

COMPETITIVE CAPABILITIES AND FIRM PERFORMANCE: A STUDY AMONG SMALL RURAL FIRMS

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Abstract

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Manufacturing micro, small, and medium enterprises (MSMEs) in a developing country plays a distinctive and decisive role in its economic development. Despite its importance, various challenges confront these units, dragging them to the point of closure. Consequent to such sudden shocks to the economy, and resource deficiencies, these units become unable to develop competencies crucial to their sustenance. The present research purports to study whether MSMEs in the manufacturing sector employ capabilities of innovation, human resource practices (HRP), information and communication technology (ICT), and intellectual property rights (IPR) that are vital to improving their performance. The study employs the theory of resource-based view (RBV) to identify the specific capabilities that make manufacturing MSMEs competitive, as reflected through better firm performance. A regression analysis is performed among 90 manufacturing MSMEs to determine the relationship between capabilities and firm performance (combined and individual). The capabilities that significantly and positively contribute to firm performance are found to be competitive, and vice versa. The findings unambiguously reveal that MSMEs in rural areas are at a stage of developing competencies; albeit the pace being relatively slow.

Keywords: Resource-Based View, Manufacturing MSMEs, Capabilities, Competitive

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1. INTRODUCTION

Micro, small, and medium enterprises (MSMEs) are considered the backbone of rural as well as urban area development. MSMEs hold a major share of the whole industrial sector, especially in the context of developing countries. From an Indian perspective, MSMEs are concentrated both in the manufacturing and service sectors. However, the contribution of manufacturing MSMEs towards gross domestic product (GDP) is only about 7% (Ministry of Micro, Small and Medium Enterprises, 2017). MSMEs in the manufacturing sector need to be competitive enough to meet the effects of globalization. The entry of multinational companies further calls

for the need for firms belonging to the micro, small, and medium sectors to develop more unique and value-added products. These firms are constrained in terms of resources, informal systems and procedures, and skilled manpower (Terziovski, 2010) thus resulting in greater reports of sickness and closures. In the pre-globalization era, there was a constant increase in the growth rate of MSMEs in terms of the number of working units, employment generation, and exports. In the post-globalization period, there emerged a negative trend in terms of the growth rate and performance of MSMEs (Venkataramanaiah & Suneetha, 2019), owing mainly to the lack of capabilities of technology familiarization, marketing, and innovation, thus

hampering the development of quality products. MSMEs are considered as job creators in backward areas (Manzoor et al., 2021; Gyimah & Lussier, 2021).

Most of the studies are focused on improving the competitiveness of industries located in urban regions of developed countries. The establishment of MSME in rural areas ensures balanced regional development of the country. In India, MSMEs located in rural areas are characterized as being less capital intensive, having limited access to customers, suppliers, and policymakers, and suffering from insufficient financial resources, thus becoming unable to develop capabilities for internationalization. Manufacturing MSMEs located in rural areas provide intense employment opportunities, especially in developing countries (Manzoor et al., 2021; Sokoto & Abdullahi, 2013). In earlier times, rural development was made possible only through the mechanism of village and cottage industries. However, nowadays, industries are more cautious vis-a-vis the adoption of the latest technology, leading to the establishment of more technology-oriented enterprises even in rural areas. With the advent of technology, MSMEs located in rural areas are becoming more capital-intensive. The government and policymakers devise ample policies and programs for fostering rural industrialization. One of these is the establishment of industrial estates. There is a wealth of literature on it, that explains the capabilities and performance of the same. Capabilities vary depending on the size and nature of the organization. There is evidence that capabilities are more powerful as efficient utilization of resources requires distinct capabilities (Ferreira & Fernandes, 2017). Some firms explore learning capabilities where firms can utilize their know-how to develop new products and improve firm performance. Studies conducted in developing countries identify competitive capabilities in the form of innovation (product), delivery dependence, technological capability as well as quality (Ho et al., 2016; Ribau et al., 2017). Concurrently, some studies examine how managerial competencies, organizational reputation, communication, and interaction skills impact the performance of industries (López-Cabarcos et al., 2015; Schriber & Löwstedt, 2015). These studies explain the variations in performance measures among large and small industries by deploying diverse capabilities. Certain capabilities exhibit a negative impact on performance whereas certain others show a positive impact (Ho et al., 2016). There are limited studies that explain capabilities either as competent or incompetent (Gupta & Chauhan, 2021; Qosasi et al., 2019). Competitive capabilities are those that should be acquired over time to generate competitive advantage. These studies are conducted in plants in industrialized regions (Turyakira et al., 2019; Nangoli et al., 2013). They have the ability to create valuable outcomes in the form of internal and external advantages to the firm i.e., it is the worth of capability that gives rise to internal performance and the worth of capability in developing competitive advantage externally. The accumulation of competitive capabilities is uneven from plant to plant, small to larger firms, and developed to emerging nations. This is because of the differences in resource attributes. In the case of developing countries, competitive capabilities are relatively immature.

Competitive capabilities are the outcomes of reactions by the customers and competitors, capabilities of stakeholders, and internal and external competencies. Empirical research proves that competitive capabilities are superior and apt to bring about improved performance (Ho et al., 2016; Day, 1994). The studies claim that a firm's strengths are attributable to competitive capabilities (Gupta & Chauhan, 2021; Sirmon et al., 2010). Additionally, the capabilities deployed by larger/smaller firms in both developed and developing countries and their impact on performance can be varied. In the case of small firms in developing countries, competitive capabilities are viewed as innovation (product, process, and/or marketing) and their impact can be measured from qualitative perspectives. As small firms are characterized by limited resources, their capabilities are also limited. There has been little research exploring competitive capabilities among small rural firms (Gyimah & Lussier, 2021; Saunila, 2020). Firm performance is the combination of both financial and non-financial measures. It generally includes increased sales, profitability, customer retention, strong employee relationships, market share, supplier relationships, financial stability, etc. The present study examines whether small firms in rural areas are equipped with capabilities of innovation and intellectual property rights (IPR), and adopt the best human resource practices (HRP) essential for the firms to remain competitive. It examines divergent competitive capabilities among the small rural firms in Kerala and their impact on performance. This paper focuses on the theory of resource-based view (RBV) to study the impact of capabilities on performance. The findings of the study indicate that innovation, IPR, and HRP significantly and positively contribute to firm performance, while information and communication technology (ICT) does not make any significant contribution to it. Thus, MSMEs are yet to develop the skills and resources to enhance their capabilities to stay in the market for the long run.

