



May
2014



The Spatial Economics of High Speed Rail Transportation Systems

The newsletter of the RSAI

New Series 11: May 2014

Contents

| | |
|---|-----------|
| 1. Introduction | 2 |
| 1.1 Welcome from the President: Jean-Claude Thill | 2 |
| 1.2 Regional Science Policy and Practice: Michael Carroll, Editor-in-Chief | 3 |
| 1.3 Welcome from the Editors, Andrea Caragliu and Graham Clarke | 4 |
| 2. High Speed Rail Transportation Systems – Introduction | 5 |
| 3. News and recent events | 6 |
| 3.1 Armenian Workshop | 6 |
| 3.2 International Workshop on Irregular Migration (April 8–11, 2014), Marrakech and Rabat, Morocco. | 7 |
| 3.3 2014 Fellows | 8 |
| 4. Meet the Fellows: Antoine Bailly | 9 |
| 5. Economic issues in the development of High Speed Rail Transport | 11 |
| 6. Obituary: Piet Rietveld, a great researcher and an immensely respected colleague | 12 |
| 7. Centres of Regional Science: University of Pennsylvania | 16 |
| 8. International Experiences with High-Speed Rail and Implications for the USA | 18 |



1. Introduction

1.1 Welcome from the President: Jean-Claude Thill

Socioeconomic Integration and Transformation: Reshaping Local, Regional, and Global Spaces

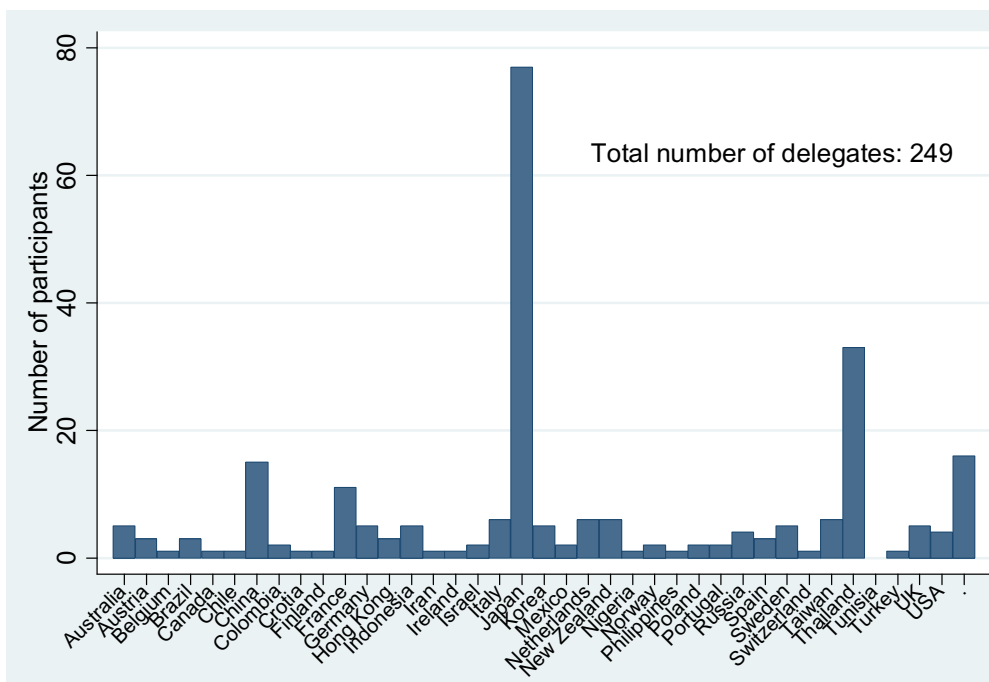


This is the theme of the Tenth World Congress of the Regional Science Association International in Bangkok/Ayutthaya, Thailand. This theme evokes the growing integration of places and

spaces around the world that is often associated with the process of globalization. Regional Scientists have a keen interest in making sense of these transformations that first and foremost affect people of all ages in their daily lives, whether at home, on the streets, at work, in the fields, or while recreating or socializing. The economic, social,

political and environmental processes that drive these changes are complex, non-linear, and multi-scalar. Much has been written about space-time transformations using the classical analytical tools of regional science. While new tools of space-time analysis have been proposed, it is critical that our analytical tools be well suited to policy analysis, advocacy, and evaluation. Policy makers can make sense and make use of our research only if it is rooted in the processes that drive and control the regional transformation within their proper institutional contexts. Process-based modeling is therefore critical to the deeper understanding of socioeconomic transformation and the crafting of suitable regional and national policies, in accordance with the political objectives of societies populating these spaces.

Southeast Asia is a fascinating world region that is undergoing dramatic social, economic, and ecological transformations. This is a true laboratory for the theories that regional scientists have demonstrated an acute ability to propose. It is incumbent upon us all to



Delegates by country at the World Congress May 2014

reach beyond the obvious and seek to challenge ourselves and our intellectual acuity to remain relevant to this fast changing world by being closely engaged in these transformations.

The World Congress is an ideal framework to position ourselves at the intersection of different worlds, to confront theories and realities, and to allow ourselves to question our own research assumptions. The keynote speakers have been specifically chosen to keep us alert and to stimulate our intellectual curiosity towards alternative ways to conduct our scholarship. Panel sessions with participants from private, institutional and academic universities will also contribute to the intellectual debate that is so critical to maintaining the vibrancy of Regional Science.

As of mid-April, 249 delegates hailing from 38 different countries have registered their participation in the RSAI World Congress in Ayutthaya/Bangkok. While a majority of delegates originates from Asia (61%), 23% of registered delegates are from Europe and 11% from the Americas. Our Japanese colleagues will constitute the largest national grouping of delegates attending the congress this year.

We welcome all the delegates and wish all a very productive stay at the Congress, and an enjoyable visit to the enchanted country of Thailand.

