



Antoine Arnoud

Economist at International Monetary Fund



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Quantitative Macroeconomist

- IMF policy experience in emerging market economies on global macroeconomic trends, sovereign debt developments, monetary and fiscal policies
- Expertise in computational economics (Fortran, Python), macro-forecasting, and predictive ML models for macroeconomic crises

Core Competencies

ML algorithms | Python | Fortran |
 Econometrics |
 Debt Sustainability Assessment |
 Financial, Fiscal, External Risk Analysis

IMF

International Monetary Fund | Economist | 2019 – present · 3 years 7 months

- **Developed country risks models utilizing macro and alternative data**
 - **implemented ML models** for prediction of external, financial, fiscal, real sector crises, used for monitoring of countries at risk and detection of features contributing to risks
 - **curated data from IMF surveillance reports** to derive macro indicators for surveillance and risk monitoring
 - **automated** data pipeline and data updates, led the division's adoption of version control system and unit testing
- **Led macroeconomic analysis** for Vietnam, Laos, Cameroon, Micronesia providing key insights and recommendations on debt sustainability, monetary and fiscal developments
- **Analyzed data and developed econometric models to forecast macroeconomic variables:** GDP growth, inflation, fiscal balance, and current account balance
- **Led strategic foresight exercises and facilitated scenario planning** with senior management, improving the institution's preparedness for future macroeconomic developments

Education



PhD in Economics – Yale University	2019
<i>Dissertation: Essays in Macroeconomics and Computational Economics</i>	
M.A., Economics – Paris School of Economics	2013
M.Eng., Mechanical Engineering – Tsinghua University, China	2010
Diplôme d'Ingénieur (Engineer Diploma), Applied Mathematics and Physics – Ecole Polytechnique, France	2008

Programming Skills

Languages	Python, Fortran, Matlab, Bash, Stata
Software Development	Git, Docker, Sphinx
Data Sciences & ML	Scikit-learn, Pandas, XGboost, BeautifulSoup, PyTorch, Jupyter, Pytest, MySQL
Web Development	Flask, Jinja2, jQuery, AWS, Streamlit

Research

The Evolution of U.S. Firms' Retirement Plan Offerings: Evidence from a New Panel Data Set – 2022 – | [NBER](#)

Arnoud, Choukhmane, Colmenares, O'Dea, Parvathaneni

This paper documents, using a newly-constructed data set, the evolution of the characteristics of employer-sponsored DC schemes. The dataset is built using OCR and NLP on hundreds of thousands of documents.

Benchmarking Global Optimizers – 2022 – *Arnoud, Guvenen & Kleineberg*

| [NBER](#)

We benchmark seven global optimization algorithms by comparing their performance on challenging multidimensional test functions as well as on an estimation of a model of earnings dynamics.

Automation Threat and Wage Bargaining – 2019

| [PDF](#)

This study proposes a novel mechanism through which automation in the labor market might have an impact on wages through the threat, rather than the actuality, of automation, which threatens to significantly change the structure of the labor market.

Data matching Using Optimal Transport: Theory and Application to Income data – 2019

Natural Resource Contracts in Sub-Saharan Africa, a Natural Language Processing Approach – 2020 – *Arnoud, Lartey & Moreau*

Structural Change and Climate Change in the Mekong Delta – 2022 – *Arnoud, Scott*

Languages

French (native), English (bilingual), Chinese (intermediate), German (intermediate)