The rest of the paper is structured as follows. Section 2 reviews the relevant literature. Section 3 provides the research methodology. Section 4 presents the research results. Section 5 discusses the research findings. Section 6 provides conclusions, the limitations, and further scope of the study.

2. LITERATURE REVIEW

Great pressure for the development of rural MSMEs originated as a result of increased economic unrest in terms of liberalization and globalization. The competitiveness of any country depends on the equitable industrial growth of rural and urban areas. MSMEs act as the major source of development of an economy through the uplift of rural and urban areas. It can take the form of improved employment potential, technological progress, and greater export potential. A phenomenal change can take place in the economy as a result of globalization, competition, and technological change (Rantamäki-Lahtinen, 2009). This impairs the working of MSMEs, which are characterized by limited resources (Maheshkar & Soni, 2021). Rural MSMEs are characterized by specific capabilities, which can be utilized through their distinct resources (Arthur & Damoah, 2015).

Few studies focus on competitive capabilities from a rural context. The present study tries to explore the competitive capabilities of innovation, human resource practices, and intellectual property rights in the context of small rural firms, understanding how they influence performance. In India, rural MSMEs are hampered in terms of the availability of the latest technology, lower marketing efforts, location constraints, infrastructural bottlenecks, etc. (Sinha et al., 2022; Mukherjee, 2018). High pressure from MSMEs in urban areas in the form of tangible and intangible resources necessitates the firms in rural areas to improve their competencies (Beckmann et al., 2023; Zeyen & Beckmann, 2018). Also, rural MSMEs need to understand manufacturing competencies and develop strategies for the same.

The industry environment changes from time to time. Therefore, MSMEs ought to develop capabilities for developing competitive advantages (Rajapathirana & Hui, 2018). This notion is also stressed by the theory of resource-based view (RBV), as firm capabilities should be unique to contribute to business performance¹. The theory of RBV is most applicable to MSMEs as the dynamic resource configurations are vital for sustaining competitive advantages. RBV claims that both, resources and capabilities are vital for enhancing firm performance. If the firm possesses distinct capabilities, it will generate a positive effect on MSME performance (Sebhatu, 2021). While studies are abundant in terms of resources and capabilities from the urban context, studies from the rural context are relatively scarce (Deakins & Bensemann, 2019). Heterogeneity in terms of resources and capabilities among small firms located in rural areas is yet to be explored. Studies from both developed and developing countries conclude that even though MSMEs in urban areas are strong enough in terms of infrastructure, technology, finance, and linkages, rural MSMEs are hindered in competitive capabilities (Lye & Cowling, 2015). Small businesses are the pillars governing the local market (Phillipson et al., 2019). But whether such firms are capable enough to serve their needs is yet to be examined. Moreover, the competitive capabilities of the small firms active in the food, engineering, and plastic sectors and their impact on performance are yet to be explored in the context of developing countries.

The theory of RBV underlines the notion of employing valuable, rare, inimitable, and non-substitutable resources as the benchmark for rating competitiveness among firms (Barney, 1991). Uniqueness in terms of firms' resources and capabilities accumulated over some time is crucial for the survival of small firms. Different researchers perceive resources and capabilities in varied manners. Some postulate that it is a blend of physical capital, human capital, and organizational capital (Barney, 1991). Some others categorize them as reputational, technological, and financial capital (Hofer & Schendel, 1996; Grant, 1991). Some researchers criticize that the resource configurations vary industry-wise. The resources that tend to be competitive to one firm could lower the performance of other firms. This is true from a developed country's perspective. Generating value from

resources is important for small firms operating in developed and developing countries. Manufacturing enterprises should aim to integrate the resources available in the organization to implement Industry 4.0, whether it is larger or smaller (Estensoro et al., 2022). In the Indian context, rural firms are constrained with resources like infrastructure, power, equipment, raw materials, management, etc. (Coad & Tamvada, 2012). It is argued that deficient resources hamper the development of capabilities among rural firms.

The theory of RBV is suitable especially for small manufacturing firms in rural areas as they generally focus on resource configurations essential for the firms' growth and competencies. Resources and capabilities are two sides of the same coin where a proper resource mix generates the development of capabilities (Day, 1994). Most of the studies relating to capabilities and performance are conducted in advanced countries, particularly in the urban context, thus necessitating the pursuit of a study related to the small manufacturing firms in India. Capabilities and competitiveness are first introduced by Penrose (1955) who creates a superior firm performance. Organizational processes are blended wisely and efficiently if the firms possess the necessary skills to utilize their resources (Hopkinson et al., 2018). The outcome is generally derived as capabilities that are evolved gradually within the firm. The idea behind this study is to understand whether small rural firms in the manufacturing sector necessarily possess some basic capabilities. Small manufacturing firms need to develop capabilities such as innovation, price, quality, delivery, etc. (Ho et al., 2016). If small manufacturing firms develop these capabilities, it is necessary to bring about a positive impact on firm performance. A firm's performance is highly impacted by the capability of innovation. They are the drivers of internationalization. Innovation is crucial to respond to changing market and economic conditions. The majority of small firms employ incremental innovation². Continuous innovation is essential to survive in the global economy, even in the case of small rural firms. Studies based on the innovation capabilities of small firms are abundant in the case of developed economies. A wide variety of reasons are associated with rural firms' inability to innovate involving inadequate managerial skills, inability to focus on growth opportunities, lack of resources, etc. (Bartik et al., 2020; Aryal et al., 2018). Also, various studies point out that inefficient use of technology, lack of concentration on research and development activities, and lack of IPR-related initiatives are some other reasons for small firms to be less competent in innovation abilities. Still, small rural firms in developed countries exhibit signs of innovation, but the magnitude of the same is not at par with that of urban firms. Studies on innovation capabilities are greatly associated with technological capabilities, research and development capabilities, product development capabilities as well as marketing capabilities. For small businesses, innovation can be an improvement in products or processes, thus performing activities in a unique manner reflected in improved firm performance (Taneja et al., 2016).

¹ The theory of resource-based view (RBV) explains that firms are viewed as heterogeneous in terms of resources and capabilities they possess. They are the source of generating sustained competitive advantage.

² Incremental innovation is the continuous improvement in the products and services thus generating greater revenue for the firm.

