

Global Value Chains

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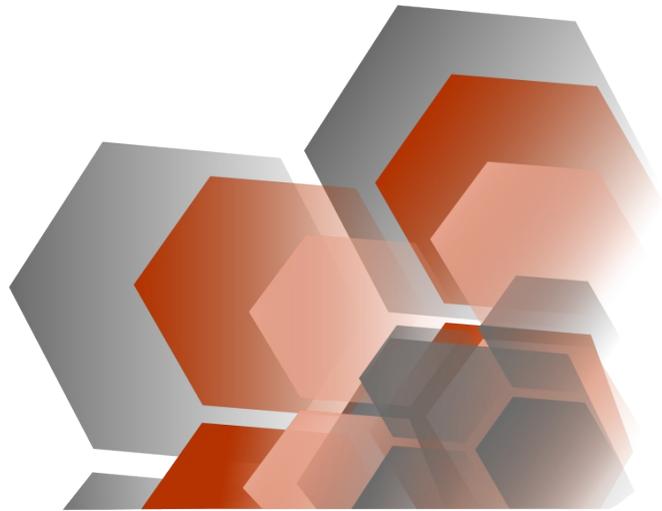
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1. Introduction

1.1 Welcome from the President

by **Andrés Rodríguez-Pose**

Dear readers of the RSAI newsletter, I would like to introduce myself as the new President of the Association and to welcome you to this new edition of the newsletter put together by the editors Andrea Caragliu and Graham Clarke.



As mentioned in my words of welcome in the RSAI website, 2015 is a good year for the Regional Science community. Regional scientists continue to appear all over the world and the Association is reaching out to more and more of them wherever they are located. Regional Science congresses are dynamic events with a growing reputation, as well as lively for the exchange of new knowledge and ideas.

This newsletter will reach many of you before or at one of the three large Regional Science congresses taking place this year. In early August, the PRSCO congress takes place in Viña del Mar, Chile. The ERSA congress will follow suit at the end of August in Lisbon, Portugal. Finally, NARSC will hold its annual congress in Portland, USA in early November.

I would like to take the chance to welcome all participants at these congresses and to wish everyone a pleasant and productive stay at the congress venues. I also personally look forward to engage directly with many of you in these forthcoming events.

With best wishes,
Andrés Rodríguez-Pose

1.2 Welcome to the 2015 ERSA Congress

by **Tomaz Ponce Dentinho**, *University of Azores - Chair of the LOC*

Dear Colleagues,

Welcome to Lisbon, the city of Ulysses. From here you can observe Greece and Europe; with sufficient distance to dream feasible futures; with enough involvement to create them; and with unavoidable proximity to enjoy and suffer from your deeds.



However, we have little time to spare to fulfil these dreams - we need you to participate in the Congress as much as possible. We have organized interesting plenary sessions and arranged many normal sessions in order to facilitate fruitful interactions and enhance our understanding of our places and peoples.

But each day, after 6 pm, there is plenty of time to visit Lisbon. Get lost and find yourself again in the fantastic labyrinths of the city centre: walk down the hill of the Castle through Alfama, listen to some good music in Clube do Fado; climb from Rossio to Chiado, drink a beer in Trindade and have dinner in Bairro Alto; pick up a tram in Terreiro do Paço and eat a "nata" in Belém after an outdoor dinner. Last but not least, do not forget to get to know the congress venue: it is located in the valley west of the city centre, very close to the Portuguese Assembly.

Please remember to focus on the theme of the Conference: "World Renaissance: Changing roles for people and places". Much in the same way that the first wave of globalization changed the role played by peoples and places, clearly the one we are experiencing will also engender structural changes in histories and geographies. What are the dreams and tragedies of the Homeros and Camões of today? This is what we would like you to share with each other; and there is no better place to do it.

Lastly, please do not criticise the food or the drink, or the sun and the light: here you'll get some of the world's finest! Many thanks,

Tomaz Ponce Dentinho

1.3 Welcome to the 2015 PRSCO Congress

by **Luz Maria Ferrada**, *University of Los Lagos - Chair of the LOC*, and **Patricio Aroca**, *Adolfo Ibáñez University -*

co-Chair of the LOC

From August 5th to 8th, the 24th Pacific Regional Science Conference (PRSCO) will take place at Universidad Adolfo Ibáñez in Viña del Mar,



Chile. This is one of the loveliest cities in Latin America and is twins of one of the World Heritage cities named Valparaíso. Both offer a very nice environment of culture, entertainment and sightseeing that make this area one of the most visited in the country.

In addition, the name of the city Viña del Mar means “Winery of the sea”, which highlights the special characteristic of the area, surrounded by wineries where some of the most famous Chilean wines are produced. In one of such wineries the closing ceremony of the Congress will be held, on August 8th at lunch time.

The Local Organising Committee not only aims at providing a nice environment to develop the meeting with distinguished keynote speakers and a proper venue for the conference, but also at offering the opportunity to all participants to visit some of the nicest places in Chile. On the web page http://www.socherchile.cl/prsco_2015, we will provide lots of information about the venue, means of transportation and the city itself. We will also be glad to assist all participants with any question, striving to improve the quality of their stay.

1.4 Welcome from the Editors

by **Andrea Caragliu** and **Graham Clarke**



Andrea Caragliu



Graham Clarke

Welcome to the May 2015 Issue of the RSAI Newsletter. As usual we have been lucky enough to receive several interesting contributions. This time, the theme of the

newsletter is *Global Value Chains*.

In the first article, Neil Coe (National University of Singapore) talks us through the way this literature has evolved; since the early 1990s, the phenomenon of the fragmentation of production networks across different countries and world regions has dramatically extended, with consequences that regional scientists cannot ignore.

In the second article, Bart Los (University of Groningen), Robert Stehrer (Vienna Institute for International Economic Studies) and Marcel Timmer (University of Groningen) focus on the regional implications of Global Value Chains, exploiting the wealth of information contained in the World Input-Output Database data base, with global input-output tables presenting quantitative information about the global production structure and the destinations of the final products the structure generates.

We can then read Tim Sturgeon’s (MIT Industrial Performance Center) article, which takes a more policy oriented perspective on GVCs. Tim urges regional scientists to reflect on these policy issues: an example of GVCs-related policies can be traced back to Smart Specialization policies, where investment should be guided by existing assets and technologies, while also stimulating the emergence of linkages to complementary activities located elsewhere in Europe.

