
Book reviews

The Economics of Biotechnology: Volumes I and II

Maureen McKelvey and Luigi Orsenigo

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What are the forces driving the biotechnology industry?

While this question may seem simple on first glance, a couple of statistics may enlighten the reader as to the underlying complexity of this seemingly uncomplicated query. Parameterised with the keywords ‘biotechnology economics’, a recent search retrieved 2,925 articles and 24,400 hits from the Pubmed¹ and Google Scholar² databases, respectively. A broader search using the keyword ‘biotechnology AND (economics OR business OR management)’ retrieved a total of 4,434 Pubmed articles and 369,000 Google scholar entries. Interestingly, these brief statistics suggest a burgeoning area of management and economic research within the peer-reviewed literature and correlates with specific scientific developments commencing in the 1970s. A cursory saunter through the retrieved articles finds topics as diverse as bioterrorism, ethics, agriculture, pharmaceuticals, third-world development, intellectual property, organisational design, public–private partnerships, clusters, business models, and many, many others. In short, it would be challenging for any neophyte to understand the various dimensions necessary to determine the various drivers of the biotechnology industry.

Gratefully, Maureen McKelvey and Luigi Orsenigo have reduced this rapidly evolving, relatively large literature body into a succinct

set of 38 articles (comprising fewer than 868 pages), structured around eight (what may be called) core, paradigmatic puzzles evolving to form today’s biotechnology industrial landscape. This potent, yet refined, assemblage of business and economic ‘scholarly’ articles unveils the intricacies of the field’s underlying dialogue, and attempts to form the boundaries and to succinctly communicate the industry as a truly living multifarious socio-economic being.

The authors used four criteria to distil works to be included within the two volumes. ‘The work selected should (1) ... provide insights into biotech in different industries, (2) ... represent a mix of early pieces which have framed the debates as well as pieces, which are more recent and/or less well known, (3) ... deal with aspects of the business and economics of biotechnology from a social scientific perspective, and (4) ... be scholarly, published papers (Vol. 1, p. xii)’. Further, they define their tome into eight parts (four per volume), which they feel encompass historical and contemporary views of the main debates found within the literature. These volumes are briefly outlined below.

Volume 1 is composed of four parts: Part 1 sets the stage for the various debates through providing a brief historical overview of biotechnology, and listing some of the strongest motivations behind the thrust within the industry. Part 2 focusses on the

tension between science versus technology, within the discourse of creativity, learning and knowledge. Part 3 centres on the entry of new biotechnology firms, whereas Part 4 presents the rejoinders of large company perspective – reactivity and adaptability of large incumbent firms to these entrants.

Volume 2 is also composed of four parts: Part 1 continues the discussion on division of labour, and Part 2 focussing on geographical agglomeration including spin-offs. Part 3 describes the various institutions supporting biotechnology including university–industry relations. Finally, Part 4 concludes with a discussion on the importance of intellectual property within the industry.

Given the rather large body of available knowledge (see above) comprising the literature search space, the pointed synopsis presented in the volumes, as defined by the parts, considerably expedites general learning of the industry through elevating, arguably, its most salient issues. Reviewing these contents, one feels not only the smoothness of motion during the shift from one part to the other, but also the stress of the proposed ‘conceptual framework (Vol. 1, p. xii)’ from within the parts.

To illustrate, let me describe the transition from Volume 1, Part 3 to Part 4, which I believe most clearly demonstrates my comment. The former part discusses the entrant, ‘new specialised biotechnology firms’, while the latter part addresses the reaction of these entrants by incumbents. The flow of logic from this one part to the next seems clear. Randomly leafing through Part 3, however, we find an article emphasising ‘that innovation in biotechnology is predominantly produced by new start-ups whose core mission consists in moving basic research to commercialization through technological innovation (Vol. 1, p. xxxii)’. Should not this discussion be best part of Volume 1, Part 2 in which the discussion of science and technology occur? More than several times during my initial reads, I arrived at the same conclusion: Why this article, and why within this part?

Any reader would probably acknowledge this ‘strain’; that is, question the purpose behind placing a particular article within a selected part but not its inclusion within the greater work. Affirmatively, however, for biotechnology aficionados, this tension showcases the inter-dependencies of social argumentation and structure latent within our industry; unfortunately, as an undesired outcome, this also leads to the rich debate as to the appropriateness of the editors’ choices.

Why purchase this work when its contents may be found elsewhere? As with most, if not all, such collections, the work exists as a single source of reference viewed within a unified cognitive framework uniquely suited for structured inquiry by the biotech enthusiast. Further, it also houses a fluent introductory section that attempts to summarise the various lines of reasoning driving today’s working biotechnology theorists.

In summary, Maureen McKelvey and Luigi Orsenigo’s *The Economics of Biotechnology* is a proposal to approach an understanding of the rapidly evolving, highly technical and socially complex nature of the biotechnology industry. Irrespective of this reviewers’ view of the ‘conceptual framework’, the selected contents make for a great leisurely read due to the breadth and the fluency of the various authors, and is thus generally recommended.

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