Firmin Ayivodji

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Research Interests

Primary: Econometrics, Factor Models, Bootstrap Methods, Big Data, Machine Learning, Macro-Finance

Secondary: Climate Risk, ESG Investing, Housing Markets, Financial Econometrics.

Education

2017-present: PhD Candidate in Economics, University of Montreal (UdeM), Quebec, Canada

2014–2017: MSc in Statistics and Economics (with highest honors), Ecole Nationale de la Statistique et de l'Analyse Economique (ENSAE), Dakar, Senegal

2010–2013: BSc in Statistics (with highest honors), Ecole Nationale d'Economie Appliquée et de Management (ENEAM), Cotonou, Benin

Selected Additional Training

January 11-April 26, 2021: *"Big Data: Methods and Applications", Université de Montréal (UdeM)*, taught by Marine Carrasco.

October 02-December 04, 2020: *"Empirical Household Finance", New York University Leonard N. Stern School of Business*, taught by Theresa Kuchler and Johannes Stroebel.

Septembre 01-December 15, 2020: *"Machine Learning", McGill University*, taught by Russell Dadvison.

January 15-April 30, 2019: *"Financial Programming and Policies, Part 1: Macroeconomic Accounts and Policies", International Monetary Fund (IMF)*, taught by Antonio David, Eric Verreydt, Celine Rochon, Romain Ranciere, Marc Quintyn.

August 14-December 14, 2018: *"Machine Learning", Georgia Tech*, taught by Charles Isbell.

August 21-December 21, 2018: *"Artificial Intelligence (AI)", Columbia University, Department of Computer Science*, taught by Ansaf Salleb-Aouissi.

August 15-December 18, 2018: *"Machine Learning Fundamentals", California-San Diego University, Computer Science and Engineering Department*, taught by Sanjoy Dasgupta.

Research Experience and Other Employment

October 2021 – present: **Research Assistant** for Prof. *Karim Chalak*, University of Montreal, Canada

June – August, 2021: **Economist Intern**, International Monetary Fund (IMF), Strategy, Policy, and Review Department, Washington, US

December – January 2021: **Research Assistant** for Prof. *Benoit Perron*, University of Montreal, Canada

November 2020 – January 2021: **Research Assistant** at *Observatoire de la Francophonie Économique (OFE)*, Montreal, Canada

August 2019 – September 2019: **Economic Researcher** at *Macroeconomics, Trade and Investment (MTI) Global Practice*, World Bank, Washington, USA

August 2019 – present: **Co-founder & Chairman** at *KiDs A.I. Inc.*, Canada

August 2018 – August 2019: **Research Assistant** for Prof. *Christopher Rauh*, University of Montreal, Canada

January – June 2018: **Economic Researcher** at *Macroeconomics, Trade and Investment (MTI) Global Practice*, World Bank (WB), Washington, USA

January – July 2017: **Economist Statistician Intern**, *École Nationale de la Statistique et de l'Analyse Économique (ENSAE)*, Dakar, Senegal

August – October 2016: **Research Assistant**, *International Monetary Fund (IMF)*, Dakar, Senegal

July 2016: **Economist Statistician Intern**, *École Nationale de la Statistique et de l'Analyse Économique (ENSAE)*, Dakar, Senegal

2013-2016: **Co-Founder STATEC**, *Lead Data Scientist*, Cotonou, Benin

May 2015: **Economist Statistician Intern**, *ENSAE-United Nations Industrial Development Organization (UNIDO) Cooperation*, Dakar, Senegal

August – November 2013: **Research Intern**, *Direction of Forecasting and Business Cycle (DPC)*, Cotonou, Benin

Teaching and Academic experience

Lecturer, University of Montreal (UdeM)

- Econometrics II for undergraduate degree, Winter (2020).

Lecturer, Ecole Nationale de la Statistique et de l'Analyse Economique (ENSAE)

- Big Data, Machine Learning and Econometrics, Graduate, Guest speaker, Fall (2021).
- Econometrics of Panel Data and Quantile Regression, Guest speaker, Winter (2016).

