

Relationship between R&D and Firm Size in the Small Industry Sector of Karnataka

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The relationship between Research & Development (R&D) and firm size is one of the widely discussed research issues in industrial economics. Earlier studies on this issue have come out with contradictory and diverse research findings. This paper analyses this relationship in the context of small industry in Karnataka. The analysis is done in terms of R&D objectives, sources, dimensions, inputs and its variance with firm size in the small industry. In addition, it has probed the relationship between R&D and factor productivities. The analysis includes in addition to overall sectoral perspective, the industrial and regional dimensions. The results indicate that when the R&D activities and related factors are similar in nature, R&D intensity exhibits a negative relationship with both firm size and factor productivities. We have observed this phenomenon not only for the overall sector but also across industries and sub-regions.

I Introduction

Research and Development (R&D), which enables technological innovations makes a significant contribution to the competitive strength of industries – large, as well as, small – in the national and international markets. However, the extent of R&D and technological innovations undertaken by industrial firms may vary in terms of firm size and industry. The study of relationship between Research & Development and firm size is one of the important issues covered in literature related to industrial economics. But, research findings on this issue, pertaining to various countries, are contradictory and diverse. Other things remaining the same, firm size can have some influence on R&D activities of firms. For example, if the cost of R&D and innovation were continuously increasing over time, large firms would be in an increasingly advantageous position to undertake R&D (Coombs, Saviotti and Walsh, 1987).

Other possible advantages of large size are economies of scale in R&D resulting from such factors as an environment in which researchers can share their findings with more colleagues and greater chances to exploit serendipitous discoveries (Kamien and Schwartz, 1982). If scale economies exist in R&D, large firms could derive greater benefits than small firms by allocating the same percentage of their turnover to R&D (Coombs, Saviotti and Walsh, 1987).

However, there is no conclusive evidence to say that the larger the firm size the higher the R&D expenditure and the more are the inventions and innovations. Some

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