

Book Review: The Emergence of the Knowledge Economy: A Regional Perspective, edited by Zoltan Acs, Henri L. F. de Groot, and Peter Nijkamp. 2002. Advances in Spatial Science series. Berlin and New York: Springer. 388+viii. ISBN 3-540-43722-3, \$89.95.

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Article:

The essays that compose this book, many by authors quite well known for previous work on related topics, grew out of conferences organized by the multidisciplinary Regional Science Association. Indeed, a primary stated aim of the collection is to pull together new insights from growth theory, economic geography, and innovation theory to bear on the common question of the role of innovative knowledge creation and diffusion on differential regional growth. Essays are divided fairly evenly into four sections dealing with: theory and measurement (a tricky but necessary combination); knowledge spillovers from university research (common but constricted); ICT (Information and Communication Technology) as a knowledge-intensive sectoral focus; and geographically disparate regional case studies from Canada, Japan, Norway, and Spain. In addition to the introduction, I have selected sample chapters from each of these sections for further discussion.

The apparent linkage of high innovative output with rapid regional growth, exemplified by Silicon Valley, attracted the trio of editors' attention to the topic of this book. However, their economist bent is revealed in its utilization as a formulaic variable—and dated in the lack of mention of both the turn-of-the-century tech bubble burst and the earlier slowdown that hit Silicon Valley some years previously prior to its Second Coming. Another trio lies in key questions that they feel are addressed by the triad of theories mentioned above: why does economic growth concentrate in particular places, what role does technology play in this differential process, and how is technology advanced/retarded? Curiously (and unfairly) economic geography is credited with answering clustering questions, but two economists are quoted to support the unfounded allegation that the role of technology in economic growth remains unaddressed. Economists are again largely credited with insights into the importance of proximity and its bearing on the tacit, "sticky" nature of knowledge transference by spillover (face-to-face transmission), as well as through codified (generally accessible) transmission. The spatial scale and scope of innovation systems, and the extent of a "region" (multinational? multimetropolitan?), is problematic. The best scale of innovation transmission remains controversial too: Firm? Individual? Sector? Organization type? The recurring look at utilization of patents to trace innovation also bears an economist stamp.

The team of Roberto Camagni and Roberta Capello strive to find methods to measure the contribution of a milieu, or place-based assemblage of relationships, to innovative capacity. While contractual relationships are easy to assess, crucial but informal "untraded interdependencies" leave less of a footprint. The authors articulate well elements of the often-misunderstood milieu concept and set them out graphically in this chapter. They use data derived from firms in three areas of northern Italy (the much-touted and studied Emilio Romagna region) to test statistically innovation transmission. The "goodness of fit" adequately accounts for two-thirds of the propositions tested as to the value of collective learning. Thus econometrics supports what is already known.

Luis Suarez-Villa frequently researches the role of innovative networks in sustaining economic growth—what he terms R2R (research unit to research unit) links— buttressed by extensive citations. He proposes nodal, non-nodal circuit, and branch structure to illustrate the types of relationships he elaborates and contrasts with unit linkages. The latter, as he defines them, are seen as crucial for developing and sustaining competition. It is not difficult to see the author's links with a school of ecology in his emphasis—actually well placed—on types of interdependent relationships.

The role of Austrian collaborative university research in regional innovation systems serves as the research focus for the collaborative chapter by Martina Fromhold-Eisebith and Doris Schartinger. Indeed, it seems appropriate that double the number of chapters in this book are the result of authorial collaborations than are single-authored. The authors acknowledge universities as major resources for regional innovation, utilized as such by both business and political interests for their technology transfer function (in this article annoying shortened to "TT"). The authors contribute the factors of research "provision" (related to the particular disciplines featured in the university) and "receptivity" of borrowers (p. 173) to their TT assessment. A key factor is found to be the match between departments and businesses in the region. Their multidimensional analysis provides a useful tool for further studies of specific regions.

The communications industry provides the sectoral focus of Pat Norton's examination of the impact of entrepreneurs on the edge of an established technology monopoly—in this case the US telephone business. All but the last two pages relate the historical development of this one industry, providing a largely atheoretical—if nevertheless interesting—account tied loosely to Schumpeter's well-known “creative destruction” thesis. Compendiums are often of an uneven nature.

For a regional example, Tomokazu Arita and Philip McCann consider “Japanese vertically integrated semiconductor producers” (p. 321). Highly concentrated in Asia, this industry spans various nearby countries to take advantage of the wide range of labor costs and technology levels available, from low-cost China to highly developed engineering in Japan and the contractor level of Taiwan. Indeed, one of the authors' findings concerns the regionally specific spatial and organizational nature of wafer production, differing from methods used in the other triad powers of the US and Europe. Using evidence gathered from 123 plants constituting the industry in Japan, they discount the product cycle model apparent in the US, where location within the country reflects the wage and innovation level appropriate to a particular stage of production. Although plagued by a statistical problem of overlapping factors (multicollinearity), the authors nevertheless ascribe Japan's difference in location patterns to distortions arising from the national keiretsu model of integrated monopolies that precludes external information interactions found so beneficial under other circumstances. This chapter benefits greatly from several maps locating related firms. It epitomizes the importance of detailed case studies that test generally accepted models, only to find them lacking in applicability given very different global context.

While a useful and thought-provoking collection of works by some noted and less well-known authors in the field, the lack of a conclusion section lessens the contribution. Readers are left to their own comparison of these studies with more familiar examples, and conclusions are left dangling. Overall, however, it is a worthy compendium adding more fuel to the quest for economic growth theories that withstand empirical testing.