Knowledge, which is vital for innovation, can be protected through IPR-related capabilities comprised of patents, trademarks, designs, and copyrights. Studies from developed countries point out that MSMEs find it difficult to afford the huge cost incurred for acquiring IPR-related capabilities. Among IPR-related assets, trademarks are the most used capabilities, especially among small and medium enterprises, whereas the use of patents is found to be the least. Patents are the outcome of scientific invention and excellent Research and development (R&D) capabilities concerning studies conducted in the manufacturing, pharmaceutical, and mechanical industries. Investigations of IPR-related capabilities with firm performance showed contrary results with negative and positive effects on firm performance (Agostini et al., 2016). Studies in the Indian context identified a positive relationship between IPR and firm performance. Many of the firms belonging to the MSME sector located in developing countries are not very aware of converting their intellectual power into value creation. Several studies reported some challenges such as high cost, complex nature, and lack of expertise which discouraged managers from acquiring IPR (Sharma et al., 2021). A wider gap exists in literature from MSMEs in rural areas vis-a-vis knowledge of IPR and their relationship with performance.

Implementation of ICT in different areas of business is vital for improving the competitiveness of firms. At the same time, the adoption of technology requires strong managerial support with abundant resource deposits. Small rural firms in developing countries are usually hampered by external and regulatory factors. ICT adoption is also influenced by managers' knowledge, especially in allocating the relevant resources in core functional areas, which is crucial to developing technology competitiveness (AlBar & Hoque, 2017). Several studies identified the relationship between ICT adoption and firm performance, where a significant positive relationship was identified among small firms in urban areas (Duran & Castillo, 2021).

Some studies point out that lack of financial resources (Rajamani et al., 2022), inadequate training facilities, and lack of infrastructural support in rural areas resulted in a low level of ICT adoption in rural small firms (Vinayachandran & Ambily, 2021; Perez-Estebanez et al., 2018). Therefore, this study looks at whether the ICT capabilities among small rural firms have a significant positive relation with firm performance, which would demonstrate their competitiveness.

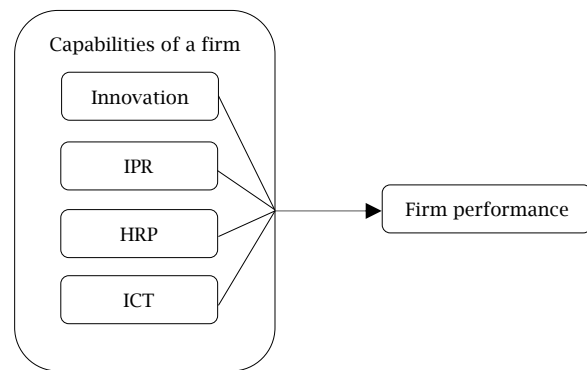
Human resources are considered as the most valuable asset for the success of small and medium enterprises (Njiru, 2023). Studies based on HRP are abundant for large businesses, but not for small businesses. Small businesses are reluctant to adopt formal HRP (Lai et al., 2016). Thus, more issues are associated with human resource management. Small and medium enterprises (SMEs) are deficient in skilled workforce, adequate pay as also promotional opportunities. Therefore, it is necessary to identify HRP employed by SMEs located in rural areas. Most commonly, studies employed measurement of HRP based on compensation, training, personnel management, and the like. Firms that employ better HRP show greater motivation and retention.

2.1. Research gap

The above literature confirms the contribution of capabilities towards firm performance. The capabilities of innovation, IPR, ICT, and HRP positively contributed to the performance, which is measured as the financial and non-financial indicators.

Literature from rural contexts failed to identify the relationship between capabilities and performance, specifically in the context of small rural firms. A conceptual framework (Figure 1) based on relevant literature is proposed to investigate the contribution of capabilities toward firm performance. If these capabilities positively contribute to the performance of a firm, then it is said to be competitive (Ho et al., 2016).

Figure 1. Conceptual framework



2.2. Hypotheses

Based on the model proposed above, the hypothesis for the study to examine the combined effect of the independent variables (*Innovation*, *IPR*, *HRP*, and *ICT*) on the dependent variable (*Firm performance*) is given below.

H1: Firms' capabilities (innovation, IPR, HRP, and ICT) incrementally positively influence the performance of small rural firms.

As a further extension, this study also examines the individual effect of every independent variable (*Innovation*, *IPR*, *HRP*, and *ICT*) on the dependent variable (*Firm performance*) based on the correlation analysis of this study. Relatively, the following hypotheses are tested, using the results of correlation analysis.

H1a: Innovation positively influences the performance of small rural firms

H1b: Intellectual property rights (IPR) positively influence the performance of small rural firms.

H1c: Human resource practices (HRP) positively influence the performance of small rural firms.

H1d: Information and communication technology (ICT) positively influences the performance of small rural firms.

3. RESEARCH METHODOLOGY

The study is cross-sectional. The data were gathered from the District of Ernakulam, Kerala, India. As in Kerala State Planning Board (2017), Ernakulam has the largest number of small firms. The survey was administered in the industrial estates of Ernakulam, based on simple random sampling (Ministry of

Micro, Small and Medium Enterprises, 2017). Small rural manufacturing firms are stratified for selecting the units, where food and engineering units represent the highest in number as per the report published by the District Industries Centre for 2019-2020. Data were collected through interview schedules among entrepreneurs of small firms in the food, engineering, and plastic sectors. According to the report, the total population of entrepreneurs in the food, engineering, and plastic sectors is 242.

Taro Yamane's formula provides the simplest method of deriving sample size. The formula is as follows:

$$n = N / 1 + N(e)^2$$

where, *N* is the population under study and *e* is the sampling error. By applying Yamane's formulae, the sample size for this study was derived as 150. Among 150 firms, around 40 units were closed due to financial instability. These firms were unable to repay the loans borrowed from financial institutions and, as a result, were unable to survive, thus heading for closure. Among the 110 questionnaires issued, the usable ones were only 90 for this study. Interview schedules were administered among 90 entrepreneurs to study the influence of capabilities on the performance of every firm considered. The objective of this study is to examine the relationship among different dimensions of capabilities of innovation, IPR, ICT, and HRP on performance specific to small rural firms. The majority of small rural firms have existed for more than 10 years. This indicates that they have higher survival rates in Kerala.

