Supervisor Effects on Employee Knowledge Sharing Behaviour in SMEs

Amitabh Anand[1] · Audrey Dalmasso[2]

Abstract

Despite many studies on abusive supervisors in the organisation and management sciences, very little is known about their influence on employee knowledge sharing. Though the literature finds evidence of abusive supervision in big firms, the existing body of literature studying abusive supervision in SMEs is sparse. This study examines the influence of abusive behaviour by supervisors on their employees' knowledge-sharing practices. We attempt to determine whether the quality or quantity of the knowledge shared is affected. Using a multiple mediation factor analysis, this study suggests that co-worker support and organisational support mediate the effect of abusive supervision on employees' knowledge-sharing behaviours. The results obtained from 165 supervisors to subordinate dyads from 49 SMEs reveal that abusive supervision negatively affects employees' quality and quantity of knowledge-sharing behaviour. Further, the implications and limitations of the study are presented with promising avenues for future research.

Keywords Abusive supervision · Knowledge sharing (KS) · Quality of knowledge · Quantity of knowledge · Organisational support · Co-worker support

Introduction

Knowledge is one of the critical resources for innovation and a source of competitive advantage for firms (Ipe 2003). Knowledge is said to evolve in an interactive process between employees while working on new ideas in firms (Massaro et al., 2016). Thus, many firms are continuing to invest in a variety of knowledge management systems to

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facilitate knowledge sharing among their employees (Lee et al, 2018) On the one hand, managing and sharing of knowledge takes effort, resources, and time (Szulanski 2000) and firms are investing money and mechanisms to facilitate effective knowledge-sharing between people (Kim et al. 2015, Nonaka and Takeuchi 1995). Knowledge-sharing (KS) is an essential process of the knowledge economy (Ngah and Jusoff 2009), and it is more essential to the continued success of the economy (Lin & Chen, 2008). On the other hand, SMEs contribute to economic development (Zonooz et al. 2011) of nations and make effort to remain indispensable in all economies to face global competition through various networks and by utilising their employees' knowledge (Anand and Walsh 2015), i.e. the tacit knowledge embedded in their brains (Cohen and Kaimnekais, 2007). Sharing of tacit knowledge in SMEs happens through medium of people (Desouza and Awazu, 2006) and through socialisation (Eze et al. 2013). In SMEs, due to their smaller size and with fewer employees working, supervisors often work mostly in close coordination with employees, so sharing and communication of information and knowledge become part of their daily routine. Employees therefore often interact with their supervisors in a way that involves reporting or following instructions, and this could have an impact on the way employees share knowledge (Srivastava et al. 2006; Lee et al. 2018, Connelly and Kelloway, 2012; Srivastava et al. 2006). The risk of abusive behaviour is much higher given the nature of SMEs, and the personal characteristics of owner-founders are potential antecedents of abusive supervision (Meglich and Eesley, 2011).

Many researchers have attempted to examine the effects of both positive and negative supervisory behaviours in organisational settings (e.g. Aryee et al. 2007; Tepper 2000, 2007; Tepper et al. 2001), and though research on supervisors has focused on the constructive role of supporting and empowering employees (Shoss et. al 2013), the negative side of the supervision (Tepper 2000, 2007; Tierney and Tepper, 2007; Zellars et al., 2002) has also been extensively studied in the literature (Tepper, 2000; Wu et al., 2016). Furthermore, the effects of abusive supervision on many constructs like job satisfaction, life dissatisfaction, turnover intentions, and job performance (Tepper, 2000) have been studied extensively in the literature; recently, few attempts have been made to examine the effects of abusive supervision on employees' KS behaviour (e.g. Lee et al. 2017; Kim et al. 2016; Wu et al. 2016; Kim et al. 2015; Kim and Yun 2015). Although knowledge sharing is an important citizenship behaviour exhibited by the willingness of an employee (Lee et al. 2018; Kim et al. 2016), there are also circumstances when an employee may resist sharing of knowledge. For instance, when employees are abused by their supervisors, it damages their morale, trust, and willingness to share knowledge with their supervisor and contribute to organisational knowledge (Kim et al., 2015, Wu et al., 2016). Although the majority of the studies of abusive supervision are set in large organisations and focused either in Korean or Taiwanese context, only a handful of studies exist in the literature on the abuse of employees in SMEs which remains unexplored (Meglich and Eesley, 2011), more specifically to KS behaviour.

As knowledge management (KM) is becoming an important issue in organisations, and KS, being an important component of KM, literature suggests that an individual's KS is influenced by the behaviour of supervisors/managers (Lee et al., 2018, Kim et al, 2018; Kim et al., 2016, Wu et al., 2016, Kim et al., 2015), this study sets out to investigate the relationship between abusive supervision and employee KS behaviour in an SME environment. Further, co-worker support and organisational support are

known to provide positive effects or may overrule the negative effects of abusive supervision (Kim et al 2015, Kim et al., 2016, Lee et al., 2018). This study attempts to contribute beyond the past work on abusive supervision (Kim et al, 2015, Lee et al., 2018), and from a methodological perspective, a novel multiple mediation statistical framework model is adopted to (1) study the relationship between abusive supervision and the quality and quantity of KS and (2) investigate the mediating effect of organisational support and co-worker support, on abusive supervision towards the quality and quantity of KS. Although abusive supervision has negative relationships with various employee behaviours (Kim et al., 2016; Kim et al., 2018), the relationship of quality and quantity of KS is still not clear which is a core issue in the knowledge-management field (Wu et al, 2016).

