Orlando Joaqui Barandica

PhD.(C)

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About me

- I am a current candidate for Ph.D. in Engineering with an emphasis in Industrial Engineering at the Universidad del Valle. Statistician and Master in Applied Economics. Member of the GIFINC research group (Quantitative Finance Research Group) of the Faculty of Industrial Engineering of the Universidad del Valle. My research topic is asset and liability management oriented to the banking sector and the energy sector. I am an assistant professor at the School of Statistics and Industrial Engineering at the Universidad del Valle. I have directed various research projects and courses in statistics, data visualization, econometrics and quantitative finance at the Pontificia Universidad Javeriana de Cali, Universidad ICESI, Universidad San Buenaventura Cali, Universidad del Tolima and the Faculty of Economics at Universidad del Valle. More info: www.joaquibarandica.com

Research Interests

- Asset and Liability Management
- Quantitative Finance
- Applied Econometrics and Statistics
- Energy Markets

Education

PhD(C) in Industrial Engineering (Current) *Cali, Colombia*

Universidad del Valle *2020 - Current*

- Research: Topics in Asset and Liability Management: a comparative vision between emerging and developed economies
- Advisors: Diego F. Manotas - Jorge M. Uribe

MSc Applied Economics *Cali, Colombia*

Universidad del Valle *2015 - 2017*

- Research: Effect of the world interest rate on the equity markets of emerging economies
- Advisors: Jorge M. Uribe

BSc Statistics *Cali, Colombia*

Universidad del Valle *2008 - 2014*

- Research: Modeling the effect of climatological factors on the productivity of rice cultivation in some producing areas of Colombia with information from historical series
- Partner: Oscar W. Orozco
- Advisors: David Arango - Javier Olaya

Complementary courses

Jun. 2018 **Big Data (Text Mining)**: (Cali, Colombia)
Pontificia Universidad Javeriana de Cali

May 2017 **Introduction to Mixed Generalized Linear Models**: (Cali, Colombia)
Colombian Society of Statistics

Apr. 2016 **Data Mining**: (Cali, Colombia)
Colombian Society of Statistics

Work Experience

Universidad del Valle *Cali, Colombia*

Assistant Professor *2016 - Current*

- School of Statistics
- School of Industrial Engineering
- Department of Economics (2020)

Pontificia Universidad Javeriana de Cali *Cali, Colombia*

Assistant Professor *2016 - Current*

- Department of Accounting and Finance
- Department of Economics
- Department of Natural Sciences and Mathematics (2016 - 2019)

Universidad del Tolima *Ibagué, Colombia*
Assistant Professor *2021*
- Department of Economics and Finance

Universidad ICESI *Cali, Colombia*
Assistant Professor *2016 - 2019*
- Department of Mathematics and Statistics

Universidad San Buenaventura Cali *Cali, Colombia*
Assistant Professor *2019*
- Department of Economics

Universidad Santiago de Cali *Cali, Colombia*
Assistant Professor *2018*
- Education Faculty

CIAT - The International Center for Tropical Agriculture *Palmira, Colombia*
Visiting Research *2014*
- Program cassava breeding

Teaching experience

Universidad del Valle

2016 S2 **Econometrics** (School of Statistics)
2018 S2 **Econometrics** (School of Statistics)
2019 S2 **Econometrics** (School of Statistics)
2020 S1 **Time series and forecast** (School of Statistics - Postgraduate)
2020 S1 **Analysis of social and economic data in R** (Department of Economics)
2020 S1 **Multivariate analysis and data mining** (School of Statistics / Short course)
2020 S2 **Statistical methods** (School of Statistics)
2020 S2 **Data processing** (School of Statistics)
2021 S1 **Statistical methods** (School of Statistics)
2021 S1 **Data processing** (School of Statistics)
2021 S2 **Statistical methods** (School of Statistics)
2021 S2 **Statistical fundamentals** (School of Statistics)
2021 S2 **Analytics applied to finance** (School of Industrial Engineering - Posgraduate)
2022 S1 **Data management** (School of Industrial Engineering)
2022 S1 **Data processing** (School of Statistics)
2022 S1 **Applied statistics I** (School of Statistics)
2022 S1 **Probability and statistics** (School of Statistics)
2022 S2 **Statistical fundamentals** (School of Statistics)
2022 S2 **Data management** (School of Industrial Engineering)
2022 S2 **Analytics applied to finance** (School of Industrial Engineering - Posgraduate)
2023 S1 **Probability and statistics** (School of Statistics)
2023 S1 **Data processing** (School of Statistics)
2023 S1 **Data management** (School of Industrial Engineering)
2023 S1 **Analytics applied to finance** (School of Industrial Engineering - Posgraduate)
2023 S2 **Data management** (School of Industrial Engineering)
2023 S2 **Probability and statistics** (School of Statistics)

