsequent step of the analysis process, would proceed to arrange the rows in the dataset according to two key variables: the geographical location of the respondents and the aggregate count of potential matching responses. This categorization is pivotal within the analytical framework under consideration, with a specific emphasis on a threshold of up to 9 (nine) occurrences. Data is collected from 3 (three) different regions: Johor, Penang, and Selangor; with total number of data is n=206, which comprised of Johor n=39, Penang n=95, and Selangor n=72. Consequently, the resulting presentation of data in tabular form would exhibit a structured layout as illustrated below.

Table 3: Frequency of identical responses, straight lining, or flatlining

Number of occurrences	Johor	Penang	Selangor
9 out of 9	5	4	2
8 out of 9	0	1	5
7 out of 9	3	1	4
6 out of 9	4	0	9
5 out of 9	1	5	8
4 out of 9	1	9	12
3 out of 9	4	14	8
2 out of 9	8	23	10
1 out of 9	12	23	12
0 out of 9	1	15	2

There is an available online analysis for kurtosis that researchers can utilize to upload a Microsoft Excel file containing the data intended for analysis. The Microsoft Excel datafile comprises the summary of 9 (nine) constructs indicating the presence of identical responses, straight lining, or flatlining as in Table 2 above. Subsequently, this datafile will be divided into 3 (three) separate Microsoft Excel datafiles based on 3 (three) different regions namely Johor, Penang, and Selangor. These distinct Microsoft Excel datafiles will then be submitted to the WebPower (2024) website separately for further processing and analysis. The outcome of the kurtosis analysis will be presented in a tabular format.

Table 4: kurtosis values for each constructs and for each regions

Construct	Johor	Penang	Selangor
Performance Expectancy (PE)	-1.9592	-1.1884	-2.0043
Effort Expectancy (EE)	-2.0839	-0.6762	-2.0547

Social Influence (SI)	-2.1081	-0.3353	-1.7718
Facilitating Condition (FC)	-2.1081	0.6054	-1.6991
Hedonic Motivation (HM)	-1.0404	-0.9564	-1.6160
Price Value (PV)	-1.5405	-1.6728	-1.9735
Habit (HA)	-1.9592	-1.4646	-1.9353
Transaction Data Awareness (TD)	-1.3187	0.9162	-1.8893
Behavioral Intention (BI)	-1.7166	-0.5143	-1.8893

4. Conclusion and Recommendations

The kurtosis analysis conducted for the state of Johor demonstrates consistently low values across all variables, pointing towards a prevalent tendency among respondents to exhibit straight-lining behavior in their survey responses. This is evident when examining specific variables such as Performance Expectancy (PE) with a kurtosis value of -1.9592, Effort Expectancy (EE) at -2.0839, Social Influence (SI) recorded as -2.1081, and similarly, Facilitating Condition (FC) also at -2.1081. Furthermore, other variables including Hedonic Motivation (HM), Price Value (PV), Habit (HA), Transaction Data Awareness (TD), and Behavioral Intention (BI) showcase comparably low kurtosis values within the range of -1.0404 to -1.7166. This consistent trend suggests that respondents in Johor tend to provide uniform or closely similar ratings across various survey questions, resulting in distributions that deviate significantly from a standard normal distribution. The prevalence of such a high degree of straight-lining behavior indicates potential challenges within the survey administration process in Johor, possibly stemming from issues such as respondent disengagement or survey fatigue. Addressing this issue may require the enumeration team in Johor to undergo additional training aimed at enhancing respondent engagement levels and encouraging a more diverse and thoughtful range of responses. Exploring factors like survey length, question clarity, and respondent fatigue could offer insights into the underlying causes of this straight-lining behavior, thereby enhancing the overall quality and dependability of the survey data gathered from this particular state.

For Penang, in contrast to Johor, the kurtosis values signify a more diverse and less clustered response pattern from participants. The variables exhibit a combination of lower and higher kurtosis values, with Performance Expectancy (PE) at -1.1884, Effort Expectancy (EE) at -0.6762, and Social Influence (SI) at -0.3353, indicating less frequent straight-lining patterns compared to Johor. Notably, Facilitating Condition (FC) displays a positive kurtosis value of 0.6054, suggesting a more peaked distribution, while Transaction Data Awareness (TD) also shows a positive kurtosis value of 0.9162. Other factors like Hedonic Motivation (HM), Price Value (PV), Habit (HA), and Behavioral Intention (BI) still present negative kurtosis values, albeit less extreme than those in Johor. This variability in kurtosis values implies that respondents in Penang offered more diverse and thoughtful responses, leading to distributions closer to or even sharper than a normal distribution. This indicates that surveyors in Penang were more successful in involving respondents and eliciting genuine feedback. The techniques and approaches utilized by surveyors in Penang could be adopted as exemplary standards for other regions, thereby enhancing the overall quality and dependability of survey data.

Similar to Johor, the kurtosis analysis for Selangor reveals low values across most variables, indicating a prevalence of straight-lining behavior among respondents. Performance Expectancy (PE) exhibits a kurtosis value of -2.0043, Effort Expectancy (EE) -2.0547, and Social Influence (SI) -1.7718. Facilitating Condition (FC) and Hedonic Motivation (HM) similarly display low kurtosis values of -1.6991 and -1.6160, respectively. Price Value (PV),

Habit (HA), Transaction Data Awareness (TD), and Behavioral Intention (BI) demonstrate kurtosis values ranging from -1.9353 to -1.8893. These findings indicate that respondents in Selangor frequently offered straight-lining or highly similar ratings across various questions, leading to distributions that are less peaked compared to a normal distribution. This suggests potential issues within the survey administration process in Selangor, potentially stemming from lack of engagement or respondent fatigue. Enhancing enumerator training in Selangor could be advantageous for improving respondent engagement and eliciting more diverse and thoughtful responses. Addressing these concerns and possibly adopting best practices from regions like Penang could significantly enhance the data quality and the reliability of survey results in Selangor.

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