



Growth and Labour Markets in Low Income Countries Programme

GLM | LIC

We are happy to announce that the GLM | LIC Research Network Conference will take place at the World Bank in Washington, D.C. on October 19-21, 2017.

In this newsletter, we would like to direct your attention to the inspiring results on the approaches to measuring farm labor from the project **Measuring Labor in Farm Household in Africa**.

The project is under the lead of (in alphabetical order by surname), Vellore Arthi (University of Essex), Kathleen Beegle (World Bank), Joachim De Weerd (University of Antwerp and KU Leuven), and Amparo Palacios-López (World Bank).

Newsletter

March

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I Z A Institute
of Labor Economics
Initiated by Deutsche Post Foundation

Measuring farm labor is important...

Of the 1.4 billion people living in extreme poverty, the vast majority resides in rural areas, relying on smallholder agriculture as a source of income and livelihood. The FAO estimates that Africa is home to 33 million small farms, holding less than two hectares and representing 80 percent of all farms. Farming practices are typically very labor intensive and the majority of the labor is provided by household members. Agricultural household labor is therefore a key household asset and its accurate measurement is essential to the development of sound policy.

...but also complicated

The estimation of labor inputs on small-holder farms is complex and vulnerable to mis-reporting. Small-holder farms typically employ mostly family labor; thus, there is no wage income in which to anchor recall estimates. Written records are rarely kept and the respondent must rely on recall to report on past events. Farming is a seasonal activity and work patterns are irregular during the season. Reporting “typical” or “average” time farming after the completion of the season requires remembering distant events and making complicated mental calculations. Alternatively, reporting hours worked in the last 7 days at any single point during the agricultural season will not necessarily be indicative of total labor during the season if labor inputs vary considerably across weeks during the season.

The researchers conducted an experiment...

The researchers conducted a survey experiment (see Table 1) in Mara Region, Tanzania over the 2014 *masika*, the long rainy season from January to June, to assess the size and the nature of recall bias. 854 smallholder farming households from 18 communities were randomly assigned to one of four survey designs (weekly data and recall data).

Table 1: Survey Designs in Reporting Agricultural Labor

Design A	weekly face-to-face visits (benchmark)
Design B	weekly phone surveys (alternative)
Design C	a single postharvest recall face-to-face survey (business-as-usual)
Design D	shorter version of the survey in Design C (business-as-usual)

...that shows labor recall modules lead to exaggerated labor input estimates

They establish the magnitude of bias by comparing the Weekly Phone and the Recall groups to the Weekly Visit design and find strong evidence of recall bias. This is based on the premise that the figures reported in the Weekly Visit design are likely to be the closest to the “truth”. Table 2 shows that the season-wide labor values reported in the Weekly Phone survey were close to the Weekly Visit interviews, but the Recall modules resulted in highly inflated estimates of total weeks and total days worked. However, measures of labor based on hours per day, are exaggerated only slightly. They calculate number of hours worked per plot per person. Total hours worked per plot per person over the season is 3.4 times higher in the Recall than in the Weekly Visit interviews. The Weekly Phone survey performs better than recall-based methods, exaggerating hours worked only by a factor of 1.2.

	A. Weekly Visit (benchmark)	B. Weekly Phone (alternative)	C. and D. Recall (business-as-usual)
Reported Days	9.2	10.7	27.8
Reported Weeks	2.5	2.6	5.7
Reported Hours per Day Worked	4.1	4.4	4.6
Total Hours Worked (Calculated)	39.5	48.8	133.8

...and they believe they understand why respondents misreport

Table 2 shows that the bias in the total number of hours worked per plot per person is primarily driven by the reports of weeks and days worked, not from the reports on the hours worked per day. For the smallholders, work schedules are both variable (different from one week to another) and irregular (no systematic or predictable pattern to the variability in work across weeks). Conditional on working that day, however, the number of hours worked is relatively regular (typically from 7am to 11am). From the social and cognitive psychology literature, the strategy a respondent uses to come up with an answer to a question on the frequency of occurrence of an event will depend on, among other things, the regularity and salience of that event. Salient events can be recalled and counted, whereas regular events can be estimated using rate-based estimation techniques, even if these events are not salient. Being neither salient nor regular respondents are not able to make use of rate-based or recall and count strategies when reporting on farm labor, leading to erroneous reports.

This has implications for survey design...

Their findings may even hold outside the context of agriculture, for instance, in settings in which some but not other components of the labor calculation face considerable variability. Survey designers should tread carefully when asking questions about the frequency of non-salient and irregular events. But what is the alternative? The benchmark Weekly Visit approach used here is expensive and unlikely to be a realistic prospect given the degree of scaling up necessary for national labor surveys. A result that comes out strongly in this study is the encouraging performance of the Weekly Phone surveys, which show little difference from the results obtained in the benchmark Weekly Visit design. While this mobile phone alternative performed well, it is nevertheless expensive in comparison to current end-of-season Recall approaches. Given the importance of cognitive burdens in driving mismeasurement in labor data obtained by recall, another approach is to design surveys in ways that minimize these burdens. There clearly remains scope for innovation in the accuracy-feasibility tradeoff.

...as well as for the debate on agricultural productivity

Finally, their results have implications for the debate on the agricultural productivity gap: why is value added per worker so much lower in the agricultural sector than in the nonagricultural sector – and how can such a difference be sustained in the long-run? Their results suggest that measurement and data quality may be especially important here. Studies suffering from similar recall bias would overstate how much people work on farms, which, *ceteris paribus*, leads to underestimates of labor productivity on these farms. ■

Many thanks to Principal Investigators of this project (in alphabetical order by surname), Vellore Arthi, Kathleen Beegle, Joachim De Weerd, and Amparo Palacios-López, and all involved in the project and their contributions to further shape the research agenda of the GLM | LIC programme.

Please click **here** to download the full working paper and **here** to download the full policy brief.



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The Growth and Labour Markets in Low Income Countries Programme (GLM | LIC) is a joint collaboration between IZA and DFID which aims to improve worldwide knowledge on labor market issues in low-income countries and provide a solid basis for capacity building and development of future labor market policies.

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