Pre-tested scales were adopted in this study. Performance is measured using the scale developed by Nelson and Mwaura (1997), which consisted of a 5-point Likert scale. Capabilities of small rural firms concerning innovation, IPR, ICT, and HRP are measured with the scales adopted from Exposito and Sanchis-Llopis (2018), Kafetzopoulos and Psomas (2015), Oura et al. (2016), Guan and Ma (2003), and Teece et al. (1997). The total items in the questionnaire consist of 26 statements, which were measured using a 5-point Likert scale. The reliability and validity of the scores are also tested, even while the items may have been pre-tested. The average variance explained (AVE) should be greater than or equal to 0.50, which shows the variance of latent variables through the observed variables.

Table 1. Reliability and validity of constructs

Variables	Cronbach's alpha	CR	AVE
Performance	0.790	0.850	0.714
Innovation	0.915	0.875	0.765
Intellectual property rights (IPR)	0.606	0.720	0.519
Human resource practices (HRP)	0.820	0.831	0.690
Information and communication technology (ICT)	0.855	0.803	0.644

Source: Survey data.

4. RESULTS

The brief profile of small rural firms reveals that above 50 percent of small rural firms have been established beyond 10 years. The majority of

the firms operate in the food and plastic sectors. Below 10 percent of small rural firms have a turnover of more than Rs.400 million. More than 50 percent of small firms are run by sole proprietors. Less than 25 percent of entrepreneurs of small rural firms are below the age group of 40.

Linear regression is used to assess whether one or more predictor variable(s) explain the dependent (criterion) variable. In a multiple linear regression model, all four independent variables (*Innovation*, *IPR*, *ICT*, and *HRP*) are employed to explain the dependent variable (*Firm performance*). The multiple regression analysis is successfully performed after testing the assumptions of linearity, normality, and multicollinearity. All the assumptions were satisfied.

It requires a linear relation relationship between dependent and independent variables for performing multiple regression. From Figure 2, it can be observed that there is a linear relationship between the independent and dependent variables. For performing multiple regression, the sample has to follow a normal distribution. From Figure 3, it is seen that there are no serious violations of normality of the data. Further, homoscedasticity can be checked using the scatter plots. Figure 4, indicates that there is homoscedasticity among the residuals.

Figure 2. Normal P-P plot of regression standardized residual

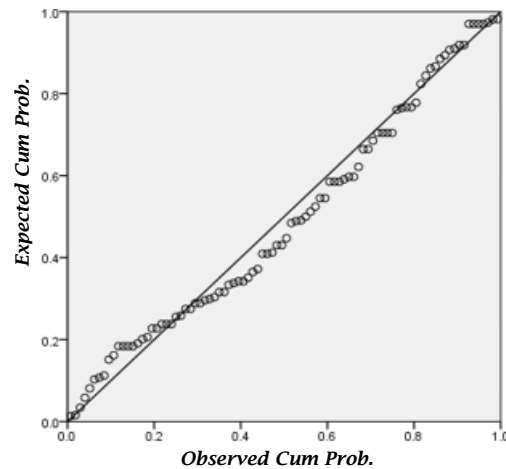
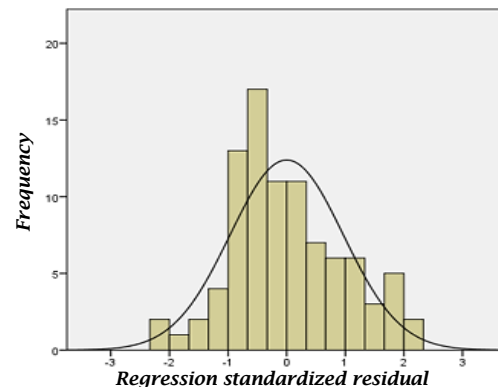


Figure 3. Normality plot



Note: Mean = 6.59E-17; Std. Dev. = 0.966; N = 0.

Figure 4. Scatter plot

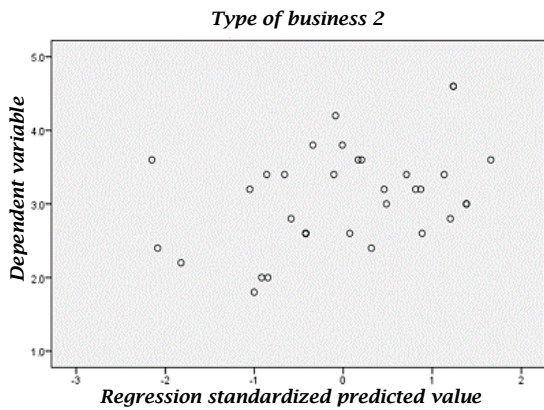


Table 2 interprets the strength of the relationship and the direction and movement of one between the study variables over the other. It shows the relationship between the variables. If the relationship between independent variables is greater, there arises the problem of multicollinearity.

A stronger higher correlation among independent variables makes the model weak.

Table 2. Correlation

Inter item correlation	1	2	3	4	5
1. Firm performance	1				
2. Innovation	0.535**	1			
3. IPR	0.482**	0.425**	1		
4. ICT	0.428**	0.538**	0.500**	1	
5. HRP	0.504**	0.525**	0.389**	0.548**	1
Mean	12.43	18.03	6.72	16.38	13.48
Standard deviation	4.04	8.01	3.12	7.32	5.02

Note: ** Correlation is significant at the 0.01 level (2-tailed). IPR = Intellectual property rights, ICT = Information communication and technology, HRP = Human resource practices.

The common method for detecting multicollinearity is by checking the variance inflation factor (VIF). If the VIF value is below 3, then there is no issue of multicollinearity, which shows the variables are moderately correlated. If the correlation coefficient is above 0.8, then there is a chance of multicollinearity, which means high correlation (Cohen et al., 2022; Brooks, 2014).

Table 3. Regression coefficient

	Standardized coefficients	t	Sig.	Collinearity statistics	
	Beta			Tolerance	VIF
(Constant)		3.167	0.002**		
Innovation	0.256	2.259	0.027*	0.539	1.855
IPR	0.217	2.057	0.043*	0.626	1.598
ICT	0.028	0.240	0.811	0.508	1.970
HRP	0.275	2.449	0.016**	0.552	1.811

Note: ** Correlation is significant at the 0.01 level and * Correlation is significant at the 0.05 level. IPR = Intellectual property rights, ICT = Information communication and technology, HRP = Human resource practices. Source: Survey data.