In this Newsletter, alongside the usual official news from the Association, we also feature two very interesting examples of our usual columns. For the “*Centres of Regional Science*”: we travel to Groningen (the Netherlands), where a large group of regional scientists has been continuously active in our community providing simultaneously relevant contributions both in terms of scientific production, as well as in terms of teaching and associational activity. In the “*Meet the Fellows*” column, Luc Anselin tells us about the way he got hooked on Regional Science, and presents us a nice narrative of his many contributions to the field, and the many people he has encountered along the way.

As usual, we welcome suggestions and proposals for new topics to be covered on the Newsletter. Please do let us have your feedback by writing to andrea.caragliu@polimi.it

and/or G.P.Clarke@leeds.ac.uk.

We both hope you will enjoy reading this issue!

2. Global production networks and regional economic development

by *Neil M. Coe, Department of Geography, National University of Singapore (NUS)*

The literature on global commodity chains (GCCs), global value chains (GVCs) and global production networks (GPNs) is by now some twenty years old. Prompted by the pioneering work of economic sociologist Gary Gereffi on global commodity chains in the mid-1990s, the field has blossomed into a multi-disciplinary endeavour encompassing scholars from business studies, development studies, economics, political science, sociology and economic geography – the latter being my disciplinary home. At first glance, the various terminology and acronyms used within the literature can appear confusing. On one level, there is clearly a common concern with understanding the organizationally fragmented and spatially dispersed production networks that increasingly constitute the ‘architecture’ of the global economy and shape its uneven developmental outcomes. Looking more closely, however, the terminologies reflect different disciplinary histories and varying emphases within the broader body of work. GVC research, for instance, has been very successful in theorising and demonstrating the inter-firm governance relationships that bind together these increasingly complex production systems, as well as bringing the concept to the attention of a range of international organizations including the OECD, UNCTAD and WTO. GPN research, which emerged from economic geography in the early 2000s, has sought to place more emphasis on: the wide range of non-firm actors enrolled in global production networks (e.g. states, NGOs, workers); the complex multi-scalar geographies of these production systems; the institutional contexts that



both shape, and are shaped by GPNs; and the inherent variability and complexity of GPN structures and strategies. In this context, the adoption of the network metaphor is not mere semantics, but seeks to capture the real-world ‘meshes’ of intra-, inter- and extra firm relationships that constitute GPNs.

Over the past 15 years my own research agenda has been embroiled in seeking to collaboratively develop this GPN approach in dialogue with wider developments in the GCC/GVC literatures and beyond. The roots of this work lie in a large project headed by Peter Dicken and Jeffrey Henderson at the University of Manchester in the early 2000s, which coined the term ‘global production networks’ and from which the early conceptual framings of the approach emerged (Henderson et al., 2002; Coe et al., 2004). The project used the auto component, consumer electronics and retail sectors as lenses to explore the emerging GPNs that were being forged across and between Europe and East Asia at this time. Since then, the development of both GPNs as a real-world phenomenon and the academic work studying their significance has continued apace. My own particular research interests within these broader currents have been threefold. First, I have sought to use the globalization of service sectors as a way of testing whether GVC and GPN theorizations are overly manufacturing-centric. Work on film and TV, retailing, temporary staffing and logistics, for instance, leads me to identify both commonalities and contrasts in how GPN formation and operation varies across manufacturing and service activities (e.g. Coe, 2014). Second, and in keeping with a network approach, I have endeavoured to understand the intersections of GPNs from different sectors. For instance, the role of advanced business services (including finance) in the formation and ongoing maintenance of GPN structures is ripe for further study (e.g. Coe et al., 2014). Third, I have been keen to identify labour as an actor worthy of deeper understanding in relation to GPN dynamics. This can be seen on two levels – first as a critically important but often taken-for-granted factor underpinning the very existence and operation of all GPNs, but also as a strategic

collective actor that has the ability to reconfigure GPN activities in a range of ways (e.g. Coe and Hess, 2013).

My most recent work, in collaboration with my NUS Geography colleague Henry Yeung, has been to try and develop what we term a 'GPN 2.0' theorization of global production networks and their developmental impacts (Coe and Yeung, 2015). Three key impulses underpin this work, relating to conceptual impasses we diagnose in the wider literature. First, we are keen to understand the contemporary drivers of GPN formation and reconfiguration. Oddly, the existence of GVCs/GPNs is often simply assumed in many studies, which then proceed to look at their internal governance characteristics. We argue that three dynamics – firm cost/capability ratios, market dynamics and financialisation processes – intersect in different ways in different sectoral and geographical contexts to drive and shape GPN formation and restructuring. Second, rather than looking for generalizations at the sectoral level, we urge for detailed consideration of the strategies of the key corporate actors within GPNs, most notably lead firms and their strategic partners and major suppliers. In response to the competitive drivers just described, firms use varying strategic combinations of intra-firm coordination, inter-firm control, inter-firm partnership and extra-firm bargaining to consolidate and/or improve their relative position within wider GPN structures. An actor-centred perspective allows us to reveal the huge variability in the strategies pursued by these firms. For us, this variability is not simply 'background noise' but rather is fundamental to the structure and operations of GPNs. Third, we posit that such analyses must offer analytical purchase on patterns and processes of on-the-ground development. The current literature tends to couch this through the somewhat problematic notion of upgrading, which suggests a linear progression of firms and regions towards higher value-adding functions within GPNs. We propose the more flexible idea of value capture trajectories to understand the multiple possible intersections of firms and GPNs, and mobilise the concept of strategic coupling to understand the ways in which firm/GPN intersections can be 'scaled

up' to reveal the different modes and types of couplings between regions and GPNs. Importantly, we argue throughout that the subnational region is the appropriate nexus for understanding economic development in the contemporary global economy.

