# RSAI Newsletter

THE REGIONAL SCIENCE ASSOCIATION INTERNATIONAL

*new series 18 - may 2019*

## Contents

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## Welcome

Dear Friends and Colleagues,

WELCOME, ONCE AGAIN, to the latest edition of the RSAI newsletter. For those of you who are attending the 59th ERSA Congress in Lyon and the 16th PRSCO Summer Institute in Bangkok, I appreciate your attendance and your willingness to share your research, and I am looking forward to seeing all of you. I believe that you will have a wonderful time meeting scholars from diverse backgrounds in a vibrant academic environment. In both locales, the organizational committees have done a fantastic job in putting together a great academic and social program.

Besides the meetings in Lyon and Bangkok, the forthcoming October Latin American and Caribbean Regional Science Meetings in Mexico City and the November 2019 NARSC meeting in Pittsburgh will provide another platform for regional science debate. Other workshops and seminars such as an upcoming one in Indonesia will provide training opportunities for young regional scientists. Also, be on the lookout for information on the PRSCO/WRSA Hawaii conference in March 2020 and the RSAI World Congress in Morocco in June 2020. While I am focusing on the major conferences, our RSAI sections are also providing other venues for our work. I thank our conference and seminar organizers who make these wonderful events happen.

Regional science is at the forefront of public and political discourse. With the recent rise in interest in unequal spatial development, nationalism, and sustainability concerns including climate change, our gatherings are even more vital. The dissemination of our scientific research plays a critical role toward promoting effective policies, equal development opportunities, and better use of resources. Please reach out to other researchers, policymakers and society as a whole to attend our conferences and become more aware of our important research and its implications for policy. It is our members that make regional science such a rapidly growing field.

This newsletter helps set the stage for ongoing academic discussion. Enclosed are three notes on "healthy cities" and Henk Folmer's brief trying to define regional science for the 21st century. I trust you will enjoy this discussion.

Finally, I want to thank the service of my predecessor as RSAI President, Budy Resosudarmo and Tomás Lopes Cavalheiro Ponce Dentinho who served as Executive Director for nine years. Both of them worked tirelessly in widening regional science's reach throughout the world, but most recently in Asia and Africa, especially in bringing India and China more closely into the international regional science community. They left us in good shape to build on their efforts. Thank you.

Check out the RSAI webpage at www.regionalscience.org/ for more details of these conferences and other regional science programs and opportunities around the world.

Best wishes,

Mark Partridge

*President Regional Science Association International*

*The Ohio State University*

## RSAC accession

THE REGIONAL SCIENCE Association of China (RSAC) has now been fully and officially integrated into RSAI since 2018. It's a milestone for China and the RSAI world. RSAC is a national academic organization supported by Peking University, endorsed by the Ministry of Education of the People's Republic of China and registered with the Ministry of Civil Affairs of PRC. In 1991, the RSAC was sponsored and organized by Prof. Yang Kaizhong with the support of a number of renowned scientists, among which were Walter Isard, William Alonso, Martin J·Beckmann, Masahisa Fujita and Manas Chatterji, famous Chinese economists, including Hong Ma, Shangqing Sun, Jingwen Li, Zaixing Liu and Shuzhen Yang, famous Chinese geographers, including Chuanjun Wu, Shupeng Chen, Chuankang Chen, Wuyang Yang, Zhaoliang Hu, Xuwei Hu, Wenyan Li and Dadao Lu, and famous Chinese experts in urban planning such as Deci Zhou. Since then, a formal academic organization has been growing in China to support and coordinate the academic communication and cooperation in regional science both at home and abroad.

At present, there are over 1000 membership in the RSAC, including 246 directors and 78 executive directors. The Association holds a think-tank of more than 2800 experts in relevant fields at home and abroad. Each year, activities held by the Association involve the attendance of about 23 thousand relevant scholars which combined show that they have attracted nearly 100 thousand academics. In addition, the Association has set up 22 special committees. RSAC is improving the mechanism of communication and cooperation with Regional Science Association International (RSAI), Pacific Regional Science Conference Organization (PRSCO), North American Regional Science Conference (NARSC), and European Regional Science Association (ERSA), regional–science related academic organizations of major countries and relevant institutes of higher learning, scientific research institutions, government departments and enterprises at home and abroad.

As we all know, China is a developing economy characterized by a vast territory, a huge population and significant regional disparity. Regional issues take a prominent position in national economic development in China. By joining the RSAI, RSAC will play an even more important role in promoting the prosperity and development of international regional science by uniting and organizing research workers in international field of geography, economics, sociology, environmental science, system science, management science, behavioral science and policy science for coordinated multidisciplinary exploration of regional

issues, for domestic and international academic exchange and cooperation and for providing scientific support and consultation services to decision-making on the side of government and enterprises. RSAC has in terms of future scientific development goals as follows:

To be more active. RSAC will actively develop members, encourage members to attend academic meetings and promote academic exchange and resource-sharing both at home and abroad. We would like to express our strong willingness to host the RSAI World Congress in 2022.

