## The regional science association international

## new series 21 - May 2022

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### FROM THE EDITORS

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.



Mina Akhavan (Politecnico di Milano) and Martijn Smit (Utrecht University) form the editorial team. Text contributions for the newsletter are always welcome,

and can be submitted directly to Martijn (m.j.smit@uu.nl) or to Mina (mina.akhavan@polimi.it). The deadline for the next issue is 15 October. In particular, short contributions on your current research are most welcome; these can be extracts from articles or reports, or opinion pieces. We also welcome proposals for a piece in the *Center of Excellence* series.

*Martijn Smit Utrecht University, the Netherlands* 

> Mina Akhavan Politecnico di Milano, Italy

## THE REGIONAL SCIENCE ASSOCIATION INTERNATIONAL

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#### WELCOME

Dear Members of the RSAI Community,

Greetings from Brazil! Last year, I attended the NARSC annual conference in Denver, my first Regional Science conference since the pandemic. That extraordinary feeling of getting back to interacting with colleagues in conference rooms, coffee breaks, and other social activities seems more vivid this year. Regional scientists are



getting together more frequently in various in-presence events. Supranational associations promote their annual meetings, some of them still in hybrid formats (LARSA and PRSCO), and others live and in-person (ERSA and NARSC)!

Unfortunately, news from humankind continues to come from a downside, not without positive responses from different parts of the world. Recent events in Ukraine reinforced in many of us our sense of binding commitment to a peaceful and sympathetic world. I have been witnessing different actions promoted by members of our community in response to the current situation. Ongoing structured plans lead to concrete actions to offer our Regional Science colleagues in Ukraine a positive support during the geo-political conflict and provide them with all scientific assistance they would need during and after the crisis. I extend my sincere appreciation to colleagues who led such endeavors during the recent EURIN conference at the Center for European Studies in Iasi, Romania. I also acknowledge all ERSA members who did not hesitate to offer proposals of assistance to students and researchers fleeing the Russia-Ukraine conflict, with the support of ERSA Sections and all other community members engaged in different solidarity actions around the world to mitigate conflicts. Bravo!

I am writing this letter on my way to San José, Costa Rica, where, among other activities, I will meet a group of regional scientists to discuss the creation of a section in the country. We are committed to expanding our association with a particular focus on embracing the Global South. Two workshops are already scheduled during the summer (or winter, depending on your perspective) in Ghana and Kyrgyzstan to create the basis for RSAI presence in these regions. In Accra, our goal is to mobilize and nurture talents across the West African

**RSAI MEMBERSHIP INFORMATION** 

All RSAI members have online access to Papers in Regional Science (PiRS) and 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.

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.

For details on how to become a member, contact the Executive Director, Andrea Caragliu at andrea.caragliu@polimi.it, or visit www.regionalscience. org. region, while the RSPP conference in Issyk-Kul targets leading academic scientists, researchers, and research scholars across Central Asia. Still this year, a workshop in preparation will take place in Asunción, Paraguay, fostering our presence in Latin America. I must acknowledge the role played by the RSPP and the Regional Science Academy as instrumental for many of such initiatives. I encourage you all to join us in these events.

I conclude these welcoming words by sharing my most profound feeling of gratitude to those colleagues that left us recently. Yesterday I was deeply saddened by the news of João Francisco Abreu's passing. He was a great supporter of RSAI and advocated for promoting regional science's growing knowledge and influence in the academic, political and social world realms. João was one of the founders of my home section in Brazil and a reference in spatial analysis in Latin America. By extending my heartfelt condolences to the family, friends, and loved ones of Prof. João Francisco Abreu, I honor all great regional scientists that are not with us anymore. They will all be greatly missed, but their legacy will live on for many years to come.

Eduardo Haddad

RSAI President



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### Young Scholar Interview: Andreas DIEMER

Andreas Diemer was chosen as the winner of the RSAI dissertation award in 2021 for his "Essays in the Spatial Economic Analysis of Social Interactions."

The dissertation develops an interdisciplinary approach to identify the role of social networks in determining economic outcomes of both people and places, and discusses how social and geographical spaces interact to shape the fortunes of individuals and regions, using big data. The committee found his dissertation to be novel and creative in the research framework, analysis and implications.

He received his Doctorate from London School of Economics, and was supervised by prof. Simona Iammarino and prof. Michael Storper. Dr. Diemer is now at the Swedish Institute for Social Research. Mina Akhavan interviewed him for this newsletter.

#### As a young scholar, how do you make a balance between research, teaching and consultancy (outside academia)? Especially during the pandemic and the shift towards hybrid working?

S A YOUNG scholar, I believe it is important to develop a well-rounded  $oldsymbol{\Lambda}$ profile; this entails engaging with all the activities you mentioned. At the same time, the workload can become quite intense, so it is definitely a challenge to strike a balance, particularly when other professional service duties also add to the agenda (e.g., peer reviews, seminar organization, etc.). The relative amount of time I spend on any of these activities compared to others will change during the year. When the workload is high, I remind myself that these activities are interconnected. Teaching has always been a great source of motivation and inspiration. It also helps me take a step back and think about the bigger picture, engaging with new developments in the broader literature, which has often been very productive for my research.

Similarly, consulting fosters conversations with stakeholders and clarifies pressing real-world issues. I see it as a way to keep research relevant and grounded in policy debates. Hybrid working during the pandemic has been a challenge, blurring the already precarious lines between personal and professional life. At the same time, it also offered significant advantages, such as unprecedented access to high-quality research seminars worldwide. I found that planning with a rigorous schedule that acknowledges time constraints and sticking to it has been very helpful in making the most of these opportunities. Admittedly, however, it has not been easy.

#### Tell us about the importance of receiving awards and prizes, in general, for early career researchers.

Awards and prizes are essential at all stages of academic life, but particularly as a young scholar. They matter for at least three reasons, in my opinion. One is motivation. Our discipline can be quite frustrating at times, with research not working out as planned and all sorts of unforeseen hurdles on the way. Aspiring to win a prestigious award is a powerful incentive to work extra hard and persist. Another is the reward. A large part of academia (e.g., seminars and peer review) focuses on critiquing and discussing how things can be improved rather than commending how they are. Journal publications can be slow to materialize. All this can take a toll on researchers, particularly younger ones. Prizes and awards help remind oneself that effort pays off and is recognized. The to Japan as Assistant Professor of Economics at Gakushuin University. He last reason is signalling. The research landscape is highly competitive, with many highly talented scholars working parallel on similar ideas; this is both exciting 2011. In addition to his research on regional economic development, Professor and daunting. It is difficult to stand out. Validation by established academics Kawashima engaged in humanitarian work, installing clean water and sewage in the community can be a powerful propelling force. For all these reasons, I am incredibly grateful, honoured, but also humbled to have been granted this

prestigious prize. It means a lot to me, both personally and professionally.

