

IVETTE LUNA

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I am a professor in Economics with a background in Engineering and Quantitative Methods for Empirical Analysis. Since 2009 I'm at the Department of Economic Theory at the Institute of Economics of the State University of Campinas, Unicamp, São Paulo, Brazil. My research is characterized by empirical analysis in the microeconomic field, using Simulation, Data Science and Economic Complexity instruments in the analysis of different themes, but with a predominance in the study of industrial dynamics, productive structure and economic development.¹

My ORCID: <https://orcid.org/0000-0002-5304-5523>

CURRENT ACADEMIC POSITION

Associate professor (*Livre docente*) 2020-present
São Paulo, Brazil

- State university of Campinas (Unicamp), currently advising 09 graduate students and 06 undergraduate students; lecturing for the undergraduate course in Economics and for graduate courses in Economic Theory and Economic Development programs. From 2009 to 2020 Although I got my title of *Livre Docente* (Associate professor) at the Institute of Economics in the field of Economic Mathematics and Simulation Issues, I'm at that institution since 2009, as an Assistant Professor.
- Since 2018 I coordinate the Center of Applied Economics, Agricultural and Environment Research (NEA⁺ - Núcleo de Economia Aplicada, Agrícola e do Meio Ambiente) at the Institute of Economics/Unicamp.

Visiting professor 2018–present
Lima, Peru

- Universidad Nacional Agraria La Molina - UNALM. Visiting professor and responsible for the institutional agreement between Unicamp and UNALM.

EDUCATION

Phd in Electrical Engineering 2003-2007
São Paulo, Brazil

State university of Campinas (Unicamp), dissertation: “*Time Series Analysis and Modelling based on Fuzzy Rules*”, advisor: Rosangela Ballini and Secundino Soares.

Master in Electrical Engineering 2001-2003
São Paulo, Brazil

State university of Campinas (Unicamp), dissertation: “*Recurrent Neurofuzzy Networks applied to Systems Control and Identification*”, advisor: Fernando Gomide and Rosangela Ballini.

Bachelor in Mechatronic Engineering 1996-2000
Lima, Peru

Universidad Nacional de Ingenieria (UNI).

COMPLEMENTARY EDUCATION

Master on Bussiness and Administration - Data Science and Analytics 2020 - present
São Paulo, Brazil

¹For a complete list of my academic production, please see the Brazilian academic profile at <http://lattes.cnpq.br/2854855744345507>.

University of São Paulo, final work entitled “Characterization of the Brazilian occupational structure in the context of Digital Transformation and Industry 4.0: strategies for a more resilient workforce”, supervisor: Luiz Paulo Fávero.

Escuela de Verano sobre Economías Latinoamericanas
Santiago, Chile

2018

Comisión Económica para América Latina y el Caribe, CEPAL, Chile, final work entitled “La transformación productiva rumbo a la digitalización y automatización de actividades: el caso brasileño”, supervisor: Wilson Peres y Nunzia Saporito.

PAST POSITIONS

- Sant'Anna** Jan 2016 - Jul 2016
Visiting Pisa, Italy
- Istituto di Economia, Scuola Superiore Sant'Anna - SSSUP, Pisa - TO, Itália, research project entitled “Characterization of the productive structure of Brazilian industry from an evolutionary perspective”, supervisor: Giovanni Dosi. Research granted by the Fundação de Amparo à Pesquisa do Estado de São Paulo - FAPESP.
- FEEC/Unicamp** Aug 2008 - May 2009
Researcher São Paulo, Brazil
- Faculdade de Engenharia Elétrica e de Computação - FEEC, State University of Campinas - UNICAMP, research project entitled “Daily and hourly inflow forecasting models”, supervisor: Secundino Soares Filho. Research granted by the Fundação de Amparo à Pesquisa do Estado de São Paulo - FAPESP.