To be more international. RSAC would like to establish partnership with the NARSC, ERSA, PRSCO and LACRSA. The Asian Conference on Regional Science has been annually and successfully held for more than a decade. As its original sponsor, RSAC will take even more efforts in improving the interface and platform in Asia.

To be more helpful. RSAC hopes China will continue to actively participate in international events. On the basis of the existing training program for young scholars, RSAC will take an active part in Nurturing Talent Program of RSAI. RSAC would like to contribute her efforts in progressing activities of RSAI including restructuring issues.

To be more fruitful. RSAC will compile and publish more regional science books and articles in English, through the academic exchange platform of RSAI. RSAC is thinking about its own international journal.

To be more attractive. RSAC is attracting more young scholars each year who are also joining the RSAI. This will help to enhance the influence of the Regional Science Association of China, which in turn will also inject new impetus into RSAI in Asia.

RSAC takes this opportunity to express their sincere appreciation of the help and effort from the international family of regional science, including Budy Resosudarmo, Tomaz Ponce Dentinho, Mark Partridge, Andrea Caragliu and each President of RSAI, particularly Andres Rodriguez-Pose, Jean-Claude Thill, Yoshiro Higano, Roberta Capello, Roger Stough, Kingsley Haynes and Peter Nijkamp. Many thanks for your long-term care, encouragement, support and help to our development! RSAC would like to work with our international colleagues to jointly write a new chapter on regional science in the future.

Paul Snow (Xue Ling)

*Professor in Regional Economics and Urban Computing*

*School of Government, Peking University*

## REPORT | 2ND DEPOK INTENSIVE COURSE

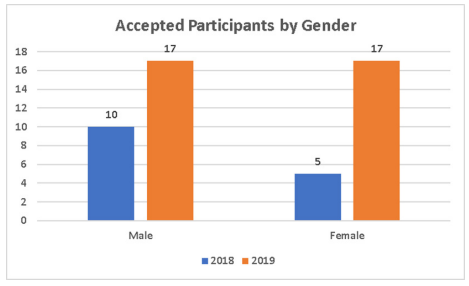
THIS YEAR IS the 2nd year that the Intensive Course Program on Urban and Regional, Transportation, and Environmental Economics took place. Compared to last year, we made a lot of improvement on this program. Among others, we brought more recent issues into the class for discussion, and the assignments were made more interactive. This year, these included policy briefs, a look at the microeconomic side of spatial economics, and a paper on land pricing.

*Gerard van der Meijden*

The intensive course was organized in cooperation between the School of Business and Economics of the Vrije Universiteit Amsterdam and the Faculty of Economics and Business of Universitas Indonesia, with each partner contributing 50% to the course, and supported by the RSAI *Nurturing Talent* programme. The first two weeks, courses were delivered by the UI lecturers, providing basic econometrics and microeconomics for the participants. These training courses were also accompanied by live coaching on applying econometrics to basic economics problems. In the other two weeks, courses were given by the Amsterdam staff, lecturing on spatial economics, covering transport, environment, as well as urban & regional issues.

Participants appreciated the course in general. They evaluated the course and the material provided as “very good”. Most of them were pleased to have been involved, both those from academic backgrounds and those from outside academia. In particular, some participants developed a strong interest in the field and intend to apply for the Master’s Programme and Ph.D. programme on Spatial Economics at the Vrije Universiteit Amsterdam.

The Intensive Course was designed for students, lecturers, and researchers from economics field who are developing an interest in Spatial Economics. However, the course also accepted participants from outside economics and even from non-academic backgrounds (e.g., private companies), who expressed their interest and felt a need to participate. The number of participants has more than doubled compared to last year. Among the participants, we saw a more equal gender proportion (see Figure) and a broader age distribution than last year. All in all, 34 participants attended the course for the entire month. The course was developed withy partial funding by the Regional Science Association international.

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## RSAI CONFERENCE: MOROCCO 2020

THE 2020 RSAI World Conference will be held from 2 to 5 June, 2020, in Marrakech, Morocco. It will be organized by the Moroccan Section of the Regional Science Association International. The meeting is open for the world-wide regional science community and aims to bring together the key elements of multidisciplinary regional science research and to provide a scientific platform for presenting and discussing research at the frontiers of the spatial sciences in a broad sense. The themes addressed zoom in particular on the pressing challenges of meeting the 2030 Agenda of Sustainable Development Goals, in both developed and developing economies, and cover spatial dimensions ranging from local to global development. Such challenges relate to both people and places, and call for innovative and critical contributions from a conceptual-theoretical, statistical-modelling, practical evidence-based, or governance perspective.

