Binta Zahra Diop

PhD Candidate, Economics
University of Oxford and Institute for Fiscal Studies

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Education

Doctor of Philosophy, Economics, University of Oxford 2023 (expected)
PhD Scholar, Institute for Fiscal Studies (IFS)
Fields: Development Economics, Labor Economics, Public Economics

Master's in Research, Economics (PPD), Paris School of Economics 2014
Master 1 – Graduate – Applied Economics, University Paris X - Nanterre 2012
Licence – Undergraduate – Economics, University Paris X - Nanterre 2011

Work in Progress

Job Market Paper:
"Upgrade or Migrate: The Consequences of Input Subsidies on Household Labor Allocation"

"Productivity and Allocation of Labor across Ghana's Health Facilities"
(with Awoonor-Williams K, Ismaila H, Ofosu A, Williams MJ)

"Eliciting Heterogeneous Preferences for Fairness"
(with Panin A, Cisse M)

Teaching Experience

University of Oxford Oxford, UK
Quantitative Methods, MSc. in Economics for Development Fall 2020, Winter 2021, Fall 2021
Statistical Coding, MSc. in Economics for Development Winter 2020, Spring 2020, Spring 2022
Development Economics, Exeter Summer School (undergraduate) Summer 2019

Professional Activities

Invited Talks:
University of Johannesburg's EDWG, Johannesburg (Virtual) 2021, 2022
World Health Organization's COVID19 Modelling Group, Geneva (Virtual) 2020
ODI's Public Finance Initiative Conference - Panelist, London 2020

Conference presentations:
2022: NEUDC*, EEA congress, ICDE/Clermont-Ferrand, RES Easter training school
2021: PhD Student Workshop of the UEA, Econometric Society Africa Meeting, UEA Europe meeting, MWIEDC **2020**: PhD Student Workshop of the UEA **2019**: WGAPE

Press citations: CNN Business, The Independent, The Conversation, Quartz, Boston Globe, FastCompany,The American Bar Association Journal (ABA Journal), The Behavioral Scientist, NY Daily News, Metro, Courthouse News Service, CityLab, allAfrica, Le Point

Professional Service

Events organized
Oxford, Research Jamboree, Machine Learning and Economics Day (with Kasy) 2022
Oxford, Initiator and Convener, PhD Peer Presentation Seminar (with L. Milsom) 2020 – 2022
Oxford, Co-organizer of the Oxford African Public Policy Discussion Group 2020 – 2021
Oxford, Machine Learning and Economic Inequality Conference (with Kasy) 2020 – 2021

Community
Paris School of Economics, Board member, Student association (SynaPSE) 2013 – 2014

Scholarships and Awards

Institute for Fiscal Studies (IFS) PhD Enrichment Scheme	2022 – 2023
Alfred P. Sloan Foundation, Studentship via Maximilian Kasy	2022 – 2023
University of Oxford, Department of Economics Final Year Bursary	2021 – 2022
African Economic Research Consortium (AERC) PhD Doctoral Award	2021 – 2023
Global Challenges Research Fund (GCRF) Studentship (full tuition)	2019 – 2021
Oxford Center for the Study of African Economies (CSAE) filled small funding gap	2018 – 2020
French National Research Agency's scholarship: "Investissement d'avenir" (PIA)	2013 – 2014
Senegal National Olympic Committee Fellowship	2008
French Ministry of Sports Fellowship / Pôle France Swimming (full ride+)	2006 – 2007

Professional Experience

University of Oxford – Graduate Research Assistant	2018 – 2020
University of Chicago – Senior Research Analyst (Previously Research Manager)	2014 – 2018
Georgetown University – Graduate Research Assistant	2013
Senegal's Strategy for Accelerated Growth (SCA), Prime Minister Office – Summer Intern	2011
Feed the Future Senegal (Projet de Croissance Economique/USAID) – Summer Intern	2010
Stade Francais O.C. (Ranked 2^{nd} in France in 2009) – Stipendiary Swimmer	2008 – 2010

Publication in Other Fields and Other Writings

Publication

"*The relatively young and rural population may limit the spread and severity of Covid-19 in Africa: a modelling study*" (2020), Diop BZ*, Ngom M, Pougué Biyong C, Pougué Biyong J N. BMJ Global Health 2020;5:e002699.