Teaching Assistant, University of Montreal (UdeM)

- Advanced Econometrics for graduate degree, Fall (2019), Fall (2020), Fall (2021).
- Macroeconometrics for graduate degree, Winter (2021).
- Econometrics II for undergraduate degree, Winter (2021), Fall (2021), Winter (2022).
- Introduction to Macroeconomics for undergraduate degree, Fall (2019).
- Principles of Economics for undergraduate degree, Summer (2021).

Publications and Working Papers

Pre-Doctoral Publications and Submitted Papers

2019: *"Fiscal Vulnerabilities and the Role of Fiscal Policy in Commodity-Exporting Countries"*, World Bank, MTI discussion paper, joint with Christine Richaud, Sebastian Essl, Arthur Mendes, and Samer Matta.

2019: *"Analysis of Determinants of Export Diversification in Franc Zone: A comparative study between UE-MOA and CEMAC countries"*, [Journal of Economics and Public Finance Vol. 6, No. 1, 2020], joint with Remy Hounsou.

2018: *"Domestic Public Borrowing and Private Credit in West African Economic and Monetary Union: Crowding out or in?"*, joint with Boileau Loko (IMF) and Christine Richaud (World Bank) [IMF working paper, forthcoming].

2018: *"Threshold Effects of Health on Economic Growth in Sub-Saharan African Countries: Evidence from a Dynamic Panel Threshold Model"*, [Journal of Economics and Development Studies, 2018, vol. 6, no 4, p. 19-37], joint with Jeffrey Kouton (ENSEA) and Coffie José N'guessan (CIRES).

Working Papers

"Identification and Estimation of Common Factors in Panel Data".

"Do Remittances Mitigate COVID-19 Employment Shock on Food Security? Evidence from Nigeria", with Almouksit Akim, and Jeffrey Kouton (submitted).

"Interaction Effect of Lockdown with Economic and Fiscal Measures against COVID-19 on Social-Distancing Compliance: Evidence from Africa", with Almouksit Akim.

Selected Research in Progress

"Deep Dynamic Factor Models in a Data-Rich Environment".

"When Real Estate Investing Meets Physical vs Transition Risk: A Text-Based Approach".

"Are Climate Risk and Decarbonization Considerations Reflected in Mining Contracts?", with Solo Zerbo (IMF).

"Can Newspapers provide insights into Labour Market Conditions and Economic Activity in Canada ?".

"The Power of Text: How News Sentiment Influences Canadian Regional Housing Markets".

"Investing with Manipulable Macroeconomic News", with Jian Tang (McGill University).

"Financial Sector Conditionality in IMF-Supported Programs", with Jochen Andritzky (IMF), and Heiko Hesse (IMF).

Conferences and workshops attended

2021: Eleventh Montreal Industrial Problem Solving Workshop (IPSW), Quebec, Canada.

2021: 60th Congress - Societé Canadienne de Science Economique (SCSE), Ottawa, Canada.

2021: Pan-African Scientific Research Council (PASR) Conference.

2021: 16th CIREQ Ph.D. Students' Conference, Montreal, Canada.

Research Grants, Scholarships, & Fellowships

2021: International Monetary Fund (IMF), Summer Fellowship.

2020: World Bank Group Fellowship, Africa Region, shortlisted.

2020-2023: FRQSC - Doctoral Research Scholarships: Text Data, Machine Learning and Economic Activity.

2018-2023: Research Fellowship, CIREQ and Department of Economics, University of Montreal.

2014-2017: MSc in Statistics Fellowship, France-Senegal Excellence Scholarship.

2010-2013: Government of Benin Scholarship.

Memberships and Research Affiliations

Econometric Society, Econometrics and ML Reading Group-UdeM, International Association for Applied Econometrics (IAAE), American Economic Association (AEA), Canadian Economics Association (CEA), American Statistical Association (ASA), Society for Financial Econometrics (SoFiE), Center for Interuniversity Research and Quantitative Economics (CIREQ), Association des Statisticiens et Statisticiennes du Québec (ASSQ), Black in AI, Mila Tea Talks.

Referee Activity

African Development Review

Miscellaneous

Computer Skills: Matlab, Python, Stata, R, SPSS, EViews, Git, SAS, QGIS, ArcGIS, GoogleCloud Computing, LaTeX, Microsoft Office package

Personal

Languages: English (working proficiency), French (native)

Last updated: January 31, 2022