As always, I welcome your comments and suggestions on all matters contributing to making RSAI a better community for us all. My inbox is waiting for you: Jean-Claude.Thill@uncc.edu.

1.2 Regional Science Policy and Practice: Michael Carroll, Editor-in-Chief



Main aim

The editorial team of Regional Science Policy and Practice (RSPP) is excited to announce a new focus of the journal. Originally designed as a practitioner

focused outlet, the RSPP Editorial Team along with RSAI council have decided to reorient the journal away from the practitioner community to an academic journal catering to issues related to regional policy and planning. Participation from the practitioner community has been limited and it was felt the journal would be more effective if it was rebranded into an academic outlet designed to promote policy discussions to aid senior policymakers.

Regional Science Policy & Practice is the official policy orientated journal of the Regional Science Association International. It is an international journal that publishes refereed research papers that explore applied regional science, policy and planning issues. It welcomes papers from a range of academic disciplines including planning, public policy, geography, economics, environmental science and related fields. RSPP provides senior policymakers with cutting edge regional science that relates to economic development and planning. RSPP is an opportunity for academics and policy makers to develop a dialogue to identify and explore many of the challenges facing local and regional economies.

The editorial team invites submissions of articles and book reviews for the journal. We are also looking for special issue topics and for those who are willing to

arrange special sessions at RSAI conferences. Now is a good opportunity for a quick turnaround on your paper submissions as we transition to the new policy orientation. We look forward to moving this forward and are excited about the new opportunity this presents our membership.

1.3 Welcome from the Editors, Andrea Caragliu and Graham Clarke



Andrea Caragliu



Graham Clarke

As anticipated by Eveline Van Leeuwen (VU University Amsterdam) and Graham Clarke (Leeds University) in the latest issue of the RSAI newsletter (November 2013), the editors of the Newsletter have changed. From this Issue, Andrea Caragliu (Politecnico di Milano) replaces Eveline and joins Graham as co-editor of the Newsletter.

Eveline and Graham managed the Newsletter for five years. The Newsletter greatly benefitted from their management, new contents have been added, and the newsletter has always managed to deliver the Association's institutional news in a timely and informative manner. As a result, the new management faces the challenge to try and improve an already good product – and challenges take time to be taken on. The contents presented in the first Issue of the new management will thus follow the structure that had already been devised for the previous issues.

The main research topic covered in this issue is related to the spatial economics of high speed railway connections. This is a particularly relevant topic at the moment in the UK, as the Government is planning a major new high speed rail link between London, the Midlands and the North (Leeds and Manchester). There is consequently much media and public speculation on whether such a massive investment will bring sufficient economic returns to justify that expenditure. In the first article, Aisling Reynolds-Feighan (who has put together the three articles for us – thanks Aisling!) presents an overview of the development of High Speed Rail (HSR) transport and a summary of some of the key themes and research issues being examined by, or of interest to, regional scientists. In the second article, Christiaan Behrens and Eric Pels look at the economic issues surrounding the deployment arising from the provision of HSR corridors. They give particular attention to the impacts of HSR on air transport markets. In the third article, Andrew Goetz summarises some of the conclusions from his extensive research with Anthony Perl, highlighting institutional, planning and strategic long run issues arising in the development and deployment of sustainable and financial viable HSR networks, particularly in North America. There are a number of excellent online resources available for the interested reader to follow-up on the exciting and challenging research agendas developing in this area and a couple are suggested in each of these articles.

In the News and Recent events Section, a few recent events recently organized by the RSAI are discussed. Next, in the Meet the Fellows Section, we have the pleasure to profile Antoine Bailly, a lifelong devotee of regional science at the European and International levels. In this issue, we also host an article on Piet Rietveld (VU University

Amsterdam), who recently passed away, and whom many RSAI members were lucky enough to know personally. In this article, some of his colleagues tell us about his life and career.

Finally, the University of Pennsylvania is the subject of our usual feature on 'Centres of Excellence' in Regional Science. In this article, Janice Madden discusses the ways in which Regional Science research is being carried out at UPenn, including the most active research centres and researchers.

We both hope you will enjoy the read!



2. High Speed Rail Transportation Systems – Introduction

Aisling Reynolds-Feighan

School of Economics, University College Dublin, Ireland



Regional scientists have much to offer by way of providing research frameworks and tools for analysis of HSR transport systems. As a relatively new transport technology, the development of

expertise will be an ongoing requirement as the extent of HSR systems increases worldwide. University programs building multidisciplinary skill sets and approaches to understanding and shaping the development trajectory for the sector will need to take account of the requirements and impacts of HSR technologies. There are many technical, strategic and financial challenges in conceiving and deploying HSR corridors or networks. HSR transport has been most successfully utilized in high density

intercity corridors, providing high frequency and high speed connections over distances of 500–800 km (310–500 miles). Even the provision of individual HSR lines can have a significant impact on the time-space geography of a region or country by shrinking the travel times feasible using the multimodal regional transport system.

In Table 1 below, the Top 12 busiest air routes (city pairs) worldwide for 2013 are listed in terms of non-stop departure movements, seats available and the route length.

The average distance is 641km in 2013. Despite the capability for air transport for long haul connectivity, the densest air routes globally are short-/medium-haul intra-regional linkages. Given the forecasted growth of air transport, there is potential to introduce or expand HSR links in some of these corridors; the three Japanese routes already have high speed rail services competing with the air services; South Korea has a high speed rail line operating between Seoul and Mokpo. The development of HSR links and networks requires considerable land use planning, financial and technical evaluations in order to provide competitive and complementary alternatives to surface and air transport options. The funding of such large long-term investment projects, as well as the operation of efficient and cost-effective HSR transportation systems presents many challenges to regional and national governments. An excellent resource introducing some of the technical, managerial and operating aspects of intermodal HSR transport is the Michigan Technological University's High Speed Rail Learning System developed by Michigan Tech Engineering Professor Pari Lautala. Several excellent open-access online courses are available. This is part of the US Department of Transportation-funded National University Rail (NURail) Center initiative.

