

Maria do Rosário Fraga de Oliveira Martins

1. Scientific and professional profile and career

Full Professor, Vice-Director, Pedagogical Council President.

My interests: share what I know with my students and see them grow without leaving any of them behind.

Undergraduate in Economics NOVASBE (1986); Econometrics Master, Université Libre de Bruxelles (1994); PhD Econometrics, ULB (1999). Aggregated in Statistics, NOVA(2006). Maternity (1987,1992,1997). I realized that I had a passion for statistics when I started my career at NOVASBE as lecturer. In 1992 I moved to Brussels and after my master, I join ULB-European Centre for Advanced Research in Economics and Statistics. My PhD work was inspired by J. Heckman, Nobel Prize in Economics just one year after the end of my thesis. His approach to understanding the origins of major social and economic problems related **to inequality and discrimination** is until nowadays my main source of inspiration. In 2000 I started teaching at Statistics and Information Management School (NOVAIMS) where I became interested in pedagogy: why were certain students successful and not others? Were they **all on an equal basis** when they entered university? In 2001 I was appointed NOVAIMS Vice-Director and Pedagogical Council President, and in 2004 I was chosen University Pro-Rector for Long Life and e-Learning. I shaped University's e-learning centre and I pioneered the creation of a b-learning degree in statistics (2005). I visited African universities and realized the enormous problems they faced. I inspired my Cape Verde' students and we launched the 1st degree in statistics at Cabo-Verde University (2007). The African journey continued in when I was awarded an EU-funded project to develop e-learning skills for Mozambique Universidade Eduardo Mondlane staff. Since 2010, I have been based at IHMT, where I am happy to work as the Institute's mission is inextricably linked to modelling **inequalities in life** which is my main area of research, namely as leader of the GHTM-Population Health, Policies and Services research group.

2. Contributions to science and society

a) Contributions to the generation of new ideas, tools, methodologies or knowledge

Inspired by Heckman, I have dedicated my professional life to understanding the major socio-economic (<https://doi.org/10.1002/jae.572>) and health problems associated with inequalities in life and skills formation, and to developing and evaluating alternative strategies to address these problems in countries at different levels of development, with a particular focus on vulnerable groups.

Together with my co-authors, we designed and implemented a new bed net distribution strategy that reached, in the first phase around 5 million of people living in malaria-endemic areas of Mozambique (DOI: 10.1186/s13104-019-4620-6;DOI: 10.1186/s12936-018-2217-5.) In Papua New Guinea, I participated in the work coordinated by Prof. Oriol Mitjá, which led to the elimination of yaws (DOI: 10.1093/cid/cix723).

I also conducted with a team from Cape-Verde, a pioneering study on the prevalence of asthma and other allergic diseases in Cabo Verdean children and co-authored an early analysis of the factors associated with the prevalence of these disease

(<https://doi.org/10.18332/popmed/164119>). This study was the basis for a series of workshops for medical students organized by the Universidade de Cabo-Verde, which led to an FCG-LaCaixa award for our consortium (We'Search, nº 296790, 180,000 euros).

My work is rooted in applied biostatistics and econometrics, but as leader of the GHTM Population Health Policies and Services research group, I enthusiastically collaborate across disciplines to get to the heart of problems. My recent interdisciplinary longitudinal study on the health determinants and needs of children on the move in a pandemic world draws on statistics, economics, epidemiology and paediatrics to investigate the origins of child health inequalities and the role of migration as a social determinant of health across life stages (PTDC/SAU-SER/4664/2020, 249,000 euros). With my co-authors I was pioneering in designing and implementing a migrants children cohort study in Lisbon Municipality (DOI: 10.1136/bmjopen-2022-061919) and to extend it to 4 other regions and to refugees (DOI: 10.3389/fpubh.2024.1337299). This influential work started just before the COVID-19 pandemic and was visionary in the sense that it was crucial to understand the socio-economic impact of the pandemic on vulnerable groups (RESEARCH4COVID FCT, nº 065). I estimate the pattern of deprivation in migrants and natives families during the pandemic (<https://doi.org/10.3389/fpubh.2022.920308>) and this study has had 2 significant impacts: firstly, I was awarded the gold medal for Human Rights 2020 by the Portuguese Parliament and secondly, it was the basis for the government's decision to grant temporary residence to all migrants in an irregular situation during the pandemic.