Consequently, topics such as urban-rural development, migration, spatial and resources (al)location, border effects, urbanization, sustainable and circular cities, mobility, land use, environmental quality, disaster management, energy transition, culture, poverty, segregation, spatial justice, social justice, gender, social enterprises, policy and governance, entrepreneurship, spatial statistics and modelling are important ingredients of the 2020 World Congress. A new challenge to regional science research is formed by the emerging digital technology and its implications for analysis, monitoring, evaluation and forecasting spatial dynamics at all levels. Therefore, the potential of spatial and temporal big data, of social media information, and of the new spatial maps emerging from digitization and robotization will be addressed as well, as these forces will have far-reaching impacts on human behaviour and interaction in space.

The Mediterranean area and Africa are challenging realities on their own, and Morocco, named the most attractive investment destination in Africa according to the Africa Investment Index 2018, is the ideal venue for a conference that focuses upon the friction zones between developed and developing worlds in the Americas, in Eurafrica and in Asia. The Ocher City Marrakech provides the perfect setting of a geographically varied and pristine landscape, well connected by air, suitable to accommodate, in high quality and modestly priced hotels, many scientists from all countries, and from where they can enjoy the images of the desert, the wisdom of the Mediterranean, and the challenges and opportunities of global routes and networks. Its historical setting and geographical location at the foot of the High Atlas Mountains and at less than one hundred miles either from the Sahara dunes or from the Atlantic beaches, is a guarantee for a creative and enjoyable regional science gathering.

Abdellatif Khattabi

*President of the AMSR*

*Ecole Nationale Forestière d'Ingénieurs*

## ERSA CONFERENCE: LYON 2019

ON BEHALF OF the Local Organising Committee of Lyon, the French Speaking Section (ASRDLF), and in close collaboration with the University of Lyon, we would like to express our honour and happiness to organize this 59th Edition of the Annual ERSA Congress.

With respect to the diversity and quality of submissions accepted as well as the numerous ongoing registrations, we are very proud to propose a very rich program of sessions next August in Lyon.

Our umbrella topic "Cities, regions and digital transformations: Opportunities, risks and challenges" raised a lot of enthusiasm among the regional science community and gave birth to 69 attractive Special sessions and 25 General themes.

Many papers focus on ongoing transformations, spatial, organizational and also for services. Beyond descriptive approaches, theoretical ones are also to be renewed.

In the particular context of ERSA congress in Lyon, organized by Laet (Entpe) and Ifsttar, many papers will also focus on transport field. In this area, as in many others, digital transformation brings new approaches or concepts, such as autonomous vehicles, with consequences for the transport system in general but

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also for cities and regions.

#LyonIwillbethere
#ersa2019Lyon

website: http://lyon.ersa.org
Twitter: @ersa2019Lyon

August 27-30, 2019

To open this Congress, we are very proud and honored to welcome two eminent scholars for the Opening Ceremony, Tuesday, 27 August (16.30-18.30): Maryann Feldman of the University of North Carolina, USA featuring "Artificial Intelligence and the future of regions" and Jacques François Thisse of the Université Catholique de Louvain, Belgium "About the Origin of Cities".

The keynote programme will continue over the week with Susan Parnell, University of Cape Town, on "South Africa experiences in the context of urban world challenges", Roberta Capello, Politecnico di Milano on "Regional development theories and formalised economic approaches", as well as with keynotes by André Torre, University Paris Saclay (Papers in Regional Science Keynote Lecture) and Yannis Psycharis, Panteion University (Regional Science Policy and Practice Keynote Lecture).

Over 220 parallel sessions are foreseen, with Special sessions, Refereed sessions and Ordinary sessions. As usual, dedicated slots will be reserved for presentations

by promising young researchers; these are the young scientists' sessions and Epainos sessions (Thursday, August 29).

The ERSA congress has become the largest academic conference for regional scientists worldwide but it also attracts high-level Institution representatives and policy makers (i.e. EU, OECD), like it will also be the case in Lyon. Surely added value for all!

Therefore, we can surely expect many high-level debates at different levels: spatial, regional, and urban economics, economic geography, and regional policy topics like local governance and institutions. We will also have interesting interdisciplinary discussions with contributions from social sciences, engineering and big data.

There is simply no better place to present your research results, network with colleagues but also find out about new developments in the field.

Why is Lyon attractive for hosting the ERSA Congress? That question is rather easy to answer. Firstly, the city is renowned for its gastronomy, in large part thanks to Paul Bocuse, the French famous chef! Today it counts 15 Michelin-star restaurants. After the congress sessions, our participants can also relax via the promenades and leisure facilities along the banks of the Rhône and Saône (on foot or using the City bike system). Culturally, there is also much to see in relation with the history and heritage of Lyon: learn more about the Gallo-Roman civilization, the French Résistance but also about fine arts or decorative arts… The Lyon City Card, an all-inclusive culture and leisure passport, is also proposed, at an advantageous prize to our registrants.