Our work on this topic at NUS has been given significant impetus by the July 2014 award of a US\$4 million grant from the University for research on global production networks and economic development in East Asia. Using these funds, in January 2015 we officially launched the Global Production Networks Research Centre (GPN@NUS for short). A truly inter-disciplinary endeavour, GPN@NUS brings together a core team of nine scholars from across four social science departments – Geography, Economics, Political Science and Sociology. The group has already grown to around 15 with recent appointments of a Centre Manager, Postdoctoral Fellows and Research Assistants and, by the end of 2015, we should reach our target level of 20 members once our current hiring drive is completed. GPN@NUS thereby gives us an unprecedented opportunity to make significant theoretical and empirical headway towards understanding how global production network configurations and dynamics impact upon economic development across our highly dynamic and variegated region. We are currently in the detailed research planning phase. A key objective, reflecting the multi-disciplinary team we have assembled, is to try and genuinely combine quantitative and qualitative approaches to this topic. Hitherto, GVC/GPN research has tended to proceed through firm, commodity or sector case studies, while quantitative analysis of trade patterns (e.g. in intermediate goods) has largely been the domain of economists. Methodologically we seek to combine database construction and quantitative analysis, extensive firm surveys and case study research across six carefully chosen sectors. Please visit the Centre website for more details on these and other topics, and do not hesitate to get in touch to discuss our research further (<http://gpn.nus.edu.sg/index.html>).

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3. News from RSAI

3.1 Honorary doctorate awarded to Peter Nijkamp by the University of Poznan

A few weeks ago, Peter Nijkamp received a doctorate honoris causa from the University of Poznan, Poland. This is his 5th honorary degree. He received this high scientific distinction for his path-breaking seminal contributions to regional science and for his world-wide scholarly impact on new generations of regional scientists. Here is a brief excerpt from the speech he gave upon acceptance.

“Scientific research is an endless search for new findings, for the development of new ideas that nobody has ever thought of before. Scientists are in essence Argonauts, who know that the Golden Fleece of final truth does exist somewhere, but who also know that finding the Golden Fleece will require an overdose of intellect, perseverance and luck. The Argonauts – in the Greek mythology – were a team and they knew that their mission could only

successfully be completed, if they shared their intellectual and creative capital. Science is indeed teamwork based on social capital and knowledge sharing.

The space-economy displays a fascinating research landscape. Each new top of a mountain offers an outlook on a new territory, with fascinating research and policy challenges. Economic geography and regional economics will never say: ‘d’jà vu’. The journey goes on and will prompt new challenges. One might, for instance, think of: spatial big data analysis, resilient spaces, territories affected by climate change, the economics of local racial tensions, the emergence of mega-cities (more than 10 mln. people), health and urbanization, etc. It has been a personal privilege to be part of a scientific community with a deep scholarly interest in permanent socio-economic spatial challenges in a permanently changing world.

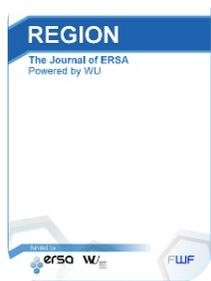


The planet has created unprecedented conditions for human health and hence for a drastic rise in life expectancy. The average life expectancy of a new born baby was a century ago about 30-40 years. Now it is almost double. Shaping a human world with more sustainable opportunities for all people in all places is a moral mission of today’s generation. Certainly, we have achieved a lot, but it was never sufficient. Our discipline has been instrumental in shaping the foundation for a better and hopefully happier world. But does this really make a salient difference compared to the past? This is where our field touches social ethos. The road to more insight and knowledge is endless. However, I am convinced that enhanced scientific knowledge will shorten the long lasting road to happiness and peace for all.”

Congratulations Peter!

3.2 REGION: born strong

REGION, the new flagship journal of the *European Regional Science Association*, has just published its first volume. It opens with an editorial, where the guidelines of the journal are presented. The new online and open-access journal of ERSA aims to be a high-quality academic journal in the field of regional science in its broadest sense. The “free for authors and free for users” policy, together with a solid peer-review process and immediate publication upon acceptance, enlarges the visibility of every piece of research. In addition, it offers a flexible outlet, not bound by traditional journal formats or strict page limits.



The average time from first receipt to publication online of the first appearing articles has been less than 50 days. Articles published in REGION have been downloaded many times (over 30 downloads per day) and from all over the world.

Together with the welcome words of Jouke van Dijk, the President of ERSA, and Christoph Badelt, the Rector of the WU, the first issue presents several items in all its sections: articles, resources and young scholar letters. You can access them freely at <http://region.ersa.org>.

Original Articles in REGION follow conventional formats in which new research results are presented. Young Scholars' Letters are typically shorter and report theoretical and empirical studies carried out by early-stage researchers, such as Master and PhD students or recent graduates. Both types of submission are peer-reviewed. The Resources section exploits the possibilities of online publication, offering an outlet for academic output related to data and information.

REGION welcomes proposals for special issues, which will be evaluated by the Editorial Team.

For more information on this journal please go to <http://region.ersa.org>.

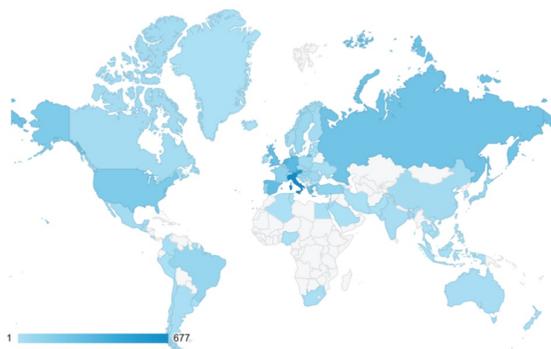


Figure 1. Number of downloads of REGION articles per Country, 05/09/2014 - 02/02/2015

3.3 Manfred Fischer receives the 2015 Jean Paelinck Award

Professor Manfred M. Fischer, from Vienna University of Economics and Business, has received the RSAI Jean Paelinck Award for 2015. The Jean Paelinck Award recognizes and honors the truly outstanding scholarly achievement of a senior and internationally recognized regional scientist in the field of Regional Science Methods and it is awarded following the nomination of five RSAI Fellows, the selection of a jury and with the final approval by the RSAI Council.



Manfred fulfils all the required criteria in an excellent way:

- From the mid-1970s on, Manfred has actively published in the fields of regional science and economic geography. All his work has been internationally oriented (his first publication appeared in *Regional Science and Urban Economics* in 1979) and has been focused on applied methods.
- His early work focused on regional taxonomies, but later he has contributed to discrete choice modeling, GIS, network analysis, and neural network based methods. His recent work shows a strong interest in spatial econometrics.
- Manfred has maintained an active research and

publication schedule over 40 years. His CV lists over 100 journal publications, 13 journal special issues, 40 monographs and edited books. Although he is close to retirement, Manfred Fischer is still highly active in research and publishes extensively. Although his CV may not reflect the whole year, for 2014 it lists 3 journal publications, 1 book, and 4 book chapters.