Table 1. Top 12 busiest air routes (city pairs) ranked in terms of non-stop departure movements, seats available and route length

| Rank in 2013 | City Pair | | Country | Total Available Seats | Non-stop Departure Movements | Distance (km) |
|--------------|-------------------|----------------|-----------|-----------------------|------------------------------|---------------|
| 1 | Sao Paulo | Rio de Janeiro | Brazil | 14,354,524 | 94,188 | 358 |
| 2 | Seoul | Jeju Island | Korea | 11,155,258 | 64,576 | 448 |
| 3 | Chicago | New York | USA | 7,400,230 | 63,942 | 1,166 |
| 4 | Sydney | Melbourne | Australia | 10,769,228 | 55,955 | 711 |
| 5 | Tokyo | Sapporo | Japan | 11,860,143 | 51,400 | 801 |
| 6 | Tokyo | Fukuoka | Japan | 11,085,585 | 49,518 | 912 |
| 7 | Mumbai | Delhi | India | 8,261,970 | 48,456 | 1,136 |
| 8 | Washington | New York | USA | 3,240,366 | 43,150 | 344 |
| 9 | Surabaya | Jakarta | Indonesia | 7,218,899 | 41,566 | 690 |
| 10 | Dallas/Fort Worth | Houston | USA | 4,234,779 | 40,964 | 371 |
| 11 | Tokyo | Osaka | Japan | 9,655,779 | 40,794 | 443 |
| 12 | Boston | New York | USA | 4,368,394 | 40,618 | 307 |

Source: Official Airline Guide 2013.

As Campos and de Ros have shown in their analysis of 166 HSR projects globally, HSR is a costly and risky investment option and requires very detailed socio-economic appraisal on a case-by-case basis. In this regard, the UK Department for Transport established a limited company to develop proposals for a new HSR network (High Speed Two Limited (HS2 Ltd.)). The planning and development of a new railway between Birmingham/West Midlands and London has been ongoing for several years and the research and evaluation documents relating to land use planning, environmental and construction impacts are available online at the HS2 website and at the Department for Transport website. The documents give an excellent overview of range of issues and timescale associated with the development of new HSR lines.

References

Campos, J. and deRus, G. (2009). "Some stylized facts about high-speed rail: A review of HSR experiences around the world", *Transport Policy* 16 (1): 19–28.



3. News and recent events

3.1 Armenian Workshop

By invitation and organization of the commission to establish a RSAI section in Armenian, and the financial support of Gulbenkian Foundation, Peter Nijkamp visited Armenia on March 21st. The purpose of the visit was to become acquainted with the scientific capacity of Armenia and to discuss, among many things, the possibility of bilateral cooperation with Armenian universities. During his one-day visit, Peter Nijkamp met with scholars of the Armenian State University, the American University of Armenia, and the Armenian State University of Economics. He also held a public seminar on "*International migration and regional development*" for Armenian students and researchers in AUA (with a total number of 40 participants). It was agreed that in fall 2014, with the support of Armenian universities, an international workshop will be organized.

RSAI-Regional Science Association International
with financial support from the Calouste Gulbenkian Foundation

International Migration and Regional Development

DR. PETER NIJKAMP

Professor in regional and urban economics and in economic geography
Vrije Universiteit, Amsterdam, The Netherlands

Friday, March 21, 2014

11:00-12:30

Room 308E, PAB

American University of Armenia
40 Baghramyan Ave., Yerevan



CALOUSTE
GULBENKIAN
FOUNDATION

RSAI 
www.regionalscience.org

Workshop on Irregular Migration took place from April 8 to 11 in Marrakech and Rabat.

In the first session Vincenzo Caponi (Ryerson University), Erik Vickstrom (Princeton University) and Abdelkrin Belguendouz (University Mohamed V) discussed and characterized the issue of irregular migration.

In the second session, Fatima Barkan

(Ministère de l'Urbanisme et de l'Aménagement du Territoire, Morocco), Tomaz Ponce Dentinho (Azores University), and Nabil Layachi (University Cadi Ayad) discussed some case studies of internal migration in Morocco.

3.2 International Workshop on Irregular Migration (April 8–11, 2014), Marrakech and Rabat, Morocco

Promoted by the Regional Science Association of Morocco, the International

The third session was dedicated to the issue of circular migration; in the



Yahya Abouelfarah (*Institut des Etudes Africaines*), Abdelaziz Adidi (*Institut National d'Aménagement et d'Urbanisme*) and Abdellatif Khattabi (*Association Marocaine des Sciences Régionales*)



Workshop participants

session, Klaus F. Zimmermann (IZA and University of Bonn) discussed the theoretical rationale of the concept and Masood Gheasi (Free University Amsterdam) analyzed some case studies related to domestic work in the Netherlands. Annie Tubadji (University of the Aegean) and Karima Kourtit (Free University Amsterdam) analyzed migration issues, with particular reference to culture and trust, while Peter Nijkamp (Free University of Amsterdam) introduced the idea of “Migration Impact Assessment”.

The prospects for future activities of the Moroccan Regional Science Association are rather promising: on the one hand, the promotion of an International Conference on Migration and Urbanization in Marrakech to be held in Spring 2015; on the other hand, the attraction of postgraduate students for a Summer Course on Regional Science.

3.3 2014 Fellows



Gilles Duranton



William Strange

RSAl is delighted to announce two new Fellows for the year 2014. These are Gilles Duranton (University of Pennsylvania: see also item 7) and William Strange (University of Toronto). Congratulations to them both. Gilles is Chair in the Real Estate Department with research interests in urban economics and transportation economics. He is Co-editor of the *Journal of Urban Economics*.

William is currently Editor of the *Journal of Urban Economics* (with Stuart Rosenthal), and he served in 2011 as

President of the American Real Estate and Urban Economics Association. He also works in the areas of urban economics and real estate. His research has considered agglomeration, industry clusters, labor market pooling, skills, private government, real estate development and real estate investment.



