

# Measuring Farm Labor: Survey Experimental Evidence from Ghana

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Agriculture plays a key role in the economies of Sub-Saharan Africa. One of the most important inputs into agriculture in developing countries is the labor provided by family members on their own farms, denoted in this paper as farm labor. Measuring farm labor is, however, fraught with empirical difficulties. The most common approach is to ask survey respondents to recall the time each member of the household spent on farm activities during the previous agricultural season (end-of-season recall). While this extended reference period minimizes the impact of seasonality, it can lead to difficulties for respondents to remember how much time different members of the household worked on the farm over the entire season.

This study examines recall bias in farm labor by conducting a randomized survey experiment in the Ashanti and Brang Ahafo regions of Ghana over the 2015-16 rainy season among 720 agricultural households. One group of farmers was interviewed weekly about farm labor for each of the preceding seven days, what we consider the resource-intensive benchmark. Another group was interviewed at the end of the agricultural season (i.e. after harvest) about farm labor for the entire season, hence using the traditional end-of-season recall method. By comparing these two groups we obtain an estimate of bias in the end-of-season recall of farm labor, what we denote as recall bias.

This paper makes the following contributions. First, we show that the recall method overestimates farm labor per person per plot in our study area in Ghana by 18 percent, which is significantly lower than in a similar study conducted in Tanzania (Arthi et al 2016). Second, we argue that this recall bias in farm labor per person per plot, which is the unit at which

labor is reported by the survey respondents, is accounted for by listing bias, as households in the recall group report fewer plots and farm workers. These omitted plots and persons have, on average, less farm labor than the plots and persons that were listed at baseline, which increases measured hours of farm labor per person per plot among recall households. This is an important refinement to the conclusions reached by the earlier study, which also identified listing bias, but did not show how it explains recall bias in season-wide hours per person per plot. Third, listing bias runs counter to recall bias at the person-plot level and, in the case of Ghana, dominates at higher levels of aggregation. The end-of-season recall method thus underestimates farm labor per plot and per household, even though it overestimates farm labor per person per plot. We show that as a result, estimates of labor productivity in agriculture at the household-level are overestimated if farm labor is measured by end-of-season recall. Last but not least, we move beyond proxy determinants to better understand the deeper forces behind recall bias. Consistent with the notion that recall bias is linked to the cognitive burden of reporting on past events, we find that better educated households recall farm labor with greater accuracy. This educational gradient – together with small variations in the design of the experiment – can also explain some differences between the Ghana and Tanzania studies. The findings in this paper have several implications. In general, the presence of recall bias suggests that academics and policymakers ought to tread carefully when analyzing the state of agriculture, as biased data can lead to misguided policies. This paper documents further that the magnitude of recall bias depends on the level of aggregation and the characteristics of the population under investigation, which has consequences for within- and cross-country comparisons.