



Book Reviews

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Book Reviews

Cooperation, Networks and Institutions in Regional Innovation Systems

Dirk Fornahl & Thomas Brenner (eds)

Edward Elgar, Cheltenham, 2003,
x + 362 pp., ISBN 1-84064-983-6

As in many countries over the world, the German government has become interested in the phenomenon of industrial clusters and, in particular, how the emergence of local industrial clusters can be triggered by policy measures. Dirk Fornahl & Thomas Brenner took up this question and organized a workshop in February 2001 at the Max Planck Institute in Jena, bringing together a group of respected scholars from economics and geography on the topic of clusters and networks.

This book is conveniently organized in three parts: theory; case studies; and policy implications. The theoretical perspective taken by the editors is quite innovative in advocating an explicit dynamic and evolutionary view. 'The perspective that we propose considers the emergence of local clusters as a dynamic process with different stages at which different mechanisms play a role [. . .]. According to this perspective, the emergence of local industrial clusters is triggered by certain developments in an industry, usually increases in demand or technological changes. As a consequence, new firms are founded and existing firms grow. If the industry satisfies certain conditions, the firms do not appear in a geographically scattered way, but form local clusters' (p. 4).

The editors identify the following three of such stages, all characterized by different mechanisms and policy implications. First, generic conditions related to the institutional framework need to be in place. Policy can work on improving these conditions, such as a necessary condition for the emergence of clusters. Second, entrepreneurs will start new businesses, and, while the presence of successful entrepreneurs can hardly be stimulated, government can help entrepreneurial action and learning among entrepreneurs. Third, once the seeds of clusters are

present, government can stimulate several self-reinforcing mechanisms to create a cluster, including spin-off, spillovers and the accumulation of human capital.

Although rather sketchy, this framework can, in principle, provide a greater analytical basis and coherence than one generally encounters in this type of literature. By taking an explicit dynamic view on clusters, how these emerge and evolve, the book attempts to go beyond static considerations that view clusters solely from functionality (e.g. to reduce transaction costs or knowledge spillovers) rather than explaining the rise and decline of clusters. Moreover, it is based on a formal entry-exit model by Thomas Brenner (see Chapter 15 and references therein).

To contribute to theoretical unity is indeed one of the main objectives of the book. Such unity is important, not only to accumulate scientific research at a greater pace than before, but also to better legitimate government policy. Since tax money is unevenly distributed across different regions and sectors, the logic of policy-making requires a general framework, deciding why certain regions and sectors are to be stimulated and others are not. In this context, case study research, although necessary, will not be sufficient.

In their short first chapter, Fornahl & Brenner do not elaborate further on this framework, and, apparently, trust in the subsequent seven theoretical chapters to complement their framework. Unfortunately, the theoretical contributions do not contribute to a greater unity, as advocated by the editors. In contrast, interdisciplinary voyages into anthropology (on local cultures), cognitive psychology (on role models), social psychology (on polarization of local groups), and sociology (following Luhmann's theory on trust) dominate. Concerning contributions from economics, these draw upon transaction cost economics, which essentially approaches clusters as governance structures rather than as a dynamic phenomenon. A final chapter goes into the delineation of industrial districts and, as such, is better understood as a methodological rather than a theoretical contribution.

The variety of approaches is not disturbing in itself and is perhaps even welcomed by many. What is more, many chapters introduce interesting and novel ideas, for example, on third parties in R&D collaboration (Nooteboom) and on cognitive lock-in (Seri). However, this does not live up to the expectations created in the first chapter. After reading the chapters, theoretical unity is still lacking, and models, be they qualitative or mathematical, on how clusters emerge and develop over time have not been presented.

The second part of the book deals with four case studies. Perhaps surprisingly, it is in this part of the book that the contributions fit more closely to the original theoretical framework presented by the editors in the first chapters. The first study, by Van Dijk, deals with the emergence of an information technology cluster in Nanjing. Using a very helpful stage model of cluster development in less developed countries, which can be considered an elaboration of the more general framework in the first chapter, the author analyses the current stage of the cluster. From such an analysis, useful conclusions are drawn concerning the current needs of a cluster and possible roles for government. It must be remembered, however, that a stage model of clusters, which is inductively derived, does not yet provide us with an evolutionary model that describes the mechanism underlying the stages of clusters.