Theory and Hypothesis Development

Abusive Supervision and KS Quality and Quantity

Researchers have addressed abusive supervision in the literature in the context of destructive leadership (Wang, et al. 2014), hurting or damaging the targeted individual's integrity (Keashly, 1998), and negatively affecting an individual's ability to create and maintain relationships with others (Duffy et al. 2002). It is common for supervisors to exhibit frequent abusive behaviour in firms (Meglich and Eesley, 2011; Kim et al., 2015), and for some employees, their worst nightmare is their immediate supervisor (Boddy, 2011). Abusive supervision can result in favouritism (Murari, 2013), reduced organisational citizenship behaviours (Zellars et al., 2002), pushing employees to quit the organisation, lower job satisfaction, psychological distress (Tepper, 2000; Schat, et al. 2006), counterproductivity, and decreased customer satisfaction (Detert et al. 2007). KS is generally defined as an activity through which knowledge, i.e. information, skills, or expertise, is exchanged between people, friends, families, communities, or organisations (Jiacheng et al. 2010). Researchers have classified the antecedents of KS into organisational and cultural characteristics, interpersonal, team and individual characteristics, and motivational factors (Wang and Noe, 2010). Furthermore, factors like management support, leadership empowerment, organisational climate, trust, and role of supervisors facilitate effective KS in firms (Srivastava et al. 2006; Lee et al, 2018). Few researchers have addressed KS in terms of quality and quantity. For instance, quantity is about the interpretation of the right amount of knowledge (Chang and Chuang, 2011) and depends on whether an organisation's members feel adequately informed. In other words, "am I getting enough information?" (Thomas et al. 2009). Furthermore, Chiu et al. (2006) suggest that the quantity of knowledge shared is based on the volume of information and individual acts of sharing. Further, the quality of KS relates to the completeness, credibility, accuracy, timeliness, usefulness, and adequacy of the sharing (Thomas et al. 2009; Mohr and Sohi, 1995; DeLone and McClean, 2003; Chiu et al. 2006; Chang and Chuang, 2011). Furthermore, factors like employee satisfaction, employee relation, and social capital may affect the quality and/or the quantity of KS (Fan and Wu, 2011). According to

Chiu et al. (2006), supportive behaviours generate trust and maintain favourable relationships, which in turn may lead to good-quality KS. The quality of KS is evaluated by the helpfulness of the relationships, which in turn may lead to good-quality KS. The quality of KS is evaluated by the helpfulness of the related knowledge contribution (Wasko and Faraj, 2005). However, Wu and Lee (2016) also found abusive supervision to be negatively linked to KS. They conclude that when employees are abused, it affects their psychological capital (employees' internal resources), thus preventing them from sharing knowledge with their supervisors. Kim et al. (2016) asserted that abusive supervision discourages employees from sharing knowledge with others and affects job-related performance. Thus, when employees encounter abuse, they may resist KS with supervisors or co-workers (Kim et al., 2015; Kim et al., 2016). To know if any of the quality or quantity of KS is affected or if both are affected, we propose the following hypotheses (hypotheses are subdivided in line with Chiu et al. (2006): hypothesis 1A for quantity and hypothesis 1B for quality).

> *Hypothesis 1 A: Abusive supervision has impact on employee quantity of knowledge sharing.*
> *Hypothesis 1 B: Abusive supervision has impact on employee quality of knowledge sharing.*

The Mediating Effects of Support

Organization, supervisor, and co-workers are three major partners of social influence in the workplace and investigating how support from these different sources may interact with and influence individuals' discretionary behaviours can improve our understanding of KS. Individuals who suffer negative treatment from their supervisors may receive support from their co-workers, family, and the organisation (Shoss et al., 2013). We assume that such support may offset the negative effects of abusive supervision on their KS behaviour. Thus, individuals subjected to abusive supervision may be less likely to reduce their KS if they are supported by the organisation or their co-workers (Eser and Ensari, 2016). Some researchers suggest that SMEs in India have high socio-emotional values, and employees sometimes need moral support and encouragement from co-workers, from the organisation or through prayer (Anand and Walsh, 2015). To a certain extent, this helps them overcome the situation. Our research therefore investigates whether support from co-workers and the organisation has a mediating effect, reducing the negative effects of abusive supervision on KS.

Organisational Support

Organisational support is perceived as a general belief by employees that concern how much the organisation values their contribution and cares about their well-being (Eser and Ensari, 2008; Eisenberger et al., 2004). Organisational support helps to fulfil the socio-emotional needs of employees, reinforcing their performance (Rhoades and

Eisenberger, 2002; Eser and Ensari (2016). According to social exchange theory, an employee is likely to develop feelings of "obligation" and respond with positive work outcomes such as greater commitment with organisational support (Haar and Spell, 2004). On the other hand, supervisors are considered to be organisational agents or representatives (Haar et al., 2016; Eisenberger et al., 2002) and subordinates may view their supervisor acting on behalf of the whole organisation, and organisational support may also reflect a subordinate's view of their supervisor. In SMEs, the owner acts as the main representative of the organisation (Anand and Walsh, 2015), and we argue that abusive supervision does not necessarily damage the perception of the organisation (e.g. Haar et al., 2016; Harvey et al., 2007; Rayner et al., 2002). Furthermore, when employees recognise the organisation's goals and values as their own, they develop a sense of affiliation and loyalty to the organisation, making organisational support a vital factor in achieving organisational outcomes (Haar et al., 2016). Hence, we suggest the following hypotheses.

> Hypothesis 2A: Organisational support mediates the effect of abusive supervision on quantity of knowledge sharing.
> Hypothesis 2B: Organisational support mediates the effect of abusive supervision on quality of knowledge sharing.

Co-worker Support

Social support is a useful resource for enhancing employee performance in organizations and in the workplace. Support from supervisors and co-workers are the most relevant forms of social support for employees (Kossek et al., 2011). Co-worker support is linked to emotional concerns, instrumental aid, information, or appraisal (Carlson and Perrewé, 2005). It relates to employees' beliefs about the extent to which co-workers provide desirable resources in the form of emotional support (e.g., showing concern) and instrumental assistance (e.g., helping with work tasks). It is positively related to work engagement (Poon, 2011). Studies suggest that co-worker support buffers the relationship between unfair treatment by a supervisor and job satisfaction (Sloan, 2011). As KS is beneficial not only for organizations but also for co-workers, individuals who benefit from high levels of co-worker support may increase their KS as a form of positive reciprocity for their supportive co-workers (Kim et al., 2015). In this context, when employees are abused, they are affected psychologically, and this can be supressed through co-worker support in the process of KS (Kim et al., 2015). Kim et al. (2015) and Wu et al. (2016) suggest that the negative effects of abusive supervision on KS are likely to be reduced when the level of co-worker support is high. This leads to the following hypothesis

> Hypothesis 3A: Co-worker support mediates the effect of abusive supervision on quantity of knowledge sharing.
> Hypothesis 3B: Co-worker support mediates the effect of abusive supervision on quality of knowledge sharing

