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Effect of Product Innovation Policies on Export Performance

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Abstract

India's comparative position in the world by exports is Nineteenth. India has achieved its export growth primarily because of the comparative strengths it enjoys in traditional and low value products. But India has lagged behind even in projecting its image. As per the World Competitive Report 2018, India's image abroad is 58th among 140 countries.

Competition in the global market is so intense that only products and services of superior quality can command a place in it. A statement issued by the ASSOCHAM, said that a long- term integrated export management strategy with commitment from all sectors is inevitable, if India has to achieve sustainable growth in export. India's export strengths will continue to be in the sectors of agriculture and allied products, gem and jewelry and garments. Most of the exporters in these sectors are small and medium entrepreneurs and don't have access to market data. Therefore, they have no capabilities to develop appropriate products.

Haryana is one of the industrially progressive states and contributes a significant share (4.9%) to the total exports of India. Despite various export development policies of government of India and states, the exporters continue to face major problems in the area of product development. The market development in view of challenges posed requires that exporters should produce quality products and adapt these to meet market requirements. Indian firms including those from Haryana being small and medium size are not able to meet competition unless and until they restructure their product planning and techniques.

Keywords: Indian Export; New Product Development; Product Modification.

Introduction

An innovation is the act of developing a novel idea into a product. Product innovation is such type of changes in the products that make overall change and a distinct product is manufactured. If only a few characteristics either are added or curtailed in existing product, such types of changes are called product modification. Sometimes it becomes tough to draw a dividing line between a product modification and product innovation. But whether a modification amounts to a mere product differentiation or to a new product is not that important as it is to have a clearly defined objective.

Objective of the Study

Innovation is said to be a key to success in globally competitive world. Innovations in marketing concern product quality, designs, consistency and brand-building (perceived quality).

This study explores the policies/strategies of exporters of Haryana State in international markets regarding new product developments. The factors forcing them to modify their products, activities undertaken for the purpose and measures adopted by them to face the intense competition have been discussed. In order to increase their market share or profitability product modification/innovation is one of several options. Therefore, this study makes an effort to establish relationship between New Product Development Activity Index and exports.

Research Methodology

Agro-based and food processing industry, handloom, textiles and garment manufacturing and light and medium engineering products have been key areas of industrial and export development policy of Haryana for several years. Sample constitutes exporting Units from textile industry food- processing industry and light and medium engineering industry in Haryana.

In aggregate terms, a sample of 76 exporting units were selected. There are 32 units from textile industry, 20 units from food processing industry and 24 units from engineering and other industry.

To collect the information, the questionnaire was administered to sample units personally. Secondary data was collected from many published sources. The offices/libraries of Texprocil, APEDA, EEPC, ITPO, CU (Delhi, Chandigarh), etc. were visited. The reference year for collection of data is 2014–15.

Comparative analysis was based on the types of industry and export status. The unit enjoying any special status by D.G.F.T. (Director General of Foreign Trade) e.g. Export House, Trading House, etc. have been termed as special status units and other units that do not possess any of such status are termed as non–status units.

The analysis of the data has been carried out by using arithmetic mean, percentage and ranking. Correlation co-efficient has been calculated to establish the relationship between product variables and export size. The inferential statistics such as t-test have been used for testing the significance of test statistics. Special purpose indices i.e. (I) New product Development Activity Index (II) Product Improvement Index have been used.

New Product Development Activity Index

New Product Development Activity Index has been prepared on responses to the three-point scale type question item market survey, consult technical journals/literature, follow competitors, visit to trade fairs are the question items on which responses have been sought. Score on all items have been summed up to get the value of the Index for an individual firm. Average value of the Index has been computed by dividing the total score of a sample group by 'n' (number of respondents in a sample group).

Product Improvement Index

This index has been computed on the lines of 'New Product Development Activity Index. Responses to the question item comprising variables improved appearance, improved performance and improved packaging & labeling have been used for this purpose.

Review of Literature

Study conducted by Gereffi (2007) reveals that new design development activity (apparel exports) has a positive association with export performance. Alard (2007) found that importers assign the highest value to the product factors (design and quality) while placing the purchasing order. Bategeka (2012) found that product variables (differentiation quality and especially, consistency) tend to be associated with better export performance. Liaw (2004), observed that quality had a positive effect on market share. Samar (2002), while analyzing the emerging trends in India's export markets, was impressed that exporters must bear in mind that quality, cost competitiveness are the basic principles for competing in the world market.

Reasons for Product Modification/Innovation

Product is the first and foremost component of marketing mix and product modification/innovation is considered a key to success in this highly competitive world. Review of some of studies in this area also brings into focus the importance of policies of firm regarding product modification/innovation.

In the present survey, majority of textile exporters (90.62%) admit the need for product modifications. Similarly, 91.67% of engineering industry and 95% of food processing industry firms have expressed the same view. However, among the exporters significant difference of opinion can be observed as for as causes for need for modifications are concerned.