4. Meet the Fellows: Antoine Bailly

My academic origins have always been close to regional science, even if I did not know what regional science meant when I joined Besançon University for a master's degree in geography in 1962. Besançon was a small, provincial university, where most students just wanted to be high school teachers and stay in the region to live a good life, enjoy the food and the local wine ... However, one of my professors, Paul Claval, told me in 1965: "*You should go to the U.S.A., to Pennsylvania University to study regional science*". Luckily, I was able to obtain a scholarship (I had no idea about the scholarship fees and what they really offered ...) to study and discover the centre of regional science. With Walter Isard, Thomas Reiner and I spent a fantastic year, discovering the use of computers and new ways of modelling. I also became friends with some of the students, such as Mario Polese and Eric Weiss. This stay really marked the beginning of a network of young international regional scientists who shared ideas, culture and the world.

After returning to France to work on a PhD (at Paris Sorbonne), I discovered that regional science



was also active in France with Claude Ponsard, Jacques Boudeville and François Perroux. I was fascinated by the application of the growth pole theory in Europe and by French national land-use planning. Ponsard proposed me for an assistant professor's job in Dijon... But even with the attraction of Burgundy, I could not find a reason to go there at that moment.

It was time for another adventure. In order to avoid military service, I went to Canada, where I got a job at "College St Jean", in Edmonton, Alberta. I taught geography to undergraduate students coming from northern Canada. It was far from land planning and regional science ... Working with Natives and farmers, hunting, and discovering the far North! Still, my friends from Penn were close by, helping me to keep in touch with the rest of the academic world. At that time, the Institut National de la Recherche Scientifique Urbanisation was opening in Montreal. I visited Montreal in the summer, and discovered a lovely city, its cafés, restaurants, and universities. Since 1969, for 10 years, I spent all my summers and autumns in Montreal working with the INRS before joining them as a full time professor in 1977. The rest of the time, I was a professor at the Paris School of Architecture teaching urban ecology. Crossing the Atlantic was my weekly activity; fortunately, I loved flying!

During my stays in Europe, I discovered the Association de Science Régionale de Langue Française and its dynamic and friendly leader Jean Paelinck. I joined my first meeting in Rotterdam in 1974, and organized different round tables in subsequent years. With Jean's friendship and guidance, the Association was a true family. The people I worked with included Alain Sallez, Jean-Marie Huriot, Claude Lacour, and Denis Maillat. I became President of the Association from 1981 to 1984, which was a good way to improve the links

between the European Regional Science Association and A.S.R.D.L.F.: by choosing common dates for meetings, exchanging information, and improving the relationship between Perroux and Isard, the two masters.

In 1979 I joined the University of Geneva as Professor of Human Geography (until 2004 – now I am Emeritus), and that marked another phase in my life. I was able to start a special course in regional science for first-year graduate students. The course was later taken by more than 500 students, over more than 20 years: one of the largest regional science audiences worldwide. The Faculty of Economic and Social Sciences was a good place for interdisciplinary research, and with other geographers, such as Jean-Bernard Racine, we were able to develop the “Swiss School of Geography”, developing a world-class reputation. Regional Science was close to this new geography and it is the time when, with Denis Maillat and Angelo Rossi, we were able to promote the field in Switzerland where we organized a European meeting (Zurich) and a RSAI World Congress (Lugano). It was also a way to invite our American friends to visit Switzerland and taste our products. Applied regional science!

When I met Lay Gibson in one of these early meetings, Lay suggested I also join WRSA (Western RSA). Laguna Beach in 1986 was my first meeting ... What a great place for me and my daughter! Since I was living “West of Switzerland”, I joined nearly all the meetings of this Western Association after 1985. I even became the 36th president of WRSA in 1995.

It is also a period where I was involved with ERSA and the European Organizing Committee (for ERSA conferences), as vice-president, under Juan Cuadrado Roura. This was another experience, working in an association with the most

intense meetings I had ever joined. And academics do love debating! We also created a long run planning group that I chaired. After a while new board members and presidents also joined these activities (*partly due to the skills of negotiation brought by Juan and Antoine – Editors*).

In the 1990s, after publishing many geography and regional science books in French, I decided to publish some papers in English. This was the beginning of an active international life, working through the ‘*crisis of the future of regional science*’ (a period when many in the discipline were debating the right course of direction); followed by my election as president of RSAI in 2003. With Graham Clarke (Executive Director) and a number of very active council members, we were able to change the status of the Association to a world umbrella association with universal membership. I don’t know how many beers we shared on all continents, but it was efficient and friendly.

It was also a period where I was, for 8 years, scientific Director of the International Festival of Geography: a fantastic festival attracting geographers from all over the world, at times with over 40,000 participants! Many regional scientists were able to join the Festival and to give conference presentations participate in round tables, take part in TV shows (Kingsley Haynes, Bob Stimson, Lay Gibson, Roger Stough and others). There was a place for regional science and an opportunity to promote the field in the media: and also time to organize field trips for the visitors.

During all these years, I also spent a lot of time developing the geography of well-being and medicometry, an applied regional science field involving health care policies. I organized more than 50 meetings with Michel Périat,

chairperson of Forum Santé (1998–2014), a Swiss health care think tank, and wrote research reports on the multiplier effects of the health care sector. Medicometry is now a new brand in regional science!

My academic life was also marked by a number of responsibilities: director of department, president of the University of Geneva Council (1983–1985), President of the Swiss Universities Professors (1996–1998). For this involvement and scientific activity, I acquired three doctorate honoris causa (University of Quebec 1992, Hungary Academy of Sciences 2003, University of Lisbon 2009). I was also awarded by the Association of American Geographers in 1997, got the “Ordre National du Mérite” from France in 2000, received the 2008 Founder’s Medal from RSAI and the famous “Vautrin Lud Nobel” prize in geography in 2011. I am also very proud to be a “Fellow” of RSAI, a great association.