Last but not least, the city is ideally located in the south-east of France. Lyon is just two hours by high-speed train TGV from Paris and a mere 90 minutes from the Mediterranean coast and major Alpine ski resorts. You can fly to 115 destinations from Lyon Saint-Exupery Airport.

For sure, there are many reasons to come to Lyon, and if you have not yet registered, standard fees are available until June 10, 2019.

We would like to conclude with a few words: Join us in Lyon!

Louafi Bouzouina and Dominique Mignot

*Co-Chairs of the Local Organising Committee*

## PRSCO CONFERENCE BANGKOK 2019

For more information, please visit www.th-rsai.org/prsco-2019/

WE ARE DELIGHTED to welcome you to the 16th Pacific Regional Science Conference Organization Summer Institute in Bangkok, Thailand in July 25-27, 2019. The PRSCO Summer Institute, under the theme of "New Landscape of Data and Sustainable Development," will feature several cutting-edge urban and regional science and policy issues, expert panels, workshops, and research presentations.

The Summer Institute will mark the first meeting of the Thailand Section of RSAI. It will also be the joint meeting of Indian Regional Science Association. One of the highlights of the Summer Institute includes workshops supported by RSAI Nurturing New Talent on "Spatial Agent Based Modeling" by Prof. Yuri Mansury (Illinois Institute of Technology) and "Remote Sensing to Support Research in Regional Science" by Prof. Gang Chen (University of North Carolina at Charlotte).


The Summer Institute is hosted by the Department of Urban and Regional Planning, Faculty of Architecture, Chulalongkorn University and co-hosted by the Faculty of Architecture and Planning, Thammasat University. The program will feature presentations by leading scholars from more than 20 countries, panels of experts, workshops, and countless opportunities for networking. The attendees at the Summer Institute will come from around the world, representing North America, Latin America, Europe, and Asia-Pacific countries.

We would like to cordially invite you to Bangkok to join PRSCO Summer Institute 2019 and to experience declicious Thai foods and beautiful culture. If you long for warm (maybe hot!) weather, flavorful Thai dishes, and delightful travel in Thailand, this is the conference you want to attend! We are looking forward to welcoming you to Thailand in July!

Sutee Anantsuksomsri *(Chulalongkorn University)*

Nij Tontisirin *(Thammasat University)*

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## Report | ERSA-OECD Winter School 2019

THE 2ND WINTER School "Spatial Productivity for Regional and Local Development" took place in Trento, Italy, on January 21-25, 2019. It was jointly organised by the European Regional Science Association (ERSA) and the Spatial Productivity Lab at the OECD Trento Centre for Local Development in partnership with the Regional Science Association International (RSAI), the Italian Association of Regional Science (AISRe) and the University of Trento.

During the Winter School, 28 young researchers (PhDs and Post-Docs) from 15 countries (Belgium, Brazil, Canada, France, Germany, Italy, the Netherlands, Romania, Russian Federation, Spain, Sweden, Turkey, Ukraine, United Kingdom and United States) presented their research covering a wide spectrum of topics including: the spatial dimensions of productivity, regional investments in infrastructure, land use and governance as well as innovation and internationalization.


In addition, well-renowned representatives of the international academic and policy research community offered a series of insightful lectures. The list of experts included Roberta Capello (Full Professor, Politecnico of Milan and Editor, Papers in Regional Science), Diego Giuliani (Associate Professor, University of Trento), Raquel Ortega-Argiles (Professor and Chair in Regional Economic Development, University of Birmingham, UK), Rudiger Ahrend (Head of Economic Analysis, Statistics and Multi-Level Governance Section, Centre for Entrepreneurship, SMEs, Regions and Cities, OECD), Peter Gal (Economist, Economics Department, OECD), Riccardo Crescenzi (Full Professor of Economic Geography, London School of Economics, UK) and Joaquim Oliveira Martins (Deputy Director, Centre for Entrepreneurship, SMEs, Regions and Cities, OECD).

The Winter School schedule also included a study visit to the neighbouring Province of Bolzano where participants attended a round table with EURAC Research and the Bank of Italy. Following the closing remarks of Jouke van Dijk (immediate Past-President of ERSA and Professor of Regional Labour Market Analysis, University of Groningen, The Netherlands), participants were awarded certificates of participation in what proved a successful and highly-memorable winter school.