Pontificia Universidad Javeriana de Cali

2016 S1 **Descriptive statistics** (Department of Natural Sciences and Mathematics)
2016 S2 **Statistics I** (Department of Natural Sciences and Mathematics)
2017 S1 **Statistics I** (Department of Natural Sciences and Mathematics)
2017 S2 **Statistics I** (Department of Natural Sciences and Mathematics)
2018 S1 **Statistics I** (Department of Natural Sciences and Mathematics)
2018 S1 **Quantitative methods for finance** (Department of Accounting and Finance)
2018 S2 **Statistics I** (Department of Natural Sciences and Mathematics)
2019 S1 **Statistics I** (Department of Natural Sciences and Mathematics)
2019 S1 **Quantitative methods for finance** (Department of Accounting and Finance)

2019 S2 **Statistics I** (Department of Natural Sciences and Mathematics)
2019 S2 **Quantitative methods for finance** (Department of Accounting and Finance)
2020 S1 **Mathematics and statistics for economic sciences** (Department of Economics - Posgraduate)
2020 S2 **Mathematics and statistics for economic sciences** (Department of Economics - Posgraduate)
2021 S1 **Quantitative methods for finance** (Department of Accounting and Finance)
2021 S2 **Mathematics and statistics for economic sciences** (Department of Economics - Posgraduate)
2021 S2 **Quantitative methods applied to social policy** (Department of Economics - Posgraduate)
2022 S1 **Quantitative methods for finance** (Department of Accounting and Finance)
2022 S2 **Quantitative methods for finance** (Department of Accounting and Finance)
2023 S1 **Quantitative methods for finance** (Department of Accounting and Finance)
2023 S1 **Business Analytics** (Department of Accounting and Finance - Posgraduate)
2023 S1 **Econometrics I** (Department of Economics)
2023 S2 **Quantitative methods for finance** (Department of Accounting and Finance)
2023 S2 **Business Analytics** (Department of Accounting and Finance - Posgraduate)

Universidad ICESI

2016 S2 **Probability theory** (Department of Mathematics and Statistics)
2017 S1 **Probability theory** (Department of Mathematics and Statistics)
2017 S2 **Probability theory** (Department of Mathematics and Statistics)
2017 S2 **Statistical inference** (Department of Mathematics and Statistics)
2017 S2 **Regression and Sampling** (Department of Mathematics and Statistics)
2018 S1 **Probability theory** (Department of Mathematics and Statistics)
2018 S1 **Statistical inference** (Department of Mathematics and Statistics)
2018 S1 **Regression and Sampling** (Department of Mathematics and Statistics)
2018 S2 **Statistical inference** (Department of Mathematics and Statistics)
2018 S2 **Regression and Sampling** (Department of Mathematics and Statistics)
2019 S1 **Statistical inference** (Department of Mathematics and Statistics)
2019 S1 **Regression and Sampling** (Department of Mathematics and Statistics)

Universidad San Buenaventura Cali

2019 S1 **Econometrics I** (Department of Economics)
2019 S1 **Econometrics II** (Department of Economics)

Universidad del Tolima

2021 S2 **Data Visualization in R** (Department of Economics and Finance / Short course)
2021 S2 **Reports in Rmarkdown** (Department of Economics and Finance / Short course)
2023 S2 **Data sources** (Department of Economics and Finance / Short course)

