

BOOK REVIEW

**Rolf Funck, Werner Rothengatter (Eds.), *Man, Environment, Space and Time – Economic Interactions in Four Dimensions*,
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Man, Environment, Space and Time – Economic Interactions in Four Dimensions is the last volume of the publication series **Karlsruhe Papers in Economic Policy Research**, one of the hallmarks of the Institute of Economic Policy Research (Institut für Wirtschaftspolitik und Wirtschaftsforschung – IWW) of the University of Karlsruhe (TH). This institute has a very special place in the history of regional science in Europe: it was established in 1964 by Rolf Funck, who organized in Karlsruhe, at the suggestion of Walter Isard, the First Advanced Studies Institute in Regional Science in 1970 (followed by two more editions of a great impact) and the ERSA Congress in 1974. A truly visionary, great mind of regional science, Rolf Funck (President of the Regional Science Association (International) in 1988-1989) connected the scientific activity of the IWW to the most challenging research topics for each decade, launched new themes, concepts and paradigms in the international arena and created a large international network of top academic collaborators. And together – the IWW members and collaborators – produced the highly successful 34 volume series of Karlsruhe Papers in Economic Policy Research, edited by Rolf Funck with Jan Kowalski and Werner Rothengatter, his exceptional colleagues and friends. The series' end is connected with the institute's ceasing to exist as a result of the general restructuring of the University: it merged with the Karlsruhe Federal Research Institute, forming the Karlsruhe Institute of Technology (KIT). As a moving coincidence, Rolf Funck passed away in August 2015, aged 85, less than one year after volume 34 had been published... Personally, I had the immense opportunity of several research stages at the IWW as a DAAD (German Academic Exchange Service) senior scholar and I owe my heartfelt gratitude to Rolf Funck and Jan Kowalski for everything they taught

me in terms of high level scientific research, successful networking and joy of life. This short introduction is a humble tribute to both of them.

Daniela Luminița Constantin

The volume 34 of the **Karlsruhe Papers in Economic Policy Research**, edited by **Rolf Funck and Werner Rothengatter**, includes 22 contributions of internationally renowned authors that present in-depth approaches in four dimensions: man, environment, space and time. In doing so, the volume follows the holistic research approach of Walter Isard, who initiated a reorientation of regional science while emphasizing the importance of the interactions between the four dimensions. The book devotes a distinct part to each of the dimensions: **Part I – Man; Part II – Environment, Part III – Space and Part IV – Time** and recognizes the fact that this allocation is “more or less artificial” (p.7), because all papers relate to space and include other dimensions with some focus.

In **Chapter 1** (“Martin Beckmann in the Early 1950s: Contributions to Regional Science” by **David Boyce**), the author examines the discussion papers of Martin Beckmann in the 1950s leading to three seminal works on transportation and location theory. The impact of these works on subsequent research on continuous model transportation, assignment problems and the location of economic activities and the transportation network equilibrium and optimization is also emphasized. The contribution of the Karlsruhe Center for Art and Technology to promoting the use of new technology in research, artistic experiment, teaching and education is presented in **Chapter 2** (“On Art and Technology Interaction – Founding the Karlsruhe Center for Art and Media Technology” by **Rolf Funck**). The author points to the role of this institution in increasing the centrality and the attractiveness of Karlsruhe as a location for enterprises in the field of so-called creative industries, thus providing new stimulations to the region’s existing strengths in the field of information technology. **Chapter 3** (“A New Unforeseen vulnerability: Post 9/11 Threats to the U.S. Material Infrastructure” by **Nicholas Balabkins**) describes the “spirit of the times” after 9/11 events in the U.S. and analyzes the Federal Government initiatives to protect against future terrorist attacks; meanwhile, the threats to the U.S. critical infrastructure are evidenced here, while stressing the need for a more practice-oriented agenda. **Chapter 4** (“Recent Re-centralization of Population in the Tokyo Metropolitan Area: ROXY-index Analysis on Spatial Cycles for the Period 1947-2010” by **Tatsuhiko Kawashima, Noriyuki Hiraoka and Junichi Noro**) investigates the phenomenon of spatial cycles focusing upon the process of the spatial redistribution of population for the Tokyo Metropolitan Area and its five major railway-line regions for the period 1947-2010. The research outcomes show that the areas reached a re-centralization stage by the year 2005 and that for the Tokyo Metropolitan Area there possibly exist urban cycles with revolution of around eighty to ninety years. The last paper included in Part I – **Chapter 5** (“Car Sharing in Rome: Built

Environment, Management, Research and Innovation” by **Antonio Musso** and **Maria Vittoria Corazza**) introduces the methodology and the findings of an analysis used for planning the car sharing expansion across the city of Rome. The results take into account the role played by the built environment, as well as the operational thresholds required to start operating the service successfully; particular attention is paid to assessing the positive environmental effects of car sharing on the community, especially for improving air quality and livability.