All these awards are matched by the winning of many friends who have shared my regional science life. We don’t only live in an association or a network; we have the chance to belong to a “club” where we enjoy social activities (in my case skiing, hiking, wine tasting and good food in nice places) and promote regional science. Now that I have time, I even produce my own wine in Switzerland! Isn’t it a good way to do applied regional science? I believe the ‘crisis’ is over. Long live the new generation of regional scientists.



5. Economic issues in the development of High Speed Rail Transport



Christiaan Behrens



Eric Pels

VU University, Department of Spatial Economics

The expansion of high-speed rail infrastructure, predominantly in Asia and Europe, changes the competitive environment for the aviation industry. In China, for example, 9,867 kms. of high-speed track is in operation while another 9,081 kms. is under construction and 3,777 kms. is planned (UIC, 2013). Other countries in Asia, like India, Iran, Japan, Saudi Arabia and South Korea, also have high-speed rail in operation, under construction or planned. In the United States, the California High-speed Rail Authority proposes a high-speed rail connection between Los Angeles and San Francisco, including the two cities’ international airports. The Midwest High-speed Rail Association is studying a connection between Chicago O’Hare airport with downtown Chicago, Milwaukee, Detroit and Indianapolis.

Such high-speed rail networks offer connections between megacities, like Beijing-Shanghai, Mumbai-Ahmedabad, Tokyo-Shin Osaka, and Seoul-Daegu, and thus offer competition to airlines. At the same time, such high-speed rail links link cities and regions to the world via connections to intercontinental aviation networks. From an academic and a policy perspective HSR is therefore interesting: increased competition in

transport markets should lead to more efficient transport services and substitution of rail services for aviation services on specific links should reduce the environmental impact of transport. Because HSR seemingly is an instrument to reach policy goals on competition and sustainability, large investments in HSR infrastructure and rolling stock were and are made, as discussed above.

Our recent analysis of the London-Paris market suggests that, in markets with relatively large differences in average travel times, HSR may be a viable alternative compared with aviation because relatively high frequencies and low fares of the HSR offset the longer travel time (Behrens and Pels, 2012). The introduction and improvement of the HSR connection between London and Paris ensured strong competition in this passenger market. Furthermore, it appears the competitive position of HSR (Eurostar) increases over time: in a market where HSR is viable it can gain a dominant position.

Transport policy needs to address the development of HSR into dominant firms in the markets they serve. The fact that most HSR routes, in contrast to air transport, are currently operated by a single consortium implies that competition in medium-haul transport markets will decline in the future. Recognizing this threat, the European Commission introduced a policy to open up the international rail passenger services to competition within the European Union from 2010 onwards.¹ However, from the results on the London-Paris market discussed above and based on earlier studies on competition in aviation markets – where

¹ See Directive 2007/58/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure. Accessible from www.eea.europa.eu/policy-documents/directive-2007-58-ec.

the outcome of the competitive game between airlines may be domination in local markets – one might assume that if HSR is a viable alternative (benefits outweigh the costs) large investments lead to market concentration, at least in local markets. In the end, this means the effect of EU policies fostering competition may be more concentration: simply “improving” competition, for instance by tendering the right to operate a HSR line (with major investment cost) will not work in an imperfect market. Jiang and Zhang (2014) find that cooperation between HSR and aviation improves welfare if the substitution possibilities between these two modes is not too high, again indicating the importance to investigate the potential effects of concentration in transport markets.

References

- Behrens, C., and Pels, E. (2012). “Intermodal competition in the London–Paris passenger market: High-Speed Rail and air transport”, *Journal of Urban Economics*, 71 (3): 278–288
- Jiang, C., and Zhang, A. (2014). “Effects of high-speed rail and airline cooperation under hub airport capacity constraint”, *Transportation Research Part B: Methodological*, 60 (C): 33–49.



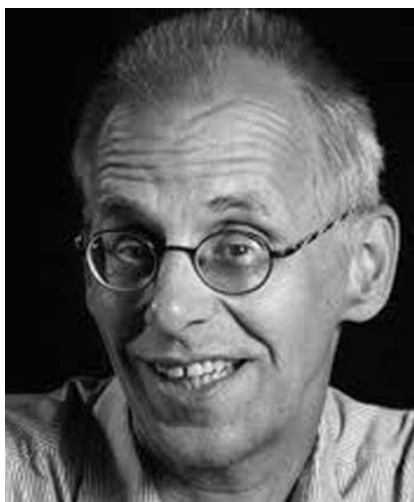
6. Obituary: Piet Rietveld, a great researcher and an immensely respected colleague

Frank Bruinsma, Henri de Groot, Eveline van Leeuwen, Peter Nijkamp, Aura Reggiani and Erik Verhoef

November 1, 2013 was a sad day in the history of regional science: Piet Rietveld died at the young age of 60 years, after a short period of a devastating illness. However, he will be remembered as one

of the solid pillars in regional science and transportation science research. His research interests covered many areas, not only transport and mobility, but also housing markets, labour markets, spatial planning issues, and decision models. His seminal contributions were often characterized by the use of advanced statistical and econometric methods.

Piet was one of those unique persons who are easy to characterize and who are remembered by everyone in rather similar ways: friendly, modest, caring, analytically sharp, and wise. A few of the many reactions on his passing, illustrate this: A joy to be around; a true intellectual giant; a gentle leader; an exceptional scientist; a great scholar and friend; a wonderful man in so many ways; always prepared to help; a great example; a great colleague and even greater man.



As head of the department of Spatial Economics of the VU University Amsterdam (since 2002) he was very busy, but always prepared and available to help people out. He was around often, and especially late in the afternoon he could be found in his room, sitting quietly behind his computer. He combined a unique accessibility with an extreme efficiency and clarity when needed. When showing him some research progress, he immediately

spotted the weaknesses and flaws, regardless of the topic or method used. There is no doubt that the 50 plus PhD students and the many (master) students he supervised will vividly remember the scribbles in the margins of papers in his characteristic handwriting.