## Discount!

With immediate effect, current RSAI members will benefit from a discounted Article Publication Charge (APC) when they choose to publish their accepted article open access in Papers in Regional Science and Regional Science Policy and Practice. With the discount, the APC fee is US$1,500 / £990 / €1,260. Please contact Elisabete Martins (rsai@apdr.pt) for more information on how to access the discount. / Grace Ong, Wiley

## Essay

### WHAT IS REGIONAL SCIENCE?[1]


*Henk Folmer, Faculty of Spatial Sciences, University of Groningen, The Netherlands; h.folmer@rug.nl*


IN THE PHILOSOPHY of science, a distinction is made between the material and the formal object of a discipline. The former is the subject matter; the latter the point of view under which the material object is studied. For example, the material object of the main social sciences, psychology, sociology, economics, human geography, political science and law is the human being or collectives like the household. The six disciplines differ because of their formal objectives. Psychology is the science of the conscious and unconscious mind of man. It deals with emotions, perceptions, expectations, feelings and thoughts. It furthermore analyzes behavior induced by the mind. Sociology studies human beings as influenced by their positions in social networks. It deals with values, norms and attitudes and analyzes social activities and interactions, social structures and their changes. Economics is the study of scarcity and analyzes how people or their collectives like households, firms, regions or the entire economy, use resources and respond to incentives. Human geography deals with the location and interaction of people, their organizations like firms, and the organization and development of their communities in space. Political science focusses on systems of governance, political ideologies and action plans aimed at influencing the development of society and its organizations as well as on the behavior of politicians and voters and their organizations. Law studies the system of public rules that are created through social and political organizations and enforced through governmental institutions to regulate behavior of individuals, their collectives or society. In addition, there are fields like (urban) planning that study a special aspect of the material object (sub-object) from the perspective of one or more of the above mentioned basic sciences, sometimes in combination with non-social sciences like architecture. Below I restrict myself to the basic social sciences. (Note that in this overview there is no mentioning of human history. The reason is that it is can be conceptualized as part of the basic social sciences such as economic history or political history.)

Although psychology, sociology, economics, geography, political science and law study human beings, their collectives and their behaviors from different points of views, they are strongly interrelated. Sociological, economic and geographical behavior presupposes the working of the mind whereas emotions, perceptions, feelings and thoughts are affected by people's positions in networks, their location in space and economic conditions. In a similar vein, economic behavior is influenced by norms and values and geographical location whereas the availability and use of scarce resources affects values, social activities and (spatial) interactions. Similar observations apply to other interconnections between the six basic disciplines. The multiple interconnections between the disciplines has led to sub-disciplines at the disciplinary borders, such as economic psychology, behavioral economics, economic geography and economic sociology, which have produced many interesting and important insights. However, for a good understanding of the interdisciplinary results insight into the constituting disciplines is needed.

Whereas there is a vast literature dealing with the formal objects of the basic social sciences, it is hard to find a definition of the formal object of regional science that clearly distinguishes it from the other social sciences. Of course,


1 I thank Peter Batey and Arthur Getis fort heir valuable comments and suggestions. The usual disclaimer applies.

the definition of the material object is straightforward. It is the region, i.e. a part of a larger geographical entity that may range from neighborhoods to parts of a continent. However, there is no definition of the formal object of regional science. For instance, according to Wikipedia regional science "…is a field of the social sciences concerned with analytical approaches to problems that are specifically urban, rural, or regional". Apart from the circular reasoning (regional science is concerned with problems that are regional), this is not a definition that provides a specific point of view under which a region is studied. Moreover, the fact that it is concerned with analytical approaches to problems of various kinds of regions is not typical for regional science, but holds for many other social sciences that deal with regions, for instance regional economics and geography. Even the website of the NARSC, one of the pre-eminent organizations of regional science, does not present a definition of the formal object. It presents a quote from one of the founding fathers of regional science, Walter Isard: "The region has its own 'essence' which can be grasped in full only by tools, hypotheses, models and data processing techniques specifically designed for regional analysis." Apart from (again) a circular reasoning, this definition relates to methodological characteristics that it shares with other social sciences but does not present the view (formal object) that distinguishes regional science from related disciplines like urban or regional economics.

## A DEFINITION OF THE FORMAL OBJECT

Is it a problem that regional science lacks a formal object? After all, there are thousands of highly esteemed social scientists worldwide who call themselves regional scientists, who publish in well recognized journals - also widely read by researchers in related fields like (regional and urban) economics and geography- and who are involved in policy making at the regional, national or international level. So, why bother about the formal object of a successful field? There are at least two compelling reasons why regional scientists should be engaged in debates about its formal object as have their colleagues in the sister social sciences been for decades and even centuries. First, it is a matter of scientific purity that a discipline that pretends to be different and distinguishable from other sciences carefully and meticulously defines its formal object and demarcates itself from related disciplines, yet has the same material object. It is standard procedure in any science that concepts are well defined and described. By default, this also applies to the field as such.

A second and the most important reason for reflection and debate on the formal object of regional science is that it may lead to an inventory of under-explored substantive research topics and methods. Current regional science is to a large extent economic or geographical by nature whereas the other social sciences, notably psychology and sociology, play much less of a role, notwithstanding the fact that most regional problems have dimensions that belong to the domains of these other social sciences. Restricting regional analysis to the economic or geographical dimensions and ignoring or downplaying the other dimensions implies missed opportunities for gaining interesting and important scientific insights but also for advising policymaking. Therefore, it is worthwhile following the tradition of the sister social sciences but also -incidentally- in regional science itself (see amongst others Isserman, 1992; Getis, 2015) to engage in debates on the formal object of regional science in a bid to stimulate the development of research agendas for substantive themes and methodology.