Hypotheses Model
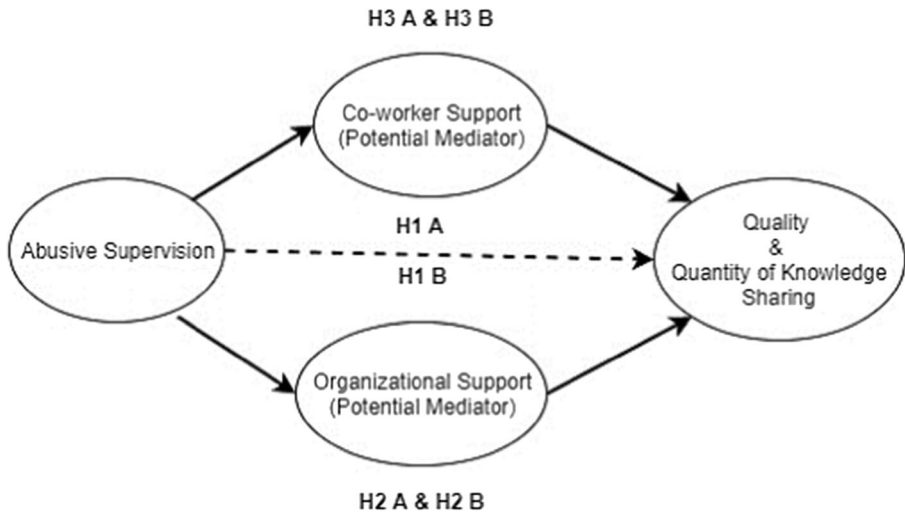
Methodology

Procedure and Participants

Data was collected from Bangalore city in southern region of India. SMEs in India are classified as micro, small, and medium enterprises (MSMEs) and are defined based on investment in plant and machinery, which can be verified and measured (please see Appendix C, Table 6 for details). For this study, 51 SMEs were approached and given a questionnaire to participate in the survey. Two firms declined to participate, leaving a sample of 49 SMEs (18 micro, 17 small, and 14 medium enterprises). The sectors included manufacturing, products, information technology, and services. Before collecting the data, we made first-hand observations about the interaction between supervisors and subordinates. We found that they worked in close contact with one another, which included daily interactions, face-to-face meetings, monitoring, and the sharing of work information and knowledge. An informal culture of sharing tacit knowledge was widely observed in these SMEs, and the firms also had explicit knowledge in the form of manuals, operating documents, workflow charts, guide books, etc.

Surveys were distributed to all supervisor–subordinate dyads. In total, 200 dyads agreed to participate, and a separate questionnaire for both employees and supervisors was distributed. The supervisor–subordinate dyad data collection method was adopted from Kim et al. (2015) and Lee et al. (2018). However, we noticed some firms had two, four, or six supervisors with different roles and departments, e.g. operations and sales, establishment and infrastructure, and collection and delivery. We made sure that the dyads did not overlap. For some participants, a

few questions were administered orally in their vernacular language to ensure full comprehension. The authors also hired an interviewer to collect some of the data due to accessibility, time, location, and technological constraints. To maintain transparency in the study from an ethical perspective, this person collected data and was monitored by the authors with the help of a video calling facility.

We obtained a final sample of 165 dyads with an 82.5% response rate (subordinates: 98.8% male, 1.2% female; supervisors: 97.6% male and 2.4% female). The average ages were 25.33 (subordinates) and 33.6 (supervisors). We had 1 supervisor to 1 subordinate. Out of 165 dyads, 120 were collected by the authors and 45 by the hired interviewer. All responses were kept confidential and respondents were assured of anonymity. All the supervisors and subordinates in this study participated voluntarily, without any force or manipulation. Furthermore, they were informed about the right to withdraw from the survey at any stage if they wished to do so.

Measurement Scales

All scale items used in this study were translated both verbally and by written from English to vernacular language to ensure accuracy. Except for quality and quantity knowledge sharing, which was rated by the subordinates' direct supervisors, the variables (i.e. abusive supervision, co-worker support, and organisational support) were measured by the subordinates (adopted from Kim et al (2015)). The response format of all measures was five-point scale, with option ranged from 1 = strongly disagree to 5 = strongly agree. The model for analysis included both formative measurement and reflective measurement. These items are presented in the Appendix-A, Table 3.

Abusive Supervision Tepper's (2000) 15 items were used to measure subordinates' perceptions of abusive supervision, examples being "my immediate supervisor tells me my thoughts or feelings are stupid" and "my immediate supervisor puts me down in front of others". These 15 items were labelled as AB1 to AB15. The scale was validated in prior studies (e.g. Tepper, 2000), where the estimated reliability was 0.90.

Quantity of Knowledge Sharing This scale is co-ordinated through works of Bock et al. (2005) and Thomas et al. (2009). These items were further constructed based on the following description of quantity of information: "quantity of information or information adequacy speaks to whether organization members feel adequately informed" (Thomas et al. 2009, p. 290). It is about getting enough information, the volume of information. The constructed items of information are transformed into knowledge sharing (e.g. the shared work-related information and expertise of co-workers within my department have the right amount). The scales were validated through a pilot study, with reliability of 0.86.

Quality of Knowledge Sharing The scales to measure quality of KS was adopted from Chiu et al. (2006), who applied it to a virtual environment, with reliability of 0.92. Chang and Chuang (2011) also used these four items and measured the quality of KS, with reliability of 0.93.

Organisational Support and Co-worker Support The scales to measure organisational support and co-worker support were adopted from Woo and Chelladurai (2012). Organisational support was measured using 9 items, examples being "my organisation really cares about my well-being" and "help is available from my organisation when I have a problem". Co-worker support was measured using 4 items, which included "my co-workers really care about me" and "my co-workers take personal interest in me". The scale was validated in Woo and Chelludrai (2012), where reliability for co-worker support was 0.88 and for organisational support was 0.95.

Results

In this section, we present new insights for statistical analysis. When researchers set out to do an analysis, they face many choices when it comes to evaluating their hypothesis and validation. In this paper, multiple mediation and the suppressor effect method were used in line with Zhao et al. (2010), Hair et al. (2010, 2017), and Nitzl et al. (2016). We also used Smart PLS-v-3.2.6 (Ringle et al., 2012, 2015) to perform a PLS algorithm and bootstrapping (for this research, the setting was tuned to 5000 samples using bias-corrected and accelerated bootstrap with no significant changes and a two-tailed method) to study discriminant validity, construct reliability, and collinearity statistics for the inner and outer models. To estimate the path coefficients, four new variant results are created, offering a new methodological contribution. As mentioned, our hypothesised model included five factors (abusive supervision, organisational support, co-worker support, quality of KS, and quantity of KS).

