

APPLYING STATISTICAL & QUANTITATIVE METRICS OF DECISION MAKING TO EVALUATE RISK TOLERANCE OF SMALL AND MEDIUM-SIZED ENTERPRISES (SMES)

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ABSTRACT

The investigation intends to see if past encounters of value hazard, request danger and business vulnerability influence the choices made by Small Scale Industrialist and Micro Businessman. The essential information was gathered by talking Small Scale industrialists and Micro Businessmen utilizing survey (Appendix) in New Delhi (Kamla Nagar, Malkaganj, Pulbangash and Dilli Haat) during a week ago of September and the principal seven-day stretch of October 2018. A dice game was additionally planned and played with the respondents. The reactions recorded on the Likert Scale were investigated utilizing rate computation, and recurrence circulation was utilized for examination of open-finished inquiries. Discoveries: Analysis of the information uncovered that respondents were influenced by past encounters of business vulnerability, value danger and request hazard (from least to most). Experience of vulnerability influenced 60 % of the respondents; investigation of reactions did not uncover the explanation behind being influenced by the business vulnerability. 68% of the respondents were influenced by value hazard; 82.35% of them referred to the powerlessness to take care of their expense of creation as the fundamental explanation that drives them to consider past value hazard while deciding. 80% of the respondents were influenced by request hazard; 90% of them considered the previous experience of interest hazard as a method for distinguishing changing interest example of the customer accordingly thought about it while deciding. Consequences of the dice game uncovered that on the off chance that respondents made a benefit in a hazardous circumstance previously, at that point, 90% of them would convey forward a similar system in future. On the off chance that it prompts misfortune; 66.66% of them would search for an alternate system and on the off chance that it came about in no benefit no misfortune; 84.4% of them would convey forward a similar procedure. There is an absence of study that endeavours to discover the components influencing dynamic by makers in India. This examination can be helpful to discover the reasonable and unreasonable components influencing dynamic by makers under danger and vulnerability.

1. INTRODUCTION

1.1. Small Scale Industries (SSI) and Micro Businesses

The MSMED Act, 2006 characterizes the Micro, Small and Medium Enterprises based (I) on the interest in plant and apparatus for those occupied with assembling or creation, handling or safeguarding of products and (ii) on the interest in hardware for ventures occupied with giving or delivering of Services. Industries which are anything but difficult to begin and oversee because of the small size of creation are viewed as little scope businesses. They are set up to oblige the fundamental needs of society. Their expense of creation stays on the lower side because of the accessibility of modest work

as the objective market (have a network) is little. These organizations need a small beginning and working crude material and other capital merchandise.

Table 1. MSME contribution in GVA and GDP in different years

(Figures in RsCrores adjusted for FISIM ³ at current prices)						
Year	MSME GVA	Growth (%)	Total GVA	Share of MSME in GVA (%)	Total GDP	Share of MSME in GDP (%)
2011-12	2583263	-	8106946	31.86	8736329	29.57
2012-13	2977623	15.27	9202692	32.36	9944013	29.94
2013-14	3343009	12.27	10363153	32.26	11233522	29.76
2014-15	3658196	9.43	11481794	31.86	12445128	29.39
2015-16	3936788	7.62	12458642	31.60	13682035	28.77

Source: CSO, Ministry Of Statistics and Programme Implementation

The order of the business as huge or little scope relies upon the pace of creation and the size of the market. An industry with a low pace of creation and fewer workers is a little scope industry. Most governments execute approaches that reinforce the little scope industry segment given the job that these businesses play in monetary turn of events. These businesses have a decent measure of commitment towards the GDP and help in expanding work levels which are appeared in Table 1. Firms here understand a little yearly turnover and accordingly, settle fewer expenses.

Small Scale Industries (SSI) is the foundation of a creating country. The capacity of Small Scale Industries to give business potential at low work cost combined with the high workforce is genuinely useful in work age [1]. The quantity of Small Scale Industries in India has been persistently rising. As indicated by the Economic Survey of India, the number of little scope businesses has expanded from 6.787 in 1990-91 million to 32.56 million out of 2011-12. At the individual degree of plants in the little scope ventures, a ton of choices must be made. The cycle of dynamic is profoundly unpredictable. The financial specialist has since quite a while ago attempted to comprehend the choice-making process. All speculations of dynamic can be classified either as illustrative or as regularizing; the distinct point of view recognizes chiefs as having restricted preparing limit which can prompt creation botches while settling on complex judgment and decisions; the regulating viewpoint is that leaders have boundless handling limit that permits them to comprehensively look at all other options and afterwards choose the best one [2].