MAIN PUBLICATIONS

Most recent journal articles

- Ávila, M.; Luna, Ivette . Development Opportunities: economic complexity as a driver for São Paulo. *Economics & Society*, Forthcoming.
- Ioshisaqui, A.; Attux, R.; Luna, Ivette. Analysis of Occupational Profiles in the Brazilian Workforce Based on Non-Negative Matrix Factorization. *Big Data Research*, v. 100333, p. 100333, 2022.
<https://www.sciencedirect.com/science/article/abs/pii/S2214579622000272?via%3Dihub>
- Bueno, C.; Masago, F. K.; Silveira, José Maria F. J.; Moraes, B. S.; Mendes, L. B. B.; Luna, Ivette. Bioenergy emerging paradigm: collaborative networks and determinants in the upgrading process of technological frontiers. *African Journal of Science, Technology, Innovation and Development*, 2021.
- Nogueira, Mateus; Luna, Ivette; Perkins, Ellie. De tragédia a solução: a atualidade teórica e empírica dos recursos comuns no Brasil. *NOVA ECONOMIA* (UFMG. IMPRESSO), v. 30, p. 7-35, 2020.
https://www.scielo.br/scielo.php?script=sci_arttext&pid=S0103-63512020000100007&tlang=pt
- Menezes, T. C.; Luna, Ivette; Miranda, S. H. G.. Network Analysis of Cattle Movement in Mato Grosso Do Sul (Brazil) and Implications for Foot-and-Mouth Disease. *FRONTIERS IN VETERINARY SCIENCE*, v. 7, p. 1-17, 2020.
<https://www.frontiersin.org/articles/10.3389/fvets.2020.00219/full>
- Siqueira, Hugo; Macedo, M.; Tadano, Y. S.; Alves, T. A.; Stevan Jr., S. L.; Oliveira JR., D. S.; Marinho, M. H.; Mattos Netto, P. S.; Oliveira, J. F. L.; Luna, Ivette; Leone Filho, M. A.; Sarubbo, L. A.; Converti, A. Selection of Temporal Lags for Predicting Riverflow Series from Hydroelectric Plants Using Variable Selection Methods. *Energies*, v. 13, p. 4236, 2020.
<https://www.mdpi.com/1996-1073/13/16/4236>
- Siqueira, H. V.; Belotti, J. T.; Boccato, L.; Luna, Ivette; Attux, R.; Lyra Filho, C. Recursive linear models optimized by bioinspired metaheuristics to streamflow time series prediction. *International Transactions in Operational Research*, v. -, p. —, 2020.
<https://onlinelibrary.wiley.com/doi/abs/10.1111/itor.12908>
- Mesquita, F. C.; Castilho, R.; Santos, H.; Luna, Ivette. Regional hierarchies in sugarcane agribusiness: border movement and centrality of São Paulo. *REVISTA BRASILEIRA DE ESTUDOS URBANOS E REGIONAIS*, v. 21, p. 329-350, 2019.
<http://rbeur.emnuvens.com.br/rbeur/article/view/5889/0>

Book chapters

- Silveira, José Maria F. J.; Poz, Maria Ester Dal; Souza, L. G. A.; Luna, Ivette. Technological foresight of the Bioethanol case. In: Sergio Luiz Monteiro Salles-Filho; Luis Augusto Barbosa Cortez; José Maria Ferreira Jardim da Silveira; Sergio Trindade. (Org.). Global Bioethanol. Evolution, Risks, and Uncertainties. 1ed.: Academic Press, 2016, v. 1, p. 1-17.
- Luna, Ivette; Hiratuka, C.; Souza Luz, M. R.; Fracalanza, P.. Decomposition of Productivity Change in Industry and Services in Brazil in the Recent Period from an Evolutionary Viewpoint. In: Fernanda de Negri; Luiz Ricardo Cavalcante. (Org.). Produtividade no Brasil, desempenho e determinantes. Volume 2: Determinantes. 1ed. Brasília: ABDI:IPEA, 2015, v. 2, p. 495-540.
- Luna, Ivette. Productivity analysis and its relationship with economic growth from an evolutionary perspective. CGEE, 2015.
- Zambelli, M. S.; Luna, Ivette; Soares, Secundino; Kadowaki, M.; Takaaki Ohishi. Hydropower Scheduling in Large Scale Power Systems. In: Dr. Hossein Samadi-Boroujeni (Ed.). (Org.). Hydropower - Practice and Application. 1ed.Rijek: InTech, 2012, v. , p. 1-26.
- Luna, Ivette; Maciel, L.; Silveira, R. L. F.; Ballini, R.. Estimating the Brazilian Central Bank's Reaction Function by Fuzzy Inference System. In: Information Processing and Management of Uncertainty in Knowledge-Based Systems. Applications. (Org.). Communications in Computer and Information Science. 81ed.Berlin: Springer Berlin Heidelberg, 2010, v. 81, p. 324-333.