Table 3 identifies the impact of observed and independent variables on the dependent variable (Firm performance) in a plane with the multiple regression analysis. Also, Table 4 contains the model validating summary measures of the regression.

Table 4. Model summary

Model	R	R ²	Adjusted R ²	Std. error of the estimate
1	0.614 ^a	0.377	0.332	3.11816

Note: Predictors: (Constant), Firm performance. Source: Survey data.

Table 4 shows that the model was found to be significant with an adjusted R² value is 0.332 indicating that 33.2 percent variations in performance are predicted by the independent variables. Also, from Table 3 it is evident that there is no multicollinearity among independent variables as the tolerance value is below the threshold limit. The results of regression show that capabilities of Innovation, IPR, and HRP have a significant impact on performance except ICT. The p-value for all the capabilities, except ICT (p > 0.811), was significant (p ≤ 0.05). This implies that the combined effect of independent variables (Innovation, IPR, and HRP), except ICT, is only significantly revealed in the regression analysis, thus rejecting the main hypothesis (H1) that states that firms' capabilities (innovation, IPR, HRP, and ICT) together incrementally positively influence the performance of small rural firms. However, rewording the first hypothesis (H1) can alternatively be confirmed and validated.

As the ICT is a major developing instrument in every aspect of innovation, IPR, and HRP in the current technological era, the information of ICT would have been incorporated into, at least, one or all of those variables, thus possibly resulting in insignificant incremental impact of ICT on the firm performance. From among all the capabilities, it is clear that HRP is said to have the most predictive power, followed by innovation and IPR. These capabilities also show a positive influence on performance and thus prove to be competitive. Thus H1a, H1b, and H1c are confirmed, whereas H1d is rejected as it does not have any influence on firms' performance.

As an incremental effect of ICT becomes insignificant, the study extends to examine the individual impact of every independent variable on firm performance by using the results of correlation analysis. Accordingly, the firm performance has a positive significance (p ≤ 0.01) relationship with every independent variable (Innovation, r = 0.535; IPR, r = 0.482; HRP, r = 0.504; and ICT, r = 0.428).

The results imply that all independent variables have make impact individually on the firm performance, thus leading to accepting all relevant hypotheses (H1a, H1b, H1c, and H1d). This again confirms that there is a possibility that the information of ICT might have been incorporated into other independent variables in the regression model, thus making ICT insignificant in the study model. The extent of ICT adopted in small firms especially (micro units) in terms of innovation, IPR,

and HRP is relatively less. The small firms lack competent employees to deploy the potentialities of ICT (Gaviria-Marin & Cruz-Cázares, 2020; Parida et al., 2009). ICT enables collaboration from different participants (internal or external), thus generating new knowledge and other higher-order capabilities (tangible/intangible) for small firms. The reason that pinpoints the insignificant relationship between ICT and firm performance is that ICT is not used to improve the major operational processes of the firm, say, production, marketing, and supply chain processes. Many firms believe that integrating ICT into their business processes incurs huge costs and expertise. Integrating ICT into various operational components of the firms should be one of the important strategies in organizations (whether large/small) (Felipe et al., 2020). However, this study underlines that the owners/managers of small firms have to go a long way for the implementation of this strategy.

5. DISCUSSION

The prime objective of this study is to determine the incremental effect of important capabilities, which positively influence the performance of small rural firms. The development of capabilities of small rural manufacturing firms in India is a matter of discussion.

Capabilities are the distinctive skills and knowledge the firms possess to reach a desired end. The development of complex capabilities acts as a tool for effective business strategy. The possession of competitive capabilities has a significant influence among small firms. In order to ensure sustainability in business, small firms need to improve their competitiveness.

It is imperative that small firms especially those located in rural areas should be capable of making significant improvements for business and manufacturing processes to be sustainable in the long run. In the era of globalization, there is a growing importance on capabilities for innovation, ICT, IPR as well as HRP. This is studied with the help of the theory of RBV, as capability development is also important in the effective deployment of resources. As regards the findings of the study, incremental innovation has a significant positive influence on small firm performance and this conforms with earlier studies done from the perspective of small firms located in developed countries and developing countries. Abundant literature justifies the positive impact of innovation and firm performance among small rural firms in developed countries (Zhang et al., 2018).

The present study shows that there is a positive impact of innovation on firm performance among small rural firms. The same is the case of HRP and IPR. The small firms in rural areas are generally engaged in incremental innovation (Mungila Hillemane, 2012) depending upon the demand from customers. However, the small firms exhibit an absence of uniqueness in products, delayed payments, outdated technology, a lack of a committed workforce, and a lack of effective customer relationships, which hampers new or improved product development. In the case of incremental HRP, small firms are vigilant in conducting regular recruitment procedures, with

clearly defined terms and conditions. They give due consideration to the aspect of the welfare of family members. The skill level of workers especially those in machine-oriented jobs, is given priority. In the case of incremental IPR, small firms believe that the acquisition of patents is a more tedious task than trademarks. They are placed competitively with trademarks. As regards the case of ICT, the firms are incapable of enhancing the same, owing to untrained employees and lack of funds to bear the installation of manufacturing systems (Vinayachandran & Ambily, 2021). Thus, ICT does not have any incremental significant influence on performance as regards small rural firms. In the case of developed countries, incremental ICT capabilities have shown a significant influence on performance in connection with small firms. However, it is contradictory in the case of the present study. The measurement variables of ICT capabilities are taken from Johannessen et al. (1999) but indicatively, ICT does not have a significant incremental impact on positively contributing to the performance of small rural firms. This is mainly because, these firms possibly might have had ICT practices indirectly in HRP, innovation, and/or IPR practices and therefore, the information related to the ICT might have incorporated one or more of the other independent variables. There is a lack of required resources in terms of managerial ability (Bartik et al., 2020), finance, and skilled manpower to efficiently deploy them. However, the correlation coefficient for the relationship between ICT and firm performance confirms a significant positive association, thus possibly demonstrating its independent impact on the firm performance. From the findings, it is evident that small rural firms in a developing country like India, still have to travel a long way to develop resources in a mature manner, which is essential to develop capabilities, especially ICT. These capabilities are vital for the implementation of Industry 4.0 for these firms (Estensoro et al., 2022). Comparing their urban counterparts, rural firms are yet to develop capabilities since they are deficient in terms of funds, technology, skilled workforce, and infrastructure (Maheshkar & Soni, 2021).

