

Ackoff Proposal – Vivek Shah

Managing weather risk through workfare participation: Evidence from India's NREGA scheme

Introduction

This project seeks to evaluate the impacts of the largest rural workfare program in the world, the National Rural Employment Guarantee Act of India (NREGA)¹. The India-wide budget for NREGA in 2010-2011 was Rs. 345 billion (7.64 billion USD), which represents 0.6% of GDP. Such workfare programs are common anti-poverty policies in developed and emerging markets and seek to increase the income of the poor by guaranteeing employment at an attractive wage. In addition to fighting poverty, workfare programs may also have several other effects such as serving as a risk coping mechanism after a weather shock.

The project I am interested in is to evaluate whether workfare programs might allow households to mitigate the risks associated with weather-induced income shocks and serve as a substitute for formal insurance. The uncertainty of weather is the largest risk that looms over the livelihoods of the rural poor. Prior research has shown that poverty leads to vulnerability. For the rural poor in developing countries, weather-induced changes in income translate directly into changes in consumption levels (Townsend, 1994, Jacoby and Skoufias, 1998). In India poor households over-invest in low-return assets that can be sold off quickly in the event of weather-related shocks (Binswanger and Rosenzweig, 1993) and farmers often plant lower-yield but more predictable crops to reduce exposure to rainfall risk (Morduch, 1993). Formal risk coping mechanisms are rarely available to this population and research has shown that there are several barriers to the adoption of formal micro-insurance including financial literacy, lack of trust, liquidity constraints and limited salience (Cole et al, 2011).

Workfare programs, though not commonly thought of as a means of reducing vulnerability to weather-related risks, may serve as an important mechanism for mitigating the effects of weather shocks by allowing target households to work more following a negative weather shock. In subsequent research I plan to investigate other effects of NREGA such as crowd out of formal insurance, welfare consequences and the production of public goods, labor supply responses in private and public rural employment, effects on migration, and the optimal design of a workfare program.

¹ The NREGA program guarantees households 100 days of employment per year for unskilled work.

Data & Methodology

The NREGA program was introduced across India in three phases from 2005 to 2008 allowing me to use the gradual roll out of the program to estimate changes in villages that received the program earlier relative to those that received it later. Additionally, since implementation has been assigned to local administrators there have been reports of vast variation in the level to which villages have been able to support local demand for labor under NREGA. This enables me to explore variation in villages that have been more successful in fulfilling employment under NREGA versus those that have been less successful. As a secondary empirical strategy I will also instrument for NREGA participation. Potential instruments include rainfall, number of non-working members in a household, local elections, and distance from village to the nearest NREGA worksite. In India the agricultural season is followed by a lean season when employment levels and productivity are extremely low. This is exacerbated by the possibility of a bad harvest. My analysis will focus on estimating the impact of weather-related shocks on NREGA participation during the lean season.

Evaluations of NREGA have lacked detailed micro data on participating households². I propose to improve on existing research by using Ackoff support to get detailed administrative data on NREGA. I also have access to a unique dataset, which is a 6-year panel from the evaluation of an innovative rainfall insurance product in rural India. The study period coincides with the rollout of the NREGA program in the state of Gujarat and has micro data on wages, income, agricultural productivity and consumption of a large sample of households. I plan to combine this panel with NREGA data on households that participate in the program for a more detailed analysis of individual households.

I am requesting an Ackoff Fellowship to cover expenses for acquisition of the NREGA data. As detailed in the budget, an Ackoff Fellowship will enable me to acquire data for one state in India. The data will be extremely valuable on multiple research projects and will also be an invaluable public good. If awarded a lower amount than requested, I will use the funds to acquire a part of the sample I need for my project.

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² Equilibrium Distributional Impacts of Government Employment Programs: Evidence from India's Employment Guarantee; Clement Imbert, John Papp

Budget

I am requesting \$4,000 for data acquisition. The data hosted on the NREGA website³ will have to be downloaded using web-scraping tools. I have been in touch with the research and IT departments at Wharton who have recommended software called Mozenda. I am also looking into less expensive alternatives but this budget is based on the pricing of Mozenda⁴ which will get me detailed data for one state. I will need a pro-yearly account costing \$999 as well as the purchase of 3,000,000 additional pages at \$899 per 1,000,000 pages⁵. If I can access a less expensive technology to gather the data, I will use Ackoff funds to acquire data on more states.

³ <http://nrega.nic.in/>

⁴ <http://www.mozenda.com/pricing>

⁵ There are 4,079,746 participating households in the state of Gujarat and participation data on each household are on a separate “job-card” page