- The long list of awards, among them the RSAI Fellows (2006), the EIB-ERSA-Prize (2012), demonstrates Manfred's international recognition.
- Many of the publications listed in Manfred's CV are co-authored, about half of them with considerably younger scholars. Many of them have themselves entered a successful academic career. Examples include T. Scherngell, A. Varga, and J. Essletzbichler.
- Despite a strong and maintained focus on regional science in general and regional science methods in particular, Manfred has also reached out to other areas in his work. On the one hand, he was among the first European regional scientists who collaborated with Chinese scholars. On the other hand, he has reached across to other disciplines like computational science, management, data management, etc.
- Manfred is one of the founding fathers and (co) editor in chief of the prestigious methodology publication Journal of Geographical Systems. He also serves on the board of many other journals in Regional Science and related fields.

Congratulations Manfred!

3.4 Daniel A. Griffith elected Fellow of the American Statistical Association

Dr. Daniel A. Griffith, Asbhel Smith Professor of Geospatial Information Sciences at the University of Texas/Dallas, was elected a Fellow of the American Statistical Association (ASA), the preeminent professional statistical society in the United States, in recognition



of his reputation in, and outstanding contributions to, the field of statistical science. His citation by the ASA reads: 'for influential contributions to the theory and practice of spatial statistical analysis and the effective dissemination and popularization of these methods in geography and environmental science through research, teaching, and editorial endeavors'. The designation of ASA Fellow is an honor that has been bestowed for nearly 100 years, and is restricted to no more than one-third of one percent of the ASA membership each year. Dan also has received awards from the Fulbright and John Simon Guggenheim Memorial Foundations, Association of American Geographers, Leverhulme Trust, and Pennsylvania Geographical Society, and is an elected Fellow of the American Association for the Advancement of Science, the Regional Science Association International, the New York Academy of Sciences, the Spatial Econometrics Association, and Fitzwilliam College (U. of Cambridge). Dan currently is Chair of the Steering Committee of the International Spatial Accuracy Research Association (ISARA), co-chair of the Geocomputation 2015 conference, a Steering Committee member of the International Geographical Union Commission on Modeling Geographical Systems, and past editor of Geographical Analysis.

Congratulations Dan!

4. Regional Implications of the Emergence of Global Value Chains



Bart Los*



Robert Stehrer**



Marcel P. Timmer*

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Substantial ICT-driven reductions in communication and coordination costs and more modest reductions in transportation costs have had a huge impact on international trade patterns. Firms received the opportunities to spread the stages that together make up the production process of their consumption products and capital goods across various countries, and Global Value Chains (GVCs) emerged. As an example, the components that go into an Airbus assembled in France are produced in a wide variety of countries. The production of these components generate income, so it is interesting to find out to what extent the sales of Airbuses contribute to GDP of regions and countries across Europe.

Case studies have assessed how the money paid by consumers of specific products can be split up into such value added contributions. Recently, the EU FP7-funded World Input-Output Database (WIOD) and OECD-WTO's Trade in Value Added (TiVA) database have allowed for more macro-oriented approaches to this topic (see Timmer et al., 2014). WIOD, for example, contains a time series (1995-2011) of global input-output tables, which present quantitative descriptions of the world production structure and the destinations of the final products it generates. These tables contain data for 35 industries in 40 countries plus a "region" labelled "Rest of the World". Furthermore, WIOD contains information on production factors used by industry and data on environmental impacts of industries (CO2 emissions, energy use, water use, etc.). Timmer et al. (2015) does not only give an overview of the contents of the database and the main data construction philosophies, but also discussions of guidelines for proper use and areas for future improvements.

The WIOD data can be used to study spatial aspects of GVCs. Los et al. (2015), for example, studied whether the increasing fragmentation of production processes as described above is mainly due to increasingly dense networks of intermediate input flows within trade blocs ("Factory Europe", "Factory NAFTA" and "Factory Asia"). If linkages between these blocs would remain limited, it might be misleading to talk about the Global Value Chain revolution. Los et al. found that substantial parts of value

chains are still located in the bloc where the final product is completed, but that these are rapidly becoming "truly" global. The worldwide crisis only had a very temporary impact on this tendency.

Why should regional scientists be interested in these developments? Trends in regional income and regional employment have become much more dependent on the extent to which regions manage to contribute to GVCs. In a seminal article, Humphrey and Schmitz (2002) discussed several ways in which regions can upgrade their activities in GVC networks, and what conditions have to be met to attain this. Quantitative indications of the extent to which regions are improving their positions in GVCs require the availability of global input-output tables in which one or more countries are geographically disaggregated into regions. Dietzenbacher et al. (2012) and Cherubini and Los (2014) undertook some preliminary work along these lines for Brazilian and Italian regions, respectively. Cherubini and Los, for example, find that Southern Italy is much less integrated in GVCs than Northern regions. One of the consequences is that the South is hit hard by sluggish consumption growth in Italy itself, while the North benefits from more rapid growth elsewhere in the world.

Fortunately, more systematic efforts at regionalizing a substantial part of WIOD will most likely pay off soon. Within the FP7-sponsored project "Smart Specialization for Regional Innovation", Mark Thissen (PBL The Hague) and others are regionalizing the EU-part of the WIOD tables at NUTS2-level, for the period 2000-2010. Coupled with data on regional employment at industry level for instance, this upcoming database will provide the community of regional scientists with lots of opportunities to give empirical content to anecdotal evidence on the changing impacts of GVCs on regional economic performance. Such studies will also stress the importance of economic linkages between regions, a topic that has (at least in our opinion) not received sufficient attention among regional scientists.

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are very visible in the regional science community as most cited and leading academics, but also as editors, high level policy advisors, etc. Examples are Philip McCann (Special Advisor European Commissioner for Regional Policy), Paul Elhorst (editor Papers in Regional Science), Steven Brakman (editor Journal of Regional Science) and Jouke van Dijk (President of ERSA). Henk Folmer and Jan Oosterhaven are RSAI fellows with a proven and recognized research record in the field of regional science during their long scientific careers. For more scholars see: <http://www.regroiningen.nl/rsg/index.shtml>

Regional Science in Groningen started with the participation of Jan Oosterhaven in ERSA in the early 1970s. He also initiated and coordinated the multidisciplinary masters program in Regional Science, which ran from 1978 until 1985.



