SENOU Melain Modeste (PhD)

Development Economics | Econometrics| Statistics |Data Sciences |Machine Learning | Artificial Intelligence
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PROFILE & SKILLS

Dr Melain Modeste SENOU is currently a statistical and Econometrics specialist at the United Nation Development Program (Benin). He did a Post-doctoral Research at the African Centre of Excellency for Inequality Research (ACEIR), University of Cape Town and at the Institute of Statistical, Social and Economic research (ISSER), University of Ghana. His research interests relate to poverty, inequalities, strategic prospective, inclusive finance, gender, household and child well-being and health. He holds a PhD in Development Economics and Econometrics at Felix Houphouët Boigny University in Abidjan (Ivory Coast) within the Collaborative PhD program of the Africa Economic Research Consortium (AERC, Kenya). He is proficient in managing successful impact evaluation surveys and particularly in designing and running randomized Control trials for which, he holds certificates from the Abdul Latif Jameel Poverty Action Lab (J-PAL/ MITx) and the department of Impact Evaluation (The World Bank). He also collaborates with several organizations including the international Institute for Tropical Agriculture (IITA), the United Nation Capital Development Fund (UNCDF), the International Development Research Centre (IDRC) as well as the United Nations Children's Fund (UNICEF). He teaches in many universities in Benin and Ivory Coast and has several publications in international indexed journals.

He is well comfortable with **Python, Stata, R, SPSS, Power BI, DEAP, MATLAB, MICMAC, MACTOR, SCENARING TOOLS, MORPHOL, Excel, Latex, Word, Power Point, etc.**

EDUCATION AND VOCATIONAL TRAINING

2016 – 2021	:	***PhD in Development Economics and Econometrics.***
		- <u>Dissertation</u>: Essays on Digital finance, Financial Inclusion and Poverty Alleviation in WAEMU **(**defended with First class Honors at Felix Houphoüet Boigny University (FHBU), UFR-SEG, Abidjan [**Ivory Coast**]).
		- <u>PhD courses</u>: core courses [**Yaoundé, Cameroon]** – Specialization course [**Nairobi, Kenya]**
		- <u>Funding</u>: African Economic research Consortium's (AERC) under the Collaborative PhD Program (CPP) [**Nairobi, Kenya**].
2011 – 2013	:	Master Research in Economics. University of Abomey-Calavi (UAC)/ Faculty of Economic and Management (Cotonou, Benin).
2006 - 2009	:	Bachelor's degree in economics. University of Abomey-Calavi (UAC)/ Faculty of Economic and Management (Cotonou, Benin)
2011 – 2014	:	Bachelor's degree in English studies. University of Abomey-Calavi (UAC)/ Faculty of Letters, Arts and Human sciences
2024	:	Introduction to machine learning (Duke University & Coursera)
2024	:	How to Research and write using Generative AI tools (LinkedIn Learning)
2024	:	Strategic Foresight and Modeling with Systems Dynamics (Part 2). African Institute for Economic Development and Planning (IDEP).
2024	:	Reproducible Research Fundamentals Courses. The World Bank's Development Impact Evaluation (DIME) (World Bank)
2024	:	The World Bank's Manage Successful Impact Evaluation Survey (MSIES).
2021	:	Macro econometrics modeling. Economic Commission for Africa -YEN (IDEP)
2021	:	Training in research methodology. (COFEB- BCEAO)
2021	:	IITA- Statistics for social scientists
2021	:	IITA- Policy brief writing
2020	:	MITx - JPAL102x - Designing and Running Randomized Evaluations (J-PAL-MITx)
2020	:	Luxembourg-Mali cooperation- Nonstandard data sources treatment