The papers included in the second part of the book (**Part II - Environment**) emphasize the environmental dimension of the regional planning activities. **Chapter 6** (“The Municipal Real Properties and the New Public Management: Lessons for Central and Eastern Europe from the Developed Countries’ Experience” by **Daniela Luminita Constantin**) addresses the case of the municipal real properties in the framework of the new public management and identifies successful international experiences (from Germany, France, United Kingdom, United States, etc.) for the management of municipal properties portfolio. Such experiences can serve as good practices for Central and East European countries, which are major holders of urban real estates inherited from the former communist regime, but have poor property management systems and lack a strategic vision in this respect. Building on the experiences of damage caused by earthquakes and tsunami, **Chapter 7** (“Learning from the Great East Japan Earthquake: Disciplines for a Resilient Society and Disaster Assessment” by **Yoshitsugu Hayashi**) introduces a disaster assessment system which is aimed at the enhancement of the capability to buffer against and adapt to all natural disasters. Once introduced, such a system could evaluate whether or not the infrastructure satisfies the disaster prevention level, thus creating resilience and lessening the stress on the nation and the society. **Chapter 8** (“Beyond Discounted Utilitarianism – Just Distribution of Climate Cost” by **Axel Schaffer** and **Darrel Moellendorf**) brings into question the intra- and intergenerational justice in bearing the costs of climate change. In order to circumvent the problem of discontinuing, the author introduces the model of “Intergenerational Equality” which proposes a significant increase of the mitigation efforts so that the proportion of climate costs to overall economic output to be equal for all generations.

The third part of the volume – **Part III (Space)** – comprises nine articles focusing on the “space planning” dimension. **Chapter 9** (“Correlation within SNCF Administrative Regions among Track Segment Maintenance Cost Equation Residuals of a Country wide Model” by **Marc Gaudry** and **Émile Quinet**) uses as reference the model of the French rail infrastructure maintenance costs estimated from rail track segment data to explain the presence of strong positive and stationary correlation coefficient estimated for the 23 administrative regions of the national firm SNCF. The authors found two large geographic grouping of regions – in the Eastern and the Northern parts of

the country - to have own residuals uncorrelated among themselves and attributed these differences to within-firm accounting traditions that might have survived to the centralized management control established after 1938. In **Chapter 10** (“A Stepwise Efficiency Improvement DEA Model for Airport Management with a Fixed Runway Capacity” by **Soushi Suzuki** and **Peter Nijkamp**), the authors present the Stepwise DFM-FF model, which integrates the DFM-FF (Distance Friction Minimization Fixed Factor) and the CD (Context Dependent) model and minimizes the distance friction for each input and output separately and in a stepwise manner. The model is used to assess the performance and efficiency of airport operations in Japan and to generate a realistic efficiency-improvement plan, thus providing contributions to decision making and planning.

Chapter 11 (“Spatial Aspects of Network-building in Publishing Activities of German Universities” by **Jan S. Kowalski** and **Mirja Meyborg**) addresses the issue of university co-operation (for co-publications, co-applications for patents, etc.) in the research system network in Germany. The results show that the role of universities is increasing within these networks and that the distance factor is still an important determinant of spatial patterns of interactions, despite the emergence and growth of information exchange technologies. While evidencing some potential causes for the stagnation of railway freight in several EU countries, **Chapter 12** (“The Structure of Freight Flows in Europe and its Implications for EU Railway Freight Policy” by **Kay Mitusch**, **Gernot Liedtke**, **Laurent Guihery** and **David Bälz**) analyses the potential for shifting freight transport to the railways, which is considered an economically viable and ecologically friendly alternative for road transport on long distances. The results show a considerable heterogeneity in terms of capacity utilization and potential market volume for railways, which calls for a division of European railway freight corridors into distinct groups. Policy implications are presented for each type of corridors, with a focus on introducing innovation and technological changes at large.

To create a better basis for decision making on large-scale transportation projects and to remove the limitations of traditional cost-benefit analyses, the author of **Chapter 13** (“Large-scale Transportation Projects: Wider Economic Impacts and Long-run Dynamics” by **Werner Rothengatter**) focuses on several approaches which might be appropriate for the assessment methodologies applied. The conclusion is that there are still major open issues for transport research, so that there is a need for a heuristic combination of approaches that are spread over a long time horizon and are extended to model the interaction effects between transportation and the economy at large. **Chapter 14** (“China Urban Landscape Transforming in the Past Thirty Years” by **Pan Haixiao** and **Jian Haiyun**) concentrates on China’s experience of transition from a rural country to an urbanized one in the last 30 years. The paper discusses the land system reform, urban expansion and spatial planning issues, while emphasizing the support offered to infrastructure

construction, the establishment of new education institutions and industry, the adoption of the poly-centric policies, or, more recently, the use of the concept of “low carbon cities”.