During the pandemic, the world switched to digital modes; online meetings, teachings, and many conferences are still online (or hybrid). How does this impact the regional science community, you think?

As I was saying, this is a great opportunity, but it needs to be managed. A limited amount of information can reasonably be processed and absorbed in a given time. Thus, selectivity and discipline are critical, as it is easy to be distracted by the wealth of new resources that



can be accessed. Some of the management responsibility falls onto conference organizers too. Think about how easy it is to hop in and out of conference rooms during parallel sessions. Is this desirable? Perhaps not entirely. The audience will benefit from attending the best space for them, with the highest quality research. But for presenters, it also means that most feedback will concentrate on already high-quality papers, damaging work that is more early-stage and less developed (which, on the contrary, would benefit the most from this feedback). Embedding capacity constraints and commitment mechanisms in online conferencing platforms could somewhat correct this. Relatedly, there is a risk that digital access to conferences and seminars will disproportionately give visibility to some scholars as opposed to others, fostering a winner-takesall type of dynamic. This impoverishes the overall research community, which builds on a plurality of voices at all career stages. As a community, regional scientists have always made the most of this plurality, interdisciplinarity, and inclusiveness. Moving forward, I believe it is vital to make sure it is preserved. Finally, of course, the digital world does not replace the joy and richness of real-life interaction. I look forward to going back to meeting people in person at conferences.

#### Finally, do you have general advice for PhD students in regional science? how would you advise young PhD students and early career researchers in building a successful career in academia or outside (in the industry?)

I do not think there is one way of doing it. I would say work hard, but do not forget to reward yourself and carve out a space for personal gratification and satisfaction. Academia does not always grant it so easily, but it does not mean that it is not deserved. You need to find some source of motivation to keep things going. One of the great benefits of academia, I find, is that your colleagues can truly be your friends too. Rely on each other, share your concerns, and make it fun to work together. I could not do this job without the support of all the friends around me who understand how it feels.

### In Memoriam: Tatsukiho Kawashima

PROFESSOR TATSUHIKO ("TATS") Kawashima died on November 4, 2021. He earned bachelor's and master's degrees in economics from the University of Tokyo and received a PhD in Regional Science from the University of Pennsylvania in 1969. He was then appointed Assistant Professor of Regional Science at Penn. He resigned from the position in 1973 to return was promoted to professor at Gakushuin in 1976. He took emeritus status in infrastructure in mountainous northern Thailand with his students. He was a

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member of an advisory panel to the Ministry of Land, Infrastructure, Transport and Tourism in Japan. He is survived by his daughter, Crown Princess Kiko and his son-in-law Prince Fumihito, and three grandchildrenthe former Princess Mako, Princess Kako and Prince Hisahito.



Janice Madden University of Pennsylvania and the future. A diversity of topics - such as local spatial indicators, eigenvector spatial filtering, origindestination models, attenuation of agglomeration externalities, point pattern analysis, spatial clustering, and spatial web API - made a rich menu interesting and inspiring for all participants. Inter-continental, inter-generational and interdisciplinary discussions made this meeting vibrant and an experience that stays in memory.

> Katarzyna Kopczewska University of Warsaw, ERSA EOC member

#### APJRS SILVER MEDAL

ARIMA KOURTIT (FACULTY of Management Sciences, Open **N**University) recently received a silver medal as an outstanding paper award for an article published in the Asia-Pacific Journal of Regional Science (APJRS) (published by Springer Verlag). This prize is awarded annually to the author of a research paper who has made significant contributions to the advancement of the field of regional science. She was invited to receive this award - called the Oishi Yasuhiko Award – in person at an official ceremony of the Japan Section of Regional Science Association International (JSRSAI) in Japan. Still, unfortunately, this was not possible due to the corona rules.

Karima Kourtit is a researcher at CAROU (the Centre for Actionable Research at the Open University) and responsible for the 'Smart Cities and Data Analytics' programme. She is also Executive Director of The Regional Science Academy, and in that position, she participates in many international research networks. The article for which she received a silver medal is a solo article on the new



methodology of digital data analysis in urban planning. Her study is based on 'smart city' initiatives and focuses on the question of the optimal use of digital data. In the age of big data, a systematic decomposition approach systems – is needed to create order in a chaotic and disordered data structure.

Such a decomposition presupposes a series of KPIs (Key Performance Indicators) ordered according to hierarchical management and policy principles. In principle, by using such ordered data interactively, a 'smart city' has the chance to develop into an 'intelligent city' and to become a 'digital winner' among the smart cities.

### ERSA WINTER SCHOOL 2022

THE 4TH ERSA Winterschool on "Applied Quantitative Methods in L Regional Science" at the University of Warsaw brought us together again as a post-pandemic event. PhD students and young scholars worldwide could learn from an outstanding international team: prof. Jean Dubé, prof. Giuseppe Arbia, prof. Martin Andersson, prof. Roberto Patuelli, LOC: prof. Katarzyna Kopczewska, dr Mateusz Kopyt, Maria Kubara and Kateryna Zabarina and this year's namegiver, prof. Daniel Czamanski. In February, Warsaw is usually cold, but we made the atmosphere warm with interactions, talks, and integration. We discussed different quantitative methods, from spatial statistics, through spatial econometrics to spatial machine learning - technical implementation in R and Stata, showing links to the regional science theory and looking at perspectives

### THE STORY OF THE FIRST European Congress

PART Three of a Series BY PETER BATEY, RSAI ARCHIVISt (PWJBATEY@LIV.AC.UK)



TOT MANY OF today's regional scientists will know how European Congresses became established. In this article, I describe how the first European Congress came about and how different that Congress was from the congresses we know today.