Hybrid Approach: Second Order for Organisation Support

We use a method close to the repeated approach, but we split the items evenly in each hierarchical order construct. As shown in Becker et al. (2012), The hybrid approach allows the researcher to "avoid artificially correlated residuals "which is the main disadvantage of the repeated approach. To justify these subgroups of items and ensure the relevancy of the model, it must be based on strong and clear theory. For the first-order construct labelled "organisation's acknowledgement of work", we grouped items Org2, Org6, Org7, and Org9 together. For the second-order construct (organisational satisfaction and well-being), we chose the appropriate items related to this topic: Org3, Org5, Org8, and Org A (the average between Org1 and Org4). For each construct, we assume formative measurements. We use this structure in describing the 4 models studied (please refer to Appendix A for scales).

Abusive Supervision

We collected abusive supervision data with 15 items labelled ab1 to ab15. Kim et al. (2015) and Lee et al. (2018) used the same 15 items. However, instead of performing

the complete scale analysis of abusive supervision, we decided to group Tepper's (2000) items into three different components for our analysis. This was done because the meaning and interpretation given by participants in their vernacular language triggered different perspectives, so for greater precision, the items are grouped into a different label like "abusive expressions", "perceived abusive control", and "abusive treatment". Item ab1 was removed due to zero variance and because when translated into the regional language (Kannada), it suggested a different meaning, e.g. "ridicules me" means being humorous/funny rather than being rude or abusive. Below, we present the item groups.

Abusive expressions	Perceived abusive control	Abusive treatment	
Puts me down in front of others (ab 4)	Tells me my thoughts or feelings are stupid (ab 2)	Invades my privacy (ab 5)	Breaks promises he/she makes (ab 9)
Blames me to save himself/herself embarrass-ment (ab 8)	Does not give me credit for jobs requiring a lot of effort (ab 7)	Does not allow me to interact with my co-workers (ab 13)	Lies to me. (ab 15)
Makes negative comments about me to others (ab 11)	Tells me I am incompetent (ab 14)		Gives me the silent treatment (ab 3)
Is rude to me (ab 12)			
Reminds me of my past mistakes and failures (ab 6)			
Expresses anger at me when he/she is mad for another reason (ab 10)			

Although we used formative measurements, at some instance, multicollinearity issues may arise, leading to a misinterpretation of the results. For example, according to Hair et al. (2017, p.144) directions, items can be combined (average) or deleted regarding the variance inflation factor (VIF) statistics provided with Smart PLS 3.0. It must be made wisely if we do not want to distort the model. Based on this view, several authors (e.g. Diamantopoulos and Winklhofer 2001; Götz and Liehr-Gobbers 2004) suggest indicator elimination based on the VIF, which assesses the degree of multicollinearity. To overcome multicollinearity issues, we used 2 items out of 3 in models 1 and 2. In model 1, the items ab15 and ab9 are related to the construct abusive treatment while there are items ae1 (average ab6, ab8, ab11) and ab10 in model 3 and model 4 associated with abusive expressions. For the same reasons, we could not use the items associated with perceived abusive control, because this would lead to inappropriate VIF values. Hence, the models related to perceived abusive control were not used for analysis.

Data Analysis

This paper uses formative measurements and reflective measure indicators. Thus, we followed two distinct approaches to select the items in our models. For formative measurement indicators, we followed the approach suggested by Hair

et al. (2017): "If the outer weight is non-significant and the outer loading is relatively low (i.e. < 0.5) we should strongly consider removing the formative indicator model". Furthermore, combining items is a better way to keep items without degrading the VIFs in inner models and maintaining the validity and accuracy of our measurement models (e.g. for a co-worker in models 1 and 3). For the constructs shown below, the VIFs in the inner models are lower than 5 except for model 2, where it is 5.1, but still below the threshold of 10.

Quality of KS and Quantity of KS

The items for quality of KS were labelled qlk1 to qlk6. We selected items qlk1 and qlk3, and the six items for quantity of KS were labelled qnk1 to qnk6. We selected items qnk1, qnk4, and qnk6 (reflective measurements) and qlk4 (reflective measurements) in models 1 and model 3, qlA (unbiased quality) combines qlk4. qlB (appropriate quality) combines qlk1, qlk3, qlC (explicit quality) combines qlk2.

Co-worker Support

For co-worker support, the items were labelled cw1 to cw4, and we assume formative measurements. In models 1 and 2, we used the same methodology as Hair et al. (2017) to discard any misinterpretation of the model, and we calculated the average of cw1 and cw2 to construct cwB. In models 1 and 3, we included items cwB, cw3, and cw4. In models 2 and 4, we used items cw1, cw2, cw3, and cw4.

Reflective & Formative Measurement: Construct Validity, Reliability and Convergent Validity

Construct validity and reliability of all construct loadings are greater than 0.7. The table below indicates that Cronbach's alphas are greater than 0.7. For all the models, all reflective latent constructs exhibit convergent validity as the average variance extracted (AVE) is higher than 0.5 in all cases (see Appendix B, Tables 4 and 5). In this paper, we have formative measurements and reflective measure indicators. Thus, we followed two distinct approaches to select the items in our models. PLS-SEM aims at maximising the variance of the dependent variables. We focus on our PLS model evaluation through coefficient of determination, as it indicates the predictive power of the construct and indicates the amount of variance (Durdyev et al. 2018; Chin 2010). Models 1 and 3 explain 82% and 83% of variance in quality of knowledge sharing respectively (Table 1). Models 2 and 4 explain 77% and 72% of variance in quantity of knowledge sharing respectively (Table 2). These values indicate a high level of predictive accuracy (as indicated above in Figs. 1, 2, 3, and 4).

Hypothesis Testing Results: H1A and H1B

H1A: model 2 and model 4. Abusive supervision has impact on employee quantity of knowledge sharing.

H1B: model 1 and model 3. Abusive supervision has impact on employee quality of knowledge sharing.

	Model 1	Model 2	Model 3	Model 4
	Abusive treatment → quality	Abusive treatment → quantity	Abusive expressions → quality	Abusive expressions → quantity
Original sample	− 0.484***	− 0.287*	− 0.191***	− 0.042ns
Effect size f^2	0.451 large effect	0.118 medium effect	0.058 small effect	0.002 small effect
Results	H1B supported	H1A supported	H1B supported	H1A rejected

***$p \leq 0.001$, **$p \leq 0.01$, *$p \leq 0.05$; ns, non-significant

We use the f^2 effect size of Cohen (1992) and the author's guidelines: a f^2 of 0.02 indicates small effects of the exogenous latent construct, while f^2 of 0.15 reveals medium effect. When f^2 is 0.35, we can suppose large effects.

