URBAN MODELLING

Critical Concepts in Urban Studies

Edited by
Alan Wilson

Volume IV
Integration and Dynamics: The 1980s and 1990s

Routledge
Taylor & Francis Group
LONDON AND NEW YORK
# CONTENTS

## VOLUME IV  INTEGRATION AND DYNAMICS:
THE 1980s AND 1990s

*Acknowledgements*  ix

*Introduction*  
ALAN WILSON  1

### PART 19

**The comprehensive urban model**  7

73 Discrete choice theory and the general equilibrium of employment, housing, and travel networks in a Lowry-type model of the urban economy  9  
A. ANAS

74 Integrated forecasting models of urban and regional systems  29  
M. WEGENER

75 The MEPLAN models of Bilbao, Leeds and Dortmund  46  
M. H. ECHENIQUE, A. D. J. FLOWERDEW, J. D. HUNT, T. R. MAYO, I. J. SKIDMORE AND D. C. SIMMONDS

### PART 20

**Spatial interaction theory**  63

76 Micro-simulation  65  
M. CLARKE, P. KEYS AND H. C. W. L. WILLIAMS
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>77</td>
<td>A unifying framework for public facility location problems—part 1: a critical overview and some unsolved problems</td>
<td>G. Leonardi</td>
<td>82</td>
</tr>
<tr>
<td>78</td>
<td>A unifying framework for public facility location problems—part 2: some new models and extensions</td>
<td>G. Leonardi</td>
<td>121</td>
</tr>
<tr>
<td>79</td>
<td>Some theoretical aspects of destination choice and their relevance to production-constrained gravity models</td>
<td>A. S. Fotheringham</td>
<td>157</td>
</tr>
<tr>
<td>80</td>
<td>Urban transportation network-equilibrium and design models: recent achievements and future prospects</td>
<td>D. E. Boyce</td>
<td>173</td>
</tr>
<tr>
<td>81</td>
<td>An evaluation of activity-based travel analysis</td>
<td>Ryuichi Kitamura</td>
<td>213</td>
</tr>
<tr>
<td>82</td>
<td>Building an automated modeling system to explore a universe of spatial interaction models</td>
<td>Stan Openshaw</td>
<td>240</td>
</tr>
<tr>
<td>83</td>
<td>Conceptual foundations of spatial choice models</td>
<td>G. Leonardi and Y. Y. Papageorgiou</td>
<td>259</td>
</tr>
<tr>
<td>84</td>
<td>Stated preference analysis of travel choices: the state of practice</td>
<td>David A. Hensher</td>
<td>281</td>
</tr>
<tr>
<td></td>
<td>PART 21</td>
<td></td>
<td>307</td>
</tr>
<tr>
<td></td>
<td>Dynamics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>85</td>
<td>Urban evolution, self-organization, and decisionmaking</td>
<td>P. M. Allen and M. Sanglier</td>
<td>309</td>
</tr>
<tr>
<td>86</td>
<td>On the uniqueness and existence of equilibrium points in an urban retail model</td>
<td>F. J. A. Rijk and A. C. F. Vorst</td>
<td>332</td>
</tr>
</tbody>
</table>
CONTENTS

87 Transport and the evolution of urban spatial structure
ALAN G. WILSON 343

88 The corner-shop to supermarket transition in retailing:
the beginnings of empirical evidence
A. G. WILSON AND M. J. OULTON 363

89 Dynamic forecasting of urban shopping travel demand
NORBERT OPPENHEIM 374

90 Analysis of dynamic spatial interaction models by
means of optimal control
PETER NIJKAMP AND AURA REGGIANI 391

91 An assessment of the space-time differential model
for aggregate trip behavior to planned
suburban shopping centers
ROBERT G. V. BAKER 405

PART 22
Account-based models 435

92 Demographic-economic forecasting within an
activity-commodity framework: some theoretical
considerations and empirical results
P. W. J. BATEY AND M. MADDEN 437

93 Regional and interregional interdependencies:
alternative accounting systems
G. J. D. HEWINGS 459

94 Combined input-output and commodity flow models
for interregional development planning: insights
from a Korean application
TSCHANGHO JOHN KIM, DAVID E. BOYCE AND
GEOFFREY J. D. HEWINGS 475

95 Structural analysis of social data: a guide to
Ho's Galois lattice approach and a partial
respecification of Q-analysis
S. M. MACGILL 492