6. CONCLUSION

The current study identifies the incremental impact of capabilities of innovation, intellectual property rights, human resource practices, and information and communication technology on small firm performance. It is understood that the capabilities of innovation, IPR, and HRP incrementally contributed positively towards firm performance; and though, the incremental contribution of ICT has not been confirmed significantly, its independent impact on firm performance can be confirmed with their positive association and respective correlation coefficient. ICT contributed negatively, which is contradictory to the literature stated. This study also shows that small rural firms are also competent like their urban counterparts in terms of resources and capabilities, from the point of view of developing the region — South India. Further, a similar study can be diversified to other parts of Southern India since small firms are the backbone of the economic development of the country. As per the findings of this study, the capabilities of innovation, IPR, and

HRP are incrementally significant and positive toward small firms' performance. However, the capability concerning the incremental nature of ICT is still underdeveloped (Galloway & Mochrie, 2005) for small rural firms as they commonly adopt technology for routine information transfer in the form of email into other forms of management practices. From the literature and empirical findings, it is known that there are wider opportunities for rural small firms for cross-border transactions. However, it is lagging as a result of the traditional mindset of entrepreneurs. The majority of the samples are in the age group of 40–50. So, they are reluctant to gradually initiate deploying modernized means of electronic transactions. Empirical findings related to small rural firms in

the Southern region are limited and this study explores the strength of these firms towards the overall development of the country. From the theoretical perspective, it is the resource deficiencies that limit these firms to develop capabilities as a whole. They may be proficient in capabilities, one or the other. There is still a further scope to expand the study among diverse industrial sectors like electronics, textiles, chemical industries, etc., from both the Northern region and Southern regions of the country. There is still a future scope to make inter- and intra-comparisons of capabilities among small firms in different states of India. Despite looking into ICT, IPR, innovation, and HRP, it is vital to study the capabilities of quality standards, networking, etc.

REFERENCES

- Agostini, L., Filippini, R., & Nosella, A. (2016). Protecting intellectual property to enhance firm performance: Does it work for SMEs? *Knowledge Management Research & Practice*, 14(1), 96–105. <https://doi.org/10.1057/kmrp.2014.20>
- AlBar, A. M., & Hoque, M. R. (2017). Factors affecting the adoption of information and communication technology in small and medium enterprises: A perspective from rural Saudi Arabia. *Information Technology for Development*, 25(4), 715–738. <https://doi.org/10.1080/02681102.2017.1390437>
- Arthur, I. K., & Damoah, O. B. O. (2015). Exploring the resource and capabilities of food related enterprises in rural Denmark: Implications for rural enterprises in Ghana. *Ghana Journal of Geography*, 7(2), 58–78. <https://www.ajol.info/index.php/gjg/article/view/129218/118776>
- Aryal, G., Mann, J., Loveridge, S., & Joshi, S. (2018). Exploring innovation creation across rural and urban firms: Analysis of the National Survey of Business Competitiveness. *Journal of Entrepreneurship and Public Policy*, 7(4), 357–376. <https://doi.org/10.1108/jepd-18-00026>
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120. <https://doi.org/10.1177/014920639101700108>
- Bartik, A. W., Bertrand, M., Cullen, Z. B., Glaeser, E. L., Luca, M., & Stanton, C. (2020). *How are small businesses adjusting to COVID-19? Early evidence from a survey* (NBER Working Paper 26989). National Bureau of Economic Research. <https://doi.org/10.3386/w26989>
- Beckmann, M., Garkisch, M., & Zeyen, A. (2023). Together we are strong? A systematic literature review on how SMEs use relation-based collaboration to operate in rural areas. *Journal of Small Business & Entrepreneurship*, 35(4), 515–549. <https://doi.org/10.1080/08276331.2021.1874605>
- Bhattacharyya, S. S., & Jha, S. (2015). Mapping micro small and medium enterprises from the resource-based view and dynamic capability theory perspectives and innovation classification. *International Journal of Entrepreneurship and Small Business*, 25(3), 331–350. <https://doi.org/10.1504/IJESB.2015.069700>
- Brooks, C. (2014). *Introductory econometrics for finance* (3rd ed.). Cambridge University Press. <https://doi.org/10.1017/CBO9781139540872>
- Coad, A., & Tamvada, J. (2012). Firm growth and barriers to growth among small firms in India. *Small Business Economics*, 39(2), 383–400. <https://doi.org/10.1007/s11187-011-9318-7>
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2022). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Routledge. <https://doi.org/10.4324/9780203774441>
- Day, G. S. (1994). The capabilities of market-driven organizations. *Journal of Marketing*, 58(4), 37–52. <https://doi.org/10.2307/1251915>
- Deakins, D., & Bensemann, J. (2019). Does a rural location matter for innovative small firms? How rural and urban environmental contexts shape strategies of agri-business innovative small firms. *Management Decision*, 57(7), 1567–1588. <https://doi.org/10.1108/md-07-2017-0658>
- Duran, J., & Castillo, R. (2021). *Factors related to information and communication technologies adoption in small businesses in Colombia*. Research Square. <https://doi.org/10.21203/rs.3.rs-757561/v1>
- Estensoro, M., Larrea, M., Müller, J. M., & Sisti, E. (2022). A resource-based view on SMEs regarding the transition to more sophisticated stages of industry 4.0. *European Management Journal*, 40(5), 778–792. <https://doi.org/10.1016/j.emj.2021.10.001>
- Exposito, A., & Sanchis-Llopis, J. A. (2018). Innovation and business performance for Spanish SMEs: New evidence from a multi-dimensional approach. *International Small Business Journal: Researching Entrepreneurship*, 36(8), 911–931. <https://doi.org/10.1177/0266242618782596>
- Felipe, C. M., Leidner, D. E., Roldán, J. L., & Leal-Rodríguez, A. L. (2020). Impact of is capabilities on firm performance: The roles of organizational agility and industry technology intensity. *Decision Sciences*, 51(3), 575–619. <https://doi.org/10.1111/dec.12379>
- Ferreira, J., & Fernandes, C. (2017). Resources and capabilities' effects on firm performance: What are they? *Journal of Knowledge Management*, 21(5), 1202–1217. <https://doi.org/10.1108/JKM-03-2017-0099>
- Galloway, L., & Mochrie, R. (2005). The use of ICT in rural firms: A policy-orientated literature review. *Info*, 7(3), 33–46. <https://doi.org/10.1108/14636690510596784>
- Gaviria-Marin, M., & Cruz-Cázares, C. (2020). Ranking web as indicator of knowledge diffusion: An application for SMEs. *Academia Revista Latinoamericana de Administración*, 33(2), 219–240. <https://doi.org/10.1108/ARLA-02-2019-0056>
- Grant, R. M. (1991). The resource-based theory of competitive advantage: Implications for strategy formulation. *California Management Review*, 33(3), 114–135. <https://doi.org/10.2307/41166664>

