The Review
of Regional Studies

Oklahoma State University

In Honor of Manfred M. Fischer

It is not often that a festschrift in honor of an esteemed scholar appears before his or her retirement, but the particular scholar that we pay tribute to here on his 60th birthday deserves to be honored time and again. **Manfred M. Fischer** has not only given the academy a virtually unending stream of papers and books of the highest quality, but he has also given of himself for the betterment of the academic institutions and organizations of which he is a part. Currently, Manfred Fischer is a professor in the Institute for Economic Geography and GIScience and the Dean for the Department of Social Sciences of the Vienna University of Economics and Business Administration. He has contributed heavily to a host of fields, including regional and urban economics, housing and labor market research, transportation systems analysis, innovation economics, spatial behavior and decision processes, geocomputation, spatial analysis and spatial statistics, and geographic information systems. A person meeting him is always left with a sense of being in the presence of someone who represents high academic standards and who upholds the dignity of the academic profession. The outstanding scholars participating in this festschrift represent some of those who know him and who want to express their admiration for him by having prepared papers in fields to which Fischer has been a distinguished contributor.

Before I briefly describe the papers in this festschrift issue, it is fitting to mention Fischer's role in the field of regional science, the discipline to which this journal belongs. Manfred Fischer is one of the finest scholars in the field of regional science and a truly remarkable intellectual leader in the field. He has published widely and often in regional science journals and has been instrumental in the publication of over a dozen volumes in the areas of spatial econometrics, technological change, labor markets, and neural nets.

Manfred Fischer is one of the most cited regional scientists. His leadership and inspiration are largely responsible for the desire of some of the finest scholars in regional science to work with him on research and other academic projects. He has helped to design a dozen regional science conferences both in Europe and in North America. He is a joint Editor-in-Chief together with this writer for the last 12 years of the *Journal of Geographical Systems,* a publication that bridges the work between regional science,

quantitative geography, and GIScience. He is a remarkable colleague, one who exudes charm and enthusiasm that bring out the best in those fortunate to work with him.

It would be of interest for the reader to know about Manfred's career. Rather than list his over 200 papers and chapters and many monographs and the myriad activities and projects in which he has participated, I would like to trace his ever-changing interests by noting some of those with whom he has collaborated. His interests, while encompassing new fields and new challenges, actually remain within a limited range of spatially-oriented subjects. When the last festschrift is produced in his honor, Fischer will be feted as a great spatial theorist and practitioner. His work is a true example of the consummate scholar who seeks challenges, solutions, and new insights.

By the time Fischer had accepted a professorial position at the Vienna University of Economics and Business Administration in 1988, a post he has held to this day, he had already developed strong collaborative relationships. One of those was with **Peter Nijkamp**, the esteemed Dutch regional economist, and this partnership has continued throughout Fischer's career. In those early years, in the 1980s, they worked on discrete choice models. They were able to add the dynamic dimension to the strong interest at that time in market behavior. Also in the early to mid-1980s, he and another Netherlander, **Henk Folmer**, looked deeply into the role of time series analysis in regional science. Leading to his life-long interests in spatial analysis, Fischer collaborated with **Gerhard Bahrenberg**, of Bremen, and Nijkamp to take an inventory of the types of models and methods extant in the field of geography. Fischer was critical of the lack of scientific rigor in his chosen discipline of geography. Even to this day, he works to inform his discipline of the powerful techniques that are available for the analysis of spatial data.

Soon after accepting the chair of economic geography in Vienna in 1988, his interests in discrete choice models and spatial analysis led him to begin exploring spatial interaction in a choice-set world. A memorable chapter comparing different views of dynamic choice processes was written with the theoretical physicist **Wolfgang Weidlich**, the mathematician and regional scientist **Michael Sonis**, and the discrete choice modeler **Gunter Haag**.

His interests in spatial interaction continue to this day. He is one of the few scholars who see studies of spatial association, so strong in the academy today, as the study of spatial interaction. Between 1988 and 1992, Fischer and Nijkamp wrote a number of papers and edited volumes on geographic information systems (GIS). These were among the earliest works by spatial analysts that endorsed and found value in GIS. Before that time, many spatial theorists were skeptical about the usefulness of what they considered to be "bells and whistles."