Other Writings

"*Using Administrative Data to Measure the Productivity and Allocation of Health Workers and Funds: Lessons from Ghana*", IGC (2019), Diop BZ, Awoonor-Williams K, Ofosu A, Williams MJ

"*Using Behavioral Science to Improve Criminal Justice Outcome*" , UChicago Crime Lab & Ideas42 (2018), Cooke B, Diop BZ*, Fishbane A, Hayes J, Ouss A, Shah AK —Peer reviewed version here

Miscellaneous

Languages I can teach in: English, French, Wolof

Selected Arts (photography)

UNESCO World Heritage Contest (Top-10) & Artwork for Jazz album *Wërsëg* by Jamm	2018

Selected Sports (swimming)

Swimming at the Beijing Olympic Games (for Senegal)	2008
2x Bronze at African Games and 3x Bronze at African Championships	2007, 2008, 2011
Ranked 2^{nd} and 3^{rd}, Top Division French "Interclubs", Stade Français-OC	2008 – 2010

Job Market Officers and References

Placement Officer: Martin Weidner	martin.weidner[at]economics.ox.ac.uk
Administrative Officer: Tom Mills	dphiladmin[at]economics.ox.ac.uk

References:

Douglas Gollin (supervisor)
University of Oxford,
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Hamish Low
University of Oxford,
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Julien Labonne
University of Oxford,
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Christopher Woodruff (teaching)
University of Oxford,
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Abstracts and Summaries

Job Market Paper:

Upgrade or Migrate: The Consequences of Input Subsidies on Household Labor Allocation

Abstract: Rural development programs often focus on increasing agricultural investment. Yet, many farmers can benefit from investing in a different technology: outmigration. I explore how one common class of policies — input subsidy programs (ISPs) — allows households to sort based on the relative returns of these two technologies. First, I exploit area-by-year variations in the roll-out of a large-scale Zambian ISP and use a difference-in-differences strategy. I show that the ISP fosters specialization by farmers based on their comparative advantage, resulting in increases in both agricultural yields and outmigration. Second, I estimate a structural model that incorporates a positive learning externality related to fertilizer adoption. With this externality, the ISP offers advantages relative to alternative revenue-neutral policy counterfactuals. Compared to an untargeted cash transfer, I find that an ISP that allows for re-selling of fertilizer would increase migration out of agriculture. A more targeted cash transfer, or an ISP without resale markets, would reduce migration. All three counterfactual policies reduce fertilizer use relative to the ISP and hinder the process of specialization.

Other Work in Progress:

The Productivity and Allocation of Labor across Ghana's Health Facilities
(with Awoonor-Williams K, Ismaila H, Ofosu A, Williams MJ)

Summary: We use never-used-before administrative data covering all Ghana's healthcare staff and facilities. We measure potential gains from reallocating labor across facilities while accounting for administrative constraints. We provide the first comprehensive estimate of a healthcare system production functions. We further explores the allocation of medical labor across vacancies and geographic areas.

Eliciting Heterogeneous Preferences for Fairness
(with Panin A, Cisse M)

Summary: We will explore how individuals rank fairness definitions used in the development of artificial intelligence (AI) systems. We design a behavioral experiment to reveal preferences for fair processes (rather than outcomes) embedded in AI systems. We use experimental methods to add to the machine fairness literature, being the first (to our knowledge) to measure preferences for machine fairness definitions by observing choices over definitions when individuals interact with different machine fairness rules. Prior work measured preferences solely with survey instruments.

Published Work:

The relatively young and rural population may limit the spread and severity of COVID-19 in Africa: a modelling study, BMJ Global Health 2020;5:e002699.
(with Ngom M, Pougué Biyong C, Pougué Biyong J N.) [paper]

Introduction: A novel coronavirus disease 2019 (COVID-19) has spread to all regions of the world. There is great uncertainty regarding how countries' characteristics will affect the spread of the epidemic; to date, there are few studies that attempt to predict the spread of the epidemic in African countries. In this paper, we investigate the role of demographic patterns, urbanisation and comorbidities on the possible trajectories of COVID-19 in Ghana, Kenya and Senegal.
Methods: We use an augmented deterministic Susceptible-Infected-Recovered model to predict the true spread of the disease, under the containment measures taken so far. We disaggregate the infected compartment into asymptomatic, mildly symptomatic and severely symptomatic to match observed clinical development of COVID-19. We also account for age structures, urbanisation and comorbidities (HIV, tuberculosis, anaemia).
Results: In our baseline model, we project that the peak of active cases will occur in July, subject to the effectiveness of policy measures. When accounting for the urbanisation, and factoring in

comorbidities, the peak may occur between 2 June and 17 June (Ghana), 22 July and 29 August (Kenya) and, finally, 28 May and 15 June (Senegal). Successful containment policies could lead to lower rates of severe infections. While most cases will be mild, we project in the absence of policies further containing the spread, that between 0.78% and 1.03%, 0.61% and 1.22%, and 0.60% and 0.84% of individuals in Ghana, Kenya and Senegal, respectively, may develop severe symptoms at the time of the peak of the epidemic.

Conclusion: Compared with Europe, Africa's younger and rural population may modify the severity of the epidemic. The large youth population may lead to more infections but most of these infections will be asymptomatic or mild, and will probably go undetected. The higher prevalence of underlying conditions must be considered.