Post Doctoral Hiring through Research Initiation Grant

Project: Household water management through metering

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Research Objective and Motivation

Water policy research is inherently inter- and transdisciplinary, requiring an integrated understanding of hydrological systems, engineering constraints, institutional design, and household behavior. My current research program focuses on the quantitative evaluation of water governance and conservation policies in India and comparable international contexts, with a particular emphasis on econometric modeling of demand-side interventions.

This project aims to **evaluate the impact of household water metering and volumetric pricing on water conservation, service quality, and consumer welfare**. While water metering is widely used in urban settings, it is often considered infeasible in rural India. However, a small number of villages in Gujarat—**Takhatgarh, Rinari, Bhadran,** and **Jam Kandola**—have successfully implemented household-level water metering, providing a unique natural laboratory for rigorous policy evaluation.

The study will examine how water metering influences (i) household water demand and price sensitivity, (ii) quality and reliability of water supply, (iii) consumer welfare, and (iv) sewage generation and management. The project will be conducted in close collaboration with village panchayats and relevant state agencies, with the dual objective of generating scholarly evidence and supporting locally relevant policy design.

Methodology and Work Plan

Phase I: Institutional Assessment and Cost Analysis
The project will begin with stakeholder engagement involving village panchayat leaders and officials from the Water Resources and related departments. Detailed case studies will be developed to understand the institutional and political drivers of water metering adoption. This phase will include estimation of **capital expenditure (CapEx)** and **operational expenditure (OpEx)** associated with metering systems, assessment of cost-recovery mechanisms, and analysis of financial sustainability models for reliable water supply. The potential role of **water and carbon credits** in cross-subsidizing metering investments will also be explored.

Phase II: Econometric Evaluation of Household Water Use Behavior
Using household-level water metering data, the project will estimate demand responses to volumetric pricing and assess heterogeneity in price sensitivity across households.

Econometric analysis will quantify changes in water consumption, service quality, and welfare outcomes attributable to metering.

Phase III: Experimental Design for Pricing Interventions (Subject to Feasibility)
Conditional on stakeholder agreement and institutional feasibility, the project will assess the possibility of implementing a **randomized controlled trial (RCT)** of alternative water pricing structures to strengthen causal identification of price effects on consumption behavior.

Expected Deliverables

- A policy-oriented paper documenting rural and urban water metering experiences in Gujarat, including governance arrangements and financial models adopted by local institutions, with recommendations for improvement and scalability.
- An applied econometric research paper analyzing household water metering data and consumer responses to volumetric pricing, targeted at peer-reviewed water policy or applied economics journals.

Duration of Engagement

The project is planned for **one year**, with the possibility of extension for a second year contingent upon progress and the feasibility of implementing an RCT-based pricing intervention.

Expected Salary Range

INR 72,000 – 80,000 / month

Required Skills and Expertise

- Ph.D. in Economics, Agricultural Economics, Environmental Economics, or a closely related discipline.
- The percentage/grade points with respect to the academic qualifications will be a minimum of 60% or equivalent grade from Graduation onward and 55% or equivalent grade in class 10th and 12th.
- Strong quantitative skills in microeconometric analysis; **proficiency in R is essential**.
- Experience and willingness to conduct fieldwork in Gujarat; knowledge of Gujarati language is an added advantage.
- Demonstrated publication record in water policy, environmental economics, agricultural economics or applied economics journals.
- Prior experience with structural economic modeling is desirable.

Application Link: https://forms.gle/vyj3VWKppmAYXXaM8

Last Date to Apply Online: Feb 22, 2026