The first European Congress was held 61 years ago at the Institute of Social Studies in The Hague. It came twelve months after a European tour by RSAfounder Walter Isard to promote regional science in Europe. Isard spent a couple of months touring Europe, developing a network of regional scientists, many of whom he had met for the first time as he stopped off at conferences in Paris, Bellagio, Zagreb, Warsaw, Stockholm and Lund, as well as The Hague. He was based on cascade principles of complex urban helped particularly by the Institute director, Jacques Thijsse, who had expressed an interest in hosting the first European Congress. Isard and Thijsse worked together in organising the Congress, Thijsse taking care of local arrangements and Isard constructing the Congress programme and issuing invitations to speakers. The programme consisted of a mixture of American regional scientists and European scholars Isard had met during his European tour the previous year. There was great anticipation among those travelling to The Hague for the four-day Congress.

> We know that some 122 delegates (just three of whom were women) attended the Congress, drawn from 29 countries, making it easily the largest conference of its kind at that time. I am not aware of anybody currently attending the



# **AI NEWSLETTEI**

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2022 European Congress in Hungary who was in The Hague all those years precedence. If delegates wanted to socialise, that would ago. The list of delegates in The Hague makes interesting reading: it includes be their business, in their own time and at their own many famous names: Walter Christaller, Roland Artle, Jan Tinbergen, Tom expense. The only exception was a scheduled meeting Reiner, Hollis Chenery, Edward Ullman, Antoni Kuklinski, Horst Rittel and of the members of the European sections of the Stan Czamanski.

fifteen papers were presented over the four days of the Congress, and a typical provided. morning or afternoon session would be devoted to the presentation of as Interestingly, the final day of the Congress took the English was not their first language. The fact that the only visual aid was a until they became too large. blackboard and a piece of chalk can only have added to this difficulty.

it turned out, the programme for the first Congress consisted entirely of papers about regional analysis; not once was there any mention of regional policy.

The first Congress had no social programme, reflecting Isard's firm belief that time was valuable and that scientific discussion should always be given

Regional Science Association. Here again, there Conference programme: The format of the Congress is in marked contrast to today's conferences. Just was no suggestion that any hospitality would be page 1 (left), page 2 (right) and page 3 (bottom)

few as two papers. A considerable amount of time was devoted to discussion, form of a joint session with the International Geographical Union's Commission with papers by American authors discussed by European delegates and vice on Methods of Economic Regionalization. This was a hot research topic at versa. Since all conference sessions were plenary, all those attending would, in the time among the regional science research community and quantitative principle, be able to listen to every speaker and contribute their remarks and geographers in particular. The day ended with a summary paper by Isard and questions to that of the invited discussants. One could imagine that this would Tom Reiner, in which they tried to synthesise the main messages to emerge have proved quite an ordeal for those delegates – the majority – for whom from the Congress. This was later to become a tradition at European Congresses

Finally, the output of the Congress was a European volume of Papers of the Isard took the lead in inviting speakers, as he did for many of the regional Regional Science Association (now Papers in Regional Science). Ten papers science conferences at that time. He believed in setting high academic standards were selected primarily from among those by European authors, together with and was good at spotting future 'stars'. However, it was a system of patronage, comments from three of the discussants. Not every paper was included, a notable with the personal bias this inevitably entails and had the drawback that many omission being that by future Nobel Prize winner, Jan Tinbergen. This omission good academics were passed over in the process of compiling a programme. As was later to be rectified in 1967 when the Congress was next held in The Hague.

Program Regional Science Association Institute of Social Studies, 27 Molenstruat, Hague, Holland, September 4-7, 1961					
	(Sessions on September 7 are joint with the Commission on Methods of Economic Regionalization, International Geographical Union/				
MONEXAY, SEPTEMBER 4, 1961					
9:00 A.M.	Registration				
10.30 A.M.	Subject: Conprehensive Regional and Economic Planning				
Chairman:	E. de Fries, Institute of Social Studies, Hague				
Paper: 1.	Planning and Regional Science Techniques W. Isard and T. Reiver, University of Pennsylvania, USA				
Discussents:	P. Bernard, Paris; A. Kakliveda, Institute of Geography, Warsaw				
2:30 P.M.	Subject: Seadier of Metropoliton Regions				
Chairman	F. Resenfeld, Society of Applied Mathematics, Paris				
Papers: 1.	The Use of Interchange Models in the Study of Metropolitan. Economics R. Artle, University of California, USA				
2.	Concept of a Planning Atlas for a Metropolitan Region. A. Külon, Akademie Sir Raumforschung und Landesplanung, Germany				
Discussants	J. Piperugion, Deniadis Associates, Athens, R. Trias Fargus, University of Beccelona, Spain				
TUESDAY, SI	OPTEMBLE 5, 1961				
9:30 A.M.	Subject: Industrial Location Studies for a System of Regions				
Chairman:	S. Lombardori, Instituto Ricerche Economico-Sociali, Torino				
Papers: 1.	Spatial Distribution of Industry J. Tinbergen and H. C. Bos, Netherlands Institute of Economics				
2	Statistical Explanations of the Relative Shift of Menufacturing Employment among Regions of the United States				

3.	The Model of Optimization of Foreign Trade Policy in a Planned Economy W. Traeciakowski, Committee on Space-Economy and Regional Planning, Warsaw
Discussants:	P. Holm, Stockholm; M. Verholst, Paris
2:30 P.M.	Subject: Social Accounting and Income Analysis for Regions
Chairman:	To be announced
Papers: 1	Regional Distribution of National Wealth in Yugoslavia I. Vinski, Institute of Economics, Zagreb, Yugoslavia
2	Regional Income Distribution in Spain, by Region of Origin and Destination
	J. R. Lanuen, University of Barcelona, Spain
Communicati	on: Problems in Constructing an Interregional Input-Output Table for Greece
	S. Geronimolia, Ministry of Coordination, Athens
Discussant:	W. Hockwald, Washington University, USA
WEDNESDAY	SEPTEMBER 6, 1961
9:30 A.M.	Subject: Programming Economic Development in Regions
Chairman:	J. Thijsre, Institute of Social Studies, The Hague
Papers: 1.	Development Policies for Southern Italy II. Chenery, Stanford University, USA
2.	The Propulsive Industry and the Propulsive Region F. Permur, Institute of Applied Economic Science, Parts
Discussants	J. Bondevälle, University of Lyons, France; C. Dososis, Ministry of Coordination, Athens
2:30 P.M.	Subject: Spatial Impact of Transport Improvement
Chairman: F.	Whatney, University of Pennsylvania, USA
Papers: 1.	The Analog of Comparative Method in Economic Geograph Two Models for Predicting Future Use
	E. L. Ullman, University of Washington, Seattle, USA