Surprisingly, some direct effects between abusive supervision (expressions) and quality/ abusive supervision (expressions) and quantity are small effects or do not exist (models 3 and 4). Thus, the following multiple mediation analysis aims at defining whether potential mediators intervene in the causal relationship between abusive supervision and quantity/quality.

Table 1 Reliability, discriminant validity and convergent validity in reflective measurements, and collinearity assessment in formative measurements – Models 1 and 3

|	Items	Model 1					Model 3				
		Weight/ Loadings	C . Alpha	CR	AVE	VIF	Weight/ Loadings	C . Alpha	CR	AVE	VIF
Abusive treatment (*formative*)	2	0.115 0.908	-	-	-	2.59 2.59	0.270 0.990	-	-	-	1.01 1.01
Co-worker (*formative*)	3	0.433 -0.637 0.030	-	-	-	3.18 2.28 1.67	0.642 -0.440 -0.0001	-	-	-	3.18 2.28 1.67
Org. satisfaction/- wellbeing (formative)	4	-0.050 0.047 0.815 0.267	-	-	-	1.29 1.68 1.76 1.54	-0.075 0.252 0.767 0.083	-	-	-	1.29 1.68 1.76 1.54
Org. acknowledgment of work (formative)	4	-0.037 0.262 0.261 -0.692	-	-	-	1.33 1.66 1.52 2.07	0.066 0.203 0.321 -0.660	-	-	-	1.33 1.66 1.52 2.07
Quality (*reflective*)	3	0.904 0.939 0.900	0.90	0.94	0.836	-	0.910 0.942 0.892	0.90	0.94	0.837	-

Note: VIF = Variance Inflation Factor, CR = Composite Reliability, C. Alpha = Cronbach's Alpha

***$p \leq 0.001$ **$p \leq 0.01$ *$p \leq 0.05$

Table 2 Reliability, discriminant validity and convergent validity in reflective measurements, and collinearity assessment in formative measurements – Models 2 and 4

	Items	Model 2					Model 4				
		Weight/ Loadings	C . Alpha	CR	AVE	VIF	Weight/ Loadings	C . Alpha	CR	AVE	VIF
Abusive treatment (*formative*)	2	0.124 0.900	-	-	-	2.59 2.59	0.409 0.955	-	-	-	1.01 1.01
Co-worker (*formative*)	4	-0.425 0.234 -0.568 0.957	-	-	-	2.73 2.02 3.18 3.70	0.152 -0.329 0.943 -0.442	-	-	-	2.73 2.02 3.18 3.70
Org. satisfaction/- wellbeing (*formative*)	4	-0.116 0.413 0.540 0.204	-	-	-	1.29 1.68 1.76 1.54	-0.101 0.327 0.610 0.226	-	-	-	1.29 1.68 1.76 1.54
Org. acknowledgment of work (*formative*)	4	0.100 0.287 0.374 -0.550	-	-	-	1.33 1.66 1.52 2.07	0.065 0.284 0.347 -0.586	-	-	-	1.33 1.66 1.52 2.07
Quantity (*reflective*)	3	0.753 0.927 0.958	0.857	0.91	0.78	-	0.811 0.896 0.938	0.857	0.91	0.78	-

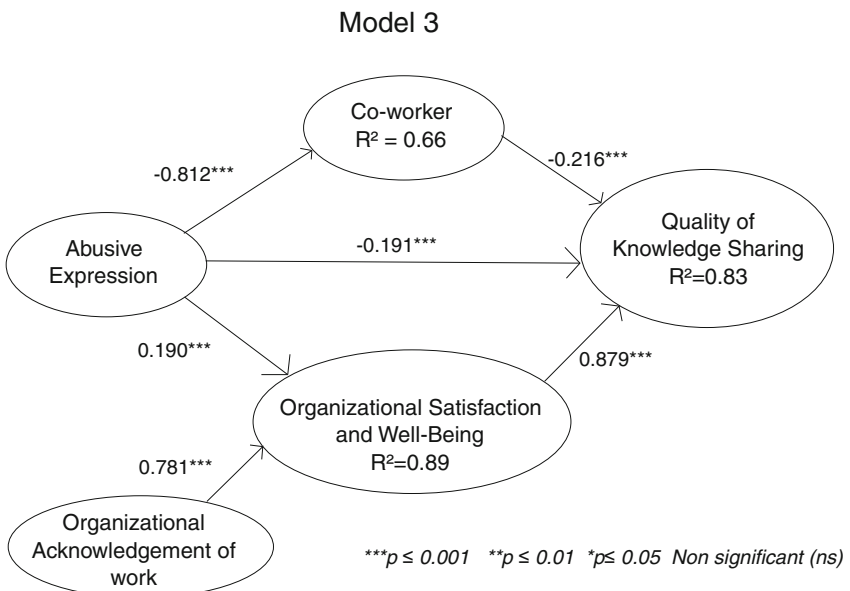## Model 1: Abusive Treatment towards Quality of Knowledge Sharing
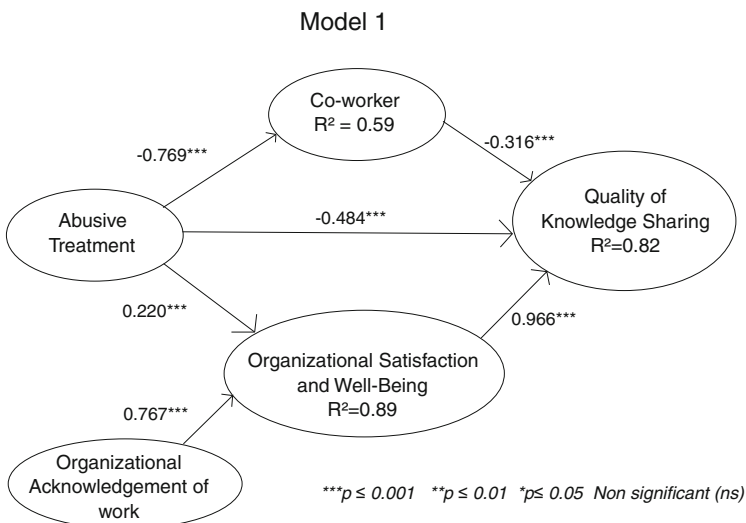
Model 1

Fig. 1 Model 1: Abusive treatment towards quality of knowledge sharing (path coefficients and R^2)

