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INTERACTIVE PAPER SESSION

ENTREPRENEURIAL STRUCTURE FOR LEARNING DYNAMICS AND ECONOMIC OPPORTUNITIES IN BIOTECHNOLOGY INDUSTRY

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Principle Topic

Technological entrepreneurship, co-evolution of a market contexts, and industrial structural dynamics are the interlinked concepts which are the drivers for knowledge generation, innovation and economic opportunities identification. In biotechnological markets, this integrated structure is examined either as vertical (VA) or horizontal alliance (HA). Empirically, both have advanced theory and practice. However, neither explains the structural market dynamics in the entrepreneurial biotechnology industry. The VA links biotechnology to incumbents; and the HA links biotechnologies to universities. The VA implies the importance of financial capital; the HA for knowledge capital. This paper carries the argument that the entrepreneurial firms-based market dynamics can be seen as self-sustaining for the technological entrepreneurship and innovation.

Propositions

Building on the extant literature, three propositions are introduced: (1) The diversity of interaction, (2) frequency of interaction, and (3) absorptive capabilities are positively linked to the knowledge activities and economic opportunities. The knowledge activities are defined as: Nucleic acid (K-I), Proteins (K-II), and Tissues/Cells (K_III). These linkages entail nine hypotheses for three models.

Method

Content Analysis was used to code data from more than 15,000 observations (announcements) over 11 years in the biotechnology market. Both symbiotic and semantic analyses were performed on qualitative information. Proxies were used to code data for the predictor variables, and K-I, K-II and K-III were predicted variables. Subsequently, the discovery announcements were used as a proxy for innovation.

Results and Implications

Logistic regressions were carried to test three models. Almost all hypotheses were supported in terms of statistical significance and odd ratios. The theoretical contribution at the technological and industrial levels can be termed as three-tier entrepreneurship. The first is involving biotechnology entrepreneurial firms. The second is industrial entrepreneurship. The last one is generic-knowledge-based entrepreneurship. The practical contribution lies in the explanation for the efficient and effective path for the market dynamics and economic opportunities. This in turn cues how biotechnology firms generate and capitalize on entrepreneurial structures to identify economic opportunities. Hence, different paths entail different levels of effectiveness in the value chain activities.

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