5.00 P.M.	Meeting of the members of the European socions of the Re-
	gional Science Association
THURSDAY, S	SEPTEMBER 7, 1961
	int with the Commission on Methods of Economic Regionalizational Geographical Union)
9:30 A.M.	Subject: Concepts of Region and Regional Structure
Chairman:	S. Lesnerychi, Institute of Geography, Warsaw, Poland
Papers: 1.	Theoretical Problems in the Development of Economic Region K. Dziewowski, Institute of Geography, Warsaw, Poland
2	Regional Analysis and the Geographic Concept of Region A. Wrobel, Institute of Geography, Warsaw, Poland
Communicat	son: Regional Input-Output Analysis and Development Pro- gramming for Italy F. Gao-Pinna, Bank of Sicily, Rome
Discussants:	E. Pasas, Ministry of Coordination, Athens; Members of the Commission on Methods of Economic Regionalization of the LG.U.
2:30 P.M.	Subject. Industrial Complex Analysis
Chairman:	To be discussed
Papers: 1.	Large Areal Complexes of Forces in the Soviet Union J. G. Shaushlin, Moucow University, USSR
Discussants:	32. Forbarg, Economic Technological Institute, Holland; Members of the Commission on Methods of Economic Regionalization of the IGU
Summary Pa	per: Regional Analysis: Retrospect and Prospect W. Isand and T. Reiner, University of Pernsolvania, USA

Regional Input-Output Model of Shikoku Area and Eco

Effect of the Proposed Seto Great Bridge F. Oyennew, Kagawa University, Japan

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### ASSA CONFERENCE

**F**OR THE FIRST time in history, the influential conference of the American Economic Association featured a dedicated Regional Science session. Going under the umbrella of the Allied Social Sciences Associations, their annual meeting took place virtually in January 2022. The online session in Regional Science was composed of five presentations and discussions about various methodological and empirical aspects of regional economics. The organizing committee (Profs. Sandy Dall'erba and William Ridley from the University of Illinois at Urbana-Champaign, Prof. Christa Court at the University of Florida) has requested two additional Regional Science sessions to become available at future AEA meetings. They shall know in the Spring if the request has been granted. The organizing committee encourages Regional Scientists, more especially PhD-students and post-doctoral students on the job market, to attend future sessions so as to receive valuable feedback on their work and enlarge their network.

Sandy Dall'Erba Univ. of Illinois



### MEET THE FELLOWS: ROBERTA CAPELLO

**W**AS BORN NEARLY sixty years ago in Milan. My father was a Professor of Mechanical Engineering at Politecnico di Milano. For this reason, I grew up 200 meters away from the main building of the University where I now work. My primary school was (and still is) in the same square of the Politecnico, and during my childhood, I spent my afternoons in spring riding my bike with my little friends around the campus square. If someone had told me in those days that I would have got a position at that University, I would have just laughed.



The campus square with the primary school on one side



Politecnico di Milano's main building on the other of the campus square

My contact with the academic world started when I was a child. I liked visiting my father's office, looking at the "grown-up students" with admiration and looking at the "magic" events that were taking place during my visits to the technical laboratories. During my primary school years, I also got in contact with the "1968 students' revolution". In Milan, the Politecnico's square was, unfortunately, a place of fights between students and police. For me, the bad side of that historical moment was that I was confined at school, waiting for the situation to improve and for my parents to pick me up.



#### 1968, in the campus square after a day at school.

When the time to choose the University course of study came, it was not easy. I had clearly in mind what I did not want to become, and instead, I had no idea of what I wanted to become. After deep reflections and a certain influence on people thinking practically, I preferred to choose a course of study with better job opportunities. My choice was Economics at Bocconi

University in Milan. The doubts were so significant that made me apply on the afternoon of the deadline.

My love for Regional Economics came during my last year when I decided to attend this course. I was deeply fascinated by how space is inextricably bound up with economic activity. Regional Economics has been the only course in all my student career where I received a "cum laude" mark and decided to write my dissertation in the field of Regional Economics under the supervision of Roberto Camagni.

The day after my graduation, Roberto Camagni asked me if I wanted to help him develop some research projects while I was looking for a highly remunerative job in the private sector. I accepted, and on September 1st, 1986, I started working in the Economics Department at Bocconi University while looking for a stimulating and remunerative job in banks, insurance companies, and large firms, where I had several job interviews. I was offered several opportunities, but none was assessed to be the right one.

In 1991, a young and already famous Dutch professor, Peter Nijkamp, met me at a conference and asked me whether I would be interested in doing a PhD at the VU University in Amsterdam. Confronted with such an offer, I understood why I could not find the right job elsewhere. I had already my preferred (even if not highly remunerated) job, and the PhD was the opportunity of my life I was waiting for. In 1991 I started with enthusiasm my studies at the VU in Amsterdam. In December 1993, I received my PhD in Economics at the VU with a thesis entitled "Spatial Economic Analysis of Telecommunication Externalities", published the following year by Avebury. The personal satisfaction

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I received from the dissertation and the book was unbelievable, and I still have development. a vivid memory of the day of the ceremony and the day the book came out.

#### 1993, PhD defense, VU, Amsterdam.

I became an assistant professor at Politecnico of Milano two years later, and another turnaround in my life happened. Roberto Camagni left the University of Padua and joined me at the Economics department



of Politecnico di Milano. At last, we were both in the same academic environment, a condition that allowed us to build a Regional Science group made of enthusiastic young scientists working with us. Since that year, the number of new and innovative research fields that I had the chance to study multiplied. I still kept my passion for regional innovation models, but I opened my mind to other fields. In my first years at Politecnico, I reinforced my empirical (econometric) expertise, fascinated by the idea of "measuring the unmeasurable". The industrial atmosphere of the industrial districts (at that time a crucial theory of local development), the collective learning effects of the milieu innovateur theory (an evolutionary approach to the development of local production systems), network externalities of the city network theories, found quantitative proofs of their effects in my studies. In this vein, I also got fascinated by Urban Economics, revisiting all attempts made to measure the presence of agglomeration economies, innovating conceptually also by finding reasons on how to overcome the "Optimal city size theory", demonstrating that the functions and the capacity of cities to be part of a city system rather than the size explain agglomeration economies.