In 1992, Fischer, who had always been interested in technological change and wrote many papers on the subject, began to work with **Sucharita Gopal**, of Boston University. This collaboration led to major works in the area of neurocomputing. They were able to extract from the physics, computer science, and psychology literature the fundamental

tenets of neural networks and reorganize them for computation in a spatial data environment that includes multispectral spatial imagery. Fischer applied neural network analytic routines to transportation, communication, and spatial interaction networks. In this work he collaborated with, among others, his student, **Petra Staufer**, and the remarkable genetic-algorithm expert, **Yee Leung** of Hong Kong. This interest remains strong in Fischer's research agenda.

While engaged in these fundamental subjects, Manfred Fischer seemed to always find time to demonstrate the usefulness of spatial analytical approaches. One area in particular needs mentioning. Fischer and **Luis Suarez-Villa**, of the University of California Irvine, **Rico Maggi**, of Lugano in Switzerland, and **Hubert Beguin**, of Louvain in Belgium, collaborated to produce many works on the impact of technological innovation on economies.

In recent years, Manfred Fischer has been using his wide experience and deep knowledge of geocomputational procedures to further knowledge of spatial interaction and spatial knowledge. He continues to emphasize neural nets but combines this with work in spatial statistics and spatial econometrics. Springer, the publisher, asked him to put together a volume of his own work. This book, *Spatial Analysis and Geocomputation – Selected Essays* (2006), gives the reader a view of the breadth, considerable depth, and exceptional contributions that he has produced. That he is but 60 years old, the book is indicative of his myriad contributions and of the promise of further research, insights, and informed discussion.

The papers that appear in this issue of the Journal have been produced by scholars who have given much to regional science and spatial analysis in their own right. These papers represent fields to which Fischer has contributed. The first, by **Sergio J. Rey** and **Luc Anselin**, represents the next chapter in their quest to put before spatial analysts and practitioners the finest software for spatial exploration and spatial econometric modeling. Anselin's *GeoDA* and Rey's *STARS*, two heavily used packages, are brought together to create a library, called *PySAL* (written in the Python language for a spatial analysis library), whose purpose is to avoid duplication of core spatial data analysis functions, to focus on increased specialization of related functionality, and to introduce spatial analytic modules to the many Python programmers. In a word, the authors seek a level of standardization that is compatible with a wide range of graphical interface and econometric toolbox software.

The short paper by **Daniel Griffith** shows the formal linkages between spatial structure, spatial filtering, and spatial interaction. Perhaps more than any other fundamental concept, Fischer has devoted himself to the exploration and modeling of spatial interaction. Of particular interest is Daniel Griffith's new gravity model equation that deconstructs origin and destination variables using a spatial filter that he and **Michael Tiefelsdorf** developed.

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One of Fischer's earlier collaborators, Michael Sonis, provides a paper written with **Geoffrey J.D. Hewings** on income distribution models. In particular, they consider a relatively new model (mid-1990s) by **Albert E. Steenge** that explains in new ways **Piero Sraffa's** well-known 1960 commodities model. Sonis and Hewings show the relationship between Sraffa's commodity system and the multiplier matrix so common in Leontief's interindustry structural design. They put their insights to work by applying Sraffa's matrix to the 1987 Chicago economy.

Several of Fischer's frequent collaborators have prepared a paper on neural network models for regional labor market forecasts. **Roberto Patuelli, Simonetta Longhi, Aura Reggiani,** Peter Nijkamp**,** and **Uwe Blein** provide a useful service by comparing and evaluating five neural network models. They use the Friedman statistic, a rank order test employed often in data mining software, to isolate factors that account for variance in a single variable. The result is that the neural network models are able to "effectively reproduce the rankings of German regions in terms of employment growth rates."

Manfred Fischer's consummate interest in European economic dynamics is exemplified by the paper of **Cem Ertur, Julie Le Gallo**, and the editor of this set of papers**, James P. LeSage**. There are now a host of articles describing the economic convergence of European countries and their sub-regions. A difficult problem emerging from this work is heterogeneity in the cross-sectional data. Many of the regions of Europe are structurally quite different from one another, and as a result, parameters modeling convergence tend to be inconstant across the continent. Using a local linear estimation approach, the authors are able to partition the data and identify a new concept, local convergence, that describes spatial clustering of the magnitudes of convergence parameter estimates.

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