EXPERIENCES

Organization, Role & Date	Core competences
United Nations Development Program (UNDP) & ***General Directorate of Development Policies (DGPD, Ministry of Development and Coordination - MDC)*** *Statistical and Econometrics Specialist, Taskforce for the Construction of the Benin 2060 National Vision.* *10-2023 to date*	**Development of operational tools:** Collaborated with DGPD to develop the operational tools (Concept notes, roadmap, methodological guide, etc.) **Data Management and Interpretation:** Led the organization, cleaning, and processing of large datasets (FGD dataset, Household dataset, online dataset) critical to the Strategic Diagnosis of the System Benin in the process of construction of the vision 2060, ensuring data accuracy and reliability in developmental forecasts. Specifically: - Conducted the development of data collection tools (Questionnaire and manual of the surveyor) and the digitalization of the Questionnaire. - Collaborated with DGPD to organize the Focus Group Discussion in the 77 municipalities of Benin and in the main institutions (Budgeting, recruitment of experts, logistic facilities, etc.). - Conducted the training of surveyor in charge of the Focus Group Discussion and individual interview. - Collaborated with the National Institute of Statistic and Demography (INStad) to train and supervise the collection of perceptions and aspirations in households. - Collaborate with AI experts to clean FGD dataset with Python and AI tools. - Collaborate with INStaD to clean the individual's household. **Retrospective analysis:** Collaborated with DGPD, the AI and Big Data specialist as well as the researchers to produce the retrospective analysis in each domain of the System Benin. **Statistical Analysis & Econometric Modeling:** Conducted statistical and econometric analyses including structural analysis (MICMAC), stakeholders game (MACTOR), Scenario construction (Scenaring tools) to inform long-term planning, supporting the development of Benin's Vision 2060, and enhancing data-driven decision-making for sustainable growth and development. **Policy Support and Strategy Development:** Collaborated with DGPD to integrate quantitative analysis in policy frameworks, advising on developmental policies to align with national objectives. **Project management:** I have managed several projects for the DGPD. This has given me various competences like: Strategic Planning and Execution enabling me to establish and prioritize project objectives, define outcomes, and ensure alignment with the DGPD's mission. It has also enabled me to implement robust M&E frameworks to track project performance against indicators, assess impact, and adapt plans based on insights. In addition, I have opportunities to identify and assess the risks of the projects in my portfolio, developing contingency plans to address challenges and ensure continuity. I'm also able now to ensure efficient use of resources, compliance with donor requirements, and proper allocation aligned with the project needs. I have also built and sustained relationships with stakeholders of the outstanding project at the Ministry of Development. **Stakeholder Engagement:** Worked closely with cross-functional teams including government agencies, policymakers, and my colleagues