In 1998, I applied to become an Associate professor. I got the position in the South of Italy, and a new adventure started. I spent three years in Campobasso (or better, travelling from and to Campobasso nearly every week), an experience that forged my physical and mental health. At the University of Molise (in Campobasso), I had to teach for the first time in my life Regional Economics; I discovered the poverty of the textbooks in Italian in that discipline. Only one textbook existed, a translation of Armstrong and Taylor's "Regional Economics and Policy" textbook, which suffered from being out of date and lacking, for example, all the local development theories developed in recent times. After one year, I signed a contract with the publisher "Il Mulino" to write a new textbook. I still remember the three tough nights I had after signing the contract, wondering if I had asked myself too much.

I wrote my textbook during my winter and summer holidays for a few years. I read original papers of economists like the neoclassical Borts and Stein, the Keynesian North, just to mention a few of them, not to speak about the fascinating books of Walter Isard. During those readings, I discovered aspects against general beliefs, like the capacity to interpret regional divergence of the original neoclassical model of regional growth in its two regions - two sectors version. In 2004, the textbook "Economia Regionale" was at last published, and I lived another period of profound enthusiasm and deep satisfaction like the ones after the PhD and the publication of my first book. In the following years, the book was translated into English (Routledge, 2007) and Chinese (Economy and Management Publishing House, 2014), and new editions both in Italian and English followed ten years later. After writing the textbook, deduction and abstraction characterised my research projects much more than before, and I was able to produce conceptual approaches to regional innovation and regional

In 2003, I became a Full Professor in Regional and Urban Economics at Politecnico di Milano. Among many scientific activities I developed, I like remembering a particular one. Together with Roberto Camagni and our group, I developed the MASST model, a Macroeconomic Regional Growth model, which is now in its 5th version, thanks to Andrea Caragliu and Roberto Dellisanti. It is now known at the EU level as one of the models to build scenarios at the regional level, competing with the other few that exist - RHOMOLO, REMI, GMR - each with its specificities. Its success has been impressive and much beyond our expectations if one thinks that behind models like this one, you usually find a team of at least 15 scholars. Each MASST version has instead been produced by max 3 of us!



2005. With Roberto Camagni, ERSA Conference, Amsterdam.

Being a Full Professor, I thought that the difficult and challenging times had finished and that I could go on enlarging my

knowledge and enjoying my research activities with Roberto Camagni and my young colleagues. I was wrong. In 2006 I received a phone call from Peter Nijkamp telling me that he was in Milan together with Roger Stough (at that time President of RSAI) and they needed to talk to me. I invited them home for dinner, and they asked me if I would be interested in becoming the next RSAI President. I have a vivid memory of what went through my mind at that moment: at first, I thought they were joking, then that they had not clear in their mind what they were saying. To my surprise, they were extremely serious, and they knew perfectly what they were saying. After one week of insufficient sleep (like the ones after signing the contract for the textbook), I accepted. In 2007, in Vancouver, the RSAI Council elected me President of RSAI: a 45 years old woman, not entirely confident about her capacities to lead an Association of that size and complexity.

2007. National Conference of the Brazilian Association, Recife, Brazil.

Instead, two wonderful and pleasant years followed my election. I concentrated my efforts in Latin America, creating a new association in Colombia, reinforcing the just born Brazilian one and opening opportunities



in Argentina (where the association was created in the following years). I reestablished contacts with national associations in Europe, organised a World conference in Timisoara (Romania), and reinforced the linkage with ERSA. Finally, I modernised the rules of governance of the association, revising the constitution. But especially, I travelled all over the world, always meeting fantastic people and making new friends.

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2009. Cartagena dos Indios, Colombia.

Below: 2012. RSAI World Conference, Timisoara.



As time passed, my activities enlarged to those of a member of scientific boards of research programmes, evaluation committees of research centres, President of a university course of study and Deputy Director of my Department. However, my heart is inextricably bound with scientific research. I particularly enjoy the scientific brainstorming with my young, constructive and dynamic research group that, over

time, has arisen around Roberto and myself: Andrea Caragliu, Silvia Cerisola, Ugo Fratesi, Camilla Lenzi, Giovanni Perucca, Elisa Panzera and Roberto Dellisanti have developed important research fields together with Roberto and myself, with scientific rigour, creativity, competence and dedication. I hope they will have a satisfactory, full, happy, and constructive professional life like mine. I have to say that I have found the stimulating (even if not highly remunerative) job I was looking for after graduation.

### THEME: DYNAMICS OF PERIPHERAL REGIONS

### **CONTRASTS IN THE ADOPTION OF NEW TECHNOLOGIES BY THE GLOBAL NORTH AND SOUTH**



NEW DIGITAL TECHNOLOGIES are instigating changes in the production mode and the demand

for workers (Frey & Osborne, 2017). Technological transformation can induce productivity gains in the long term. However, it can intensify the replacement of workers with machines or automated processes in the short term, generating social tensions due to the increase in unemployment. There is no guarantee that new occupations may emerge to quickly compensate for the lost jobs (Autor & Dorn, 2013).

However, to properly discuss such an issue, it is first necessary to identify the local context. The disparities between countries in the Global North and Global South are crucial to understanding the effects on the real economy and nations' labour market on the frontier or the periphery of technological development. On the one hand, advanced regions concentrate factors that are a self-stimulus to growth. On the other hand, peripheral and less technologically dynamic

regions face significant obstacles to sustainable growth.

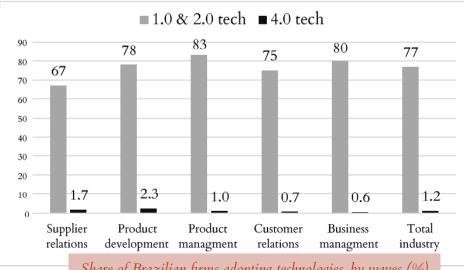
The most advanced countries in the Global North are on the technological frontier, producing labour-saving technologies and having higher technological intensity sub-sectors in an advanced automation stage. Generally, such countries have proper internet infrastructure, a well-developed market for financing the adoption of new technologies and a workforce better prepared to use digital technologies. In such a scenario, digital technologies spread faster than in the Global South.