Dynamic on occasion can be balanced while at other it very well may be influenced by many variables, and a choice might be made that is not objective. It is influenced by Cognitive Bias [3]. Age and Individual contrasts additionally influence the emotional cycle [4]. Another investigation has demonstrated the function of past encounters in dynamic [5]. Since little scope industrialist is inclined to vulnerability and dangers of the market like each member, choices made under vulnerability of cost and request additionally turns into a significant territory of study. Demand vulnerability prompts a decrease in speculation both arranged and acknowledged, while value vulnerability is inconsequential [6]. Another examination affirms this outcome, also [7]. Indeed, even in circumstances of danger and vulnerability a few areas in the little scope industry will make a benefit and others will make a

misfortune. Prospect Theory brings up that the danger craving of people would be diverse under the circumstances, including misfortune and another circumstance, including benefit [8].

2. EXPLORATION STRATEGY

2.1. Subjects

The exploration is led by meeting little scope industrialists and miniature money manager in New Delhi and playing a dice game with them. With the end goal of information assortment, a survey was readied. Individual meetings were led dependent on this survey going from 30 to 45 minutes regarding each matter in areas of Malkaganj, Kamla Nagar, Pulbangash and Delhi Hatt in New Delhi. Apart from individual meetings, two rounds of self-planned dice games were likewise played with the subjects to acquire the applicable information. The goal was to acquire information from differed segments of the little scope enterprises and small business. The analyst all through the examination had conveyed the poll in the physical (printed) structure just as mechanical structure (which was sent over Whatsapp on spot and questions clarified in detail). Contingent fair and square of training of the subject and its availability to innovation suitable type of the printed/advanced survey was utilized.

2.2. Study plan

The examination Questionnaire which is available in the Appendix comprised of 3 distinct areas. The main area comprised of inquiries for a portrayal of the subject, for example, Name, Age, Sex and Sector of Small Scale Industry/Micro Business to which it had a place.

The second part of the survey (Appendix) consisted of six inquiries, out of which three were subjective. These three inquiries were posed in such a way that they could be set apart on a Likert Scale. When reacting to an inquiry having a Likert Scale, the level of arrangement or difference is noted down. Respondents' answers in asymmetric concur differ scale for a progression of articulations. The exploration utilizes five-level-adjusted and symmetric Likert thing list which includes the accompanying alternatives:

1. Emphatically concur
2. Concur
3. Nonpartisan
4. Oppose this idea
5. Emphatically oppose this idea

When the respondent had denoted his/her answer on the Likert Scale, they were approached to give motivation to their answer or laid it out plainly for every one of the three inquiries that were replied in segment 2 of the poll they were asked to respond in due order regarding what good reason?

In the third part of the poll, the aftereffects of the dice game were noted down. The dice game was as per the following:

Every respondent needs to make a wager of Rs50. When the wager was set, he needed to relegate the accompanying six alternatives:

1. Benefit of 20%
2. Benefit of 10%
3. No benefit No misfortune
4. No benefit No misfortune
5. Loss of 10%
6. Loss of 20%

To the six unique numbers (1, 2, 3, 4, 5, 6) on the dice. When the respondent had doled out these six prospects to every one of the six numbers the dice were rolled. Therefore, the respondent would have confronted either benefit or misfortune or no benefit, no misfortune. After this, the dice would be moved again, and the respondent would be asked again to appoint the six results to the various numbers on the dice.

3. TECHNIQUE FOR INFORMATION ASSORTMENT

3.1. Primary information

The information was gathered by meeting Small Scale Industrialists and Micro Businessmen in New Delhi (Kamla Nagar, Malkaganj, Pulbangash and DilliHaat) during a week ago of September and the first seven-day stretch of October 2018. The Questionnaire and the Dice game was an endeavour to discover if past encounters of value hazard demand risk and business vulnerability influence their dynamic.

3.2. Secondary information

Additional information was gathered from government sites of RBI, Ministry of Finance and yearly report of MSME for keeping up believability and legitimacy.

3.3. Sample size and technique for examining

Thinking about the all outnumber of little scope industrialist and small business in India; the examination populace was enormous. Considering the absence of assets and time, a sum of 27 meetings were taken in New Delhi. 2 out of the 27 meetings could not be finished information henceforth from 25 respondents were investigated. The technique for group inspecting was utilized to gather information.

3.4. Expository devices utilized

For the satisfaction of our target, the three qualitative inquiries with three Why question was posed and was examined by calculation of rate, for example, figuring of the level of the respondent who was influenced by value hazard, request danger and vulnerability and the individuals who were not influenced by the equivalent. The open-finished aspect of this inquiry was investigated by recurrence

circulation, for example, tallying the occasions each reason was referred to and afterwards choosing the explanation that was referred to the most significant number of times. The information of dice game was examined by calculation of rate, for example, processing level of respondents who played with an equivalent/distinctive technique in cycle 2.