The second study addresses two competing TV content clusters in Germany, one located in North-Rhine Westphalia (Cologne/Düsseldorf) and one located in Berlin. Lutz *et al.* describe how the cluster in the former West Germany emerged out of the WDR that acted as a trigger for new private firms, including RTL, VIVA and VOX. Production was transformed from one largely based on WDR to a cluster of flexible specialization and supporting institutions, which sharply contrasts with the Berlin cluster. The most important institution was the Filmstiftung NRW, established in 1991 jointly by WDR and the regional government, which not only financially supported high-quality local content production, but also acted as an intermediary in setting up training institutions, collaborative projects and discussion groups. It would, however, be wrong to conclude that the erection of such institutions caused the industrial cluster in North Rhine Westphalia. The impact of government policy, or institutional thickness, seems to be slightly overrated in the analysis

(p. 215). Rather, with the TV business booming already in the late 1980s, most of the supporting institutions emerged out of the cluster (i.e. endogenously), and hereby facilitated its further growth and development.

Lissoni & Pagani studied the Brescia cluster of textile machinery with a focus on innovation and knowledge exchange. Their chapter starts with a critical discussion of the literature on industrial districts. These districts are generally thought of as being based on strong social communities with informal relations that would facilitate the exchange of tacit knowledge. The authors argue that it is more useful to distinguish between relations between individuals and relations between firms. Individuals are organised in epistemic communities rather than social communities per se. In epistemic communities, knowledge is produced and exchanged within disciplinary boundaries. Since knowledge production is highly specialized, multiple epistemic networks exist within a cluster, each with their own code. Thus, tacit knowledge and codified knowledge are not substitutes but complementary in that both types are used in the production of new knowledge in these communities. Whereas individuals exchange knowledge within communities, firm relations are predominantly bilateral, typically among users and producers. These relations also tend to be more formalised to prevent proprietary knowledge leaking out to local competitors. In such a framework, and as illustrated by the Brescia case, innovations occur where personal relations in epistemic communities overlap with formal relations between firms.

The last case study, by Isaksen, concerns offshore engineering in the Oslo region. This study is particularly interesting because it deals with a classic case of lock-in into a technological trajectory, and firms' inability to switch to a more promising trajectory. In the case of offshore engineering in the Oslo region, the inertia of firms is not only related to invested resources and interests in the older knowledge base, but is also due to the monopoly power of the firms in question. The case is interesting and well analysed but only partially fits into the book, because offshore engineering is not characterized by local clusters. Rather, production is, by nature, localized geographically, yet knowledge production takes place within global networks (pp. 269–270). Still, as Isaksen shows, one can meaningfully analyse the role of the regional innovation system within this global context in terms of how the actors in the Oslo region have (not) contributed to

innovation. The author, however, seems to stress the management of tacit knowledge too much as a critical factor. One may wonder whether tacit knowledge really matters that much in explaining why firms in a science-based industry did not shift to a new technological trajectory.

The book ends with three chapters on regional cluster policy. The chapters on university start-ups in Germany and on 'territorial competitiveness policy' in the Mezzogiorno region remain speculative, as the authors admit. The effects of cluster policies are hard to assess, not only *ex ante* but also *ex post*. The chapter on Germany suffered from a lack of empirical data, while the policies in the Mezzogiorno case are still underway (so that the chapter deals with policy design rather than with the assessment of the effects of policy). Still, both chapters are good reading and may provide new clues for policy making in other regional contexts as well.

The final chapter by Brenner uses a methodology that is very different and innovative. He proposes an industrial-organization type of simulation model, including entry, growth and exit of firms; innovation; venture capital; and inter-firm collaboration. Although the model lacks an explicit spatial structure, one can still argue that the model captures the fundamental economic drivers of cluster development (which were presented in the introductory chapter as well). Using simulations, Brenner tests the effects of different types of policies at different moments during the evolution of a cluster. He distinguishes between different cluster policies, including the stimulation of start-ups, of innovations, of spillovers, of learning capabilities, of collaboration, and an increase in general political support. Rather surprisingly, most types of policies have only a significant effect on cluster formation in the very early stages of cluster development. It is in this period that the 'windows of opportunity' (p. 343) are open. Only the policies that stimulate collaboration and learning capabilities seem to have an effect at later stages, which can be interpreted as effective ways of dealing with demand saturation. All other policy types are only effective in the very early stages of cluster development. The results suggest, in a general sense, that cluster policy should be rather generically aimed at creating clusters in any region, and should abstain from very specific policies for older clusters.