Piet was a real networker. He loved to be active in international multidisciplinary research projects. In the 400+ journal articles and more than 250 book chapters to which Piet contributed, he worked together with more than 200 different co-authors. Although a small majority of them has worked for a shorter or longer period at the Department of Spatial Economics, a considerable number worked at other Dutch institutions (universities, governmental agencies, consultants, etc.) or abroad.

Piet had a special relationship with Indonesia. He loved the country and the people, and the people loved 'Pak Piet'. This relationship goes back to the 1980s when Piet stayed in Indonesia for a couple of years with his wife, Marjoke, and their children. During that period, Piet was research coordinator at the faculty of economics at the UKSW in Salatiga and provided an important impetus to further enhance the research tradition at the university. Even today, the legacy of Piet's contacts with Indonesia is visible in the Department through the continuous presence of a group of Indonesian PhD students. The intensive relationship with Indonesia and the Indonesians are characteristic of Piet. Not only was he eager to do high-quality research, but also his research was clearly targeted at important socio-economic challenges to which he wanted to contribute. And even more, he spent much of his career helping people to further develop themselves and put them in positions in which they could make important contributions to economic development

of countries such as Indonesia. This is reflected in the research topics on which he worked in the Indonesian context, ranging from pricing as an instrument to promote efficient drinking water use to issues related to transport infrastructure, regional development and the quality of governance.



Piet giving a speech during the department Christmas dinner

Piet's research interests were very broad. After his econometrics study at Erasmus University, he made important contributions to economic evaluation studies and continued to do so for the rest of his career. As such, Piet was one of the pioneers in developing the Dutch tradition of evidence-based policy preparation and evaluation.

But transport was clearly his most beloved research topic and he was proud of his chair in transport economics. A first central research topic in this field concerns the impact of infrastructure upon the (spatial) economy. In a number of ways, this work is typical for Piet's approach to research. The question is not only highly relevant for policy, where costly investment in transport infrastructure is often motivated by the wish to stimulate the economy. It is also very demanding from the research perspective, being

fraught with theoretical as well as empirical modelling challenges – which Piet both liked. It is also typical because of the many important subtleties involved in the interpretation of the issues involved, often requiring a broad view to arrive at the correct assessment. For example, Piet's work emphasized that the effects of infrastructure may strongly vary between cases, depending on the structure of the regional economies involved; and that while such effects may be large at the local level, they may be much smaller when assessed at the regional or national level. He therewith made a clear and important distinction between generative and distributive effects, thus warning for easy conclusions.

There were many other topics in transport economics that interested Piet. He has made widely cited contributions on cost functions, price elasticities, safety, valuation issues, etc. He studied various aspects of public transport, including reliability and the role of stations, both in terms of accessibility and their impact on land values. An important part of his work on aviation focused on airports and airport accessibility. Pricing in transport, including road pricing, is another main theme in his work. Piet always showed what a sharp economist he was, with a natural strong awareness of economic efficiency and social cost-effectiveness of market outcomes and alternative policy options. Nevertheless, he had a very broad view, also on policy issues, and studied institutional aspects and social acceptability of transport policies with the same dedication as the more traditional economic theme of efficiency of alternative allocations.

Piet also liked studying less conventional topics. Slow transport – cycling, walking – is one such topic, undoubtedly partly motivated by his personal mode choice: Piet preferred to cycle when viable; often praising the flexibility, reliability and

speed of the bicycle on shorter trips when counting door-to-door. Another such theme is the impact of climate and weather on transport (rather than the other way around), a topic that may very well have come to him while being hit by one of the few disadvantages of the bicycle in commuting traffic: vulnerability to weather conditions.

Piet Rietveld played a strong international role. In addition to his multiple International links and commitments, we would like to highlight his special relations with two International Associations: NECTAR and RSAI. Piet chaired NECTAR (Network on European Communications and Transport Activities Research) in the years 2002–2007, and subsequently he coordinated NECTAR Cluster 1 on Networks in the years 2008–2013. By means of this common scientific interest in transport network evolution, and the plethora of research and networking opportunities provided through NECTAR, several scholars had the opportunity and privilege to work closely with him over the last 12 years, greatly appreciating his exceptional academic ability which

allowed him to diversify his research focus within the broad field of transport. Over these years, Piet was always extremely active and cooperative in NECTAR, organizing and attending several meetings in Europe, where he promoted and expounded new scientific ideas. Mostly, he was always friendly and sociable, with a genuine interest towards everybody and their scientific work.

Piet also explored novel issues in spatial economics, being very active in RSAI, as witnessed by the prestigious RSAI Fellowship award he received in 2009. From the 1980s onwards, he attended many ERSA/RSAI Conferences in Europe and elsewhere.

In both these sectors (transport and spatial economics) Piet's contributions were diverse, characterized by a variety of approaches: namely theoretical, methodological, empirical or pertaining to economic policy. At International meetings and related events, Piet had an enormous capacity for acute analysis, together with a gentle sense of humour, which was much appreciated by all during his talks or the associated social events.



Piet (second from the left) among colleagues at the ERSA conference in Barcelona

Piet was a wonderful person, much loved – as both a dear friend and respected colleague – within the international scientific and policy community, which will be always inspired by the memory of the brilliant scientist that he was and who passed away all too soon.



7. Centres of Regional Science: University of Pennsylvania

Janice Madden

University of Pennsylvania



Although the Department of Regional Science at the University of Pennsylvania (Penn) was closed in June of 1994, research and education in regional science and urban and spatial

economics continues at Penn under other organizational structures. The Samuel Zell and Robert Lurie Real Estate Center, the Penn Institute for Urban Research (PIUR), and the Departments of Real Estate, Sociology, and Economics, among others, include an overlapping set of faculty and students active in regional science research. The flavor of regional science activity at Penn is best reflected in a brief survey of the scholars and their ongoing research topics and results.

