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Innovation in the Textile Sector of Pakistan

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About the project

Funded by: IGC

Key Counterpart: Ministry of Science and Technology

Impact

This work has led to a journal publication on young innovative companies in the World Development. Findings have also been presented to senior most policymakers at the Ministry of Science and Technology Pakistan (MoST). Based on this work, MoST planned to conduct a larger survey, across Pakistan and covering the entire manufacturing sector.

This policy brief is based on the report "Measuring Innovation in the Textile Sector of Pakistan" authored by Dr.Waqar Wadho and Dr.Azam Chaudhry (both of Lahore School of Economics) and has been compiled by Zara Salman (CDPR).

In brief

- After surveying 431 textile manufacturers, it was noted that 56 percent were involved in either technological or non-technological innovation.
- Firms that have a large international market, have higher innovation rates. There is a positive, significant correlation between export intensity and all types of innovation.
- The type of innovative activity can have significant impact on a firm's output. Policies should be targeted towards young firms who are interested in innovation.

The process of innovation is associated with benefits to the economy in several ways: job creation, diversification in industrial composition, and increase in incomes owing to new products and production processes. However, our understanding of innovation and its economic impact is still limited. This deficiency is more prevalent when it comes to developing countries. In recent years, information technology has led to an extraordinary increase in access to information and new markets for firms in many developing countries. This coupled with increased globalization is constantly changing the landscape of innovation and firms' competitiveness. As a result, knowledge has taken a central place as a driver for innovation and economic growth. In such a knowledgebased economy, it has become increasingly important to better understand critical aspects of the innovation process, such as innovation activities beyond R&D, the interaction among different actors in the market and the relevant knowledge flows.

In this study, a survey of 614 Pakistani textile manufacturers in Sindh and Punjab was conducted to analyze their innovation activities, and to determine the extent and types of innovation they introduced between 2013 and 2015. Survey response rate was 70 percent and a total of 431 firms voluntarily participated in the survey.

Traditionally, innovation is measured by only looking at R&D expenditure of firms. In this study, innovation is taken in a broader sense. Technological innovation is seen as the implementation of a new or significantly improved product (good or service), or process. Nontechnological innovation can either be a new marketing method, or a new managerial method in business Practices, workplace organization or external relations¹

Pattern of innovative activities among firms

Survey results showed that 56 percent of the enterprises were involved in either technological or non-technological innovation during the three-year period, 2013-2015. As Figure 1 shows, the innovation rate differs by district. Sindh firms have a higher innovation rate compared to those in Punjab, with the highest seen in Karachi Central. While within Punjab, Sialkot is the most innovative district.

Results also highlighted that larger firms, apparel producing firms and those serving international markets such as the Middle East and US had higher innovation rates.

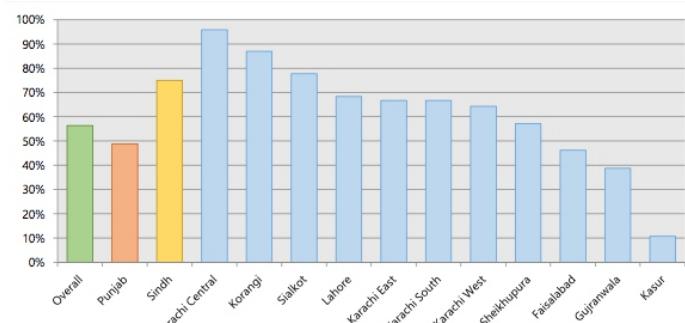


Figure 1: Innovation rate by district

Technological innovation rate was further broken down into product or process innovation. The survey revealed that 38 percent of enterprises introduced new products during 2013-2015. While only 6 enterprises introduced product innovations that were new to the world, all originated from Sialkot and belonged to the wearing apparel category. For process innovation, results showed that 31 percent of enterprises have introduced new methods of manufacturing, while others were innovative by introducing supporting activities or innovation in logistics, delivery or distribution.

Non-technological innovation was also broken further down into managerial and marketing innovation. The highest rate of a managerial innovation was evident via new methods of organizing work responsibilities and decision making (23 percent), followed by new business practices for organizing procedures (19 percent), and new methods of organizing external relations (11 percent). The highest rate of marketing innovation was seen in significant changes to the design or packaging of goods and new methods of pricing goods (21 percent), followed by new method or techniques for product promotion (14 percent), and new methods of pricing goods (10 percent). Furthermore, among all districts Sialkot led both types of innovation.

In terms of expenditure on innovation activities, results showed that 9 percent of turnover in 2015 was spent on innovation activities, out of which 56 percent of it was on the acquisition of machinery, equipment and software. Moreover, the survey highlighted that medium sized firms spent more than other sized firms, while knitted apparel and firms catering to the EU market were also spending more on innovation activities. Firms were also spending more on products that were new to the firm rather than new to the market.

The survey further asked to identify sources that provided information for new innovation projects or contributed to the completion of

¹ PSIC is an affiliated organisation of the Industries, Commerce and Investment Department (IC&ID) with a mandate to "promote sustained industrial development through provision of market driven credit, infrastructure and technological support to contribute towards poverty alleviation through job creation and socioeconomic uplift of the province".

Existing innovation projects during 2013-2015. Overall, firms considered market sources as the most important source of information and cooperation for innovation.

Both innovative and non-innovative firms were also asked to report factors that prevent their enterprises to innovate. Lack of availability of funds within the enterprise was the single most important cost factor in hindering innovation. Figure 2 shows the factors that firms ranked in hindering innovation.

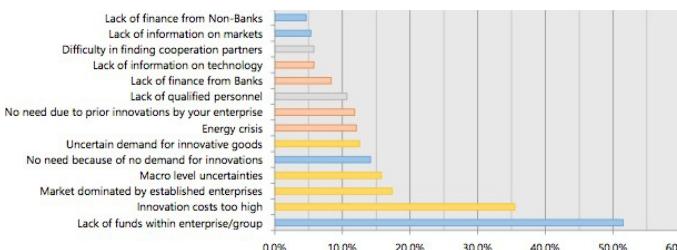


Figure 2: Factors hindering innovation activities

Correlation between types of innovation

The study also examines how one type of innovation is dependent on the introduction of other types. It demonstrates that the degree of association varies from one innovation type to another.

Product innovation is positively correlated with both types of non-technological innovation but the association between product and marketing innovation is stronger. Similarly, process innovation is positively correlated to both types of non-technological innovation. Furthermore, both types of non-technological innovations i.e marketing and managerial show

very strong positive association with each other.

In line with the existing literature, there is a positive and significant correlation between export intensity and all types of innovation. Furthermore, results demonstrate that new entrants into exports are more innovative than the old.

There is a positive correlation between firms obtaining quality certification and all types of innovation. Moreover, firms spending more on ICT activities are also more likely to introduce product, process and managerial innovation. Conversely, the correlation is not as strong as the one between ICT expenditure and marketing innovation.

Surprisingly, cost factors do not seem to have a strong and significant correlation with technological innovation. However, all types of knowledge factors such as lack of qualified personnel or lack of information on markets are negatively correlated with technological innovation.

Policy Implications

The results of this survey imply that the type of innovative activity can have a significant impact on firm output. With better data on how firms are involved in these activities and the obstacles they face, the necessary policies can be designed to ease firm efforts in this area. This can include targeted or conditional subsidies on firms that are young or that export and are therefore more interested in innovation.