

BUYER-SUPPLIER RELATIONSHIP AND ORGANIZATIONAL PROFILE: SOURCES OF PRODUCT INNOVATION IN INDIA AND PAKISTAN

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ABSTRACT

The linkage among supply chain innovation focus, buyer-supplier relationship and product innovation requires better understanding in general and in the context of emerging economies of Indian Subcontinent particularly. This paper tests a theoretical model arguing for a positive impact of supply chain innovation focus on buyer-supplier relationship, which in turn impacts product innovation and business performance positively. Also, the paper seeks to explore association between organizational profile and product innovation. The empirical study of 296 organizations from India and Pakistan using structural equation modeling and hierarchical regression provides insights as to how buyer-supplier relationship and organizational profile impact product innovation. The paper concludes the findings and proposes future research directions.

Keywords: Supply Chain Innovation Focus, Buyer-supplier Network, Product Innovation, Market and Financial Performance, Structural Equation Modelling, and Emerging Economies

INTRODUCTION

This paper empirically tests a theoretical framework arguing for positive impact of supply chain innovation focus on innovation potential of buyer-supplier relationship, which in turn impact product innovation and buyer performance using data from Indian and Pakistani companies. In doing so the study highlights the sources of product innovation in a dyadic supply chain network relationship and validates the positive impact of product innovation on business performance in the context of Indian subcontinent.

In addition the study seeks to explore the demographics and organizational traits associated with product innovation. The considered characteristics include size of the company, collaboration with technologically advance companies and market competitiveness. The research

provides insights on the internal and external characteristics of the firm that influence product innovation and performance of firms operating in Indian subcontinent.

RESEARCH GAP

The current state of the management research provides space for more studies on the impact of closeness of collaborative relationships on innovation potential [1]. Moreover, mixed results of the impact of supplier knowledge on product innovation also require more empirical investigation [2-4]. Similarly the empirical research on innovation generation in supply chain relationships in emerging economies, especially Indian subcontinent, appears to be minimal. Hence, the literature provides a motivation to develop more research frameworks connecting buyer-supplier innovation oriented relationship and innovation performance and emerging economies present a less discovered setting to test the frameworks empirically.

RESEARCH FRAMEWORK

This paper seeks endorsement from existing supply chain and innovation management research to propose theoretical linkages among supply chain innovation focus (SF), buyer-supplier relationship for innovation, entailing supplier focus (SF), buyer-supplier innovation intent (BSII), and buyer-supplier innovation structure (BSIS), product innovation (PI) and market and financial performance (MFP). This hypothesized model seeks support from earlier work on buyer-supplier innovation in Pakistani companies [5]. The set of hypotheses to be tested on data from Pakistani and Indian companies are:

- H1: SCIF positively impacts SF.*
- H2: SCIF positively impacts BSII.*
- H3: SCIF positively impacts BSIS.*
- H4: SF positively impacts PI.*
- H5: BSII positively impacts PI.*
- H6: BSIS positively impacts PI.*
- H7: PI positively impacts MFP.*

Demographic Characteristics and Product Innovation

The literature on product innovation argues that contextual variables including firm size and sales, nature of industry, firm age, foreign orientation, industrial sector specific technological advancement have impact on product innovation [3, 4, 6-9]. The study limits the scope of investigation to extent of foreign collaboration, age of company, current export, annual revenues and number of employees. Hence the below hypothesis:

- H8: Extent of foreign collaboration, age of company, current export, annual revenues and number of employees predict product innovation of a firm.*

RESEARCH METHODOLOGY

Questionnaire Development

The study seeks insights from the literature to develop the items of the research questionnaire to measure the research constructs.

Data Collection

The potential respondents in this research are senior managers in the areas of operations and supply chain management from companies in various industrial segments of India and Pakistan. The study uses AMDISA-Commonwealth (Association of Management Development Institutions in South Asia) research grant to finance the data collection activities in India. The response rate on combined sampling frame is 22.77% leading to 296 (105 from India + 196 from Pakistan) workable responses. The collective data of 296 companies from India and Pakistan, who are both emerging economies sharing similar factors from the same region, are used for the following analysis in this paper [10]. The study uses guidelines of Podsakoff, et al. [11] to test common method bias in the data.

RESULTS

Measurement Model Results

The confirmatory factor analysis (CFA) of all variables finds acceptable overall model fit (Chi-square = 596.445; d.f. = 309; Chi-square/d.f. = 1.930; RMR = 0.035; RMSEA = 0.056; CFI = 0.942; TLI = 0.935; IFI = 0.943; NFI = 0.89).