Is there room for a formal object of regional science? After all, the six basic disciplines and their related sub-disciplines cover a great deal of the possible views of the material object of the social sciences. In addition, extension to the material object of the region is straightforward witnessing the development of inter alia regional and urban economics. So, what could a possible formal object of regional science be? Rather than starting the debate from scratch, it is more efficient and effective to connect to what has concerned the social sciences dealing with the region for decades and define it from there. Put differently, it should be related to the formal objects of the sister sciences, yet be different. Given these criteria a possible formal object of regional science could be

the systematic integration of the formal objects of the sister social sciences with respect to the material object of the region.

The term integration in this definition needs emphasizing. It means that it goes beyond the notion of interdisciplinary regional research. Whereas the latter looks at the region from two or more points of view separately, e.g. the economic and the sociological views, the regional science view would be the merger of the views. In terms of e.g. regression analysis, the interdisciplinary analysis would be the estimation of two separate equations, one with economic explanatory variables, the other with sociological. The integrated (regional science ) approach would be the estimation of one equation, with both economic and sociological variables.

Of course, as in the general social sciences, there have been many cross-border contacts among the social sciences dealing with regional problems. However, what I am proposing here is the systematic integration rather than incidental or ad hoc cross-border contacts.

## SOME IMPLICATIONS

The proposed choice of the formal object of regional science has several implications. One is that the focus on integration sheds light on new or under-researched aspects of regional problems as regards contents. Take for instance the problem of globalisation. Although the regional economic impacts in terms of e.g. (un)employment or economic product, have received due attention, much less is known about the psychological and sociological impacts, notably stress or deprivation which, moreover, tend to vary by regional social stratification. Similar observations apply to most topics in regional science such as migration, congestion, (financial) crises, pollution, environmental policy, global warming. All of these topics have economic or geographical dimensions but also dimensions in the domains of several of the other basic social sciences

Other implications are econometric and methodological. Particularly, an integrated rather than an (inter)disciplinary approach may reduce misspecification of regional econometric models as regional problems usually have determinants that belong to the domains of several of the sister disciplines. For instance, regional (un) employment is not only a function of economic variables like gender, education, experience and age, but also of psychological variables like perception and expectation, and sociological variables like culture, norms and attitudes which, moreover, vary by regional social stratification. Analysis of the explanatory variables in one discipline (e.g. economics) and ignoring those in the other, leads to specification error in e.g. regression models. Combining psychological, sociological and economic variables reduces specification error, i.e. biased estimators of the coefficients of the systematic variables that are included in the model, and biased tests because of biased error variance estimators (except of course when the omitted and included variables are uncorrelated, which is rarely the case in regional science).

Another advantage is that it may lead to cross-fertilization of methodologies. In sociology and psychology there is a strong focus on measurement of theoretical concepts (also called latent variables). Typical for latent variables is that they are unobservable, yet are the building stones of theory. The best known latent variable in the social sciences is probably the notion of intelligence, i.e. the ability to acquire and understand knowledge and skills. As it stands, intelligence is unobservable. (Note that ability, understanding, knowledge and skills in this definition are also unobservable.) To give empirical meaning to a latent

variable and to link it to other variables it needs to be measured which is done by way of observable indicators. For instance, a large number of tests have been developed to measure intelligence which are related to the theoretical notion of intelligence via correspondence statements.

There are numerous latent variables in the social (but also in the natural) sciences. To mention a few: socioeconomic status, welfare, propensity to consume. Indicators of socioeconomic status are income and education; of welfare income, the status of the housing market, environmental quality, safety, access to health care and to education; of propensity to consume the items on a multidimensional scale like the Likert scale. (Note that several of the above indicators like environmental quality and safety are themselves latent variables which leads to second-order operationalization.) Whereas sociology and psychology typically recognize the fundamental difference between latent variables and their indicators, their distinction plays much less of a role in e.g. geography and economics (with the exception of sub-fields like e. g. marketing research). In the latter disciplines latent variables are usually (implicitly) assumed to be observables and taken identical to a typical indicator or proxy. For instance, the latent variable welfare is often taken as identical to income, in spite of the fact that there is a substantial literature showing that this is an inadequate definition and inadequate, inaccurate and fallible operationalization.

Ignoring the nature of a latent variable and taking it identical to some (well-known) indicators has serious econometric consequences. Particularly, a single indicator out of a collection of indicators measures its underlying latent variable partly and with error. For instance, measuring intelligence solely by a math test implies measurement error because it ignores verbal and social intelligence. In a similar vein, income measures welfare with error since it ignores the other dimensions. An important consequence of measurement error is attenuation bias, i.e. the expected value of the corresponding estimator is biased towards zero. By explicitly accounting for measurement error attenuation bias can be reduced.