Universidad Santiago de Cali

2018 S2 **Techniques and data analysis** (Education Faculty / Short course)

Publications

Articles

2023 **Directional predictability between interest rates and the Stoxx 600 Banks Index: A quantile approach**. (*with* Oviedo-Gomez, Andres., Manotas-Duque, Diego F.). ***Finance Research Letters***. 104328 : `https://doi.org/10.1016/j.frl.2023.104328`

2023 **How do climate and macroeconomic factors affect the profitability of the energy sector?**. (*with* Manotas-Duque, Diego F.). ***International Journal of Energy Economics and Policy***. 13 (4): 1-11 `https://doi.org/10.32479/ijeep.14303`

2023 **Relación predictiva no lineal entre el PIB per-cápita y la tasa de mortalidad: caso de estudio Reino Unido**. (*with* Orozco-Cerón, Oscar W.). ***Desarrollo y Sociedad***. 93 : 177-206 `https://doi.org/10.13043/DYS.93.5`

2022 **Commonality , macroeconomic factors and banking profitability**. (*with* Manotas-Duque, Diego F., Uribe, Jorge M.). ***The North American Journal of Economics and Finance***. 62 : 101714 `https://doi.org/10.1016/j.najef.2022.101714`

2022 **Assets Liability Management: A bibliometric analysis and topic modeling**. (*with* Manotas-Duque, Diego F.). ***Entramado***. 18 (2): e–8242
`https://doi.org/10.18041/1900-3803/entramado.1.8242`

2022 **Mind the Gap! Socioeconomic Determinants of the Stunting Urban-Rural Gap for Children in Colombia**. (*with* Cárdenas, E., Osorio, A., Pico, S.). ***Child Indicators Research***. :
`https://doi.org/10.1007/s12187-021-09880-7`

2019 **Elección del tipo de transporte en la clase trabajadora de Colombia: un análisis por regiones**. (*with* Rodriguez-Barco, D.). ***Libre Empresa***. 16 (2): 65-79
`https://doi.org/10.18041/1657-2815/libreempresa.2019v16n2.6608`

2016 **Cassava Breeding I: The Value of Breeding Value**. (*with* Ceballos, H., Pérez, J., Lenis J., Morante, N., Calle, F., Pino, L., Hershey, C.). ***Frontiers in Plant Science***. 7 : 1227
`https:doi.org/10.3389/fpls.2016.01227`

2016 **Cassava Breeding II: Phenotypic Correlations through the Different Stages of Selection**. (*with* Pérez, J.., Lenis, J., Calle, F., Morante, N., Pino, L., Hershey, C., Ceballos, H.). ***Frontiers in Plant Science***. 7 : 1649
`https:doi.org/10.3389/fpls.2016.01649`

Chapter of the book

2019 **Resultados componente cuantitativo: acciones, conocimientos, actitudes y prácticas preventivas frente al VIH**. (*with* Canaval, G., Valencia, C., Muñoz, E., Tovar, R., Triviño, Z. Chantre, S., Chamorro, M.). ***Tramas, sexualidades y prevención del VIH en jóvenes universitarios de Cali***. Ed. Sello Editorial Javeriano.
ISBN: 78-958-5119-18-5

Research in Progress

Under Review **Common factors in the profitability of energy firms**. (*with* Manotas-Duque, Diego F., Uribe, Jorge M.). .

Under Review **Non-linear dynamics of global liquidity and energy sector profitability**. (*with* Manotas-Duque, Diego F., Uribe, Jorge M.). .

Under Review **Decision tools from index fund finance to explore the path towards a scenario of renewable energy generation with globalization and high specialization of regional electricity markets**. (*with* Manotas-Duque, Diego F., Uribe, Jorge M.). .

Under Review **Financial performance of companies in the electricity sector in emerging and developed economies in times of distress: a comparative analysis**. (*with* Manotas-Duque, Diego F., Uribe, Jorge M.). .