Dirk Stelder playing hard

Jouke van Dijk was one of its first students. He joined the group of spatial economists as a researcher in 1981. Earlier, in 1975 and 1978, this group was enlarged with, respectively, Cees Bartels, and Anne van der Veen and Gerard Evers. Henk Folmer was the pioneering scholar at that time at the Institute of Geography which is now the Faculty of Spatial Sciences. The start of the masters program in Regional Science was marked by the organization of a big 4-day International Regional Science Symposium in 1977. Organizing international scientific events in the field of regional science became a distinguishing feature of Regional Science in Groningen with the organization of the ERSA congresses in 1982 and 1994, ERSA Summer schools in 2001 and 2006, and many other smaller workshops.

From the 1990s a new generation of regional scientists came to the forefront. Some of them are also authors of well-known computer programs or textbooks. Erik Dietzenbacher, Bart Los and Dirk Stelder, were responsible for major advances in input-output analysis

5. Centres of Regional Science: Groningen, the Netherlands



Jouke van Dijk



Arjen Edzes



Paul Elhorst



Jan Oosterhaven

Nowadays a large group of scholars is active in the field of Regional Sciences in Groningen and many of them regularly attend regional science conferences all over the world and publish in well-known international regional science journals on a broad variety of topics. These scholars are affiliated to various departments of the University of Groningen located in the Faculty of Economics (<http://www.rug.nl/feb/>) and in the Faculty of Spatial Sciences (<http://www.rug.nl/frw/>). Several of them

and productivity analysis, Steven Brakman and Harry Garretsen in new economic geography, and Paul Elhorst in spatial econometrics. Over the period 1999-2002, Jan Oosterhaven and Dirk Stelder developed IRIOS, InterRegional Input-Output Software. In 2009 Brakman and Garretsen co-authored the New Introduction to Geographical Economics, published by Cambridge University Press, as a follow-up of their first edition in 2001. Elhorst wrote 'Spatial Econometrics: from Cross-sectional data to Spatial Panels', published by Springer, in 2014 and provided, downloadable for free, many Matlab routines to estimate spatial econometric models at the Web site <http://www.reg groningen.nl/elhorst/software.shtml>.

The Faculty of Spatial Science consists of four departments: Economic Geography, Demography, Cultural Geography and Planning. The faculty offers eight masters



Philip Mc Cann

programs such as Economic Geography, Population Studies, Environmental and Infrastructure planning, Real Estate Studies and the Research Master in Regional Studies. The faculty contains several research groups that are internationally leading in their respective topics. Researchers of the four departments cooperate in the Urban and Regional Studies Institute (URSI) in the faculty broad research program Towards Well-being, Spatial Transformation and Innovation (tWIST) coordinated by Philip McCann who holds the University of Groningen Endowed Chair of Economic Geography. He is one of the leading and most cited scientists in regional science and author of over 175 journal articles and many books. The English language version of his textbook Urban and Regional Economics (2001) published by Oxford University Press, is currently being used in over twenty countries, and is globally the best-selling book in the field. It has been translated into Greek, Korean, Japanese and Chinese. He has participated as an advisor in many international institutes such as the OECD and as Special

Advisor of the European Commissioner of Regional Policy. The latter is reflected in his most recent book 'The Regional and Urban Policy of the European Union' published in 2015 by Edward Elgar where he examines the major regional and urban features and discusses the analytical underpinnings of the current re-design to EU Cohesion Policy.

A group around Jouke van Dijk with Arjen Edzes, Viktor Venhorst, Lourens Broersma and Inge Noback have published



University of Groningen, Mercator Building

many studies on regional labour market related topics, such as (graduate) migration, gender issues, labour market careers, labour productivity, the efficiency and effectiveness of labour market policy and labour participation and population decline. Entrepreneurship and firm demography are the research focus of Sierdjan Koster, Piet Pellenburg, Aleid Brouwer and Leo van Wissen. Arno van der Vlist, Henk Folmer, Frans Sijtsma, Rixt Bijker and Dirk Strijker focus on issues like Real Estate, Environmental Issues, Nature Valuation and Rural development. In 2014 Nozeman and Van der Vlist published the book 'European Commercial Real Estate Markets' by Springer. Frans Sijtsma initiated the innovative internet based Hotspotmonitor (www.hotspotmonitor.eu) to measure the attractiveness of places.

From the foregoing it might be clear that Groningen is a well-known center of Regional Science in the world. But the city of Groningen is nearly 1000 years old, a medium-sized town located in the north of the Netherlands only two hours by train from Amsterdam Schiphol airport. In 2014 the city celebrated that the University of Groningen was 400 years old. Groningen is a very lively city with over 50,000 students among a population of now just over 200,000 inhabitants. With the many pubs and restaurants around its two historic squares, the city is an attractive

place for students and conference visitors. This was also greatly appreciated by the participants of the ERSA conferences, Summer schools and many other regional science events that took place in Groningen since 1977. Organizing international scientific events, more or less, became a distinguishing feature of Regional Science in Groningen. In 2017 we hope to celebrate 40 years of Regional Science by organizing the 57th ERSA conference together with regional scientists from all over the world. We hope you take the opportunity to visit us then.

6. Can regional science and regional innovation policy respond effectively to globalization?

by *Timothy J. Sturgeon, MIT Industrial Performance Center*

Since the 1960s, when Perrouxian ‘growth poles’ and Gunnar Myrdal’s concept of ‘cumulative causation’ gained the attention of regional planners, regional science — and the regional economic policies it supports — has recognized the importance of spatial concentration. Even earlier, Schumpeter’s central message was that innovation, and the economic development it spawns, is highly uneven over space and time. Innovation is what creates new products and services that others might want to buy, and innovation in the ‘propulsive’ industries of the given era tends to be concentrated in specific urban centers and regional economic systems. Because innovation relies on tacit interactions and geographically specific institutions and routines that are, as Michael Storper points out, ‘untradeable,’ first-mover advantages prove to be remarkably durable and self-reinforcing. As long as innovative regions have the intellectual and institutional resources and routines necessary to maintain their position at the leading edge of products, processes, and new industry creation, cities and regions can drive their