4. EXAMINATION OF FACTORS AND REACTIONS

A sum of 27 reactions was gathered out of which two were dismissed on account of insufficient data. Hence the absolute number of reactions considered for examination was 25.

4.1. Analysis of Variable 1: Small Scale Industrialist or Micro Businessman

A significant factor for unwavering quality and culmination of this exploration was to ensure that the respondents were either Small Scale Industrialist or Micro Businessman. The characterization of respondents into these two kinds are introduced in Table 2. Out of the 25 respondents chose, 15 of them were occupied with self-creation of items subsequently were delegated, little scope industrialist. At the same time, the other ten falls into the class of small business. Even though the size of the example is little yet with the detail wherein every respondent has been met in the since time is running short requirement with the absence of assets the information gathered is sufficient to cover the target with which this exploration was embraced.

Table 2. Classification of respondents

Respondent Type	Number	Percentage
Small Scale Industrialist	15	60%
Micro Business	10	40%

Source: Compiled from questionnaire survey section-1

4.2. Investigation of Variable 2: Sector of SSI and Type of Micro-Business

With the end goal of this examination, it was significant that reactions were gathered from different areas of the little scope enterprises and various kinds of small business to have a general portrayal of little scope ventures and small business in the information. Having variety as far as the division of SSI and kind of small business was essential for obtaining a good outcome. This variety was essential for the investigation to yield results that would be relevant to the heterogeneous idea of little scope ventures and small business in India. Table 3 represents the kind of SSI and Micro Business to which our respondents had a place.

Table 3. Type of SSI/Micro-Business

SECTOR OF SSI/TYPE OF MICRO BUSINESS	Numbers	Percentage
Furniture Manufacturing (Wooden+ Steel)	4	16%
Seed Manufacturing	2	8%
Food Services	1	4%
Ice Manufacturer	1	4%
Handicrafts	8	32%
Handmade Paintings	2	8%
Brass Manufacturer	1	4%
Textile	4	16%
Fishery	1	4%
Printing Press	1	4%
Total	25	100%

Source: Compiled from questionnaire survey section-1

4.3. Investigation of reactions - 1: Experience of danger previously

The target of the exploration was to see if past encounters of value risk, demand risk and business vulnerability had any impact on comparable future choices taken by the little scope industrialist and small business in future. For this reason, three specific subjective inquiries alongside three Why inquiries were posed (see area 2 of the poll in Appendix). These subjective inquiries were set apart on a Likert Scale, and their explanation behind denoting every one of these choices was noted down in short sentences.

Table 4. Types of responses

Options	Numerical Value
Strongly Agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

Source – Conversion of Likert Scale responses into the numerical counterpart

The alternatives were given mathematical qualities with the goal that examination between various kinds of dangers as could reasonably be expected. For least predisposition and most remarkable objectivity, the Scale was given qualities which were symmetric and equidistant. The accompanying passage portrays how unique Likert Items were mathematically checked:

Since all the inquiries were posed positively, henceforth a reaction of 'Unequivocally Agree' implied that the respondent was incredibly happy with the boundary. Along these lines, this was given an estimation of '5'. Similarly, 'Unequivocally Disagree' would imply that the respondent is very disappointed with the boundary, so it has been doled out an estimation of '1'.

The mathematical qualities are unintentional with characteristic numbers, subsequently, go from 1 to 5. Table 4 shows the change of every one of these choices into their mathematical partner. The

estimation of these reactions dependent on their mathematical partner for Price Risk, Demand Risk and Business Uncertainty is introduced in the Appendix.

The most significant score for an inquiry could be

$$25(\text{Sample Size}) * 5(\text{Maximum Numerical Value}) = 125$$

The base score for an inquiry could be

$$25(\text{Sample Size}) * 1(\text{Minimum Numerical Value}) = 2$$

1. Value risk

The reactions for the experience of value hazard influencing dynamic that were noted on the Likert Scale appears in Table 5, and the purposes behind the experience of value hazard influencing/not influencing dynamic appear in Table 6.

Table 5. Responses of past experience of price risk affecting decision making

Responses	Number of
Strongly Agree	8
Agree	9
Neutral	2
Disagree	0
Strongly Disagree	6

Source: Compiled from questionnaire survey section-2

Table 6. Reasons for past experience of price risk affecting/not affecting decision making

Respondent	Non-coverage of production cost(AFFECTS)	Fixed price for the product(DOESN'T AFFECT)	Price fluctuation part of the business cycle(AFFECTS)	Others (NEUTRAL)
1	✓			
2			✓	
3				✓
4	✓			
5		✓		
6	✓			
7	✓			
8	✓			
9				
10		✓		
11				✓
12			✓	
13	✓			
14	✓			
15		✓		
16		✓		
17	✓			
18	✓			
19	✓			

2. Request Risk

The reactions of experience of interest hazard influencing dynamic that were noted on the Likert Scale.

