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HABILITATION THESIS

SPATIAL AND APPLIED ECONOMETRICS IN ECONOMIC BEHAVIOUR AND PROCESSES

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SUMMARY

The present habilitation thesis is a synthesis of my most important scientific achievements since obtaining my PhD title in April 2010, in Italy, at the University of Trieste, International Institute for European Studies, Gorizia. The PhD thesis is entitled **Scenarios and Prospectives Regarding the Euro Introduction on the Romanian Market**. Using different econometrics methods (time series and forecasting, spatial econometrics, etc.) the PhD thesis evaluates Romania's situation in respect to the euro adoption and makes forecasts related to the possible moment of adopting the common currency, along with the costs related to it. The scientific work the followed is, partially, based on this research, in the sense that I went deeper into analyzing different aspects related to the integration process. Among them, there is the issue of convergence and the contagion and diffusion processes that may occur in space and may intensify or alter different economic processes. On the other hand, starting from the results of the spatial econometric assessments, other econometric tools were used to evaluate, at different levels and on different samples, results previously obtained.

Another important idea that is to be found throughout my research activity is the evaluation of more qualitative, subjective factors, like culture, governance and political aspects, in respect to their impact upon economic behaviour.

The present habilitation thesis consists in 3 major parts. The first one presents the research results and contributions to the field's literature. In the second one, are described the research perspectives and the career development plan, while the third makes a synthesis of the references used.

Part I is made up of three sections, as follows:

- Section A entitled **Spatial Econometrics Used in Assessing Economic Processes**;
- Section B entitled **Econometric Methods Used in Evaluating Romania's Features**;
- Section C entitled **Econometric Tools Used in Evaluating Cultural and Social Impact upon Economic Development – International Assessments**.

As its name states, **Section A** deals with **Spatial Econometrics Tools Applied in Assessing Economic Processes**. It consists in researches that use this kind of econometric methods to evaluate issues like convergence and contagion and diffusion processes at

macroeconomic level. Such analysis puts into light if spatial clusterization appears and, if spatial heterogeneity, with local stationarity points exists.

Subsection A1 evaluates the *Spatial Convergence on the Life Insurance Market in the European Union*. In my previous studies and in the field's literature, the convergence process is validated at the European Union level, using as a proxy the GDP. Starting from this and the idea that interactions exist in the European Union, I have implemented Spatial Econometrics methods to assess the occurrence of absolute, conditional or club β -convergence on the EU life insurance market. The life insurance density was used as a proxy for the development of the life insurance market for the EU27 countries, during the period 2002 – 2014. The absolute β -convergence was accepted by the spatial regression analysis. Spatial influences were accounted for by using the longitude and latitude as exogenous variables, together with the spatially lagged variable for the dependent. A series of economic, cultural, institutional and political factors were considered in this study. Out of all these determinants, only the Hofstede's uncertainty avoidance index proved to be statistically significant. The positive correlation coefficient between this cultural dimension and the growth rate of life insurance density in the European Union proves that countries with a higher level of uncertainty avoidance will experience higher growth rates.

As a follow up of the results presented in subsection A1, in *subsection A2*, attention is paid to the same life insurance market, but this time in Romania (*Is There Spatial Diffusion between Romanian Counties on the Life Insurance Market?*). Spatial Econometrics Tools are now used to assess the characteristics of this market and its specificities on the 42 Romanian counties, in 2015. Most of the academic literature investigating the determinants of this market focuses on cross-country or individual level studies. This research assesses the specificities on the life insurance market at sub-national level, more specifically at county level. An important result is the positive effect of insurance literacy, estimated through a national survey, over the life insurance demand. Another significant result is the spatial diffusion process identified for the life insurance density, between neighbouring counties. Among the control variables we identified the significant positive impact of income and urbanization over the life insurance demand and a negative one for the unemployment rate.

Using also a spatial approach, the last part of section A, *A3*, deals with evaluating *Consumer Protection versus Development Level – A Spatial Distribution Approach*. Problems specific to consumer protection are dealt with using quantitative methods. We focus on the factors that influence the number of complaints at national level and the perception of consumers that they are protected by public authorities. Data used for the 27

countries of the European Union were collected by official institutions, such as The Heritage Foundations, United Nations Development Programme and the European Commission. Two types of econometric tools were employed: Ordinary Least Squares Multiple Regression and Spatial Econometric methods, such as map analysis, Moran's I test for spatial autocorrelation and spatial regression. The results are convincing in what regards the institutional factors. Other types of behaviour, such as social factors and spatial neighbourhood effects, could not be highlighted.

Section B, entitled **Econometric Methods Used in Evaluating Romania's Features**, presents some of the most relevant results of the researches conducted on the Romanian market that employed other types of methods than Spatial Econometrics. *Perspectives on Euro Introduction in the Romanian Economy* are presented in *subsection B1*. This part offers a first quantitative glance at the possible effects of preparing for Euro adoption, as well as at the ex-post effects of actual adoption. Although the complexity of the models considered gradually increases, nevertheless all the simulations provide the same general picture in which (short and sometimes medium term) restrictiveness is revealed. The results show that for Romania, fulfilling the Maastricht criteria implies short-term economic slow-down and restrictiveness, followed by economic recovery and growth in the medium term and especially the long run. Quantitative estimates of these effects are provided. The most important negative evolutions are to be found for the labour market and investment.