Model 2: Abusive Treatment towards Quantity of Knowledge Sharing
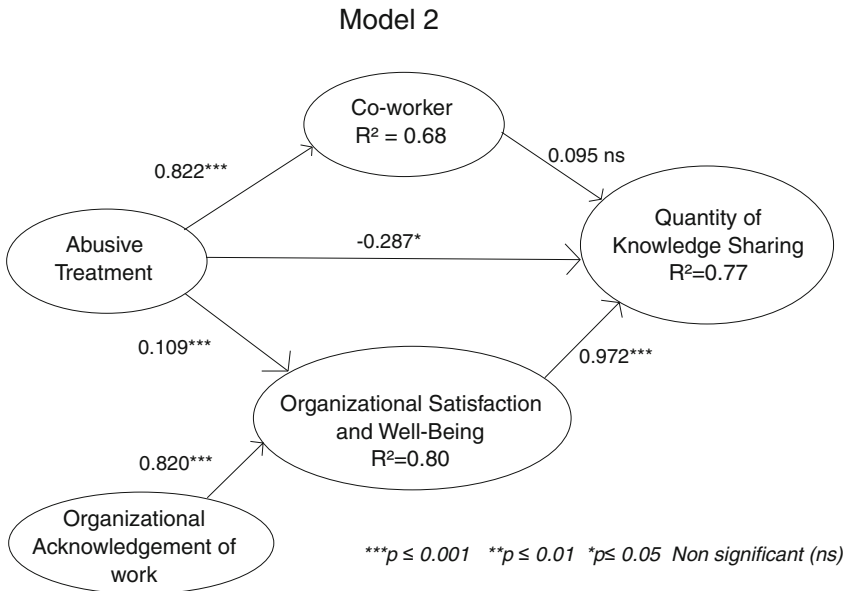
Model 2

Fig. 2 Model 2: Abusive treatment towards quantity of knowledge sharing (path coefficients and R^2)

Model 3: Abusive Expression towards Quality of Knowledge Sharing

Model 3

Fig. 3 Model 3: Abusive expression towards quality of knowledge sharing (path coefficients and R^2)

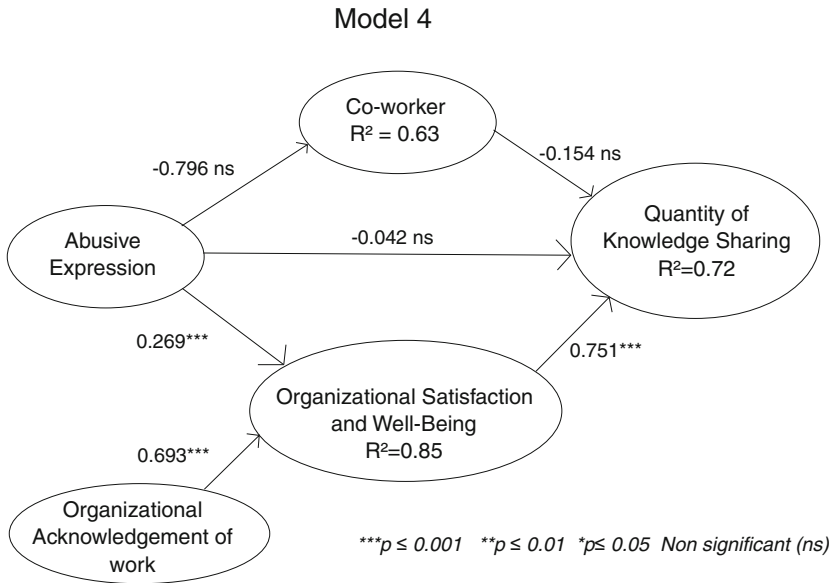## Model 4: Abusive Expression towards Quantity of Knowledge Sharing

Model 4

Fig. 4 Model 4: Abusive expression towards quantity of knowledge sharing (path coefficients and R^2)

Multiple mediation

The first approach of mediation is to make the difference between full mediation and partial mediation (Baron and Kenny 1986). But the work of Zhao et al. (2010), Nitzl et al. (2016), and Hair et al. (2017) prove that we may go further and depict another kind of mediation, e.g. competitive mediation, complementary mediation, indirect only mediation (full mediation). The PLS path model estimation wit Smart PLS v 3.2.6 allows us to get the direct effects and total indirect effects from abusive supervision towards the latent factors quality or quantity but it does not provide the estimate of specific indirect effect through a particular path.
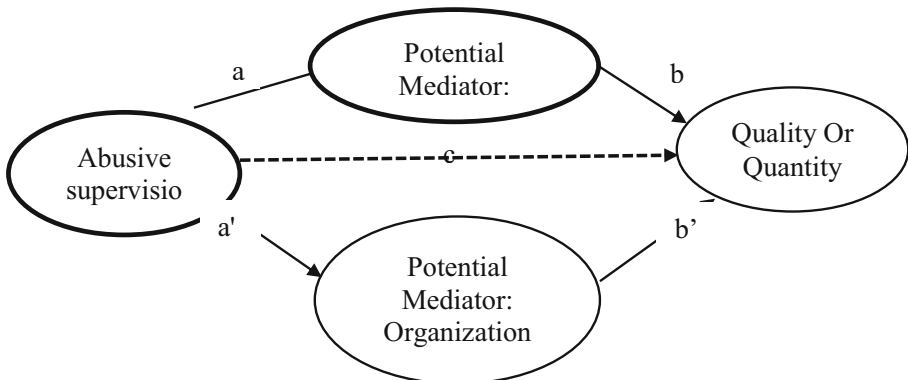
a, b, a′, b′, and c are path coefficients. c is the path coefficient revealing the direct effect from the independent variable "Abusive supervision" towards the dependent variable (quality or quantity of work). With Smart-PLS 3.0, the total indirect effect is given by: $a \times b + a' \times b'$; it is useful when we want to study simple mediation. Here, our goal is to evaluate the specific indirect effects from abusive supervision to quality or quantity through each potential mediator. So, we implement the approach of Zhao et al. (2010) as follows:

	Specific indirect effect is significant (s)	Specific indirect effect non-significant (ns)
Direct effect is significant (s)	mediation*	Direct-only non-mediation
Direct effect is not significant (ns)	Indirect-only mediation (full mediation)	No-effect non mediation

* same direction: complementary mediation

* opposite direction: competitive mediation

Following the terminology of Zhao et al (2010), a competitive mediation depicts a consistent mediator but it shows also that the theoretical framework is incomplete, and we look for another mediator that may interfere in the direct path. (Note that we can draw the same conclusion when there is a complementary mediation). Another approach is the one of Hair et al. (2016), when a competitive mediation is revealed, they assume that the mediator may act as a suppressor variable the authors claim that in competitive mediation, "the mediation construct acts as a suppressor variable, which substantially decreases the magnitude of the total effect" of the independent variable on the dependent variable. According to the procedure of Hair et al. (2017), the authors made the computations of the statistics for specific indirect effects. The results and conclusions are available in the tables below.

