



Carrots or sticks: the impact of incentives and monitoring on the performance of public extension staff

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Agricultural extension is a key sector in many administrations. Though the need for more and improved agricultural extension service delivery is large, it is a priori unclear how to achieve it.

The Ministry of Agriculture of Punjab, Pakistan, our partner in this project, was particularly interested in improving the performance of agricultural extension field staff, who are on the front lines of the provision of extension services to farmers. This project's aim is to understand whether performance incentives can improve service delivery in agricultural extension.

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Overview of the research

Agricultural service delivery involves complex tasks where effort is multi-dimensional, with some dimensions harder to monitor than others. This is a setting where the choice is unclear between the known advantages and disadvantages of objective versus subjective performance evaluation systems.

Furthermore, since bias is a common issue in all subjective evaluation systems, there is a potential benefit for increased monitoring of supervisors themselves. This is a context in which it is crucial to evaluate (1) whether performance-based incentives can increase both agricultural extension workers' outreach effort and the quality of service delivery, and (2) whether an objective or a subjective incentive scheme is better at achieving these goals.

The Ministry had recently rolled out a digital monitoring system called Agrismart among all field extension staff. All field staff -- Agriculture Extension Officers (AOs), Agriculture Assistants (AIs), and Field Assistants (FAs) – have been provided with smartphones equipped with Agrismart to track their location and activities.

Making use of the information collected via Agrismart, we designed alternative incentive schemes that varied in terms of objectivity and alignment of staff incentives with the Directorate, and randomised all tehsils (administrative areas) in Punjab into three treatment groups and a control group:

- Treatment 1 (**Objective**) relies on purely objective metrics based on Agrismart to assign a level of bonus to field workers.
- In Treatment 2 (**Subjective**), the supervisor can view all objective data on Agrismart but use his/her own discretion in assigning staff members into a bonus level.
- Treatment 3 (**Subjective PLUS**), is similar to treatment 2, supervisor discretion with Agrismart information, except that we add top-down monitoring for the supervisor. We do this by creating tehsil-level reports on key tehsil performance variables and distributing it to key senior leadership in the department for this treatment arm.

A key feature of the interventions is that it is budget neutral in nature, as it aims to rationalise pre-existing uneven distribution of travelling allowance budget to a performance-based system.

Early results suggest that our incentive treatments resulted in higher attendance (hours and days of work) as well as higher outreach (village and farmer visited), especially in Treatment 1 that directly rewards outreach.

These results are very encouraging. They suggest that incentive schemes have the potential to improve the effectiveness of agricultural extension services. Now, the next key steps for our project will be to answer the following questions:

- Beyond outreach, what is the impact of the treatments on the quality of the service delivery by the field worker?
- Does it make a difference for the farmers in general and for the small farmers in particular?

Policy motivation for research

Sustained improvements in agricultural productivity are central to both alleviating poverty and increasing growth in Pakistan. Almost 45% of the labor force is engaged in agriculture, but the sector accounts for only 25% of GDP. This is largely because agricultural productivity has stagnated, with the yields of major crops lagging far behind those achieved in neighboring countries.

There are a number of constraints on productivity, including farmers' lack of actionable information on relevant technologies and techniques. While private extension services have expanded, private providers are largely focused on specific crops and on larger farmers. These concerns and the increasing needs for sustainability imply that government-provided agricultural extension could have an important role to play. Agricultural extension is a large and costly department for the government and its effectiveness has become critical both for efficient use of government budgets and, more importantly, for agricultural productivity enhancement.

The Ministry of Agriculture and Agriculture Extension Directorate were keen on addressing problems of coordination, accountability, and incentives in publicly provided agriculture extension services, to improve the quality and reach of service delivery.

After setting up a digital system for monitoring staff outreach (AgriSmart), the department was interested in putting in place performance-based pay incentives using the system, to reward greater effort by field staff.

The idea is that a incentive scheme that functions well should improve the delivery of agricultural extension services, resulting in increased knowledge among farmers regarding crop practices and available technologies; this in turn would lead to a shift towards better farming practices and improved farmer information on input quality and use.

Policy recommendations

Our policy recommendation to the Ministry of Agriculture of Punjab, Pakistan will be to adopt, throughout Punjab, the performance-pay scheme that resulted in the best outcomes.