In sociology and psychology, measurement of latent variables is a key research topic. It basically focusses on identifying an adequate and accurate set of multiple indicators of a latent variable and estimating and testing its correspondence statements. For instance, the development of intelligence tests has been a key issue in psychology for decades. The emphasis on measuring latent variables by way of indicators has led to the development of a special class of econometric models, i.e. structural equation models, that can handle latent variables and their indicators within one (simultaneous) framework. Such models allow reduction of attenuation bias, of multicollinearity, and a closer correspondence between theory (which is in terms of latent variables) and empirics (which is in terms of indicators) (Oud and Folmer, 2008). It has also led to the development software packages like Linear Structural Relations (LISREL) and Partial Least Squares in R. The definition of the formal object of regional science presented above may prompt regional scientists to be engaged in defining and measuring regional latent variables and in the further development and application of structural equation models and corresponding software.

SUMMARY

In summary, I have argued that regional science has no formal object that distinguishes it from its basic sister social sciences. To fill this gap, I have proposed systematic integration of the formal objects of the basic social sciences with respect to the material object of the region as a possible formal object of regional science. As a follow up of the above definition, I have indicated several substantive, methodological and econometric areas for further regional science research. Needless to say that this is merely an invitation for further debate on the nature, contents and methodology of regional science.

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## THEME: HEALTHY CITIES

*Given the increasing focus on quality of life and happiness instead of sheer production, health is receiving more and more attention in regional science. In this issue, we offer three different perspectives on this cutting-edge topic.*

### TOWARDS VITAL CITIES

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IN THE EARLY days of the industrial revolution in Western societies, cities experienced deterioration of sanitation and environmental conditions. The poor living conditions in these urban areas resulted in high rates of infant mortality and short life expectancy of city inhabitants. Cities in these days were the places to be avoided if one wished to reach old age (Dye, 2008). It took several public acts and several decades of investments in infrastructure and regulation before things started to change (Dye, 2008). Cities, starting the early 20th century, started to become superior to rural environments in terms of health (at least in the narrow sense of mortality and morbidity). This phenomenon is now known as the 'urban advantage' (Rydin et al., 2012).

In this context, we should keep few things in mind. First, since the world is getting more urbanized, and since cities are commonly more densely populated compared to rural areas, there is much sense in promoting and developing health services and infrastructure in cities. However, such investments should be done carefully while assuring an equitable access to health care services. Second, cities, health challenges and tools that mitigate these challenges are constantly changing. Therefore, we should continuously evaluate the strategies and tools that we adopt to promote health in cities. Third, since their early days, large, modern cities have suffered from few inherent structural social problems which still have their impact on inhabitants' health condition today. These include what could be considered as adverse lifestyle (e.g., stressful routine, unhealthy diet) and adverse patterns of social networks (that lead to social isolation, alienation and lack of social cohesion). These issues, some of which were already suggested by early social thinkers (Simmel, 1964), do not always translate into classical indicators of mortality and morbidity, and they might require the adoption of new research frameworks.

With this understanding in mind, researchers, so it seems, started to adopt broader more progressive perspectives concerning health in cities that go beyond "classical bio-medical" aspects. For example, they often adopt research practices and concepts relevant to the study of quality of life and wellbeing. As part of this process, an emphasis is now put on human lifestyle and behavior which

are related to the growing prevalence of chronic diseases (e.g., cardiovascular diseases, depression, and dementia). By doing so, researchers are trying to help facing the structural problems of cities mentioned above. If we are to follow this line of thought, we may come to the conclusion that the next generation of 'healthy cities' will not only try to reduce exposure to adverse environmental conditions and not only promote healthy activity. They will enable people to be less stressed, to interact with other people and be socially involved, to consume leisure activities they enjoy on a regular basis and maybe even be happier. Cities of the next generation will not 'just be healthy' they (and their inhabitants) will be vital.

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## Geographies of healthy Eating

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IN THE LIGHT of healthy urban living, the 'food environment' is a widely studied topic. In recent decades, agricultural, technical, political and organizational developments have resulted in a food system in many developed countries that promotes unhealthy dietary patterns at the population level. Among public health researchers and health geographers, there is a large interest in people's use of the urban food environment and subsequently its impact food choices and health. Local governmental policy makers on the other hand are interested in insights and solutions to create healthy and sustainable cities, also endorsing healthy food choices. To illustrate, over 180 cities collaborating in the Milan Urban Food Policy Pact that pursue global food security and sustainable developments in cities. In this context, strategic action plans are developed and experiences between cities are shared. However, important research questions with respect to the role of urban food environments on dietary behaviours remain unanswered. We expect that two research domains with respect to food environments (vertical living and smart technological developments) will expand in upcoming years.