Most relevant articles in proceedings

- Garcia, R.; Luna, Ivette; Mascarini, S.; Oliveira, P. R. S. An exploratory analysis of Economic Complexity for Brazilian meso-regions - 1997-2019. In: 25º Reunión Anual Red Pymes Mercosur, 2020, (Virtual). p. 212-219.
- Saliba, C.; Luna, Ivette . A desigualdade de gênero no acesso e na qualidade de postos de trabalho na estrutura produtiva paulista (2003-2017). In: I Seminário de Jovens Pesquisadores em Economia Industrial - NEIT/IE/Unicamp, 2020, (Online). Anais Eletrônicos do Seminário de Jovens Pesquisadores. Araraquara, 2020. p. 12-28.
- Mesquita, F. C. ; Luna, Ivette ; Souza, Roney Fraga. Regional Inequalities In Agriculture: Brazilian Bioethanol Production In A Learning Economy. In: The International Consortium on Applied Bioeconomy Research, 2020, -. Procs. of ICABR 2020, 2020. v. 1. p. 1-20.
- Mesquita, Fernando; Luna, Ivette ; Souza, Roney Fraga. Regional inequalities in a learning economy: the case of Brazilian bioethanol production. In: IV Encontro Nacional de Economia Industrial e Inovação, 2019, Campinas. Blucher Engineering Proceedings. São Paulo: Editora Blucher, 2019. p. 563-581.
- Haddad Netto, E. Y. ; Luna, Ivette . A Survey on Stylized Facts for Brazilian Manufacturing: 1996-2013. In: 47º ENCONTRO NACIONAL DE ECONOMIA, 2019, São Paulo. Anais do 47º ENCONTRO NACIONAL DE ECONOMIA. São Paulo, 2019. v. 1. p. 1-20.
- Menezes, T. C.; Miranda, S. H. G.; Luna, Ivette. Network analysis of cattle movement in Mato Grosso do Sul (Brazil) and implications for FMD outbreaks. ISESSAH 2019, July 21-23, Atlanta, USA.
- Mesquita, F; Luna, Ivette e Fraga, Roney. **Regional inequalities in a learning economy: the case of Brazilian bioethanol production.** 4º National Meeting on Industrial Economics and Innovation, Campinas, Brasil, 2019.
- Gouveia, J. M. A.; Luna, Ivette. **Agglomeration economies, related and unrelated variety in Brazil.** In: III Encontro Nacional de Economia Industrial e Inovação (III ENEI), 2018, Uberlândia. Anais do III ENEI, 2018. v. 1. p. 1-16.
- Dosi, G.; Luna, Ivette; Mathews, N.; H. Netto, E. Y.; Savin, I.; Yu, X.. **Productivity, market selection and corporate growth: Comparative evidence from BRIC nations.** In: 10th European Meeting on Applied Evolutionary Economics - EMAEE, 2017, Estrasburgo. Annals of the 10th EMAEE, 2017. v. 1. p. 1-21.