The **Department of Real Estate**, building on the success of the Samuel Zell and Robert Lurie Real Estate Center, was opened in The Wharton School shortly after Regional Science was closed in the School of Arts and Sciences. While real estate finance is a central focus for the Center and the Department, spatial analytics is also a core focus.

Gilles Duranton, former President of NARSC, newly elected RSAI Fellow, and Chair of the Department of Real Estate, is expanding his widely recognized work on urban and transportation economics. He continues to investigate the effects of urban form on private auto use, turning most recently to causal identification of the city characteristics associated with automobile driving. He is also preparing a monograph on agglomeration, urban costs, urban growth, sectoral development, and transportation in Colombian cities.

The key finding of **Joseph Gyourko** and **Todd Sinai**'s study of "Superstar Cities," which is long run (50 years) differences in average house price appreciation across U.S. metropolitan areas can be explained by the inelastic supply of land in some unique locations (superstar cities) combined with an increasing number of high income households in the nation, has changed the way we think about land values. Gyourko and Sinai show that local housing prices and income can be driven by aggregate demand, and not just by local factors such as productivity or amenities. Joe Gyourko also recently developed a series of quarterly local land price indices for 35 cities in China, based on public bidding and auction data from 2004 forward. The updated series available from <http://real.wharton.upenn.edu/~gyourko/chineselandpriceindex.html>.

The spatial price indices recently developed by **Jessie Handbury** provide consistent, theoretically-generated indices of price variation across cities. Jessie's new indices correct two biases of prior indices. She compares truly homogeneous goods and corrects for the unavailability of goods in some locations, using barcode purchase transaction data. She finds that the goods heterogeneity and unavailability biases account for prior findings that prices are higher in larger cities; with her

improved indices, Jessie finds that food prices actually fall with city size. Also, by calculating indices that also reflect how consumption bundles vary with income, she shows that food costs in wealthy cities are higher for the poor, but in poor cities are higher for the wealthy.

Maisy Wong, with colleagues, identifies the causal effects of skill transferability based on a transmigration program in Indonesia, where agricultural migrants are plausibly exogenously assigned to new locations. They find that agroclimatic similarity dominates linguistic similarity in the assimilation of assigned migrants to new locations. Their results support labor allocation and comparative advantage as the bases for the spatial distribution of productivity and provide an explanation of why initial origin-by-destination match quality matters over the long-run.

PIUR is an institute founded ten years ago to advance urban focused cross-disciplinary research and education throughout Penn. PIUR publishes a book series (University of Pennsylvania Press's City in the Twenty First Century Series), curates a Social Science Research Network (SSRN) scholarly repository in urban research (the Urban Research eJournal), and distributes a monthly newsletter, the Urban Link. PIUR sponsors conferences, faculty workshops, and public interest events that further our understanding of cities. PIUR's programs emphasize bringing scholars and practitioners together. The Penn faculty engaged in urban and spatial research participate as fellows of PIUR. PIUR also sponsors the Masters of Urban Spatial Analytics (MUSA) program. The MUSA program trains students in Geographic Information Systems (GIS) within an urban context.

For the last five years, **Holger Sieg** of the Department of Economics continues

to study how metropolitan areas evolve over time and adapt to challenges. Sieg has developed an overlapping-generations model of household locations to study sorting of households across communities and used the model empirically to examine how households sort themselves over the life cycle and affect communities, public goods, and housing prices. In one study, observing that (1) older households contribute to the local tax base while not contributing to local education costs and (2) they tend to vote for lower spending on local education, Sieg finds that, for communities, the first effect dominates the second so that communities with older households do not reduce education spending.

Janice Madden, current President of NARSC and RSAI Fellow and a member of the Population Studies Center and the Real Estate Department, studies the influences of demographic shifts cities and the effects of urban form economic outcomes for various demographic groups. She is currently examining how the concentrations of gays, and the geographic expansion of black neighborhoods coupled with the increasing integration of white neighborhoods, affect neighborhood development in large U.S. metropolitan areas.

Tony Smith, RSAI Fellow and faculty member in the Masters in Urban Spatial Analytics (MUSA) program, continues his theoretical studies of spatial statistical models together with a wide range of spatial applications. His current theoretical work focuses on the development of spatial Gaussian-process regression models with Bayesian model averaging. Current applications include collaborative efforts to study the spillover effects of spatial clusters of R&D labs in the Northeast Corridor, and to study the spatial access of low income residents to fresh food produce here in Philadelphia.



8. International Experiences with High-Speed Rail and Implications for the USA

Andrew R. Goetz

Department of Geography and the Environment, University of Denver



This year commemorates the 50th anniversary of the start of the High-Speed Rail (HSR) era with the launch of the initial Shinkansen line between Tokyo and Osaka in Japan, which commenced service on October 1, 1964. Since that opening, additional high-speed rail lines have been built in Japan, France, Germany, Belgium, Netherlands, Italy, Spain, Switzerland, United Kingdom, Turkey, China, South Korea, and Taiwan. More than 7,700 miles (12,400 kms.) of high-speed rail lines are in operation worldwide today with another 3,500 miles (5,600 kms.) under construction. China has the largest network with nearly 4,000 miles (6,450 kms.) in operation, 2,600 miles (4,180 kms.) under construction and 1,800 miles (2,900 kms.) planned. Japan has over 1600 miles (2,560 kms.) in operation, while Spain and France each have over 1000 miles (1,600 kms.) currently in operation with lines under construction or planned that would bring their totals to over 3000 miles (4,830 kms.) each. The other countries each have less than 1000 miles in operation, although both Germany and Turkey have lines under construction or

planned that would bring each of their networks to over 1000 miles (1,600 kms.).