3. Break Even point in the business

The reactions of experience of business vulnerability influencing dynamic that were noted on the Likert Scale.

After examination of the reactions, one discovers that each of the three distinct encounters of danger in the past influence the future choices made by little scope industrialist and small business. Be that as it may, the degree to which they influence the future choices are extraordinary and are in the accompanying request (from least to most).

1. Past Experience of UNCERTAINTY

2. Past Experience of PRICE RISK

3. Past Experience of DEMAND RISK

4. Examination of Response 2: Dice Game

The dice game was intended to see how confronting benefit/misfortune/no benefit no misfortune circumstances in the past for example after the first round of rolling the dice influenced their dynamic for example at the point when the respondents needed to assign numbers for the second toss of dice. The result of Round 1 of the dice game and the choices made by respondents for round 2 is introduced.

The investigation of reactions of dice game aided in better comprehension of the conduct of the respondent in understanding their conduct of how past encounters influence their dynamic.

The dice game uncovered the accompanying about dynamic of respondents.

1. At the point when the previous experience of danger brings about benefit then respondents will, in general settle on comparable choices and convey forward a similar business procedure in future.

2. At the point when the previous experience of danger brings about misfortune, then respondents will in general, alter their perspectives and business procedure in future.

3. At the point when the previous experience of danger brings about no benefit/no misfortune then respondents will in general settle on comparable choices and convey forward a similar business technique in future.

5. RESULTS AND DISCUSSION

The examination of our reactions uncovers that the experience of risk influences little scope industrialist and small business. However, how much they get influenced by the three distinct kinds of danger fluctuates. Request Risk, Price Risk Lastly Uncertainty appears to influence them from most to least. This consequence of our brews likeness just as contrasts with [6] who discovered that request vulnerability prompts a decrease in speculation both arranged and acknowledged while value vulnerability is irrelevant. While our aftereffect of interest hazard influencing the dynamic of

respondents is reliable with [6] request vulnerability prompting a decrease in arranged and acknowledged speculation as just the individuals who contemplate experience would modify their future choices of the venture. The second aspect of our discoveries is not steady with [6] as value hazard appears to influence our respondents while as indicated by them, it is inconsequential.

The dice game outcomes likewise demonstrated that whether respondents confronted benefit or misfortune, they would mull over their past while settling on a comparative choice in future. This result is steady with [5] who have shown towards the function of past encounters in dynamic.

In the wake of leading this exploration and investigating the information, the accompanying outcomes have been discovered:

1. Past encounters of value hazard influence 68% of the respondents while settling on future choices. 24% of them stay unaffected while the rest of the 8% are unbiased.
2. 82.35% cannot take care of their expense of creation and subsequently are influenced by past encounters of value hazard. 17.65% feel that it is an aspect of the business cycle and discover changing techniques to be obligatory. The individuals who stay unaffected (all 100%) face a fixed cost for their items.
3. Past encounters of interest hazard unequivocally influence the future choices of respondents'. Demand danger in the past appears to influence the future choices of as much as 80% of the respondents. The staying 20% of the respondents were unaffected by Demand Risk.
4. 90% of those influenced distinguish the changing interest examples of the shoppers as the primary explanation while the staying 10% consider request danger to be an aspect of the business cycle.
5. 60% are unaffected as they produce products on buyer's interest which wipes out interest hazard while the rest 40% face occasional nature of Demand.
6. 60% of the respondents are influenced by past vulnerabilities, while 28% of them are not, and the rest 12% stay unbiased.
7. 73.34% of those casing their future procedures dependent on past vulnerabilities while 26.66% believe it to be an aspect of the business cycle. Those unaffected by the vulnerability of the past had fluctuated reasons.
8. Consequences of the dice game uncovered that on the off chance that respondents made a benefit in the hazardous circumstance, at that point, 90% of them would convey forward a similar methodology in future. They explained that it causes them to manufacture trust in their procedure and besides they were doubter about changing system that needed to lead them to benefit.
9. Aftereffects of the dice game uncovered that if respondents endured a misfortune in the hazardous circumstance, at that point, 66.66% of them would search for an alternate system. Their essential explanation is an absence of trust in a procedure that brought about a misfortune for them. However, 33.33% of them would at present convey forward a similar technique since they had enough confidence in their system to yield better outcomes in future.

10. Consequences of the dice game uncovered that if respondents did not make any benefit nor did he face any misfortune, then 84.4% of them would convey forward a similar system. At the same time, 16.6% would embrace an alternate one. The explanation behind a similar methodology was they needed to give some time and perceive how this technique unfurls in future while for the individuals who transformed it the necessary explanation brought up by them was benefited was their definitive rationale and they need to adjust rapidly.