home countries toward prosperity. Economic development happens in cities because infrastructure — for trade and everything else — benefit from scale, and because the supporting institutions, labor markets and supply bases associated with propulsive industries tend to develop locally within and alongside lead firms. However, scholars of economic growth and regional development have also long understood that regional containers are not tightly sealed. Albert Hirschman stressed the interregional transmission of growth; i.e., outward from a growth pole to the regional hinterland and beyond. Eventually, codification and standardization increase as industries mature. As intermediate goods and services get less specific, knowledge of products and production processes spread to new places and become embodied in machines. So industries can and do spill out from their heartlands, following the logic of product cycles. The key is to keep the innovation process going, either by moving to new industries or pursuing excellence in traditional sectors, or some combination, as we have seen in Italy’s most successful industrial districts. In this way, and quite logically, regional economic development policy gets distilled in the form of innovation policy. Innovation creates an export base that in turn creates wealth, that’s a clear formula. But what’s tradable changes, sometimes rapidly. Services trade is growing, and this includes many of the narrow jobs and business functions that support innovative work in clusters and even some of the work of innovation itself. Even if distributed innovation is very partial and complementary to what’s done locally and doesn’t disrupt the circulation and creation of new knowledge at home, globalization can undermine the volume of domestic employment and wealth creation that flows from innovation. For example, Apple, arguably the most innovative and currently the most valuable company on earth, directly employs only about 16,000 people in Silicon Valley, while a single factory complex in China owned by Apple’s contract manufacturer, Foxconn, employs more than 100,000 workers making Apple products. Workers in California may or may not want those jobs (I would think some would),

and automation would doubtless play a much larger role if this work were ever to be reshored (I think it won't, not in the main), but we have to ask if globalization is driving inequality, both between the United States and China and within the US as manufacturing jobs continue to evaporate through a combination of automation and offshoring. When industry fragmentation spills beyond vertical clusters and into global value chains, regional specialization is not only in products and sectors, but also in intermediate goods and narrow business functions and producer services along the chain. So, regional economic development has a new dimension: specialization within global-scale production networks. If we take the idea of first-mover advantage seriously, and I think we should, we can imagine that the emergence of global value chains is driving a one-time transition in the spatial scale of integrated capitalism that will pin winners and losers in place for a long time to come. Sorting will continue to occur, and global city-systems will overlay, not replace regional and national systems, but this initial sorting matters.

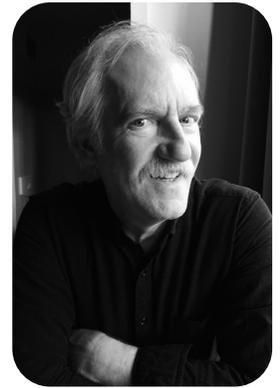
Is there a role for local innovation policy in a world of global value chains? The answer is clearly yes. Enter 'Smart Specialization,' the European Commission's latest program to simultaneously foster innovation and European economic integration by focusing R&D investment in specific cities and clusters. Investments will be guided by "existing assets and technologies" (i.e., innovation clusters) and include the explicit goal of forging linkages to complementary activities elsewhere in Europe (i.e., networks of innovation clusters). This approach recognizes the distributed and interdependent nature of contemporary innovation, but quixotically, perhaps, substitutes the European container for the container of the urban center and regional economic system, while willfully ignoring the global scale of production and innovation in most of the propulsive industries of the day. The geographic scope of the Smart Specialization program (Europe) reflects political realities rather than economic realities. While it does no harm to seek a European-scale innovation system, it seems fair to question if it will be

enough to meet the policy's stated goal of "*maintaining sustainable levels of growth and employment*".

7. Meet the Fellows: Luc Anselin

by *Luc Anselin, School of Geographical Sciences and Urban Planning, Arizona State University*

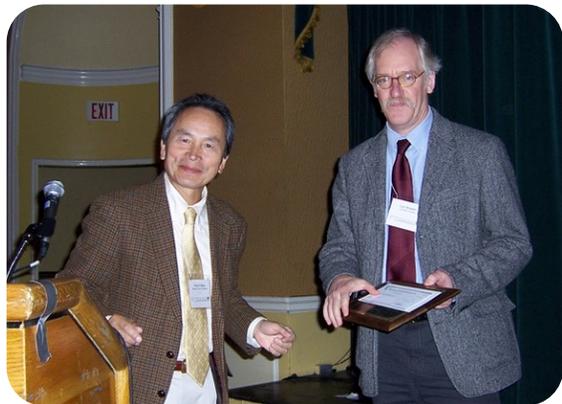
My first exposure to Regional Science was through my late uncle, Marcel Anselin, who was an economics and planning professor at the University of Ghent in Belgium. I was an undergraduate in economics at the Free University of Brussels (the VUB) and he and my aunt would have me over to their place in Provence during the summer. Over dinner (and wine) he would talk about his participation in the European Regional Science conferences and meeting



early visionaries such as Walter Isard, Thomas Reiner and John Dyckman. I was hooked.

After my undergraduate work (1975), I completed a masters degree in Econometrics, Operations Research and Statistics at the VUB (1976) and also did some graduate work in my uncle's regional planning program in Ghent. By then, I had a position as a research associate in the Center for Demography at the VUB run by Ron Lesthaeghe, where I worked on a model that integrated long term economic and demographic trends, coincidentally also the topic of my undergraduate thesis. At the time (1977), the prospects for an academic career in Belgium were pretty dismal, so I was encouraged by my uncle and my undergraduate mentors (including Herbert Glejser, a well-known econometrician) to pursue further graduate work in the U.S. My uncle had (nearly identical looking) flyers from the Cornell and Penn Regional Science programs. I applied and was admitted to both to study under Isard, who was affiliated with both places. It was a difficult choice, but my decision was made easy by

a call from Isard to my parents' home encouraging me to pick Cornell. As it turned out, Isard moved there full time the next year.



Anselin receives the Alonso prize from Koichi Mera

As part of my research in the Center for Demography, I had become interested in cross-sectional econometric analysis and in the problem of “*spatial autocorrelation*”. In the 1970s, economic time series tended to be short and Belgium had good data at the level of the “*arrondissements*” so that a cross-sectional (or pooled time-series cross-sectional) perspective was very attractive. This brought me to the early work in spatial econometrics by the Dutch regional economists Paelinck, Kuipers and Hordijk and the UK statisticians and geographers Ord, Ripley and Cliff. This is what I wanted to pursue for my dissertation. Of course, what I did not realize is that at Cornell nobody was really interested in this topic, let alone did work on it. I had a very hard time convincing Isard that this could be turned into a dissertation, as his initial reaction was to dismiss spatial dependence as a “*red herring*” (not knowing what this was, I had to look it up). Eventually, he agreed that I could pursue it, as long as I also worked on integrated multiregional models, which I did. I also had Bill Greene on my dissertation committee, to make sure that what I did was legitimate econometrics.