Apartment living is becoming more prevalent in many cities as a response to population growth. The shift to apartments from traditional housing will likely result in many lifestyle changes. Apartments are often much smaller than traditional detached houses and may have restrictive kitchens with regards to cooking facilities, food storage space, food preparation areas and eating space. How this impacts on the food practices of occupants in apartments remains unknown and there is much to learn about how apartments and high-density neighborhoods should be designed to encourage health food choices. Digitalization and smart technological developments created an upcoming market of online food shopping and meal ordering. This shaped an intangible virtual setting in which food choices can take place and expand consumers' food options beyond their actual living environment. Consumer's use of the online market expanded recently and is expected to grow extensively worldwide in the upcoming years. For example, Takeaway.com (online meal-delivery platform in continental Europe) had 22.3 million orders in the third quartile of 2018, representing an increase of 31% compared to 2017. Moreover, the total of U.S. online grocery sales was about $14.2 billion in 2017 and is expected to increase to nearly $30 billion by 2021.

Presently within the food environment field, many studies examine the associations between residential food environments (e.g. number of fast food outlets within 1km of home or the distance between home and the nearest fast food restaurant) and eating behaviors (e.g. frequency of fast food consumption). Notwithstanding the growing acknowledgement that food environmental exposure goes beyond the residential area, the online environment has changed the way food is now accessible when at home by making a wider variety of stores available and from potentially further away. By not including the digital food environment, research may underestimate individual food outlet exposure may be misrepresenting associations between the built food environment and diet or health outcomes if one is ordering frequently via online meal services. In the years ahead, research should assess how and what features of these online settings have an impact on food choices and health as well as on its side effects (e.g. package waste, traffic).

## Cities are hot

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CITIES ARE GREAT places to live, as is extensively documented in urban economic literature (e.g. Glaeser, 2012; Bettencourt et al. 2010). They offer employment, interaction opportunities and plenty of amenities. Their agglomeration benefits, for example, translate into higher labour productivity and higher wages and thus continue to attract more inhabitants every year. Yet, cities are not the most healthy places to live in. Their interaction potential, for example, usually goes hand in hand with congestion, traffic accidents and air pollution. Ongoing urban development results in the loss of urban green space that offers recreational and health benefits to city dwellers. These health impacts likely relate to reducing stress and offering opportunities for physical exercise (Maas et al., 2006). Green spaces, furthermore, contribute to limiting the urban heat island effect. This effect refers to the fact that the buildings and other artificial surfaces in cities retain heat in cities longer than in rural areas and thus expose city dwellers to higher temperatures that especially during heat waves result in increased mortality (e.g. Aström et al. 2011).

As part of their Urban Environment Lab, students at Amsterdam University College measured urban temperatures for several consecutive years and were able to show that even in the temperate climate of Amsterdam the urban heat island effect may range up to 3°C on moderately warm summer days (see Koomen and Diogo, 2017). Using several years of collected data we were able to build explanatory models of temporal and spatial variation in the magnitude of the local urban heat island effect. The effect is best observed on sunny days with low wind speeds, while the daily maximum temperature, extent of the urban area in within a 1km radius and the amount of urban volume (cubic metres of buildings) within the same radius determine the magnitude of the effect. In a subsequent study we showed the mitigating impact of tree volume on these urban temperatures (Rafiee et al., 2016). Using the explanatory model

in combination with scenarios of future urban development and climate change for 2040 we were able to assess potential future changes in the urban heat island effect. The simulations indicate that strong local temperature increases are likely due to urban development. Climate change will, on average, have a limited impact on these changes. Large impacts can, however, be expected from the combination of urban development and potentially more frequent occurrences of extreme climatic events such as heat waves. Spatial planning strategies that reduce the lateral spread of urban development will thus greatly help to limit a further increase in urban heat island values. Recent analyses of urban development in the Netherlands suggest that cities have developed favourably over the past 18 years as a substantial part of the recent increase in housing stock was located within existing urban areas (Claassens and Koomen, in prep.). This process limits the need for urban extensions and was thus far concentrated in industrial and residential neighbourhoods, resulting in a limited loss of urban green space. Whether urban development shall continue along these lines will depend on general demographic trends, the balance between attraction and repulsion of urban (dis)amenities and the ability of policymakers to steer these.

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## EDITORS

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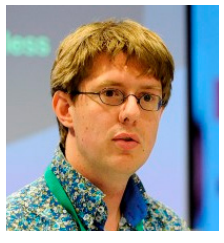

## COLOPHON

The newsletter of the Regional Science Association International (RSAI) appears two times a year and contains information about upcoming conferences and meetings, recent events and publications, and short contributions on current themes. Contributons are most welcome, and can be submitted directly to Martijn Smit (m.j.smit@uu.nl) and/or Graham Clarke (g.p.clarke@leeds.ac.uk).