Aggregate and Status-wise Analysis

Analysis of 'All Exporters' category (Table-I) highlights that 'competitive considerations' and 'changing market needs' ranked as first and second respectively are major reasons behind modifications of products. Thereafter, 'desire to enter into new markets' has emerged as an important factor prompting product modifications. 'Technological developments' and 'need for diversifications' are placed at fourth and fifth positions respectively.

Table – I
Reasons For Product Modifications: Aggregate And Status-Wise Analysis

Reasons for Modifications	Special Status		Non-Status		All Exporters	
	%	Rank	%	Rank	%	Rank
Need for Diversifications	07.50	V	11.33	V	10.00	V
Technological Developments	60.00	IV	50.00	IV	55.71	IV
Competitive Considerations	92.50	I	63.33	I	80.00	I
Desire to enter into new markets	72.50	III	63.33	I	68.57	III
Changing Market needs	90.00	II	63.33	I	78.57	II
No. of Firms	40		30		70	

Status-wise analysis also brings out that 'competitive consideration', 'changing market needs' and 'desire to enter into new markets' are three major factors for product modifications. Though special status category ranks these as first, second and third respectively, yet non-status category ranks all the three factors equally. 'Technological developments' and 'need for diversification' placed at fourth and fifth position do not seem to be much important for product modifications in all the three categories.

Industry-wise Analysis

Industry-wise analysis is presented through Table-II. According to the textile units, main reason for product modification is changes in market needs. Competitive considerations and technological developments are accorded first position by food

processing and engineering industry respectively. The exporters have a difference of opinion regarding the reasons that compel a firm to modify the product. While textile exporters do it in view of the needs of market(s) the food processing exporters modify their products to fight the intense competition and engineering units are forced to update on account of technological changes. 'Competitive considerations' are ranked second by textile industry. But food processing industry accords the market needs a second position. There is a marked difference in ranking pattern of engineering industry. The desire to enter into new markets is placed at second position, while other two industries accorded it the third position. In case of food processing industry, third position is shared by desire to enter in to new markets as well as 'technological development'.

It may be concluded that 'technological developments' are the most important reason that cause product innovation/ modification in case of engineering industry. However, food- processing industry appears to be influenced by it moderately. It is corroborated by the fact that technical advice is reportedly taken by some exporters of rice from scientists of IARI and CFTRI for required modification/innovation in the product. Textile industry seems to be least affected by it. 'Need for diversification' does not appear to be an important factor in case of all the three industries. Frequent changes in the fashion products of textile industry is also reflected by the fact that the 'changing market needs' has been the most important factor in case of textile industry. Food processing industry modifies its products because other competitors do so.

Table – II
Reasons For Need Product Modification: Industry-Wise Analysis

Reasons for Modifications	Textiles Industry		Food Processing		Engineering	
	%	Rank	%	Rank	%	Rank
Need for Diversifications	13.79	V	– –	– –	13.64	V
Technological Development	37.93	IV	57.89	3.5	77.27	I
Competitive Considerations	93.10	II	94.74	I	50.00	IV
Desire to enter into new markets	82.76	III	57.89	3.5	59.09	II
Changing Market needs	96.55	I	78.95	II	54.54	III
No. of Firms	29		29		22	

New Product Development Activity

Activities undertaken while developing/modifying a product are market survey, consult technological journals, follow competitors, visits to trade fairs.

Aggregate and Status-wise Analysis

Aggregate analysis (Table-III) highlights visits to trade fairs as the most important activity undertaken while modifying/developing a product. 'Follow competitors' is ranked next. 'Market survey' is placed at third position. Last rank is given to 'consult technical/journals/literature.

Table – III
New Product Development Activity an Aggregate And Status-Wise Analysis

Activities	Special Status		Non-Status		All Exporters	
	$\bar{X}$	Rank	$\bar{X}$	Rank	$\bar{X}$	Rank
Market Survey	2.53	III	2.39	III	2.47	III
Consult Technological Journals/ Literature	2.05	IV	2.27	IV	2.14	IV
Follow Competitors	2.67	II	2.61	I	2.64	II
Visits of Trade Fairs	2.84	I	2.48	II	2.68	I
No. of Firms	43		33		76	

Note:- $\bar{X}$ represents the sum total of assigned scores divided by number of respondents.

Special – status category presents ranking pattern exactly similar to that of all exporters. However, in case of non-status firms, first place is accorded to follow competitors, and 'visits to trade fairs' get second rank. It appears that special status exporters emphasize on visits to trade fairs in order to know about modification done in the products world over while non-status firms try to follow competitors.

Industry-wise Analysis

The survey reveals that industries significantly differ regarding the priority accorded to activities undertaken for the development/modification of a product (Table-TV).

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Table – IV
New Product Development Activity – Industry Wise Analysis

NPD Activity	Textile		Food Processing		Engineering	
	–X	Rank	–X	Rank	–X	Rank
Market Survey	2.50	III	2.90	I	2.33	III
Consult Technological Journals/ Literature	1.78	IV	2.15	III	2.62	I
Follow Competitors	2.78	II	2.60	I	2.61	II
Visits of Trade Fairs	3.37	I	2.05	IV	2.29	IV
No. of Firms	32		20		24	

Note:- X represents the sum total of assigned scores divided by number of respondents.