Contrary, many Global South countries do not have the adequate and widely distributed infrastructure - such as basic transport systems, electricity and communication network - or resources available to employ information and communication technologies necessary for the digitalisation of production processes (Lorenz, Tessarin & Morceiro, 2019; Ferraz et al., 2020). A substantial portion of companies are technologically outdated and have little readiness for the Fourth Industrial Revolution technologies since they still use technologies from the First or Second Industrial Revolution or partially from the Third one (involving the mechanization of production processes) (UNIDO, 2019), as we can see in the figure below. Notwithstanding, automation may be feasible from a technological point of view but not economically viable depending on the industrial structure and level of development (Lorenz, Tessarin & Morceiro, 2019).

The economy's sectoral composition also has a significant influence on this matter. The production structure in the Global South is concentrated on lowtech sub-sectors that involve traditional production processes, as in Brazil. Thereby, the probability of automation differs as some sub-sectors traditionally involve more mechanised production processes than others (Andreoni, 2019; Lorenz, Tessarin & Morceiro, 2019; Ferraz et al., 2020). For example, the automotive industry is capital intensive, while footwear and apparel are labourintensive.

On top of sectoral heterogeneity, deep spatial disparities, particularly in regions of Latin America and Africa, can delay technology adoption (Andreoni, 2019; Lorenz, Tessarin & Morceiro, 2019; Tessarin & Morceiro, 2022).

The impact of new technologies can also differ by gender. Mariscal et al. (2019) noticed a significant digital gender divide: lower access to and usage of digital technologies by women than men, particularly higher in less developed regions. This results from poor education and unfavourable work conditions for women (Mariscal et al., 2019) and may imply that women are vulnerable in the labour market, as most women occupy positions unrelated to STEM fields (Tessarin & Morceiro, 2022).



Share of Brazilian firms adopting technologies, by waves (%)

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A recent study on the probability of job automation by new technologies for mobility restrictions include(d) repeated appeals to the Brazil – one of the most populous countries in the Global South, economically population to refrain from personal mobility and the important and deeply unequal spatially (Azzoni & Haddad, 2018) - showed closure of restaurants and recreational facilities. that the share of jobs in occupations most at risk from digitalisation is very heterogeneous regionally, sub-sectorally, by gender and for all region-gendersub-sector combinations (Tessarin & Morceiro, 2022). Those authors conclude that it seems there were several countries with different production techniques, capabilities and innovation systems located in just one. Therefore, many factors in the Global South regions can slow the diffusion of new technologies compared to the more advanced regions of the Global North.

In brief, technological change in the Global South is slow compared to the Global North. As labour is relatively cheap in Global South due to informality, disguised employment and unemployment, besides structural factors aforementioned, the adoption of new technologies will evolve at a slower pace in lagging regions. Therefore, such inequalities are crucial elements that need to be considered in the design of public policies in educational, regional, social, labour, and science & technology areas.

> Milene Tessarin Utrecht University

References

Andreoni, A. 2019. Robotising Regions: A Comparative Analysis of Industrial Policy for Robotisation across China , Malaysia and Thailand. DST/NRF South African Research Chair. Pretoria.

Autor, D.H. & Dorn, D. 2013. The growth of low-skill service jobs and the polarization of the US Labor Market. American Economic Review. 103(5):1553-1597.

Azzoni, C.R. & Haddad, E.A. 2018. Regional disparities. In The Oxford Handbook of the Brazilian Economy. E. Amann, C.R. Azzoni, & W. Baer, Eds. Oxford University Press. 1-27.

Ferraz, J.C., Kupfer, D., Torracca, J. & Britto, J.N.P. 2020. Snapshots of a state of flux: how Brazilian industrial firms differ in the adoption of digital technologies and policy implications. Journal of Economic Policy Reform. 23(4):390-407.

Frey, C.B. & Osborne, M.A. 2017. The future of employment: how susceptible are jobs to computerisation? Technological Forecasting and Social Change. 114(1):254–280.

Lorenz, E., Tessarin, M.S. & Morceiro, P.C. 2019. 4th Industrial Revolution 'Deep Dive' Policy Brief 2: Evidence from Sector Case Studies. DST/NRF South African Research Chair. Pretoria.

Mariscal, J., Mayne, G., Aneja, U. & Sorgner, A. 2019. Bridging the gender digital gap. Economics. 13:1-12.

Tessarin, M.S. & Morceiro, P.C. 2022. Labour market transformations in the era of new technologies: an overview for unequal regions, gender and manufacturing sub-sectors. The Southern Centre for Inequality Studies, University of Witwatersrand. Johannesburg.

UNIDO. 2019. The adoption of digital technologies in developing countries: Insights from firm-level surveys in Argentina and Brazil. Working paper 6/2019. Vienna.

### THE ROLE OF COVID-19-INDUCED **MOBILITY CHANGES ON THE REORGANIZATION OF PERIPHERAL REGIONS IN GERMANY**

CONAIN THE COND-19 pandemic, O policymakers worldwide have responded with measures of varying intensity to limit the mobility and thus the transmission chains of COND-19. However, the question arises as to what socioeconomic factors might influence the implementation and thus the effectiveness of these measures. In the case of Germany, for example, the measures include(d) direct mobility restrictions or temporary entry restrictions for certain counties. Indirect





The study "Which factors influence mobility change during COND-19 in Germany? Evidence from German county data" (forthcoming in Regional Science, Policy and Practice) analyzes the empirical effects of policies to curb mobility. Using spatial econometric models based on data from 401 counties in Germany, we show that population behaviour adjustment (i.e., the change in mobility between January 2020 and January 2021 based on anonymized mobile phone data) varies regionally depending on socioeconomic characteristics.

So far, only a few studies have analysed the relationship between social status and the associated ability to effectively restrict one's mobility (in the sense of mobility restriction as a luxury good, see e.g. Huang et al., 2021). The policy relevance of such questions is to achieve regionally specific, and thus more targeted, pandemic responses than has been possible in the past when it is known which and how socioeconomic factors limit or promote mobility change during the course of COND-19.