		Original sample	T statistics	p values
Model 1				
Direct effect	Abusive treatment → quality	− 0.484***	5.811	0.000
Specific indirect effect	Ab treatment → quality through org	0.213***	4.204	0.000
Specific indirect effect	Ab treatment → quality through co-worker	0.243***	15.238	0.000
Model 2				
Direct effect	Abusive treatment → quantity	− 0.287*	2.342	0.019
Specific indirect effect	Ab treatment → quantity through org	0.106***	9.429	0.000
Specific indirect effect	Ab treatment → quantity through co-worker	0.078^{ns}	0.458	0.647
Model 3				
Direct effect	Abusive expression → quality	− 0.191***	4.096	0.000
Specific Indirect effect	Ab expression → quality through org	0.167***	4.208	0.000
Specific Indirect effect	Ab expression → quality through co-worker	0.175***	3.408	0.001

		Original sample	T statistics	p values
Model 4				
Direct effect	Abusive expression → quantity	-0.042^{ns}	0.651	0.515
Specific indirect effect	Ab expression → quantity through org	0.202^{***}	6.646	0.000
Specific indirect effect	Ab expression → quantity through co-worker	0.123^{***}	3.870	0.000

	Mediation		Hypothesis results
Model 1			
Direct effect			
Specific indirect effect	Competitive mediation	Org is a mediator	H2B supported
Specific indirect effect	Competitive mediation	Co-worker is a mediator	H2A supported
Model 2			
Direct effect			
Specific indirect effect	Competitive mediation	Org is a mediator	H2B supported
Specific indirect effect	No mediation	Co-worker is not a mediator	H2A rejected
Model 3			
Direct effect			
Specific Indirect effect	Competitive mediation	Org is a mediator	H2B supported
Specific Indirect effect	Competitive mediation	Co-worker is a mediator	H3B supported
Model 4			
Direct effect			
Specific indirect effect	Full Mediation	Org is a mediator	H2A supported
Specific indirect effect	Full mediation	Co-worker is a mediator	H3A supported

Conclusion and discussions

For SME success, individual knowledge sharing remains critical for competitive advantage. Managers/supervisors are of a major source of influence for employees in the workplace and their behaviour certainly has an impact on the employee knowledge-sharing effort. This study examined the impact of abusive supervision (abusive expression and abusive treatment) on both quality and quantity of knowledge-sharing behaviours. It also investigated the mediating effect of organisational support and co-worker support towards supressing the effect of abusive supervision on knowledge sharing. As abusive supervision increases, employees feel low towards their own supervisors on sharing the quantity of knowledge. Although many researchers have suggested that supervisors could have constructive effect on individuals sharing knowledge in larger corporations (Cabrera et al. 2006; Lin 2007; Srivastava et al. 2006), there is still a paucity of research on the hostile or abusive behaviours that influence employees' knowledge-sharing behaviours in SMEs context, and our paper is the first attempt towards it from Indian perspective. While it has been studied that abusive behaviours

are having a negative effect towards sharing knowledge and few studies suggested the importance of both co-worker and organisational support, this study introduces from SMEs perspective that, organisational support has a significant psychological support (i.e. mediator) linking abusive supervision and knowledge sharing. Although organisational factors influence the negative consequences of abusive supervision, only a few studies have investigated the moderating role of organisational factors in abusive supervision-outcome relationships (Martinko et al. 2013; Kim et al. 2016). We demonstrated that abused employees do reduce their levels of sharing knowledge in terms of quality and quantity, and it has a direct impact on supervisory works. In addition, when subordinates perceive that their supervisors treat them in an unfairly manner, abusive supervision depletes their energetic resources, which leads them to conserve resources and decreases extra-role behaviour (Wu and Lee, 2016).

Our findings reveal important insights that can provide a new comprehensive explanation of knowledge sharing and abusive supervision. Our research contemplates and further extends the work of Kim et al (2015) and Lee et al. (2017), with differences in scales, results, theoretical model, and analysis. In their study conducted in South Korea, they found, abusive supervision to be negative towards sharing knowledge with a supervisor. However, in their moderation, organisational support supressed the effect, and co-worker support was not significant. Hence, we argue that context differs from the abused recipient of sharing knowledge from industry size, location, demography, etc. Our study fills this void by proposing a new relationship between abusive supervision and knowledge sharing quality and quantity. For example, many researchers embark on the effect of abusive supervision on both individual and for the organisation (Zellars et al. 2002; Inness et al. 2005). However, it could be noted that quality of knowledge sharing remains less unaffected. The reasons could be employee survival at work place, to avoid any conflict of abusive response of not sharing quality of knowledge. Further, the mediating effects of organisational support are viewed to be stronger and suppress the effect of abusiveness. However, co-worker support seems to be low suppressor and the reason could be that co-worker trying to take advantage of the situation or emotionally weaken the employees. Further, our research offers a description of how abusive supervision is perceived in different categories by introducing three different notion of abusive supervision (abusive expressions, abusive treatment, and perceived abusive control) and how it influences employees' knowledge-sharing behaviours. Below, we discuss these findings' implications for theory and practice, identify the study's limitations, and suggest directions for future research.

Study Implications

Our findings have several practical implications. First, a supervisor behaviour could be an important factor influencing voluntary employee behaviours such as knowledge sharing. For example, retaining skilled employees in SMEs is always a challenge (Anand and Walsh 2015), and abusive behaviours may cause skilled employees to quit organisations. Supervisor support often leads to a positive outcome from employees and according to Chiu et al. (2006), supportive behaviours create trust and maintain favourable relationships, which in turn may lead to sharing knowledge of good quality.

