



**Food and Agriculture Organization
of the United Nations**

CALL FOR EXPRESSIONS OF INTEREST

Time Series Econometrician

African Sustainable Livestock 2050 (ASL-2050) Program

Contract duration: 66 days, ending on December 2016

Vacancy No. IRC3548

Deadline for Applications: 14 September 2016

Duty station: HQ, Rome

Tasks and responsibilities:

The Emerging Pandemic Threats – Phase 2 programme (EPT-2) aims to address the continued threat and drivers of emerging and re-emerging diseases. One of the components of the EPT-2 is the African Sustainable Livestock-2050 project (ASL-2050). ASL-2050 main objective is (1) to develop foresight and plausible scenarios of the livestock sector in Africa (including demand, supply and productivity forecasts); (2) understand what will be its potential environmental, social, economic, animal health, public health implications; and (3) what policy instruments could be used to enhance positive externalities and mitigate negative outcomes, in particular the unintended impacts on the risk level of zoonotic infections and antimicrobial resistance.

Estimating long-term projections for the demand of livestock products is the main objective of the ASL2050 demand model. ASL2050 uses a multivariate vector autoregressive (VAR) model to assess the future demand for livestock commodities in selected African countries. The VAR model is one of the most successful models for the analysis of multivariate time series. VAR models has proven to be especially useful for describing the dynamic behaviour of economic variables for forecasting. Indeed it often provides superior forecast than simultaneous equations models. The ASL2050 model uses endogenous and exogenous variables. Endogenous variables include total demand for beef, poultry, eggs, mutton, milk and pork. Exogenous variables including gross domestic product and income. The incumbent will model and estimate 2050 projections related to livestock markets using time series (TS) modelling, in the list of countries of ASL-2050 (Ethiopia, Egypt, Kenya, Nigeria, Uganda and Burkina Faso).

Reporting Lines

The ASL-2050 Time series econometrician (VAR models) will report to the ASL2050 Lead Technical Officer (LTO), and to the ASL2050 Global Coordinator. The incumbent will work in close collaboration and co-ordinately with the ASL2050 team.

Key Functions

The incumbent will be responsible for:

1. Assemble a new database using alternative GDP scenarios: A new database will be assembled incorporating two different GDP scenarios by 2050. These GDP scenarios have been developed by the Institute for Applied Systems Analysis (IIASA) and the Organization for Economic Co-operation and Development (OECD). GDP projections will be rebased using the most recent data from the World Bank database.

2. Use of a nonlinear first order multivariate VAR model: As known, regressions involving non-stationary time series could produce spurious results showing a significant relationship between variables that are not correlated. In this regard the incumbent will test the use of a non-linear first order multivariate VAR model to conduct the projections.
3. Taking into account structural changes in the data generation process: An important challenge faced in the model process is to estimate projections in the presence of a data generation processes that are unstable. Through the use of dummy variables the incumbent will incorporate potential presence of structural breaks in the model.
4. Fitting a parsimonious model: One of the main difficulties that may arise during the modelling process is related to the small sample of observations available per commodity and per country. Therefore in order to avoid losing degrees of freedom, the incumbent shall consider fitting a parsimonious model rather than an over-parameterized model. In this regard, restrictions in the model parameters based on the t-ratios will be imposed. Restrictions will be imposed using a sequential elimination (SER) strategy, where regressors with the smallest t-ratios will be eliminated sequentially until no further reduction is possible but avoiding an over-identified matrix.
5. Perform other related duties as required.

Key performance indicators	
Expected Outputs:	Required Completion Date:
Database assembled with alternative GDP scenarios.	15 days from start
Variables transformation to avoid non-stationarity and spurious results.	To be included in the VAR model
Structural changes analysis and dummy variables inclusion in the 36 initial variables (6 countries, 6 commodities).	To be included in the VAR model
Parsimonious VAR model for projections to 2050 developed and validated for livestock products in selected African countries (Egypt, Ethiopia, Kenya, Nigeria, Uganda and Burkina Faso).	September 2016 (draft), December 2016 (final)
Modelling report (detailing methodology and results)	September 2016 (draft), December 2016 (final)

Candidates should meet the following requirements:

Minimum Requirements

- University Degree in Econometrics, Statistics, Economics or closely related technical field.
- Advanced University Degree in Applied Econometrics or relevant subject matter.
- 5 years of relevant experience in econometric modelling
- Research publications record will be an asset, preferably on Livestock or Agricultural fields.
- Broad knowledge of different econometrics techniques and methods, particularly TS and VAR models.
- Professional knowledge of and practical experience in using statistical software is essential.
- Working knowledge of English

Competencies

- Results oriented
- Team work
- Knowledge Sharing and Continuous Improvement
- Communication

- Scientific writing skills Good writing skills.

Selection criteria

Based on requirements, competencies and skills.

Additional Information

FAO seeks gender, geographical and linguistic diversity in its staff and international consultants in order to best serve FAO Members in all regions.

All candidates should adhere to FAO values of Commitment to FAO, Respect for All and Integrity and Transparency.

How to apply

All applications are to be made through FAO's [iRecruitment](#) system. Click on the link below to access [iRecruitment](#), complete your online profile and apply for this Call for Expression of Interest.

<http://www.fao.org/employment/iemployment-access/en/>

In order for your application to be properly evaluated, please ensure that all sections of your iRecruitment account are completed. Incomplete applications will not be evaluated.

If you need help, or have queries, please contact: iRecruitment@fao.org