A key finding of our study provides empirical support for the urban flight to the peripheral home office conjecture discussed in the literature and daily press (Crowley and Doran, 2020; Kapitsinis, 2020). For example, caseloads and the share of academics are negatively associated with changes in mobility. In contrast, a region's average age and peripheral location are shown to have a positive impact on mobility change. Here, the possible argument of higher mobility needs or higher mobility avoidance costs for general interest (e.g., shopping, commuting to work) applies. Results in the literature are mixed in this regard. For example, our finding is supported by Liu et al. (2021), while the place of residence is found to be insignificant in Borkowski et al. (2021).

We also find that car density has a significant negative effect. Although this may seem counterintuitive at first glance (Eisenmann et al., 2021), high car density can also be seen as an indicator of high potential for mobility reduction (e.g., car use for commuters). Similarly, there is a significant negative coefficient for car travel time to the nearest regional or urban centre. An analogous result is found in Borkowski et al. (2021), where higher travel time before the pandemic is significantly associated with more restricted mobility during the pandemic. As expected, higher broadband coverage, which is a prerequisite for reliable remote work, has a significantly negative effect on the change in mobility.

Such results naturally raise the question: What remains of regional mobility change in the medium and long term after the COND-19 era? Ultimately, the answer is speculation, but some scenarios from the literature shall nevertheless be briefly mirrored with our results. The pandemic crisis may appear to stabilize regional economic divergence and spell an end to booming cities and outlying towns (Hendrickson and Muro, 2020; Farmer and Zanetii, 2021). Will previously disadvantaged peripheral regions seize the opportunity and improve living and working conditions for academics? Farmer and Zanetii (2021) predict that work in peripheral regions will depend on broadband connectivity and local digital infrastructure. This trend is now already empirically supported by our results.

> Andree Ehlert, Harz University of Applied Sciences & Jan Wedemeier, Hamburg Institute of International Economics (HWWI)

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#### References

Borkowski P; Jażdżewska-G M, Szmelter-Jarosz, A (2021). Lockdowned: Everyday mobility changes in response to COVID-19, Journal of Transport Geography, 90 (2021), DOI:10.1016/j.jtrangeo.2020.102906.

Crowley F, Doran J (2020). COVID-19, occupational social distancing and remote working potential: An occupation, sector and regional perspective, Regional Science and Policy & Practice, 12(6): 1211-1234, DOI/10.1111/rsp3.12347

Eisenmann C, Nobis C, Kolarova V, Lenz B, Winkler C. (2021). Transport mode use during the COVID-19 lockdown period in Germany: The car became more important, public transport lost ground, Transportation Policy, 103(January), 60–67, 2021, DOI:10.1016/j.tranpol.2021.01.012.

Farmer H, Zanetti O (2021). Escaping the City? How COVID-19 might affect the UK's economic geography. Nesta Innovation Foundation, London

Hendrickson C, Muro M (2020). Will COVID-19 rebalance America's uneven economic geography? Don't bet on it. Monday, April 13, 2020 Brookings, https://www.brookings.edu/blog/theavenue/2020/04/13/will-covid-19-rearrange-americas-uneven-economic-geography-dont-bet-on-it/

Huang X et al. (2021). The characteristics of multi-source mobility datasets and how they reveal the luxury nature of social distancing in the U.S. during the COVID-19 pandemic, Int. J. Digit. Earth, vol. 14, no. 4, pp. 424–442, 2021, doi: 10.1080/17538947.2021.1886358

Kapitsinis N (2020). The underlying factors of the COVID-19 spatially uneven spread. Initial evidence from regions in nine EU countries. Regional Science, Policy & Practice, 12:1027–1045. DOI/10.1111/rsp3.12340

Liu Y, Wang Z, Rader B., Li B, Wu C, Whittington J D, Zeng P, Stenseth N, Bjornstadt O,

Brownstein J, Tian H. (2021). Associations between changes in population mobility in response to the COVID-19 pandemic and socioeconomic factors at the city level in China and country level worldwide : a retrospective , observational study, Lancet Digit Health, 3(6), e349– e359, DOI: 10.1016/S2589-7500(21)00059-5.



#### IN MEMORIAM ART GETIS

ON MAY 13, 2022, RSAI lost one of its intellectual heroes. Arthur Getis, born in

Philadelphia, passed away at the age of 87. Arthur Getis was the President of WRSA in 1999 and an active participant in RSAI Congresses around the world for several decades. He was President-Elect of the University Consortium for Geographic Information Science in 2001 and has served on several university faculties, including San Diego State University (1990–2004), the University of Illinois at Urbana-Champaign (1977–1990), Princeton University (1971–1974) and Rutgers (1963–1977). He worked for briefer time periods at Harvard with Walter Isard, the father of Regional Science.

Arthur received his BSc and MSc degrees from Pennsylvania State University. He earned his Ph.D. focused on the theoretical and empirical inquiry into the spatial structure of retail activities from the University of Washington in 1961. His Ph.D. thesis highlighted his primary research focus on understanding how individual behaviors manifest in spatial patterns.

At Rutgers, he wrote the classic book, *Models of Spatial Processes* with his student Barry Boots. The book, published in 1978, is still cited as representing fundamental concepts about geographic space. While at Rutgers, he became known for his seminal work on the nature of point patterns, where the patterns represent objects in geographic space. He pioneered and helped develop the field of spatial analysis at Rutgers University's Livingston College and laid the groundwork for developing spatial studies at Princeton University.

In 1977 Arthur left the Chairmanship at Rutgers to head the Department of Geography at the University of Illinois at Urbana-Champaign. During those years, he worked on papers that significantly contributed to the literature on patterns of spatial association patterns, K-function analysis, and urban research.

Arthur moved to San Diego State University in 1990, where he directed the joint Ph.D. Program with the University of California at Santa Barbara and then served as the Birch Chair of Geographical Studies. At the same time, Arthur collaborated with Keith Ord, an internationally known statistician, to produce a new family of spatial statistics called local spatial statistics, as opposed to the global statistics such as Moran's and Geary's autocorrelation statistics. These statistics became known as Getis-Ord G statistics, applied in several fields using spatial data, including public health. Arthur used these statistics in his research on the transmission of dengue fever in Peru and Thailand, supported by the US National Institutes of Health. The US National Institute of Child Health and Human Development supported his seminal research on public health in Ghana.

