3 postdoc positions ERC-funded research project POPCLIMA "Population Dynamics under Global Climate Change", Department of Statistical Sciences, University of Bologna

We are looking for three Postdoctoral Researchers to join the research project "Population Dynamics under Global Climate Change", Acronym POPCLIMA. The project is funded by the European Research Council (ERC), with Prof. Raya Muttarak as the principal investigator. More information is available at popclima.eu.

POPCLIMA offers **three 12-month postdoc positions (with the possibility to be renewed up to 24 months)** at Department of Statistical Sciences, University of Bologna.

Project description

The impact of climate change on human health, wellbeing and livelihoods are already being felt. It is thus highly possible that climate change also affects demographic behaviour and consequently future population trends. However, to date none of the global population projections account for the climate feedback on population dynamics. This project addresses the gap in the literature by aiming to answer the following key questions:

1) In what direction and to what extent does climate change influences fertility, mortality and migration?
2) How do the impacts of climate change on demographic outcomes vary by population subgroups?
3) What are the mechanisms through which climate change influences fertility, mortality and migration?

The project plans to exploit various publicly available datasets (both demographic and environmental/ climate data) and different methods (e.g. econometrics, machine learning, meta-analysis) to answer these questions. The country coverage and scale of analysis vary according to data availability. The empirical findings will be used to develop demographic scenarios for forecasting future population, which will be an update of the global population projections by the Wittgenstein Centre for Demography and Global Human Capital.

Furthermore, the project also plans to produce subnational population projections for selected countries taking into account the impact of climate change. In particular, the project aims to explore new methods such as Bayesian Model Averaging and machine learning which enable multidimensional population projections for small-scale spatial unit. Such spatially disaggregated population estimates and projections which explicitly account for population heterogeneity are highly sought for among climate change research community and are of relevance for policy planning.

For further information about the project and the position please contact: Prof. Raya Muttarak raya.muttarak@unibo.it

Job description

The successful candidates will join the POPCLIMA project (project duration Jan 2022 – Dec 2026) and participate fully in the research life of the research team, and engage in advanced independent research within the remit of the project. More specifically, the appointed researchers will carry out the following research activities:

a) Contribute actively to the research of the POPCLIMA project, particularly in at least one of the research areas:
   - cross-national analysis of climate change impacts on fertility, mortality or migration
   - applying advanced statistical methods to analyse climate change impacts and other external shocks such as war and conflict on social outcomes such as child health, gender relations, migration, mortality and voting behaviour

- investigating demographic heterogeneity and mechanisms through which climate change affects demographic behaviour
- Systematic literature review and meta-analysis of climate change impacts on demographic outcomes

b) Support the collection of relevant geo-referenced demographic, socioeconomic, political environmental/climate and internet/social media data at the micro and macro level. Preparing and managing large-scale data sources for the project;

c) Conduct statistical analysis in the research area chosen in **a);**

d) Produce visualisations and maps to check results and communicate findings;

e) Publish research of an internationally excellent standard;

f) Represent the research group at internal and external meetings/seminars and present papers at conferences and public meetings;

g) Participate in the research activities of the POPCLIMA project and the Department of Statistical Sciences;

h) Undertake appropriate organisational duties within the group when required such as organising research meetings, seminars, conference sessions

Skills, qualifications and requirements

- PhD (or close to completion) in demography, statistics, economics, sociology, political science or other related field(s) coupled with interest in the topic of population and climate change
- Proven competence in statistics/econometrics; experience with relevant statistical packages e.g., R, STATA and/or Python
- Extensive empirical research experience in quantitative social sciences.
- Demonstrated experience in developing research plans, collecting and managing data, and carrying out statistical analyses.
- Experience with data processing and handling of large-scale datasets at the micro and macro level.
- Track record in research and publication output corresponding to the career stage of the successful candidate
- Excellent command of written and spoken English
- Innovative and critical thinking. Proven independence in conducting research.
- Expertise in one of the following areas is desirable:
    - Experience with handling and analysing georeferenced data e.g., matching demographic data with climate data
    - Experience with handling and analysing cross-national survey data
    - Experience with collecting and handling environmental/climate data; satellite data
    - Experience with meta-analysis and systematic literature review
    - Experience with assessing demographic outcomes, particularly fertility, mortality and migration

The Alma Mater Studiorum University of Bologna

The Alma Mater Studiorum, University of Bologna (UNIBO) stands for quality research and education connecting past and future. Founded in 1088, not only is UNIBO the oldest university in the Western world, but it also scores among the three top Italian universities for both research and education. Hosting a remarkable amount of European-funded research grants, internationalisation is an important part of the University's strategic agenda. The research offices of the University of Bologna provide highly specialized support for ongoing international grants, as well as for new grant acquisitions. Thanks to this arrangement, talented researchers are given scope for developing groundbreaking research in a liberal environment.

Last but not least, with one fifth of its population made of students, a thriving entrepreneurial scene and an enviable quality of life, Bologna is one of the most sought- after areas to live and work in Italy and Europe. The University's facilities are entwined in the medieval layout of a vibrant, young city. Its international airport can be reached from the city centre in a few minutes, public transport is capillary and high-speed train connections make reaching other Italian and European sites fast and convenient.