	of the UNDP task force, ensuring alignment on project goals and facilitating data-sharing and analytical insights. **Capacity Building:** Contributed to the capacity building of DGPD staff by receiving and providing training in statistical methods and econometrics (MICMAC, MACTOR, SCENARING TOOLS, PYTHON, AI tools for research), thereby enhancing internal expertise for future policy analysis.
African Center of Excellence for Inequality Research (ACEIR) & University of Cape Town & University of Ghana. *Postdoctoral Researcher in Inequality Diagnostics – Diagnosis of Inequalities in Mali* *05/2022 – 07/2023*	**Advanced Quantitative Analysis:** Performed rigorous quantitative analysis using econometric and statistical tools to assess inequality trends in Mali, developing an in-depth understanding of income, gender, asset and other social disparities (DEAP - Gini, Entropy measure, Palma Ratio, Atkinson, etc.). **Data-Driven Policy Evaluation:** Assessed and interpreted large-scale datasets to support evidence-based policy recommendations aimed at reducing socioeconomic inequalities. **Cross-Country Comparative Analysis:** Conducted comparative studies of inequality metrics across multiple African countries, identifying patterns and unique challenges within the Malian context. **Stakeholder Collaboration:** Collaborated with academic and policy-oriented teams across ACEIR, University of Cape Town, and University of Ghana, Statistician from Mali, leveraging interdisciplinary insights to deepen research impact. **Research Dissemination and Reporting:** Published findings in peer-reviewed journals and presented results at academic conferences and workshops, contributing to the discourse on inequality in Sub-Saharan Africa.
Ministry of Social Affairs and Microfinance (MASM) *Consultant – Update of the Microfinance Development Policy in Alignment with the Government Action Plan (PAG) 2021-2026.* *03/2022-11/2022*	**Policy Analysis and Update:** Conducted a comprehensive review of the existing Microfinance Development Policy, ensuring alignment with the goals of the Government Action Plan (PAG) 2021-2026 to support financial inclusion and social development. **Stakeholder Engagement:** Collaborated with key stakeholders, including microfinance institutions, government agencies, and civil society, to gather input and insights, promoting policies that address the needs of diverse socioeconomic groups. **Strategic Policy Alignment:** Provided insights and recommendations to MASM to enhance the strategic alignment of microfinance initiatives with national priorities in economic empowerment and poverty reduction. **Report Development and Presentation:** Developed detailed policy documents, reports, and presentations, providing MASM with actionable recommendations for sustainable microfinance solutions. **Capacity Building:** Delivered workshops and training sessions for MASM staff and partners on policy implementation strategies, fostering an environment of continual learning and improvement.
UNICEF, IMF & CEFORP *Associate Researcher – Study on the Impact of Price Increases on Household and Child Well-Being* *07/2022-11/2022*	**Quantitative and Qualitative Analysis:** Conducted in-depth statistical and econometric analysis on how inflation and price volatility affect household living standards and child welfare indicators, using data from both national surveys and household interviews. **Policy Impact Assessment:** Assessed the effects of rising prices on access to essential goods and services, including food, healthcare, and education, highlighting areas where vulnerable populations are most affected. **Data collection and cleaning:** Collaborated with CEFORP colleagues in the organization of data collection in households in south Benin that were subject of the AGVSA survey in 2022. I also collaborate in cleaning and processing the datasets.

	Data Interpretation for Policy Recommendations: Translated complex data findings into accessible reports and actionable insights, providing evidence-based recommendations for mitigating the impact of price shocks on households and children. **Collaborative Research:** Worked closely with interdisciplinary teams from UNICEF, IMF, and CEFORP, contributing to a holistic understanding of economic pressures and informing multi-agency policy interventions. **Research Dissemination:** Presented findings at national and international conferences and workshops, contributing to policy discussions on socioeconomic resilience and poverty alleviation.
INCLUDE Platform, Netherlands *Associate Researcher – Study on Digitalization of Public Services in Benin* *10/2021 - 09/2022*	**Digitalization Impact Analysis:** Evaluated the impact of digital public service initiatives on accessibility, efficiency, and equity in Benin, with a focus on public sector reforms and citizen engagement. **Data collection and cleaning:** Collaborated with INAWA Institute recruited to lead the survey in designing, supervising, and cleaning the datasets. **Policy and Data Analysis:** Analyzed data on digital service adoption rates, barriers to access, and user satisfaction, providing insights on how digital platforms can be optimized to serve diverse demographics effectively. **Stakeholder Collaboration:** Collaborated with public sector stakeholders and local communities to assess the challenges and opportunities of digital service delivery, integrating feedback from government agencies and end-users. **Recommendations for Inclusive Digital Policy:** Developed recommendations to improve digital infrastructure, reduce the digital divide, and enhance user experience for vulnerable populations. **Reporting and Dissemination:** Presented findings and policy suggestions to INCLUDE Platform partners and stakeholders, contributing to international discourse on digital public service models in low-income settings.
International Institute of Tropical Agriculture (IITA) *Associate Researcher – IFAD Project: "Youth Researching Youths: Competitive Fellowships for Young African Scholars Researching Youth Engagement in Rural Economic Activities in Africa"* *09/2020 – 01/2022*	**Youth Entrepreneurship Research:** Conducted field and survey-based research on rural youth engagement in economic activities, with a particular focus on entrepreneurship and access to finance in Benin. **Gender-Specific Analysis:** Led gender-sensitive analyses on barriers to finance, assessing the gender gap in entrepreneurial access and outcomes among rural youth, culminating in the publication: "Access to Finance and Rural Youth Entrepreneurship in Benin: Is There a Gender Gap?" in African Development Review. **Policy Recommendations:** Developed evidence-based recommendations to improve financial inclusion strategies for youth in rural areas, informing policies that support equitable access to finance for young entrepreneurs. **Collaboration and Mentorship:** Engaged with young African scholars through IFAD's competitive fellowship program, fostering peer collaboration and sharing methodologies on youth-centric economic research. **Capacity Building:** Receiving training by IITA/IFAD staff on statistical for social scientists, policy brief writing, conducting responsible research, etc. **Research Dissemination:** Presented findings at local and international workshops, contributing to the discourse on youth empowerment and rural development in Africa and published the paper in African Development Review.

