From Surveys to Satellites: Collecting Better Agricultural Data

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How do crop yield estimates from self-reported data compare with estimates from satellite imagery?

BACKGROUND

- Obtaining high quality data on crop yields and farm production is vital to agricultural impact evaluations
- Better quality data on agricultural outcomes -> Robust evidence -> Better informed and well-designed policies
- Self-reported agricultural data is often prone to respondent, recall, and enumerator biases; additionally, survey or diary-based methods do not give a sense of the true values of an indicator
- Various studies have demonstrated the potential of satellite-imagery based methods to objectively, and accurately estimate yields, and farm production

MATERIALS AND METHODS

- Image Sources: Sentinel 1A, RISAT & MODIS
- Image Analysis: Identification of Rice fields (Rule-based classification), Yield Estimation (including crop growth model) and Verification
- Collection of self-reported data – on production & input usage from an independent sample of rice farmers, plot area estimates and GPS measurements
- Calculation of yield from collected production and area data for sample plots, comparison with yield estimates derived from satellite imagery

PRELIMINARY FINDINGS

- On average, yield data calculated from farmers’ estimates of production are higher than satellite imagery estimated yields
- Local units of measurement, imprecise conversion factors – a big driver of differences
- Over-estimation of yields – consistent with the findings of other studies using self-reported production estimates

PROS & CONS – USING SATELLITE IMAGERY

- Low cost, can cover large sample sizes
- Ideal for longer term/ follow up studies
- Potential for retrospective analysis
- Requires good quality field data to ‘ground-truth’

WHAT DO YOU THINK?

- Please take one (Business Card Slot)
- Please leave your contact here (Business Card Slot)
- Please leave your comments here (Slots for Paper & Pen)

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