At Cornell, I did not take many courses, but had several intense independent studies with Isard and Stan

Czamanski, who was also on my committee. In summer 1980, Isard organized the first World Regional Science and Peace Science Congress in Cambridge (MA) and had me attend (for two weeks!) as a rapporteur. It was a



Luc Anselin with Walter Isard

great opportunity to meet the leading and up and coming regional scientists, such as Bill Alonso (I had written a paper on his general theory of movement, which became my first publication, co-authored with Isard), Geoff Hewings, David Boyce, Peter Batey and the late Moss Madden, among others (I would later co-edit a book with Moss).

In addition to being a valued advisor and a great role model, Stan Czamanski was also instrumental in helping me get my first academic position. His son, Dan Czamanski was a faculty in City and Regional Planning at Ohio State and I was encouraged to apply for a position. I joined the department in Fall of 1980. At Ohio State, there was a small informal Regional Science group with Czamanski, Larry Brown and Emilio Casetti among others, which made for a very stimulating intellectual environment. I continued to work on integrated multiregional modeling. I also continued to work on the specification of spatial interaction models, which resulted in my first NSF grant. However, very quickly, I returned to my original interest in spatial econometrics, specification tests and estimation methods.

This further intensified after my move to UC Santa Barbara in 1985, where I joined the geography department. I received my second NSF grant, this time to work specifically on spatial econometric methods. At one of the North American RSA meetings, Peter Nijkamp encouraged me to consider compiling my papers into a book for the Kluwer Series in Operational Regional

Science, of which he was the editor. This became my 1988 Spatial Econometrics book. I intended it to be more than simply a compilation of my earlier work, but set out to situate spatial econometric methods within econometrics as such, with a focus on the treatment of spatial dependence and spatial heterogeneity. The book ended up being a great success and it is still available for sale. One of the challenges for the book was to come up with good empirical examples to illustrate the range of estimation methods and test statistics. This also required software. I had already started to turn the Fortran code from my dissertation into Gauss (a matrix language) and developed this into a software package for spatial econometrics, SpaceStat. First, I used it mostly in my teaching, but as the demand (via word of mouth) increased, I decided to have it distributed by the NSF-funded National Center for Geographic Information and Analysis (NCGIA) that had been established at UCSB in the late 1980s. SpaceStat turned out to be extremely popular, and I believe it may have had a lot to do with the dissemination of the spatial perspective among the mainstream social sciences. During my time at UCSB, my world perspective gradually started to shift from that of an economist to more of that of a geographer, or, more specifically, a geographic information scientist. In part, this was a result of the interaction with my colleagues Waldo Tobler and Reg Golledge, and later Michael Goodchild and Art Getis (who spent his summers in Santa Barbara), as well as through my involvement with NCGIA. At UCSB, I also had my first doctoral students: Sergio Rey and Uwe Deichmann. Serge became a lifelong collaborator and friend and is now my colleague at ASU. Uwe joined the World Bank and we have occasionally worked on studies together.

While at UCSB, I became more involved with RSAI. I was the local organizer of the 1989 Santa Barbara meetings and was appointed North American Editor (1992) and then Editor-in-Chief (1993) of the Papers in Regional Science. Late one night at the NARSC meeting in New Orleans, Andy Isserman approached me about joining him at the Regional Research Institute (RRI) of West Virginia

University. Those who knew Andy well (he sadly passed away in 2010) understand that he did not easily take no for an answer, and, after some back and forth, I agreed to the move in 1993. RRI was a fantastic environment. It occupied a small house on High Street in Morgantown, sufficiently separate from the campus to provide for a great research setting, but yet connected to faculty in several departments. The place had a fantastic library with an enviable collection of urban and regional journals. At RRI, I was able to devote almost all my time to research and started work in several new directions, in collaboration with two new PhD students, Oleg Smirnov and Attila Varga. At UCSB, I had started to work in GIS and specifically on connecting spatial analytical capability to GIS software. I pushed this further, initially still using the GIS for the visualization (the SpaceStat and ArcView link), but gradually developing a free-standing software capability, the core of what later would become GeoDa. This interest in computation matched Oleg's dissertation work, and we jointly explored various ways to scale up spatial estimation methods to larger data set sizes. Paralleling this, I started to investigate exploratory spatial data analysis or visual analytics and various ways to make the results of spatial autocorrelation analysis graphical. This yielded the idea for the Moran scatter plot and the Local Indicators for Spatial Autocorrelation (LISA). The 1995 Geographical Analysis paper that introduced these concepts turned out to be my most cited article (approaching 5,000 citations in Google Scholar). Attila Varga was interested in the impact of university research on the regional economy. I had done some early work on this topic at UCSB (which had got me connected with Raymond Florax, serving on his dissertation defense), and Attila had obtained a very interesting data set from Zoltan Acs (now at George Mason). This was the start of a series of joint papers dealing with the spatial impacts and spillovers of university research, which received considerable attention in the literature. During this time, I also organized several series of special sessions on spatial econometrics at the Regional Science meetings, which resulted in an edited volume with Raymond Florax.



In the mid 1990s, I was contacted by Anil Bera, an econometrician at the University of Illinois about a way to extend a test statistic he had developed into the spatial domain. This turned into the robust Lagrange Multiplier tests for spatial lag and spatial error dependence, and a much cited joint paper in *Regional Science and Urban Economics* (1996) with Bera, Florax and Yoon. Next, Anil and I also wrote the first overview of spatial econometrics for the *Handbook of Applied Economic Statistics*, which was the first of a number of such chapters that I authored in the next 10 years. These chapters went a long way to make “mainstream” econometricians engage with spatial issues.

At RRI, Andy Isserman insisted that I become involved with the *International Regional Science Review*, which I joined as Editor in 1996, something that I continued to do until a few months ago. Andy left RRI in 1997, but after a brief passage at UT Dallas, I rejoined him at the University of Illinois in Urbana-Champaign, where he had returned. My new home was the Department of Agricultural and Consumer Economics and I also became part of Geoff Hewings’ REAL group.