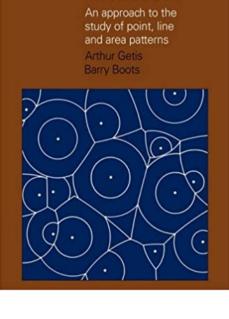
His ground-breaking methodological papers with Keith Ord on The Analysis of Spatial Association by Use of Distance Statistics and Local Spatial Autocorrelation were published in Geographical Analysis 1992 and 1995, respectively. These contributions have sparked some of the most exciting developments in spatial statistics and regional science, generating Arthur's world-renowned reputation. The numerous Google citations of these papers attest to his scholarly impact and global influence. The Getis-Ord statistics are now widely used by researchers worldwide to study patterns of the diffusion of disease, spatial clustering of economic attributes, and the grouping tendencies of land uses when spatial data sets are enormous.

And at San Diego State University, he has been primarily influenced by the technical advances in developing geographic information systems (GIS). In this new field, he has published several papers, collaboratively with Luc Anselin from UCSB (University of California, Santa Barbara), that yielded unique insights into the spatial analytical potential of the new technology. He also collaborated with Michael Goodchild, the leading GIS researcher at UCSB, on the broader dissemination of foundational GIS materials at workshops around the US.

Arthur Getis was (elected) Secretary of the 500-person Commission on Mathematical Models of the International Geographical Union (1988–1996). As Chairman of this Commission, I have had the great pleasure of closely collaborating with him, planning scholarly meetings in Canberra, Shanghai, Beijing, Prague, Bratislava, Odessa, The Hague, Boston, Washington, and Princeton, and engaging in developing research relations between members from different parts of the world. We also joined forces to launch a new methodology publication outlet in 1994, the Journal of Geographical Systems (and its

predecessor Geographical Systems). Arthur Getis served as one of the editors-in-chief and then as an honorary editor. One of the distinctive features of this journal is its distinct focus on the interface between modeling, statistical techniques, and spatial issues in a broad spectrum of related fields.

Arthur's professional interests in education synchronized with his wife, Judy. Arthur and Judy won the National Science Foundation's Post-Sputnik High School Geography Project, designed to improve geographical education in America's schools. Their interest in education led to the publication of a leading textbook on geography with co-author Jerome



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Fellman. This foundational geography textbook in the United States is now in its 18th edition, a testament to its relevance today.

Arthur was the recipient of a long list of awards, amongst them were the Fellows Award (2005), the Jean-Paelinck Award (2017), the Founder's Medal (2012) from the RSAI, the Walter Isard Award for Distinguished Scholarship from NARSC, and the Aageenbrug Award for Career Achievements (2008) from the GIScience Specialty Group of the Association of American Geographers. These awards recognize the attainment of outstanding scholarly excellence and demonstrate his international recognition in regional science, geography, and GIScience.

Arthur Getis has been not only a brilliant regional scientist but also a magnificent human being – a dedicated teacher, admired by his students, an impressive scholar, committed to the ideals of academia, highly respected by his colleagues, a gentle and generous spirit, and warm and sensitive human personality. Arthur was a wonderful friend to many of us. His passing is a tragic loss to the regional science community, and we shall greatly miss but certainly not forget him.

Art leaves behind his children, Hilary GetisTarazi, Victoria Lynn Getis (Boyle) and Anne Patterson Tibbetts. And seven grandchildren: Abigail Grace Boyle, Sophia Noel Tarazi, Hannah Claire Boyle, Christina Hope Tarazi, Darby Constance Tibbetts, Trevor Patterson Tibbetts, and Matthew Getis Tibbetts.

Manfred M. Fischer Professor Emeritus, Vienna University of Economics and Business

### Call for Abstracts: The Southeast Asian Frontiers Workshop, Series #1: Highlands

We are happy to invite early career scholars, PhD students, and researchers to participate in the Southeast Asian Frontiers (SEAF) Workshop Series #1: Highlands. The SEAF Workshop aims to host innovative discussions concerning historical and ongoing frontierization in Southeast Asia.

This year, the workshop is funded by the Regional Science Association International (RSAI) and Universitas Islam Indonesia. The Department of Communication, Universitas Islam Indonesia, will host the workshop in Yogyakarta from August 18th-20th, 2022—with a remote participation option available. We are honored to have Michael Eilenberg (Aarhus University), Tania Li (University of Toronto), and Timo Maran (University of Tartu) as keynote speakers for this workshop.

We invite your abstract submission by May 31st, 2022. The selected participants can apply for limited travel grants and compete for the best paper prize! The selected on-site participants also can enjoy the 4-nights free accommodation in Yogyakarta.

Please visit www.seafworkshop.org for further information about SEAF.

SEAF Workshop Team

#### References

Getis A and Ord JK (1992): The Analysis of Spatial Association by Distance Statistics, Geographical Analysis 24, 189-206

Getis A (1995): The Tyranny of Data. Fourth University Lecture, San Diego State University, Graduate Division and Research, San Diego State University Press

Ord JK and Getis A (1995): Local Spatial Autocorrelation Statistics: Distributional Issues and an Application, Geographical Analysis 27, 286-306

Fischer MM and Getis A (eds.) (2010): Handbook of Applied Spatial Analysis: Software Tools, Methods and Applications. Springer, Berlin, and Heidelberg

# Call for Sessions and Papers for the 2023 AEA Meeting

Members wishing to give papers or organize complete sessions for the AEA program at the 2023 ASSA meeting, to be held in New Orleans, Louisiana on January 6-8, are invited to submit proposals electronically to Professor Susan Athey via the AEA website beginning March 1. While papers covering a wide array of topics in economics will be included on the 2023 program, Professor Athey especially encourages proposals on research about impacts of and policy responses to economic disruptions, with a special focus on labor markets. The deadline for submissions is April 1, 2022 for individual papers and April 15, 2022 for complete sessions. The submission portal will open on March 1 at https://www.aeaweb.org/conference/submissions.

NARSC will again organize special sessions on Regional Science. You are invited to contact prof. Sandy dall'Erba for more information at <u>dallerba@</u> <u>illinois.edu</u>.

