Presentation

1. Introduction

This volume of *Estadística Española* includes 5 papers that were presented previously in the 5th Jean Paelinck Seminar held in the University of Coimbra, October 2012. It is the result of a collaboration agreement between the organizers of the Jean Paelinck Seminar and the editors of the journal, Pedro Revilla continuing with the labour his predecessor Francisco Hernández. We are especially grateful to both colleagues, and the rest of the Editorial Board of *Estadística Española*, for the great opportunity offer the Jean Paelinck Seminar to deliver part of our material to this prestigious journal. The aid from professor Jose María Montero has been also crucial.

The intention of this note is to offer a brief introduction to the volume, explaining the origin of the papers and their purpose. Section 2 offers a succinct historical background of the series of seminars whereas Section 3 describes, briefly, the collection of papers attached to this volume.

2. A brief history of the JP seminars

Jean Paelinck Seminars on regional modelling and spatial econometrics are organized since 2004, with the main objective of providing a forum for debate between young and consolidated researchers and it is open to both theoretical and applied papers. It is usually organized by the research group GAEC (Grupo de Análisis Económico Cuantitativo). The general designation of the seminar is *"Seminar of Spatial Econometrics in honour of Doctor J.H.P. Paelinck"* due to the enormous research role this Professor has had in the field of Spatial Economics and Regional Science and also to their mastership and friendship. The first seminar was held in the University of Zaragoza, 2004, with 30 participants, 16 papers presented and 13 papers published; the second was also held in the University of Zaragoza, 2006, with 38 participants, 16 papers presented and 12 papers published; the third moved to the University of Cartagena, 2008, with 43 participants, 22 papers presented and 15 papers published; the fourth

was in University of Oviedo, 2010, with 43 participants, 20 papers presented and 10 papers published.

The fifth Jean Paelinck Seminar was organized together with the NECTAR-Cluster 6 Meeting on Accessibility in 2012 in the University of Coimbra. NECTAR (Network on European Communications and Transport Activities Research), is a Europe based scientific association with a network culture. The primary objective is to foster research collaboration and exchange of information between experts in the field of transport, communication and mobility from all European countries and the rest of the world. Therefore, the fifth Jean Paelinck Seminar on Econometrics was called "*Applied Research and Modeling Advances on Accessibility in Spatial Development*" aimed to gather interest in the areas of Spatial Econometrics, Accessibility and Spatial Development at once. This seminar happen in Portugal for the first time, in Coimbra, on 26-27 October 2012, having as host and local organizer Anabela Ribeiro (Assistant Professor at the Universidade of Coimbra) with the support of the scientific committees of the two seminars included: the '5th Seminar of Spatial Econometrics in honor of Doctor JHP Paelinck' and the 'NECTAR - Network on European Communications and Transport Activities Research, Cluster 6 Meeting on Accessibility'.

Considering the objectives of this joint meeting, the main thematic areas were the following: 'Accessibility and Transport Planning'; 'Social and Cohesion Issues'; 'New Issues in Accessibility', 'Land Use and Urban Planning'; 'Spatial Econometric Modeling'; 'Spatial Econometric Applications in Transport and Accessibility Studies'.

Fifty five (55) researchers from six European countries attended the meeting. The workshop was structured on a series of two (2) invited lectures and five (5) open sessions for each of the research groups. Thirty seven papers were presented and discussed in two parallel sessions (plus another three by keynote speakers), one for each of the seminars, during the two days (see the final program at http://metodos.upct.es/detaer/5JP/index.html). The Jean Paelinck sessions had the presentation of nineteen (19) papers and the NECTAR sessions had the presentation of eighteen (18) papers. A social program was also offered, promoting interactions and common work inside each group and between the two groups.

3. Contributions from the JP seminar

The five papers included in this volume are representative of the type of work that has characterized the seminars Jean Paelinck: two are methodological, other two are applied papers and the fifth presents a research project that is just starting.

Jean Paelinck and Jesús Mur present the paper *'Theoretical Spatial Economics and Spatial Econometrics: Space-and Time-Non-Convexities Galore ...'* which claims for the importance of non-convexities and non-linearities in contemporaneous economic analysis. The assumption of continuity greatly simplifies economic reasoning but it is often unrealistic. Generally, the discrete approach replaces the marginal perspective as the focus moves from macro to micro. It is evident that the spatial economics has a strong micro fundament which attaches great importance to the issue of non-convexity

Paelinck and Mur discuss three typical cases in spatial economics where the marginal approach may not be the best option: programming of industrial complexes, following Isard (1975), the physical planning of urban infrastructure, in line with Alonso (1964), and traditional location spatial problems, according to Weber (1909). This discussion is also reflected in the field of spatial econometrics where lack of continuity leads to problems of heterogeneity and nonlinearity. As the authors indicate, the first requirement is to recognize the problem -our world is far from being continuous- only then will we be able to develop more flexible and better adapted analytical tools for the discrete case. The method of the endogenous spatial regimes is a valuable alternative to account for this problem that allows for several variants; one of the simplest is the finite automata binary method.