- Guan, J., & Ma, N. (2003). Innovative capability and export performance of Chinese firms. *Technovation*, 23(9), 737-747. [https://doi.org/10.1016/S0166-4972\(02\)00013-5](https://doi.org/10.1016/S0166-4972(02)00013-5)
- Gupta, P., & Chauhan, S. (2021). Firm capabilities and export performance of small firms: A meta-analytical review. *European Management Journal*, 39(5), 558-576. <https://doi.org/10.1016/j.emj.2020.12.003>
- Gyimah, P., & Lussier, R. N. (2021). Rural entrepreneurship success factors: An empirical investigation in an emerging market. *Journal of Small Business Strategy*, 31(4), 5-19. <https://doi.org/10.53703/001c.29470>
- Ho, T. C. F., Ahmad, N. H., & Ramayah, T. (2016). Competitive capabilities and business performance among manufacturing SMEs: Evidence from an emerging economy, Malaysia. *Journal of Asia-Pacific Business*, 17(1), 37-58. <https://doi.org/10.1080/10599231.2016.1129263>
- Hofer, C. W., & Schendel, D. (1996). *Strategy formulation: Analytical concepts*. West Publishing Company.
- Hopkinson, P., Zils, M., Hawkins, P., & Roper, S. (2018). Managing a complex global circular economy business model: Opportunities and challenges. *California Management Review*, 60(3), 71-94. <https://doi.org/10.1177/0008125618764692>
- Johannessen, J.-A., Olaisen, J., & Olsen, B. (1999). Strategic use of information technology for increased innovation and performance. *Information Management & Computer Security*, 7(1), 5-22. <https://doi.org/10.1108/09685229910255133>
- Kafetzopoulos, D., & Psomas, E. (2015). The impact of innovation capability on the performance of manufacturing companies. *Journal of Manufacturing Technology Management*, 26(1), 104-130. <https://doi.org/10.1108/JMTM-12-2012-0117>
- Kerala State Planning Board. (2017). *The Economic Review 2017*. https://spb.kerala.gov.in/economic-review/ER2017/web_e/index.php
- Lai, Y., Saridakis, G., & Johnstone, S. (2016). Human resource practices, employee attitudes and small firm performance. *International Small Business Journal: Researching Entrepreneurship*, 35(4), 470-494. <https://doi.org/10.1177/0266242616637415>
- López-Cabarcos, M. Á., Göttling-Oliveira-Monteiro, S., & Vázquez-Rodríguez, P. (2015). Organizational capabilities and profitability: The mediating role of business strategy. *SAGE Open*, 5(4). <https://doi.org/10.1177/2158244015616852>
- Lye, N., & Cowling, M. (2015). Do rural firms perceive different problems? Geography, sorting, and barriers to growth in UK SMEs. *Environment and Planning C: Government and Policy*, 33(1), 25-42. <https://doi.org/10.1068/c12234b>
- Maheshkar, C., & Soni, N. (2021). Problems faced by Indian micro, small and medium enterprises (MSMEs). *SEDME (Small Enterprises Development, Management & Extension Journal)*, 48(2), 142-159. <https://doi.org/10.1177/09708464211064498>
- Manzoor, F., Wei, L., & Sahito, N. (2021). The role of SMEs in rural development: Access of SMEs to finance as a mediator. *PLoS ONE*, 16(3), e0247598. <https://doi.org/10.1371/journal.pone.0247598>
- Ministry of Micro, Small and Medium Enterprises. (2017). *Annual report 2017-2018*. Government of India. <https://msme.gov.in/sites/default/files/MSME-AR-2017-18-Eng.pdf>
- Mukherjee, S. (2018). Challenges to Indian micro small scale and medium enterprises in the era of globalization. *Journal of Global Entrepreneurship Research*, 8(1), Article 28. <https://doi.org/10.1186/s40497-018-0115-5>
- Mungila Hillemane, B. S. (2012). Technological innovation in Indian SMEs: Need, status and policy imperatives. *Current Opinion in Creativity, Innovation and Entrepreneurship*, 1(2). <https://doi.org/10.11565/cuocient.v1i2.4>
- Nangoli, S., Turinawe, D. D., Kituyi, G. M., Kusemererwa, C., & Jaaza, M. (2013). Towards enhancing business survival and growth rates in LDCs: An exploratory study of the drivers of business failure among SMEs in Kampala-Uganda. *International Journal of Humanities and Social Science*, 3(8), 284-291. https://www.ijhssnet.com/journals/Vol_3_No_8_Special_Issue_April_2013/29.pdf
- Nelson, R. E., & Mwaura, M. F. (1997). Growth strategies of medium-sized firms in Kenya. *The Journal of Entrepreneurship*, 6(1), 53-73. <https://doi.org/10.1177/097135579700600104>
- Njiru, F. M. (2023). Effect of human resource management competence practices on sustainability of small and medium enterprises in Kenya. *Strategic Journal of Business & Change Management*, 10(3), 367-385. <https://doi.org/10.61426/sjbc.m.v10i3.2711>
- Oura, M. M., Zilber, S. N., & Lopes, E. L. (2016). Innovation capacity, international experience and export performance of SMEs in Brazil. *International Business Review*, 25(4), 921-932. <https://doi.org/10.1016/j.ibusrev.2015.12.002>
- Parida, V., Westerberg, M., & Ylinenpää, H. (2009). How do small firms use ICT for business purposes? A study of Swedish technology-based firms. *International Journal of Electronic Business*, 7(5), 536-551. <https://doi.org/10.1504/IJEB.2009.032039>
- Penrose, E. (1955). Limits to the growth and size of firms. *The American Economic Review*, 45(2), 531-543. <https://www.jstor.org/stable/1823582>
- Perez-Estebanez, R., Urquía-Grande, E., & Rautiainen, A. (2018). Technological and economic factors determining ICT level: Evidence from rural micro-businesses in Democratic Republic of Congo. *Journal of International Development*, 30(1), 118-133. <https://doi.org/10.1002/jid.3281>
- Phillipson, J., Tiwasing, P., Gorton, M., Maioli, S., Newbery, R., & Turner, R. (2019). Shining a spotlight on small rural businesses: How does their performance compare with urban? *Journal of Rural Studies*, 68, 230-239. <https://doi.org/10.1016/j.jrurstud.2018.09.017>
- Qosasi, A., Maulina, E., Purnomo, M., Muftiadi, A., Permana, E., & Febrian, F. (2019). The impact of information and communication technology capability on the competitive advantage of small businesses. *International Journal of Technology*, 10(1), 167-177. <https://doi.org/10.14716/ijtech.v10i1.2332>
- Rajamani, K., Akbar Jan, N., Subramani, A. K., & Nirmal Raj, A. (2022). Access to finance: Challenges faced by micro, small, and medium enterprises in India. *Engineering Economics*, 33(1), 73-85. <https://doi.org/10.5755/j01.ee.33.1.27998>
- Rajapathirana, R. P. J., & Hui, Y. (2018). Relationship between innovation capability, innovation type, and firm performance. *Journal of Innovation & Knowledge*, 3(1), 44-55. <https://doi.org/10.1016/j.jik.2017.06.002>
- Rantamäki-Lahtinen, L. (2009). The success of the diversified farm — Resource-based view. *Agricultural and Food Science*, 18(supplement). <https://doi.org/10.23986/afsci.5969>