United Nations Capital Development Funds (UNCDF/UNDP, New York) *Research Assistant – Digital Financing of the SDGs Department* *11/2018 – 04/2019*	**Digital Finance Research:** Conducted research as one of the four African recruited by the Digital Financing Task Force (DFTF) on innovative digital financing solutions aligned with the Sustainable Development Goals (SDGs), focusing on how digital tools can enhance financial inclusion for underserved populations. **Data Collection and Analysis:** Supported data gathering and analysis on digital finance trends, assessing the potential impact of fintech solutions on poverty reduction, economic growth, and gender equality. **Report Preparation and Policy Insights:** Assisted in drafting reports and policy briefs, synthesizing research findings to provide actionable insights for digital finance initiatives within UNCDF/UNDP's SDG framework. **Stakeholder Engagement:** Coordinated with internal teams and external stakeholders, including fintech firms and development partners, to gather information and understand best practices in digital financial services. I also contributed to the action of the DFTF in the DAVOS summit in 2019. **Knowledge Dissemination:** Contributed to presentations and knowledge-sharing materials aimed at raising awareness of digital finance's role in advancing the SDGs across UNDP and its partners.
Benin Consulting Group (BEGC) *Junior Consultant – Research, Impact Evaluation, and Cost-Benefit Analysis* *01/ 2013 – 09 2015*	**Impact Evaluation:** Conducted rigorous impact evaluations for various social and economic development projects, using both quantitative and qualitative methods to assess project effectiveness and inform policy recommendations. **Cost-Benefit Analysis:** Performed cost-benefit analyses to evaluate the financial and social returns on investment of development programs, providing clients with detailed assessments of project feasibility and long-term value. **Data Collection and Analysis:** Led data collection efforts, including survey design, field data gathering, and statistical analysis, ensuring high data quality and relevance to project objectives. **Research and Report Writing:** Produced comprehensive research reports and presentations to communicate findings and insights to clients, emphasizing actionable recommendations for enhancing project impact. **Project management:** I have assisted the director in managing several projects for the BEGC. This has given me various competences like: Strategic Planning and Execution enabling me to establish and prioritize project objectives, define outcomes, and ensure alignment with the BEGC's mission. It has also enabled me to implement robust M&E frameworks to track project performance against indicators, assess impact, and adapt plans based on insights. In addition, I have opportunities to identify and assess risks of the projects in my portfolio, developing contingency plans to address challenges and ensure continuity. I'm also able now to ensure efficient use of resources, compliance with donor requirements, and proper allocation aligned with the project needs. **Stakeholder Coordination:** Collaborated with clients, government agencies, and NGOs to gather data and validate findings, strengthening project relevance and alignment with local development goals.
International Development Research Centre (IDRC), Canada *Researcher – Study on Female Middle Class and Demand for Childcare Services in West Africa (TEAM 5)* *05/2021 - 2023*	**Market Demand Analysis:** Conducted research on the demand for childcare services among the emerging female middle class in West African countries (Benin, Burkina Faso, Ivory Coast, and Senegal), analyzing socioeconomic factors influencing demand and preferences. **Cross-Country Comparative Research:** Developed comparative insights across multiple West African contexts, identifying regional