Under Review **Exploring the asymmetric relationship between macroeconomic factors and corporate profitability in the MSCI Colombia index**. (*with* Ojeda-Echeverry, Cesar A., Osorio-Vanegas, Brayan., Ramirez-Patiño, Carolina.). .

In progress **Understanding the effects of climatic conditionss on electricity prices**. (*with* Uribe, Jorge M., Mosquera-López, Stephania). .

Presentations

Feb. 2023 **Modeling the Effect of Natural Gas Price on Electricity Prices: Germany in Time of Crisis**. *(with Hernández-Rosero, W., Ramirez, G., Ojeda, C.). Workshop on Advances in Statistical Methods*.
(Colombia).

Dic. 2022 **Decision tools from index fund finance to explore the path towards a scenario of renewable energy generation with globalization and high specialization of regional electricity markets**. *(with Manotas-Duque, Diego F., Uribe, Jorge M.). CLAIO 2022 – XXI Latin Ibero-American Conference on Operations Research*.
(Buenos Aires, Argentina).

Nov. 2022 **Decision tools from index fund finance to explore the path towards a scenario of renewable energy generation with globalization and high specialization of regional electricity markets**. *(with Manotas-Duque, Diego F., Uribe, Jorge M.). ELAEE 2022 – Energy Transition in Latin America*.
(Bogotá, Colombia).

Jun. 2022 **Global liquidity and the profitability of energy firms**. *(with Manotas-Duque, Diego F., Uribe, Jorge M.). ICEE 2022 – Energy and Environment: Bringing together Economics and Engineering*.
(Porto, Portugal).

Feb. 2022 **Commonality , macroeconomic factors and banking profitability**. *(with Manotas-Duque, Diego F., Uribe, Jorge M.)*. *Seminario CIEF 2022 – Centro de Investigaciones Económicas y Financieras - Universidad EAFIT*.
(Colombia).

Nov. 2021 **Distributed lag non-linear models (DLNM) of the effect of macroeconomic factors on the MSCI Colombia index of market capitalization in the stock market during the period 2001 to 2020**. *(with Osorio, B., Ramirez, C.)*. *Workshop on Advances in Statistical Methods*.
(Colombia).

Sept. 2021 **Commonality , macroeconomic factors and banking profitability**. *(with Manotas-Duque, Diego F., Uribe, Jorge M.)*. *IFABS 2021*.
(Oxford, UK - (virtual)).

Nov. 2020 **Assets Liability Management: Un análisis bibliométrico y modelación de temas**. *(with -)*. *Semana de la Ingeniería - Universidad del Valle*.
(Cali, Colombia).

May 2019 **Social Responsibility and Financial Performance in violent setttings: A study of Colombian Family Firms**. *(with González, A., Rodriguez, Y., Maldonado, S., Pérez, M.)*. *15th Annual Family Enterprise Research Conference – FERC*.
(The University of Vermont, USA.).

Nov. 2018 **Análisis de la dinámica de reputación corporativa, responsabilidad social y gobierno de empresa utilizando statis**. *(with Ochoa, A.)*. *II Simposio de Biotecnología Industrial*. ISSN: 2665-1548
(Palmira, Colombia).

Nov. 2018 **Divulgación de información de RSC: Un análisis de la dinámica de reputación corporativa, responsabilidad social y gobierno de empresa utilizando statis**. *(with Ochoa, A.)*. *II Congreso Colombiano de Estadística*. ISSN: 2665-2048
(Cali, Colombia).

Oct. 2016 **Factores determinantes de la aplicación de los niveles de la GRI en la divulgación de información sobre responsabilidad social empresarial (RSE) para los años 2011 a 2015**. *(with Maldonado, S., Gaitán, C., Acosta, A.)*. *International Finance Conference - IFC*. ISBN 978-956-362-941-5
(Viña del Mar, Chile).