- Ribau, C. P., Moreira, A. C., & Raposo, M. (2017). SMEs innovation capabilities and export performance: An entrepreneurial orientation view. *Journal of Business Economics and Management*, 18(5), 920-934. <https://doi.org/10.3846/16111699.2017.1352534>
- Saunila, M. (2020). Innovation capability in SMEs: A systematic review of the literature. *Journal of Innovation & Knowledge*, 5(4), 260-265. <https://doi.org/10.1016/j.jik.2019.11.002>
- Schriber, S., & Löwstedt, J. (2015). Tangible resources and the development of organizational capabilities. *Scandinavian Journal of Management*, 31(1), 54-68. <https://doi.org/10.1016/j.scaman.2014.05.003>
- Sebhatu, S. A. (2021). Managerial capabilities and firms' sustainable performance: Evidence from Chinese manufacturing small and medium-sized enterprises. *Frontiers in Management and Business*, 2(1), 74-86. <https://doi.org/10.25082/FMB.2021.01.002>
- Sharma, R., M., L., Soni, P., & Dubey, A. (2021). The role of intellectual property in innovation and economic growth of Indian MSMEs. *SEDME (Small Enterprises Development, Management & Extension Journal)*, 48(4), 379-393. <https://doi.org/10.1177/09708464221078067>
- Sinha, A. K., Mishra, A. K., RL, M., & Prabhudesai, R. (2022). Examining the determinants of small firms' performance in India. *International Journal of Productivity and Performance Management*, 71(6), 2496-2533. <https://doi.org/10.1108/IJPPM-10-2020-0508>
- Sirmon, D. G., Hitt, M. A., Arregle, J.-L., & Campbell, J. T. (2010). The dynamic interplay of capability strengths and weaknesses: Investigating the bases of temporary competitive advantage. *Strategic Management Journal*, 31(13), 1386-1409. <https://doi.org/10.1002/smj.893>
- Sokoto, A. A., & Abdullahi, Y. Z. (2013). Strengthening small and medium enterprises (SMEs) as a strategy for poverty reduction in North Western Nigeria. *American Journal of Humanities and Social Sciences*, 1(3), 189-201. <https://doi.org/10.11634/232907811301388>
- Sundar, K., & Srinivasan, T. (2009). Rural industrialisation: Challenges and proposition. *Journal of Social Sciences*, 20(1), 23-29. <https://doi.org/10.1080/09718923.2009.11892717>
- Taneja, S., Pryor, M., & Hayek, M. (2016). Leaping innovation barriers to small business longevity. *Journal of Business Strategy*, 37(3), 44-51. <https://doi.org/10.1108/JBS-12-2014-0145>
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533. [https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)18:7%3C509::AID-SMJ882%3E3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1097-0266(199708)18:7%3C509::AID-SMJ882%3E3.0.CO;2-Z)
- Terziovski, M. (2010). Innovation practice and its performance implications in small and medium enterprises (SMEs) in the manufacturing sector: A resource-based view. *Strategic Management Journal*, 31(8), 892-902. <https://doi.org/10.1002/smj.841>
- Turyakira, P., Kasimu, S., Turyatunga, P., & Kimuli, S. N. (2019). The joint effect of firm capability and access to finance on firm performance among small businesses: A developing country perspective. *African Journal of Business Management*, 13(6), 198-206. <https://doi.org/10.5897/AJBM2019.8758>
- Venkataramanaiah, M., & Suneetha, B. (2019). Performance evaluation of MSMEs during pre- and post-liberalisation era. *SEDME (Small Enterprises Development, Management & Extension Journal)*, 46(4), 282-294. <https://doi.org/10.1177/0970846419897153>
- Vinayachandran, V., & Ambily, A. S. (2021). ICT capabilities among micro, small and medium enterprises in relation to demographic characteristics with special reference to Kochi-Kerala. In S. Smys, R. Palanisamy, Á. Rocha, & G. N. Beligiannis (Eds.), *Proceedings of Third ICCNCT 2020 Computer Networks and Inventive Communication Technologies* (pp. 1101-1112). https://doi.org/10.1007/978-981-15-9647-6_88
- Zeyen, A., & Beckmann, M. (2018). *Social entrepreneurship and business ethics: Understanding the contribution and normative ambivalence of purpose-driven venturing*. Routledge. <https://doi.org/10.4324/9781315114170>
- Zhang, S., Yang, D., Qiu, S., Bao, X., & Li, J. (2018). Open innovation and firm performance: Evidence from the Chinese mechanical manufacturing industry. *Journal of Engineering and Technology Management*, 48, 76-86. <https://doi.org/10.1016/j.jengtecman.2018.04.004>