In conclusion, although the book does not provide the very coherence it suggests in

the introductory chapters, in particular in the theoretical sense, the variety and quality of contributions renders it a valuable contribution to the literature. In particular, bringing together both economists and geographers, one can witness the current convergence between the literatures, in particular between the concepts of evolutionary economics (on innovation) and of economic geography (on clustering). This is particularly evident from the excellent case studies and sophisticated chapters on policy. What is still lacking is a theoretically coherent book on the evolutionary dynamics of clusters. Let us hope that Brenner & Fornahl extend their excellent work into this direction in the near future.

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*Environmental Accounting in Action:
 Case Studies from Southern Africa*

Glenn-Marie Lange, Rashid Hassan &
 Kirk Hamilton

Edward Elgar, Cheltenham, 2003,
xiv + 223 pp., ISBN 1-84376-076-2

The book is a timely publication and is indeed a valuable addition to the growing contributions to the field of resource and environmental economics in general, and—more specifically—to the field of sustainable development and natural resource accounting for developing countries.

The potential readership for this book is wide ranging, from classroom teachers to researchers, and policy makers and stakeholders in sustainable development and resource management—not only in developing countries, but also in developed countries. In addition, non-economists interested in the sustainable management of resources may find this book useful.

The book starts with a detailed overview of basic concepts and methods in natural resource and environmental accounting, including the concepts of non-declining total wealth and genuine savings. The next four chapters present the methodology, the estimation and the reporting of four accounts (i.e. minerals, forestry, fisheries and water resources). The final chapter demonstrates how micro information can be used for macro policy decisions on resource manage-

ment, which includes developmental goals, by linking total wealth, welfare and sustainability. The problem of the Dutch disease for resource-abundant countries is highlighted. The book concentrates on resource accounting for three countries: Namibia, Botswana, and South Africa.

What makes this book useful are its lucid presentation and its contents. All steps are very clearly demonstrated. The methodology for constructing the accounts (for each of the resources) is followed by a (country-specific) discussion of the availability of data and their use for the preparation of the accounts. In addition, the connection between policy formulation and the estimates that have been obtained is examined.

The minerals and the water accounts have been prepared for South Africa, Namibia and Botswana, the forestry account has been set up for South Africa and partially for Namibia, while the fisheries account has been constructed for Namibia. This diversity in coverage reflects how the status of data and their availability can be an obstacle for the preparation of such accounts. For the water and minerals accounts, it is shown how indicator developments can lead to a comparison of performance across countries, which is a very insightful aspect of this book. It should be mentioned though, that it is only in the forestry chapter that it is demonstrated how the physical and the monetary accounts (prepared for a certain resource sector) can be integrated with the country's regular economic accounting (i.e. through a correction of NNP). This has not been done for the

other three resource accounts (minerals, water and fisheries).

The absence of chapters on air and land accounts, shows that this initial effort has been partial. However, it is not clear from the book whether air and land accounts are unimportant in the context of the countries under study, or whether data availability (or time constraints) have played a role in their non-inclusion. The basic concepts covered in the first chapter on the preparation of monetary accounts is not sufficiently exhaustive, because only the NPV (net present value) and rent calculation methods—supplemented by discount rate calculation—are mentioned and used. Non-market valuation of environmental resources and how to integrate this into the preparation of monetary accounts, is completely ignored. This might be misleading for some readers, because it is not clear why these aspects have been bypassed completely. Was it due to a lack of information, to past case studies on valuation, to the methods not being applicable in the context of developing countries, or maybe to some other reason? The inclusion of one section in the first chapter clarifying the scope of the book against the background of the existing literature, would have yielded a high value added as far as comprehensiveness is concerned. All these points of critique, however, do not diminish the usefulness of this book, especially for those who are trying to build up resource accounts in a developing country context.

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