With 50 years of international high-speed rail experience, it is an appropriate time to consider what we have learned about high-speed rail operations, and what insights and lessons can be drawn from this experience. It is particularly important today since a number of countries, including the United States, are considering new HSR development.

In the 50 years since HSR was started in Japan, the US has considered HSR development on numerous occasions but has yet to develop a high-speed rail service that meets international standards for new infrastructure. In 1965, President Lyndon B. Johnson signed the High-Speed Ground Transportation Act, which was intended to incubate HSR technology in the Northeast Corridor between Boston, New York, and Washington, and extend it to other potential corridors throughout the country. Instead, the private US railroads were relieved of their passenger service obligations as part of the creation of the National Railroad Passenger Corporation (Amtrak) in 1970, which has struggled since then to remain in operation while operating conventional rail services in both long-distance and commuter markets throughout the country. In recent years, however, Amtrak services in higher-density, short and intermediate-length markets have experienced increasing ridership and much improved financial performance (Puentes, Tomer, and Kane 2013). Combined with growing concerns over highway and air traffic congestion, environmental impacts, and costs of operation and expansion (especially fuel costs), there has been renewed interest in developing HSR in the USA.

Legislative breakthroughs in 2008 and 2009 jump-started planning efforts for

HSR, but a political backlash starting in 2010 has slowed down these efforts. In 2008, Californians voted in favor of Proposition 1A which authorized up to \$10 billion to construct a high-speed rail line between San Francisco and Los Angeles. In 2009, the newly-elected President Barack Obama signed the American Recovery and Reinvestment Act (ARRA) which included \$8 billion in federal investment for HSR. Congressional appropriations of \$1 billion each in 2009 and 2010 increased the federal HSR commitment to over \$10 billion. The US Federal Railroad Administration (FRA) had designated 11 corridors authorized for HSR investment, including the Northeast (Boston-New York-Washington), California (San Francisco-Los Angeles), Chicago Hub Network (Chicago to other cities in the Midwest), Pacific Northwest (Portland-Seattle-Vancouver, Canada), Southeast (Washington-Richmond-Raleigh-Charlotte-Atlanta-Birmingham), Florida (Miami-Orlando-Tampa), and others. However, in 2010, newly-elected governors in Florida, Wisconsin, and Ohio announced that their states were not interested in developing HSR and they would not be accepting federal funds for that purpose. Other states, nevertheless, have continued with their plans for HSR development- California, for instance, is moving forward with its plan to build a line between northern and southern California as part of a blended system that will rely on a dedicated high-speed line capable of reaching 220 mph. in the Central Valley as well as shared conventional lines in the San Francisco and Los Angeles areas.

With new interest in developing HSR in the USA and other countries throughout the world, important lessons can be drawn from the 50 years of international HSR experience. Perl and Goetz (2013) have identified four waves of HSR development that have emerged since

1964. The First Wave was developed to serve a single dedicated high-speed corridor of 300–350 miles anchored by two megacities. The classic example is the original Tokaido Shinkansen line connecting Tokyo and Osaka in Japan, covering 320 miles at 130 mph (now operating at 170 mph) at a capital cost of \$920 million (\$6.8 billion in 2012 dollars). The Second Wave featured a hybrid service of high-speed trains utilizing upgraded conventional tracks, as exemplified by the TGV service in France between Paris and Lyon starting in 1981, and the ICE service in Germany between Fulda and Würzburg starting in 1988. The Third Wave involved interconnections between national HSR systems to create a continental-scale HSR network, as shown by the emerging European Union Trans-European Network that includes the PBKAL service connecting Paris, Brussels, Koln, Amsterdam, and London (through the Channel Tunnel), as well as connections between France and Spain, Italy, Switzerland, and Germany. The Fourth Wave is a comprehensive national network composed of both dedicated high-speed and hybrid lines covering routes up to 1000 miles long and best exemplified by the emerging HSR system in China.

There are lessons that can be drawn from each of these waves of HSR development. The exclusive corridor model has been proven to be successful, as exemplified by the Shinkansen line connecting Tokyo and Osaka in Japan which has been the most financially and operationally successful HSR service in the world generating over 150 million passengers per year. However, it should be noted that Japan's efforts to extend the corridor model to less populated areas have resulted in financial losses. The hybrid model has also yielded successes, especially the Paris-Lyon line in France, which has been able to cover

its costs of construction and operation, generating over 25 million passengers per year. The reduced costs of using shared high-speed and conventional rail infrastructure for both passengers and freight (particularly in Germany) has created a larger window for economic viability. The comprehensive national network model, which is being implemented in China, has not yet yielded a clear economic success due to the extremely high costs of implementing a very extensive infrastructure of both dedicated and shared lines.

While each of these models has relevance to the development of HSR in the USA, the importance of contextual factors must be recognized. There are corridors in the USA that contain megacity clusters separated by short and intermediate distances that could be suitable candidates for either the exclusive corridor or hybrid models. While the exclusive corridor model would provide high speed service on dedicated passenger tracks, it would be more costly and thus more difficult to justify in cost-benefit analyses. The hybrid model

would reduce costs but would need to rely on track sharing agreements with existing privately-owned freight railroads and publically-owned commuter rail authorities. These agreements may be difficult to arrange given the growing demand for both freight and commuter rail services. While the comprehensive national network model would seem to have relevance to the US, given the comparable geographic size of China, the population of the US is much smaller, so the more costly national network would be much harder to justify.

References

- Perl, A. D., and Goetz, A. R. (2013). "High-speed passenger rail: considering where the US has come from and where the world is going", *White Paper*, University of Denver Intermodal Transportation Institute and National Center for Intermodal Transportation.
- Puentes, R., Tomer, A., and Kane, J. (2013). "A new alignment: strengthening America's commitment to passenger rail", *Brookings Institution*, Metropolitan Policy Program, Project on State and Metropolitan Innovation.