At Illinois, my interest started to shift even more to the computational aspects of spatial data analysis. I established the Spatial Analysis Laboratory and had an exciting new cohort of graduate students and visitors (e.g., Ibnu Syabri, now at Bandung Institute of Technology; Nancy Lozano, now at the World Bank; Julia Koschinsky, now at ASU; and Julie LeGallo, University of Franche-Comte). I was a Co-PI of the NSF-funded Center for Spatially Integrated Social Science (CSISS), specifically tasked with coordinating and developing software. Out of this came the first release of the GeoDa software package in 2003. The adoption of GeoDa vastly exceeded our initial expectations (a goal of 1,000 adopters listed in the NSF proposal) with over 120,000 users to date. In parallel with the development of GeoDa, I also started to collaborate with Serge Rey on PySAL, an open source library for spatial analysis, written in Python. Both projects are still very active.

Around that time, my work started to receive broad

recognition in the Regional Science community: I was elected Fellow in 2004, received the Isard Award in 2005 and the Alonso Prize in 2006. In 2007, I moved to Arizona State University to lead the School of Geographical Sciences and later merged it with the planning program to found the School of Geographical Sciences and Urban Planning. I also set up the GeoDa Center as the successor of the Spatial Analysis Lab, and was able to recruit an outstanding set of colleagues, post-docs and graduate students. The GeoDa Center has become a hub for the development and dissemination of open source spatial data analysis software, including an open source and cross-platform version of GeoDa and bi-annual releases of the PySAL library. In 2008, I was elected to the U.S. National Academy of Sciences, the only person with a PhD in Regional Science in that body. In 2011, I was also elected to the American Academy of Arts and Sciences. In that year, ASU had appointed me as a Regents’ Professor, after awarding me with an endowed chair the year before. They allowed me to name the chair and I contacted Isard to obtain his permission. This turned out to be my last conversation with Walter, but I am extremely proud to be the holder of the Walter Isard Chair at ASU.

After six years as an administrator, I stepped down and enjoyed 1.5 years of sabbatical, teaching and engaging with colleagues at MIT, Brown University and the University of Chicago. I also finished a long-standing project and published *Modern Spatial Econometrics in Practice*, a Guide to GeoDa, GeoDaSpace and PySAL with Serge Rey. I have started a new research agenda, focusing on the integration of ideas from econometrics, statistics and machine learning into a new spatial data science, and the exploitation of new (and big) data sources to study the dynamics of cities and regions. I am still hooked.

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Papers in Regional Science is the official journal of the Regional Science Association International. It encourages high quality scholarship on a broad range of topics in the field of regional science. These topics include, but are not limited to, behavioural modelling of location, transportation, and migration decisions, land use and urban development, inter-industry analysis, environmental and ecological analysis, resource management, urban and regional policy analysis, geographical information systems, and spatial statistics.

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Regional Science Policy & Practice (RSPP) is the official policy and practitioner orientated journal of the Regional Science Association International. It is an international journal that publishes high quality papers in applied regional science that explore policy and practice issues in regional and local development. It welcomes papers from a range of academic disciplines and practitioners including planning, public policy, geography, economics and environmental science and related fields. Papers should address the interface between academic debates and policy development and application. RSPP provides an opportunity for academics and policy

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RSPP publishes high quality papers targeted at informing the policy development process leading to the formation of theoretically grounded regional policy. The editors invite submissions dealing with the policy and practice of regional and local development. Contributions that are the outcome of collaborations between researchers and policy and practice professions are encouraged.

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All RSAI members have online access to the **Papers in Regional Science (PiRS)** and to the **Regional Science Policy and Practice (RSPP)**: Journals of the Regional Science Association International. Members will need to log in to access full text articles Online.

RSAI NEWSLETTER, the newsletter of the Association, appears two times a year and contains information about upcoming conferences and meetings, recent publications and a periodic guide to graduate programs in regional science. Please send all electronic submissions of material for the RSAI Newsletter directly to andrea.caragliu@polimi.it and/or G.P.Clarke@leeds.ac.uk.

Participation in national and international meetings is encouraged; over twenty international, national and regional meetings are held each year. Two of the Association's superregional organizations, the **North American Regional Science Council (NARSC)** and the **European Regional Science Association (ERSA)** hold annual meetings in November and August. The third superregional organization, the **Pacific Regional Science Conference Organization (PRSCO)**, holds a meeting every two years.

Each year, the Association conducts a competition for the best doctoral dissertation in the field of regional science. Winners are encouraged to present their work at one of the major international meetings.

In addition to the RSAI publications, members are offered an opportunity to purchase other regional science journals at reduced rates and participate in the national and international conferences at reduced rates.

RSAI membership has its benefits and privileges, including:

- Right to vote for representation of the Council of the Regional Science Association International
- Eligibility for awards of RSAI
- Discounted registration fees at conferences organized by RSAI, NARSC, ERSAs, PRSCO, and RSAs Americas
- RSAI newsletter
- Participation in and access to a worldwide network of 4500 regional scientists
- Complimentary electronic access to the two journals of RSAI, *Papers in Regional Science*, and *Regional Science Policy and Practice*. Access to these journals is possible through your RSAI member access portal.
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Membership of RSAI is normally obtained through membership of a local Section.

A member of a local section is automatically a member of RSAI, ie if the respective local section is recognized by RSAI.

RSAI comprises superregional associations which, in turn, comprise affiliated local sections/associations.

The three superregional organizations recognized by RSAI are:

- The European Regional Science Association (ERSA), comprising sections in the European realm;
- The Regional Science Association of the Americas (RSAmericas), comprising sections from North, Central and South America;
- The Pacific Regional Science Conference Organization (PRSCO), comprising sections in Asia (East, South East and South), Australasia and the Pacific Rim facing parts of the Americas.

Superregional organizations shall actively promote the establishment of affiliated sections/ associations within their territory of responsibility.

The membership of the section shall be renewed annually by payment of dues. This may be through a capitation levied on a section and/or collected through one of the superregional organizations established by the Association. If a member shall fail to pay dues within six months after the date of official renewal notice, the membership shall be considered terminated and the name shall be removed from the roster of members.

In exceptional circumstances direct individual membership may be considered by the Executive Director, ie for example if there is no section in the country of the individual candidate member.

For details on how to become a member, contact the Executive Director at rsai@apdr.pt or visit www.regionalscience.org.



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