Directed degree projects

Master's thesis **Modeling of climate risk on home prices in a coastal city of Colombia for the year 2022**
Student(s): Mosquera, A. (Pontificia Universidad Javeriana de Cali - Master of Finance, 2023)

Master's thesis **Analysis of the financial performance of companies in the electricity sector in Latin America: a comparison at the level of emerging and developed markets in Colombia**
Student(s): Muñoz, L. (Universidad del Valle - Master of Industrial Engineering, 2023)

Under-graduate thesis **Non-linear modeling (DLNM) of the effect of macroeconomic factors on the MSCI Colombia index of market capitalization in the stock market for the period 2001 to 2020**
Student(s): Osorio, B. and Ramírez, C. (Universidad del Valle - Undergraduate in Statistics, 2023)

Under-graduate thesis **Modeling of the effect of the price of natural gas on the price of Electricity: Germany in times of crisis**
Student(s): Hernandez, W. and Ramirez, G. (Universidad del Valle - Undergraduate in Statistics, 2023)

Under-graduate thesis **Spatio-temporal analysis of the productivity conditions of the departments of Colombia**
Student(s): Cobo, N. and Gaviria, C. (Universidad del Valle - Undergraduate in Statistics, Developing)

Under-graduate thesis **Energy stock portfolio: A comparative study of optimization between the Markowitz model and genetic algorithms**
Student(s): Arroyave, E. and Anacona, J. (Universidad del Valle - Undergraduate in Industrial Engineering, Developing)

Refereeing

Journals

Journal **Desarrollo y Sociedad**
Universidad de los Andes

Journal **Entramados**
Universidad Libre de Cali

Journal **Finance Research Letters**
Elsevier

Evaluation committee

Undergraduate thesis **Causal relationship between CDS and SP 500 returns**
Student(s): Knobelsdorf, S. (Pontificia Universidad Javeriana de Cali - Undergraduate in Finance, 2023)

Master's thesis **Alternative credit score model for people with indeterminate income in Colombia: Based on machine learning**
Student(s): Mayor, J. and Porras, J. (Pontificia Universidad Javeriana de Cali - Master of Finance, 2023)

Undergraduate thesis **Evolution of the rate of child labor in the departments of Colombia for the period 2018-2021 and characterization of its population**
Student(s): Perdomo, M. and Palechor, M. (Universidad del Valle - Undergraduate in Statistics, 2023)

Undergraduate thesis **Causal relationship between CDS and SP 500 returns**
Student(s): Knobelsdorf, S. (Pontificia Universidad Javeriana de Cali - Undergraduate in Finance, 2023)

Undergraduate thesis **Predicting customer delinquency in real estate projects in Honduras using a data analysis model**
Student(s): Montaño, A. and Duarte, D. (Universidad del Valle - Undergraduate in Industrial Engineering, 2023)

Master's thesis **Valuation of liabilities under solvency II for mutual funds**
Student(s): Torres, A. (Pontificia Universidad Javeriana de Cali - Master of Finance, 2022)

Undergraduate thesis **Creation of a portfolio with the nine cryptocurrencies with the highest market capitalization**
Student(s): Gomez, J. (Universidad del Valle - Undergraduate in Statistics, 2022)

Undergraduate thesis **Creation of a package in the statistical software R for a non-parametric Bayesian hypothesis test for paired samples**
Student(s): Ortiz, K. and Sandoval, K. (Universidad del Valle - Undergraduate in Statistics, 2022)

Undergraduate thesis **Multivariate analysis of data for the evaluation of the dynamics of monetary poverty in Colombia by departments during the period 2012-2020**
Student(s): Plaza, A. (Universidad del Valle - Undergraduate in Statistics, 2022)

Undergraduate thesis **Modeling of the price of the offer of housing for sale in the city of Cali, considering variables of the asset and covariates of its environment**
Student(s): Quinto, K. and Barrios, S. (Universidad del Valle - Undergraduate in Statistics, 2021)

Undergraduate thesis **Study on long memory on the volatility of the COLCAP index in the period 2008-2018**
Student(s): Sandoval, K. (Universidad del Valle - Undergraduate in Statistics, 2021)

Undergraduate thesis **Combination of the analysis of mixed clusters and MCA with missing data for the study of lifestyles of young university students**
Student(s): Ortega, L. (Universidad del Valle - Undergraduate in Statistics, 2019)

Software

Language R, Python