	trends and unique challenges in the childcare sector related to economic, social, and cultural variables. **Survey Design and Data Collection:** Designed and implemented survey tools to gather data on household income, childcare spending, and service accessibility, ensuring robust and representative sampling. **Policy Recommendations:** Formulated policy suggestions to support childcare access, affordability, and quality, aimed at improving work-life balance for women in the middle class and promoting gender equity in the workforce. **Collaboration with Multidisciplinary Teams:** Coordinated with TEAM 5 researchers and international partners to share findings and synthesize recommendations, contributing to a broader understanding of middle-class growth and social service needs in the region.
SETEM SA, Benin *Part-time research and training activities* 04/2021 - 2023	Teaching, research, mentoring….
National Water Institute - Abomey-Calavi, Benin: *Associate researcher* *04/2021 - 06/2021*	Supervising data collection, ensuring data quality, managing data
Stephen-A.-Jarislowsky Chair, University of Montreal *Associate researcher* *10-12/2020*	Elaboration of data collection tools (Questionnaires PAPI), Supervision of data collection. Recruitment of data collectors and enumerator
Finance and Development Finance Research Laboratory, UAC, Benin: *Associate researcher, responsible for carrying out research on digital finance and development and publishing the results of their research in peer-reviewed scientific journals.* *2018 - 2023*	Organization of conference (ATM 2023). Supervision of undergraduate dissertation. Mentoring graduate students.
FASEG - University of Abomey-Calavi (UAC): ***Instructor**: Econometrics of Qualitative variables (Master1), Econometrics of Qualitative variables (LESA 2), Introduction to the Scientific Approach (License 3)* *2013 - 2015 & 2018 -2024*	Teaching, mentoring, etc..
ENEAM, University of Abomey-Calavi (Benin) ***Instructor**: Econometrics of Qualitative Variables* *2023 -2024*	Teaching, mentoring, etc..
ED-FASEG *Teaching assistant: Market Finance* *2018 -2022*	Teaching, mentoring, etc..
Training and Research Center for Population (CEFORP): *Lecturer: Economy and Population & ODD and Population (Master2); Regional economy (License 2)* *2021 - 2024*	Teaching, mentoring, etc..
Catholic University of West Africa (UCAO) of Cotonou, Benin:	Teaching, mentoring, etc..

Teaching: Econometrics (License 3), Introduction to Econometrics (License 2)