RESEARCH GROUPS

- Member of the Brazilian Institute of Data Science (BIOS)
<https://www.bi0s.com.br/>

Since 2021

- NEIT/IE/Unicamp (Center for Industrial Economics and Technology) Since 2012
<https://www.eco.unicamp.br/neit/>
- NEA⁺/IE/Unicamp (Center for Applied Economics, Agricultural and Environment Research) Since 2012
 Current coordinator.
<https://www.eco.unicamp.br/nea/>
- Institute of Advanced Studies - IdEA/Unicamp 2019-2020
 Member of the Working Group on Artificial Intelligence.
<http://www.idea.unicamp.br/grupos-tematicos/grupo-inteligencia-artificial>
- Member of the YSI-INET working groups (Latam and Complexity Economics) Since 2018
- Member of the Brazilian Association of Industrial Economy and Innovation (ABEIN) Since 2017
<http://www.abein.org/home>

TEACHING ACTIVITIES

Unicamp

São Paulo, Brazil

Since 2009

- Undergraduate courses: Methods for Analytics in Economics II, Statistics and Introduction to Econometrics, Mathematics for Economists II and III, Accounting for Engineers.
- Graduate courses: Introduction to Data Science for Social Sience and Humanities, Social Network Analysis, Mathematics for Economists and Simulation Issues in R (since 2015), Industrial Organization and Technological Development, Econometrics (in 2013).

Others

- Webinar entitled “Machine Learning and Data Science applied to Economics”, II Seminar on Applied Economics, Research Group in Applied Economics UNESP/Araraquara, 2021.
- Mini course, Introduction to R at the VI DEA, UNESP/Araraquara, on November, 2021,
<https://www.youtube.com/watch?v=BUQ1wbpI9TQ&list=PLoyqLwYCpWwQ57Qq4aHkQo9t6gmSr9M4Z&index=2&t=20s>
- Mini course on Complexity Economics at the IV National Meeting on Industrial Economics (ENEI) on September, 2019;
- Scientific Writing at the State University of Central Peru (UNCP), Huancayo, Peru on September, 2019.

RESEARCH PROJECTS

Coordination

- Analysis of potential scenarios for global productive transformations and their impacts on the Brazilian formal occupational structure. Department of Economic Theory, Institute of Economics, Unicamp. Since 2018.
- Technological and non-technological determinants of Brazilian external competitiveness. Project supported by FAEPEX/CNPq Num. 2819/19. Since 2018.
- Growth and innovation: evolution of the productive structure of Brazilian manufacture. Project supported by FAEPEX/CNPq Num. 27316 - PIBIC-EM. From 2016 to 2017.
- Characterization of the productive structure of Brazilian manufacture from an evolutionary perspective - Project supported by Fapesp, process 15/17059-3. From January to July 2016.
- Analysis of the productive structure of Brazilian industry from a neo-Schumpeterian perspective. Project supported by CNPq/ MCTI N° 25/2015 Ciências Humanas, Sociais e Sociais Aplicadas, Brazil. From 2015 to 2017.
- Empirical studies on the decomposition of productivity change from an evolutionary perspective. Project granted by FAEPEX/IE-UNICAMP. From 2013 to 2014.

ACADEMIC PRIZES AND RECOGNITIONS

- 2022 - Best paper at the VI Meeting on Industrial Economics and Innovation (VI ENEI) - 3rd place, organized by the Brazilian Association on Industrial Economics and Technology (ABEIN).
- 2020 - SJP: Best work of I SJP 2020, in the category "Originality of the theme and importance for development", for the work of Scientific Initiation (IC/CNPq) by Clara Saliba, under my guidance; NEIT-Unicamp / GEEIN-Unesp.
- 2014 - PIC: Best Scientific Initiation papers of the Brazilian Symposium on Operational Research (finalist), Brazilian Society of Operational Research (SBPO).
- 2013 - Best professional paper award (finalist), 1st BRICS Countries Congress (BRICS-CCI) and 11th Brazilian Congress (CBIC) on Computational Intelligence.

OTHER SKILLS

Programming

- Programming languages: R, Python, C, C++, Matlab
- Data Science and Analytics

LANGUAGES

Spanish (native), Portuguese and English.