I also carried out the data integration of health centre consultations, emergency room visits and more than 50 variables collected through 3 face-to-face questionnaires for around 1,000 of children and co-wrote a strategic book published by the Migration Observatory (ISBN 978-989-685-132-3) presenting the achievements for the first cohort results (Amadora). The impact can be translated by the words of a member of the government in the book's preface (page 8): "*..in this context, the recommendations made in the study are an effective asset for informing the design of public policies and supporting the decisions of the actors who are called to intervene in this process, at a time when the government is reviewing the National Plan for the Implementation of the Global Compact for Migration...*".

Other recent publications have highlighted the opportunities that lie behind the existence of an infrastructure such as a cohort to anchor the activities of the GHTM.

As Vice-Director for Education (2015-2019), and member of the University Ethics Council, I received an important grant from the TDR-WHO aimed at strengthening the research capacity of Lusophone African researchers (2015/591378 PO 201402667) which reached more than 100 of researchers from all Lusophone African countries, leading to an EDCTP award to the Lusophone Network of Ethics Committees, in which I participated as PI for Portugal coordinating several work-packages (CSA2016ERC-1423). Together with my colleagues, I organized a strategic webinar on bioethics in health research for Lusophone African researchers, which received 450 applications for 35 vacancies. Since 2017, I am also coordinating and organizing several workshops on scientific writing and grant proposals to promote African Lusophone Women in science (Elsevier Foundation) that reached more than 70 women. My professional career has also been dedicated to the University's mission, with a significant impact since, as a member of the University Senate for 7 years and a member of the University General Council for 8 years, I worked with colleagues to elaborate the University's new status during a period of legislative transition (<https://www.unl.pt/data/estatutos.pdf>).

b) Contributions to the training and career development of researchers and/or research teams

Throughout the 24 years of my career, I have supervised researchers and postgraduate students in the fields of applied statistics and global health. This included:

- **2 Postdocs** (1 completed)
- **Over 35 PhD Thesis** (23 completed) [*10 as co-supervisor*]
- **Over 80 Master Thesis** (75 completed)
- **Over 20 Project grantees** (completed) [most from Lusophone African countries]
- **Over 15 internships** (completed)
- **1 Erasmus PhD student** (completed)

I have given many of these early career researchers the opportunity to gain fieldwork experience in other contexts (e.g. in Cape Verde), to give training in other countries (applied statistics at the National Institute of Health in Mozambique) and to broaden their research horizons (e.g. participation in my national and international research projects). I give PhD and Masters students priority in attending conferences. All have had the opportunity to present their work at national and international scientific conferences.

My PhD students have gone on to important positions in academia, such as Tiago Oliveira, who is full professor at NOVAIMS (<https://www.novaims.unl.pt/toliveira/>), Sara Dias, professor at the Instituto Politecnico de Leiria with an excellent track record (ORCID iD 0000-0001-6782-7481) and Sheyla Cassy, the first woman to obtain a PhD in statistics at the Universidade Eduardo Mondlane, Mozambique. Others have exemplary positions and inspiring careers, such as Sergio Chicumbe, who has been appointed National Director for Research at the Mozambican NIH, Ahmed Nabil Shaaban a post-doctoral researcher at the Karoliska Institute and António Moreira (Masters student), coordinator of the National Malaria Control Programme in Cape Verde, who has played a major role in the recent eradication of malaria in the country.

Recently, 4 PhD students I supervised won awards: Camila Beiras, Donald Salami, Ahmed Nabil Shaaban, Dinamene Oliveira, prize for the best PhD Thesis in International Health (2019, 2021, 2022, 2023).

c) Contributions to the scientific community

I am actively involved in promoting activities aimed at advancing the knowledge of statistics and transforming the way health researchers use statistical methods. In Portugal, through the creation of the master in Statistics for Health together with the Department of Mathematics and in Cape Verde by creating the Undergraduate Degree in Statistics with my former PhD students. I am member of the Masters in Statistics and Health Planning scientific committee at ISCISA, Mozambique, having developed the quantitative methods syllabus, and where I enthusiastically teach on a regular basis. I am responsible for Module 3 of the TDR-WHO MOOC on Implementation Research: Infectious Diseases of Poverty, which reaches over 1,500 participants (https://tdrmooc.org/courses/course-v1:TDR+IR148en+2023_June/about). I participate in international networks such as TropEd (<https://troped.org/>), of which I was President in 2018-19. I am member of the European Mathematical Society Ethics Commission and I share regularly my knowledge and skills with Lusophone Ethics Committees. I was

member of the EDCTP Scientific Advisory Board for 8 years, where I promoted the participation of Lusophone African countries through the organization of several workshops on grant writing, benefiting more than 40 researchers. I am collaborating with Migrants NGO-AJPAS which enables equality and inclusion practices. I am Frontiers in Public Health and PLOS ONE associate editor and I review over 20 articles a year.