2019 -2022

RECENT PUBLICATIONS HIGHLIGHTS

- Senou, M. M., & Houensou, D. A. (2024). From expanding financial services to tackling poverty in West African Economic and Monetary Union: The accelerating role of mobile money. Journal of International Development, 36(3), 1707-1737. https://doi.org/10.1002/jid.3881
- Soro, K., & Senou, M. M. (2023). Digital financial inclusion and income inequality in WAEMU: What causality for what heterogeneity? Cogent Economics & Finance, 11(2), 2242662. https://doi.org/10.1080/23322039.2023.2242662
- Senou, M.M. & Julius Manda (2022). Access to finance and rural youth entrepreneurship in Benin: Is there a gender gap? African Development Review. https://doi.org/10.1111/1467-8268.12623
- Houensou, D. A., Hekponhoue, S., Soglo, M. A. G., & Senou, M. M. (2023). Does ICTs Usage Facilitate Access to Market? An Empirical Evidence of Market Gardeners in Benin. Journal of African Business, 1-20. https://doi.org/10.1080/15228916.2023.2257556
- Senou, M.M., Gbinlo, R. E & Acclassato Houensou, D. (2022). Youth's Unemployment Duration in Benin. Is there a Gender Gap? Journal of Development Areas. 56(1), 93-106. 10.1353/jda.2022.0012
- Houeninvo, H. G., Quenum, V. C. C., & Senou, M. M. (2023). Out-Of-Pocket health expenditure and household consumption patterns in Benin: Is there a crowding out effect?. Health Economics Review, 13(1), 19.
- Senou, M.M., Goudjo, G.G. & Acclassato Houensou, D. (2021). Access to finance and difference in family farm productivity in Benin: Evidence from small farms. Scientific African 13 (2021) e00940. Ed. Elsevier
- Senou, M.M., Ouattara, W. & Acclassato Houensou, D. (2019). Financial inclusion dynamics in WAEMU: Was digital technology the missing piece? (2019). Cogent Economics & Finance, 7(1), 1665432. Ed by. Francis & Taylor.
- Senou, M.M., Ouattara, W. & Acclassato Houensou, D. (2019). Is there a bottleneck for mobile money adoption in WAEMU? (2019). Transnational Corporations Review, 11(2), 143-156. Ed by. Francis & Taylor.
- Senou, M.M. et Ichaou Mounirou. (2016). Agricultural Response to Investments and Credits in Benin. What Conclusions for the Cotton Sector. Journal of Agricultural Economics, Extension and Rural Development: ISSN-2360-798X, Vol. 4(5): pp 448-455.
- Biaou, F. C., Senou, M.M. et Medehouenou, O. M. S. (2014). Economic Analysis of the Investments in Public Infrastructure Impacts on Agricultural Production in Benin. International Journal of economics and finance. 11/2014; 6(12). DOI:10.5539/ijef.v6n12p219 (with Felix C. Biaou and Olivier M. S. Medehouenou).
- Senou, M.M. et Oloukoï, L. (2016). Intellectual Property Rights and Innovation: Implications for Added Value Creation in Africa. British Journal of Economics, Management & Trade 15(3): 1-8 , ISSN: 2278-098X.

In press

- Senou, M.M., Avocè Fanougbo & Houngbemè Jean Luc (2024). Renewable energies and environmental quality in WAEMU: Empirical evidence with the Fourier Bootstrap and Granger Causality in Quantile approach. Natural Resource Forum.

RECENT CONFERENCES PROCEEDINGS

- International Conference of Agricultural Economist (August, 17-31, 2021, Online)
- International Conference for Development Economics (ICDE 2021, Bordeaux)
- Think tank WAEMU (RESEAU THINK TANK-WAEMU Lomé, 23 -25 November, 2020).
- Séminaires doctoraux thématiques en Economie. (Coopération Luxembourg-Mali, Dec, 2020)
- XIIIème journées Internationales de la microfinance. (AICFM ; December 2019, Benin;)
- Join Workshop organized by the university Heriot-Watt (UK) (Benin June, 2019),
- African economic research Consortium's (AERC) 49th Biannual Workshop (Dec 2018, Nairobi)
- Poverty Reduction, Equity and Growth Network, PEG Net Conference (Benin Port, 2018)
- African economic research Consortium's (AERC) Biannual research Workshop (Louis 2018)
- Fourth European Research Conference on Microfinance (Geneva, June 2015)

REFERENCES

- Prof ACCLASSATO Denis, +229 97126420, denis.acclassato@yahoo.fr, Benin
- M. Janvier ALOFA, Economiste National PNUD, Benin, 00229 97 98 58 89 janvier.alofa@undp.org
- Dr Muna Shifa, SALDRU, University of Cape Town, +27 623436231 Muna.Shifa@uct.ac.za
- Dr Richmond Atta Ankomah, ISSER, University of Ghana, +233555500915, attasnr@gmail.com
- Prof MEDEDJI Damien, CEFORP, University of Abomey Calavi +22966046410; damienmededji@gmail.com
- Dr. Julius Manda, j.manda@cgiar.org International Institute of Tropical Agriculture (IITA); Tanzania
- Prof OUATTARA Wautabouna, +22540797944, wautabouna@yahoo.ca, Côte d'Ivoire
- Dr ODJO CLEDJO Edgard, UNDP, Benin, +22997861118, edgard.odjo.cledjo@undp.org
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I sincerely certify this information.
Issued in Cotonou, 31/10/2024

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