The work of Lopez, Artal and Maté, *Evaluating Three Proposals for Testing Independence in Non-Linear Spatial Processes*, continues with the problem of non-linearity in spatial data. They acknowledge that problems caused by nonlinearities are attracting the attention of a growing number of researchers but needs of specific tools and techniques. A clear proof of these shortages is the lack of power of the traditional spatial autocorrelation tests, such as Moran's I, when faced with nonlinear relationships.

In the literature we can find valuable alternatives. The authors point to the use of semiparametric techniques, like the Scan test (Kulldorf and Nagarwalla, 1995), or non-parametric methods, such as the test τ (Brett and Pinkse, 1997). The results shown in the paper, supported by a Monte Carlo study, seem to corroborate their view: Moran's I is slightly better than the other two tests if the data generating process, DGP, is linear but is clearly worse when the DGP is non-linear. The authors include an application to a database of companies located in metropolitan areas of Barcelona and Madrid. The Scan test emerges as a powerful tool for the analysis of spatial data at a micro-level, very reactive to dependence problems, instability, nonlinearity and outliers.

The two applications included in this collection offer two drastically opposed views on the possibilities for spatial econometrics.

Angulo, Herrera and Atwi, in *Analysis of geographic concentration of productivity: the case of manufacturing firms in the Ebro Valley*, take a micro perspective looking for clusters of high and/or low productivity. They use data on companies, of the sector manufacturing, located in the Ebro Valley, for the period 1996-2009. Companies are grouped by municipality, aggregating the data on productivity. Then, they apply usual techniques for detecting spatial clusters. The results included in the paper refer to the G statistic (Getis and Ord, 1992). There are clusters of high productivity on the Mediterranean coast, in the triangle Zaragoza-Pamplona-Logroño and in the area surrounding Lleida, and clusters of low productivity in the entire pre-Pyrenean fringe and in the province of Teruel, with extension to the East and South.

The analysis extends to the role of factors capable of stimulating, or block, the appearance of such clusters. The literature offers a variety of mechanisms such as Jacob urbanization economies, location economies in line with Marshall-Arrow-Romer, agglomeration tendencies based on size, network and competition economies or the attraction of labor markets. The authors use an ordered probit model, based on a series of municipal indicators representing these externalities at a local scale. Results confirm the importance of urbanization, localization and network economies and, in the negative side, the lack of good infrastructure for transports and

communication. The inertial factor is another important element in shaping productivity maps in the Ebro Valley.

Furthermore, Ramajo, Marquez and Hewings, in *Does Public Capital Crowd Out Regional Regional Private Capital? A Multiregional Analysis for the Spanish Regions*, develop a macro approach to a key problem for contemporary economic policy: what is the relationship between private and public capital. The contribution of this study is that, by solving the case in a spatial context, the discussion is not limited to the traditional dichotomy crowding-in versus crowding out (Aschauer, 1989). In fact, the impacts to the regional agents can be both domestics and external. They use aggregated data for private and public capital, in addition to added value and employment, for the 17 Spanish regions for the period 1964-2003. Under these conditions, the authors construct a spatial extended VAR in which all Communities and all variables interact with each other, which the authors call MultiREG-SpVAR (Multiregional Spatial VAR) model. The work of Pesaran et al. (2004) is an immediate precedent of this specification.

The results are interesting in the sense that, indeed, private capital reacts to changes in public capital in the region. Overall, the study tends to be on the positive side given that complementarity effects tend to prevail between the two types of capital, rather than substitution effects. Moreover, the answer evolves over time: domestic crowding-in effects are more important in the short-run while spillover crowding-in effects increases in the long-run. One of the conclusions of the authors is that, from the perspective of the policy-maker, not all Spanish regions are the same: public investments in Catalonia and Madrid, the center of the Spanish economy, have a strong positive impact on the whole system whereas this impact will be weaker, even negative, if the investment is directed to some peripheral region.

The fifth paper included in this volume, *Cross-border Accesibility and Local Development in Portugal and Spain*, co-authored by Fontes, Ribeiro, Silva and Major, is representative of another type of work given that it reflects the current status of an ongoing research project. The main objective of the project is to gain insight into the relation between economic development and accessibility. The literature supports, largely, the existence of a positive relation (i.e., Rietveld and Bruinsma, 1998). However, there are exceptions as the situation of the cross-border area

between Portugal and Spain: new road infrastructures were built in the last decades, changing completely the accessibility panorama, but the development variables seem not to react. This is a quite intriguing situation that merits a more decided research effort.

As acknowledged by the authors, at this moment, the number of unknowns dominates over the number of knows. It is clear that the socio-economic interactions produced at a spatial level tend to be complex, especially if there are exogenous restrictions affecting the behaviour of the agents, like a frontier in this case. The literature advocates for the use of more disaggregated spatial units and the explicit inclusion of location and historical factors (Mas et al, 1996) to better understand the situation. The evidence shown in the paper points to the existence of a strong spatial dynamics in the Northern pilot area of the study, both in the accessibility measures as in the economic development indices. The next step of the study will involve a causality analysis to uncover the relation between the groups of variables.

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