In the context of recent enlargement of existing port infrastructures, **Chapter 15** (“Port Capacity Extension – A Trade-off between Public Investment and Ship Owner Time Losses” by **Hilde Meersman** and **Eddy Van de Voorde**) underlines the potential conflict of interest between the authorities and ship owners and investigates whether port capacity investments can be considered a trade-off between the new capacity created from public money and the potential time losses by private ship owners. The authors call for a combination of optimal infrastructure investments and efficient use of existing capacity, while pointing to the new positions for national and/ or regional authorities, who expect positive welfare return – at least as high as other alternative investments even outside the port sector. Using examples from the North – West Europe, **Chapter 16** (“The Impact of High-speed Rail on the European Space” by **Roger Vickerman**) reviews the arguments over the economic case for investments in high-speed rail. The main conclusion is that high-speed railway is better seen as an improvement to rail networks capacity problems than as an agent of changing accessibility, as the spatial distribution of economic activity is not a simple relationship between accessibility and output and is influenced by many other individual set of circumstances.

Chapter 17 (“Integration as a Spatial Institution: Implications for Agglomeration and Growth” by **Tim Deeken** and **Ingrid Ott**) presents stylized facts and theoretical issues on urbanization, growth and globalization and argues that future research should focus on “integration” as a dynamic concept. In a comprehensive sense, integration should imply changes in the organization of economic processes at a spatial scale and should look at the endogenous determination and its interactions with supranational, national and regional forces.

The final part of the volume – **Part IV (Time)** – addresses issues related to the transformations of regional systems in time. **Chapter 18** (“Development Code of a Regional Economic System. An Empirical Test of Dendrinos' Hypothesis” by **Ryszard Domański**) introduces Dendrinos' concept of the evolutionary processes of large cities and presents the results of research on the development of regional systems of the Polish economy. The conclusions support Dendrinos' hypothesis of “the relative parity of attraction” of large cities that determines the rate of change in the socio-economic structure, but they also unfold new configurations of the code of regional system; in this respect, the statistical observations reveal that the slow changes in the development code in Poland resulted from improvements enhancing the productivity of labor rather than from radical innovations. In **Chapter 19** (“Path Dependency and Transition Processes” by **Ulrich Blum**), the author uses a standard convergence model to examine the development path of

the United Germany and of the Eastern and Western Germany before and after the unification. The results show clear and consistent patterns of convergence for the United Germany and for the Western Germany; instead, in what concerns the Eastern Germany, the convergence factor was of only half of that of West Germany. The conclusion is that it will probably take many additional years to close the income gap between the two parts of Germany. Using the neoclassical arguments from the political economy, the author of **Chapter 20** (“Erosion in Regional Structures” by **Dieter Böckermann**) discusses settlement erosion as a problem of governance responsibility and regional politics. Growth and erosion are seen as complementary processes that happen on different geographical scales – global, national, regional and local. Therefore, the functional deficits should be identified and effective measures are to be conceived by the government at the territorial level, while regional planners are expected to provide evidence-based recommendations and not to define objectives for regional development. **Chapter 21** (“Growth in Post-industrial Cities: An Endogenous Model” by **Riccardo Cappellin**) illustrates with an endogenous conceptual model the evolutionary process of interaction between the supply and the demand in the labour and the product markets, while emphasizing its territorial dimension and the key role played by intermediary and smart cities. To return the EU to a growth trajectory, there is a need to develop policy strategies that promote the “Urban Agenda” and to increase the focus of the regional policies on the urban areas – both the large metropolitan areas and the territorial network of intermediate and small cities. The last contribution for this volume – **Chapter 22** (“Some Fundamentals on the Social Rate of Discount” by **Werner Rothengatter**) – gives an explicit formulation for the intergenerational welfare maximization approach under the conditions of the production technology and the existence of exhaustible resources. The author doesn’t support the hypothesis of an increase of the discount value by the opportunity costs of the public budget, as the opportunity arguments from the welfare and the production side are included in the general optimization calculus and crowding-out effects of public finance seem improbable.

Drawing on valuable contributions from urban economics, transportation theory, regional science, public finances, environmental economics, etc., the current volume reveals important patterns and trends at the global, national and local level, thus being recommended to inform theorists, researchers, regional planners as well as the decision-makers and practitioners worldwide on highly valuable contemporary ideas.

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