The analysis of the Table-IV brings into focus that the visits to trade fairs is accorded top position only by textile industry, whereas 'consulting technical journals and literature' is found to be the most important activity in case of engineering industry. In case of food processing industry, first position is shared by 'market survey' and 'follow competitors'. The consulting technical journals and literature' is also an important activity as indicated by second position accorded to it.

This analysis corresponds with the analysis of reasons for product modification (Table II). 'Technological developments' is stated to be the main reason behind product modification and new product development activity undertaken by engineering industry is consulting technical journals/literature. Food processing industry is found to be modifying its products due to competition and activities they undertake are 'market surveys' and 'follow competitors'. The main reason that cause product modification in case of textile industry is stated to be 'changing market needs and visit to trade fairs is the activity undertaken by them in order to know the changing market needs in international market.

New Product Development Activity Index and Export Performance

'New Product Development Activity Index' was constructed with the purpose to establish correlation, if any, with the exports. The average value of this index is found to be highest (10.44) in case of textile industry. But correlation as between this index and exports is found to be negative (-0.0316) and insignificant (t = 0.1732). The Table-IV analyzing the priorities regarding activities undertaken by firms shows that textile industry accords relatively a very high score to 'visit to trade fairs' whereas the two main reasons for product modification are 'changing market needs' and 'competitive consideration'.

It appears that the textile industry is relying heavily on visits to trade fairs in order to know the 'changing market needs' and they are not using other activities in a proper proportion as the other two industries are doing. This may have an adverse effect on their export performance. The other two industries have positive value of correlation coefficient though insignificant. In case of food processing industry correlation coefficient is .2582 and t-value is found to be 1.1339. Engineering industry has correlation coefficient as .2057 while t-statistics is .9859. As latter two industries are using all the activities in a balanced proportion, it seems that a balanced mix of these activities can have a positive impact on exports. Aggregate analysis shows positive (.0858) but insignificant correlation (t=.7408) between New Product Development Activity Index and exports.

Product Improvement Measures

Product improvement measures listed in Table-V are the improved appearance, improved performance and improved packaging & labeling. An Aggregate Analysis highlights that the 'packaging and labeling' is considered to be the most important measure adopted while modifying/improving the product. Second, place is obtained by improved performance while third position is secured by improved appearance. It may be concluded that, packaging and labeling is the stress area for product improvement by most.

Table-V
Product Improvement Measures - Aggregate And Industry-Wise Analysis

Measures	Textile		Food Processing		Engineering		All Exporters	
	–X	Rank	–X	Rank	–X	Rank	–X	Rank
Improved appearance	3.41	I	3.45	I	2.71	III	3.19	III
Improved performance	3.25	III	3.40	2.5	3.25	II	3.30	II
Improved packaging and labeling	3.28	II	3.40	2.5	3.43	I	3.37	I
No. of Firms	32		20		24		76	

Note:- X represents the sum total of assigned weights divided by number of respondents.

Industry-wise analysis spotlights the 'improved packaging and labeling' as the most important measure of product improvement in case of engineering industry followed by improved performance. The improved appearance is however, considered to be least important measure in product improvement by the engineering industry.

In case of food processing industry (mainly rice), improved appearance in terms of colour, length, texture etc is considered to be most important

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measure of product improvement. Improved packaging & labeling and improved performance share the second position. The scores indicate that textile and food processing units do not differentiate much on various measures of improvement. Hence, it may be inferred that all the three measures are almost equally used for the purpose of product improvement in case of food processing and textile industry.

In case of the textile industry, 'improved appearance' is the most significant measure of product improvement followed by the improved packaging and labeling. Improved performance is placed at third position. However, the score obtained by the factor indicates that this measure of improvement also gets due attention.

Conclusion and Findings

It has been observed by Subhash (1988) that new design development activity has a positive association with export performance. The present study also holds the same results as far as food processing industry, engineering industry and aggregate results are concerned, as in their case positive correlation coefficient has been observed. This reflects that new product development activity. (Constituting market survey, consulting technical journals/literature, follow competitor and visit to trade fairs) bears a positive influence on export performance.

Negative relationship, (However insignificant) in case of textile industry is perhaps due to the reason that industry is found to rely heavily on 'visit to trade fairs', while the other components are not getting due attention.

Product improvement measures influence the exports positively this is established through this study again. Except in case of engineering industry where the association turns out to be negative, relationship in other categories i.e. aggregate, textile industry and food processing industry, is found to be positive. In case of food processing industry correlation co-efficient (0.433) is found to be significant at 10% level. Significant results of food processing industry once again impress upon that product improvement measures adopted in balanced proportion may yield better results. Negative relationship observed in case of engineering industry may be due to the fact that it has been found to favour most the packaging component of product improvement measures, while performance and appearance get back seat.

In view of the above findings, it is suggested that an appropriate mix of product development activities may be used. Similarly use of product improvement measures in a balanced proportion is recommended in order to yield better performance.

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