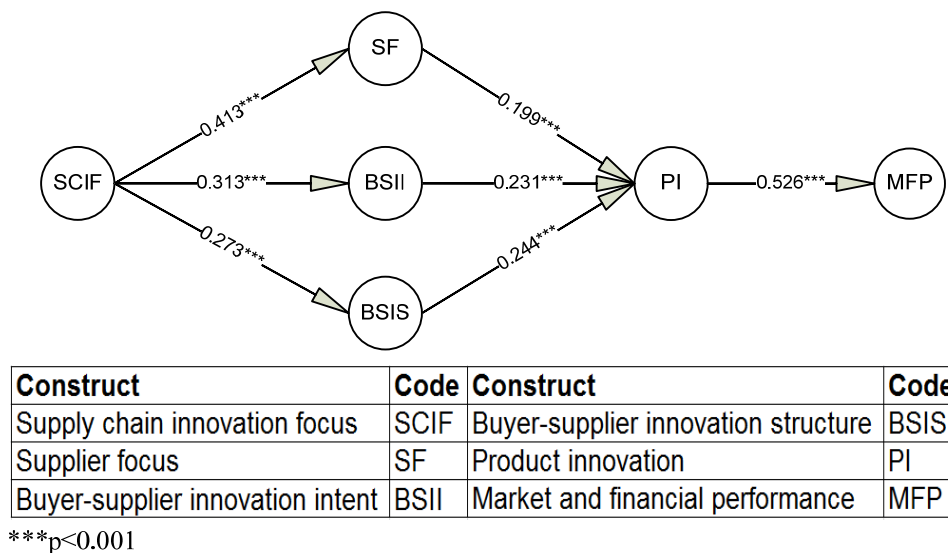


Figure 1 Full Structural Model Estimates

The measurement model finds Average Variance Extracted (AVE) of all variables is more than 0.50 providing satisfactory convergent validity of all constructs. A series of chi-square difference tests satisfy the discriminant validity between all pair of constructs.

Structural Model Results

The study runs full structural model using AMOS, a structure modeling software. The full structural model includes the control variables (foreign collaboration, age of company, current exports, annual revenue, and number of employees) in calculation of the estimates. The model with control variables indicates an overall satisfactory model fit ($\chi^2/df = 2.039$; d. f. = 427; CFI = 0.917; TLI = 0.903; IFI = .918; and RMSEA = 0.059).

Path estimates of the hypotheses tests are shown in Figure 1. The directions of arrows between constructs indicate the direction of positive relationship in Figure 1.

There are a number of interesting results in the full structural model analysis which considers the effect of control variables as well (Figure 1). The study finds a significant positive impact (p-level = 0.01) of supply chain innovation focus on buyer-supplier innovation intent, buyer-supplier innovation structure, and supplier focus, thus endorsing the intuitive assessment. Hence the data supports hypotheses 1, 2, and 3 significantly.

Second, the proposed structural model results indicate that supplier focus, buyer-supplier innovation intent, and buyer-supplier innovation structure have significant positive impact on product innovation (at p-level = 0.01). Hence the data supports hypotheses 4, 5, and 6 significantly.

Third, the model finds strong positive relationship of product innovation with market and financial performance (at p-level = 0.01). Hence provides strong support to intuitive assessment of the hypothesis 7.

Demographic Characteristics of Product Innovative Firm

The paper uses hierarchical regression technique (using forward method) for the analysis with the help of SPSS (Version 19). The advantage of this technique is that it uses multiple iterations to select and retain a predictor variable on the basis of the predictor variable's power to predict the dependent variable in the stepwise regression models.

Table 2A shows the results of the hierarchical regression analysis. The results show that age of company, foreign collaboration orientation, and percentage export sales explain 18.8 percent variance of product innovation. Each of these three variables significantly increases the explained variance when included in the regression model (Model 1 through Model 3). Company revenue and number of employees do not increase the explained variance of product innovation significantly (at p-level=0.05) when included in the regression analysis respectively in Model 4 and Model 5. Finally, number of employees and company revenue do not appear significant predictors of product innovation even when product innovation is exclusively regressed on company revenue and number of employees.

Table 2 (A&B): Regression Results of the Demographic Variables to Predict Product Innovation A:

Model	F Change	Sig. F Change
1	31.291	0
2	23.929	0
3	8.349	0.004
4	1.083	0.299
5	0.106	0.745

1. Predictors: (Constant), Age of company
2. Predictors: (Constant), Age of company, Foreign collaboration
3. Predictors: (Constant), Age of company, Foreign collaboration, Current exports
4. Predictors: (Constant), Age of company, Foreign collaboration, Current exports, Number of employees
5. Predictors: (Constant), Age of company, Foreign collaboration, Current exports, Number of employees, Revenue

B:

Model 3 Parameters	Beta	t-stat	Sig.	R ²
(Constant)	2.804	16.951	0	0.188
Age of the company	0.222	4.931	0	
Foreign collaboration	0.279	5.006	0	
Current exports	0.005	2.889	0.004	

The detailed statistics of the regression analysis of Model 3 finds that age of company, foreign collaboration orientation, and percentage export sales are significant predictors of product innovation respectively (Table 2B). However, the data shows insignificant relationships of company revenue and number of employees with product innovation.

Conclusion and Future Research

The study tests a theoretical framework linking supply chain innovation focus, innovation potential of buyer-supplier relationship, product innovation, and performance in emerging economies context. The data from India and Pakistan endorses the model's intuitive assessment. In addition the study finds that organizational traits including age of company, foreign collaboration orientation, and percentage export sales are significant predictors of product innovation respectively.

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