Subsection B2 and *B3* have the same topic – evaluating the performance of Romanian companies listed on the Bucharest Stock Exchange, but first based on its relation to corporate governance (*Relationship between Corporate Governance and Business Performance in Romania*) and then with the characteristics of the board of the company (*Board Characteristics and Business Performances in Romania*). In *subsection B2*, a sample of 76 companies listed on the BSE is evaluated in terms of corporate governance and its influence upon the overall performance, for the period 2001 – 2011. A multi-dimensional index is made up of 50 variables, referring to four dimensions: Governance structure, Investor relations, Board and management and financial disclosure. Based on the tested correlations on the Romanian market, we have developed two econometric models to assess the overall performance of the company. By using a global performance model, we show Romanian managers that an adequate business management including all economic, social and environmental factors, could contribute to the financial success of the firm. The influence of board characteristics upon the performance is evaluated in *subsection B3*, this time on a sample of 55 such companies, in 2012. Six board characteristics were chosen: 1) equilibrium

between non-executive and executive members of the board of directors; 2) independence of board members; 3) selection of board members; 4) training the members' competences; 5) the assistant role of the board provided Nomination, Remuneration and Audit Committees. The financial performance is represented by ROA and Tobin's Q. For most of the sample companies, the board of directors presented the following characteristics: equilibrium between non-executive and executive members, independence of the members and concerns on training competences. The majority of the companies do not have an advisory committees (such as Nomination, Remuneration or Audit Committees) within the governance system, which help the board in its decision making. No statistically significant association was found between any of the board characteristics mentioned above and performances represented either by Tobin's Q or ROA.

Econometric Tools Used in Evaluating Cultural and Social Impact upon Economic Development – International Assessments represents Section C. It deals with econometric methods applied in international studies, both classical econometric approaches and panel data modeling, including the dynamic panel approach developed by Arellano and Bond and afterwards improved by others, such a Roodman. The section is progressively constructed, from simple, classical Econometrics, to more complex. It is a follow-up of section A and the conclusions obtained there. That is why it starts with an analysis of a group of regulated prices in the European Union, namely the prices in the energetic sector. Institutional, cultural and sociological factors are then considered at international level and their impact assessed. Classical regression analysis is employed on the European Union's energetic market and in evaluating the impact of culture, governance and happiness upon the geocentric performance of a company. This section ends with an application of panel data methods in studying the impact of such institutional, economic and cultural factors upon the development of the life insurance sector in Europe.

In *subsection C1* is analyzed the presence of consumer protection phenomenon in the 27 countries of the European Union (*Evaluating Consumer Protection in the European Union – Case Study on the Energetic Sector*). Based on OLS regressions we demonstrate the existence of price-based protection for domestic consumers at EU level. Prices are regulated in such a way as to be correlated with the average wage. As an additional argument, we demonstrated that the energy price for industrial consumers follows a different formation mechanism, with main influence factor the energy import dependence.

Results presented in parts B2 and B3 were furtherly developed in *subsection C2 - How National Environment Influences the Performance of an Organization – Regression*

Analysis. Here is investigated a new qualitative dimension of the organization's performance, less addressed in the literature, namely the geocentric behaviour dimension. Using cross-sectional samples of countries over the period 2012-2015, our research provides empirical evidence on the significant impact of the political, cultural and emotional factors such as happiness, on the organization's performance from a certain geocentric space. Results provide measurable evidence on the role of qualitative factors such as those mentioned, which act in a certain geocentric space, on the organization's performance.

Section C ends with a synthesis of *Panel Data Analysis Applied on the Life Insurance Market (subsection C3)*. Cultural and institutional factors affect the development of national economies. The previous sub-sections have evaluated this subject from the point of view of the consumer (the individual) (consumer protection on the European energetic market) and of the organization (company's performance). In the following, these groups of factors are assessed in terms of influence upon an important sector of a national economy – the insurance one. Out of it we have chosen to evaluate the life insurance part, due to its heterogeneous development in Europe, and not only (see section A for spatial results). The analysis uses a progressive panel approach, from classical panel to dynamic panel, on the period 2002 – 2012 on a sample of European countries. Results show significant influences of the governance indicators upon the development of the life insurance market. Moreover, transition and emerging economies have specific patterns that have to be taken into account by policymakers in the field in order to strengthen the trust in the insurance sector and reduce the gap with developed countries.

A brief descriptive of my career development is to be found in **Part II**. Among the most important directions are: (1) methodological development in Spatial Econometrics, especially in respect to the spatial weights matrix; (2) developing a methodology to compute the Local Human Development Index (LHDI) for Romanian localities between censuses and using it in different economic and social analyses; (3) new evaluations on the topic of Romania's stability and its integration process; (4) new assessments of the influence cultural, governance, social, political factors and so on have upon different parts of the national economy, including the shadow economy.

The last part presents the references used.