d) Contributions to society

My research on the socioeconomic impact of COVID-19 in native and migrant families contributed to the evidence-base underpinning on the effect of pandemic crisis on the exacerbation of existing inequalities which affects vulnerable populations, namely migrants in Portugal. The evidence was appraised by the Portuguese Parliament in 2021 and by National Migration Observatory in 2023 and contributed to the government recommendation to give temporary residency during the pandemic to migrants in irregular situation.

The results presented in the book I co-authored available at <https://www.om.acm.gov.pt/documents/58428/177157/Estudo+OM+74.pdf/6578f2c3-4cc6-4396-8c7d-e02ebf913d66>, are being used by the government to design public policies and support the decisions of actors called to intervene in the migration process, namely in the revision of the National Implementation Plan of the Global Compact for Migration.

The research in which I participated with a PhD student, Camila Beiras, and Prof. Oriol Mitjás (DOI: 10.1093/cid/cix723) has been crucial to the eradication of a neglected tropical disease (yaws) in Papua New Guinea. (<https://www.isglobal.org/en/-/un-nuevo-estudio-acelera-el-progreso-hacia-el-final-de-la-enfermedad-de-pian>) with a high societal impact namely in children.

The TDR-WHO MOOC on Implementation Research: Infectious Diseases of Poverty, of which I am coordinating Module 3, has a huge social impact (over 1,5000 participants), especially for health researchers from low-income countries.

3. Scientific production and/or selected activities

1. Health trajectories of Immigrant Children (CRIAS)-a prospective cohort study in the metropolitan area of Lisbon, Portugal (10.1136/bmjopen-2022-061919)

Establishment of CRIAS- the first cohort study in Portugal focused on migrant children. The study (n=420) was set up to investigate whether children exposed to a migratory process experience different health risks over time, including physical health, cognitive, socio-emotional and behavioral challenges, and different patterns of health care use.

2. Are immigrants more vulnerable to the socioeconomic impact of COVID-19? A cross-sectional study in Amadora Municipality, Lisbon metropolitan area. (10.3389/fpubh.2022.920308)

In this paper we show that pre-existing socio-economic inequalities were exacerbated during the pandemic, and we provide a quantification of these inequalities. **This study won me the Gold Medal for Human Rights 2020 from the Portuguese Parliament.**

3. Coordination of the project “Health determinants and needs of children on the move in a pandemic context: A longitudinal study for Lisbon and Tagus Valley Region” PTDC/SAU-SER/4664/2020, 249.758,13 euros)

In this interdisciplinary project involving the NOVA SBE and the School of Public Health, I am coordinating a team of more than 15 researchers, 3 of whom are working on PhD theses and 5 on master’s theses within the project. Using a collaborative approach (academia, policy makers, health-workers, ONGs and representatives of communities), the aim of this cross-sequential mixed methods study is to analyze health trajectories of migrant and refugee children in 4 municipalities of Lisbon Region for the period 2021-24. We extend the CRIAS cohort to include more 800 children.

4. MOOC on Implementation Research: Infectious Diseases of Poverty

Since 2017, I have been responsible for Module 3 of this MOOC, which has reached over 1,500 participants spread across the world.

5.Capacity Building for health researchers in Lusophone African countries

As part of GHTM's mission, I have been coordinating several capacity building initiatives for researchers in Lusophone African countries, ranging from scientific writing courses for women in science to grant writing and research ethics in Cape Verde and Mozambique. The partners are Mozambique and Cape Verde NIHS, University of Cabo Verde, Eduardo Mondlane University, Mozambique and Universidade Agostinho Neto, Angola. These activities were funded by the EDCTP, the Elsevier Foundation and TDR/WHO.