Consequently, promoting knowledge sharing is more difficult than promoting other discretionary behaviours such as organisation citizenship behaviour (Lee et al. 2017). Thus, it is important for firms to develop a strong reciprocal relationship between supervisors and subordinates, as reciprocal benefits play a vital role in both the quantity and the quality of knowledge sharing (Sedighi et al, 2016)

Although for SMEs, tacit knowledge sharing becomes the core of their operation, their simple efforts could become least effective when their supervisors engage in abusive behaviours. Given the negative impact of abusive supervision, SMEs should invest more effort in preventing abusive supervision in the workplace. For example, providing training on interpersonal relationship skills to supervisors. Furthermore, it is necessary to find a solution to lower the effects of abusive supervision. Organisations should pay more attention to increase support behaviours among supervisors, keep employees motivated and encouraged, further, this increases their citizenship behaviour. Recognition and appreciation from organisation can also supplement the effects of supervisor negative effects. The mediation analysis also suggests that employees are happier with organisational support than co-worker support. It is important to analyse and develop a strong relation between employees as this requires sharing knowledge even with other co-workers and not only back to supervisors. Providing more informal working environment (Anand and Walsh 2015), creating a sense of altruism (Sedighi et al, 2016) among employees and supervisors, can improve relations between supervisors and subordinates.

Limitations and Future Research

This study has several limitations that point to new avenues for future research. First, the theoretical model for our analysis does not use conventional methods of statistical analysis, and our findings do not necessarily indicate that abusive supervision is the cause of reduced quality of KS between employees, as one could argue that people face more abuse if they withhold their knowledge. Furthermore, from a methodological perspective, this study adopts a new approach to the multiple mediation method in analysing the results. While many studies take KS as one construct, this paper goes further and considers whether quality and quantity of KS are more affected. It would be useful to investigate whether supervisors engage in hostile behaviours because of their individual characteristics or because the situation demands that they behave abusively. Since KS is of critical importance and supervisors need it to complete certain tasks, it is likely to be the cause of their abusive behaviour. Nevertheless, future research may benefit from qualitative exploratory methods to establish the causality of the relationships examined in this study. Furthermore, the employees' KS behaviour towards other employees' could throw up interesting results compared to our dyadic (supervisor–employee) data. Common method bias is also less likely to explain the significant findings of interaction effects (Schaubroeck and Jones, 2000), but it would be beneficial to measure KS involving diverse sources, including supervisors, their subordinates, and subordinates' co-workers, in order to increase the validity of the measurements. There is uncertainty about the extent to which our findings may differ from other cultural contexts such as Western societies. Future research replicating this study in a cross-cultural context, preferably using data from multiple organisations with various job types and other contextual variables, would enhance the generalisability of our findings. KS is often context-dependent (Sergeeva and Andreeva, 2016), and investigating through a qualitative assessment at both individual level and dyadic level can provide better insights, towards

quality and quantity. Despite its limitations, this study provides unique contributions to the literature on the relationship between knowledge sharing and abusive supervision. Firms must not overlook the detrimental effects of abusive supervision on KS, and further studies are needed to examine potential ways to reduce such effects. In this study, we did not consider cultural attitudes towards KS, yet culture, norms, and policies have been identified as important predictors of KS behaviour (Wang and Noe, 2010). Future studies may consider culture and climate in order to test their effects and results on employees' KS behaviour.

Appendix A

Table 3

Scales	Item code	Item details
Organisational support	Org 1	The organisation really cares about my well-being
	Org 2	Even if I did the best job possible, the organisation acknowledges my work
	Org 3	Help is available from the organisation when I have a problem
	Org 4	The organisation cares about my general satisfaction at work
	Org 5	The organisation shows great concern for me
	Org 6	The organisation takes pride in my accomplishments at work
	Org 7	The organisation is willing to help me when I need a special favour
	Org 8	The organisation values my contribution to its well-being
	Org 9	The organisation appreciates any extra effort from me
Quality of knowledge sharing	qlk1	The shared work-related information is timely
	qlk2	The shared work-related information is accurate
	qlk3	The shared work-related information is relevant
	qlk4	The shared work-related information is objective
	qlk5	The shared work-related information is complete
	qlk6	The shared work-related information is useful
Quantity of knowledge sharing	qnk1	The co-workers within my department share the right amount of results of a meeting.
	qnk2	The co-workers within my department share the right amount of information about what they are doing.
	qnk3	The co-workers within my department share the right amount of experiences about certain properly addressed activities.
	qnk4	The co-workers within my department share the right amount of how certain activities can be performed effectively.
	qnk5	The co-workers within my department share the right amount of ideas on how goals can be achieved effectively.
	qnk6	The co-workers within my department share the right amount of work documents
Co-worker support	cw1	My co-workers really care about me
	cw2	I feel close to my co-workers
	cw3	My co-workers take a personal interest in me
	cw4	My co-workers are helpful in getting job done

Appendix – B

Table 4 Descriptive statistics—models 1 and 3 (quality of knowledge sharing)

	Abusive treatment	Co-worker	Org satisfaction/ well-being	Org and acknowledgement of work	Quality
Model 1					
Mean	− 0.0012	− 0.0025	0.0009	0.0021	0.0003
SD	1.0021	1.0017	1.0032	1.0027	1.0033
Min	− 2.99	− 1.22	− 2.48	− 2.37	− 1.82
Max	0.36	2.13	0.87	0.62	1.01
Model 3					
Mean	0.0013	0.0018	0.0014	0.0002	0.0020
SD	1.0037	1.0028	1.0042	1.0046	1.0035
Min	− 2.19	− 1.49	− 2.28	− 2.11	− 1.85
Max	1.47	2.01	0.77	0.63	0.99

Table 5 Descriptive statistics—models 2 and 4 (quantity of knowledge sharing)

	Abusive treatment	Co-worker	Org satisfaction/ well-being	Org and acknowledgement of work	Quantity
Model 2					
Mean	− 0.0012	− 0.0007	0.0007	0.0009	− 0.0007
SD	1.0020	1.0008	1.0025	1.0047	1.0027
Min	− 3.01	− 2.98	− 2.27	− 2.19	− 1.89
Max	0.36	1.07	0.92	0.66	0.91
Model 4					
Mean	− 0.0012	− 0.0007	0.0007	0.0009	− 0.0007
SD	1.0020	1.0008	1.0025	1.0047	1.0027
Min	− 3.01	− 2.98	− 2.27	− 2.19	− 1.89
Max	0.36	1.07	0.92	0.66	0.91

Appendix -C

Table 6 Classification of SMEs in India

Type of enterprise	Manufacturing enterprises investment in plant and machinery	Service sector enterprises investment in plant
Micro enterprises	Up to INR 5 million	Up to INR 2 million
Small enterprises	More than INR 5 million INR but does not exceed INR100 million	More than INR 20 lakh but does not exceed INR 5o million
Medium enterprises	More than INR 100 million but does not exceed INR 300 million	More than 50 million rupees but does not exceed INR 150 million

*INR is the currency of India (Indian National Rupees)

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