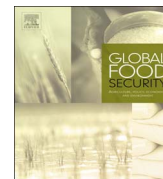




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Benefits to smallholders? Evaluating the World Food Programme's Purchase for Progress pilot[☆]

Erin Lentz^{a,*}, Joanna Upton^b^a Lyndon B. Johnson School of Public Affairs at the University of Texas, Austin, United States^b Charles H. Dyson School of Applied Economics and Management at Cornell University, Ithaca, NY, United States

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ABSTRACT

The United Nations World Food Programme's (WFP's) Purchase for Progress (P4P), a multi-year, multi-country pilot, sought to improve smallholder farmer wellbeing through a combination of food purchases from farmer organizations and supply-side interventions. We examine the impacts of P4P on smallholder farmers in Tanzania, using panel data on members of participating and comparison farmer organizations. P4P targeted participants based on pre-existing warehouses locations. To account for possible selection on observables, we use propensity score matching, limiting the sample to participating farmers and their matches, and then compute conditional difference-in-differences. While participating small farmers increase their commercial farming activity relative to comparison farmers, we do not find evidence of increased income, increased food consumption scores or increased crop value. We discuss possible factors contributing to these findings, including WFP's diverse objectives and the targeting of farmer organizations rather than smallholders.

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1. Introduction

A long and rich history of development interventions seek to engage smallholder farmers in higher-value markets or other productivity-enhancing farming technologies. Such interventions can, in many cases, improve farmers' wellbeing. Yet, findings also show that such structural transformations are not necessarily easily achievable (Barrett et al., 2012; Foran, 2014; Timmer, 2015). Following the 2007–2008 food price crisis, the United Nations World Food Programme (WFP), the world's largest food assistance delivery organization, instituted the five-year, twenty-country, \$170 million Purchase for Progress pilot (P4P). The P4P pilot combines two interventions intended to improve farmer productivity and wellbeing: the demand-side purchasing power of WFP and diverse supply-side interventions delivered through aggregation systems such as farmer organizations (FOs).

Demand-side interventions, such as local procurement or contracting with farmers, increase demand for products that are

often higher value or higher grade than those normally sold (Glover, 1984; Michelson, 2013). Yet, the benefits to smallholders of contracting or participating in local procurement are highly context dependent and not guaranteed (Reardon et al., 2009; Barrett, 2008; Harou et al., 2013; Narayanan, 2014). Supply-side interventions range from improving access to productivity-enhancing inputs or storage to addressing financial constraints to entering the market (Fan et al., 2013). Which technology or combination of technologies will be most beneficial — and whether smallholder farmers will adopt them — is often initially unclear (Foster and Rosenzweig, 2010; Reardon et al., 2009). While many programs aimed at structural transformation primarily focus on either demand-side interventions or supply-side interventions, researchers often recognize the need to combine them (Reardon et al., 2009). Among programs combining both demand- and supply-side interventions, P4P's scale of purchases and reach across intervention types and countries are unique, making it an important test case for how smallholders can be engaged in higher value markets.

Further, the past decade has seen a rapid shift away from sourcing food aid transoceanically and toward cash-based food assistance, including local procurement, cash, and vouchers. Purchasing food locally is often faster and cheaper than relying on transoceanic food aid deliveries (Lentz et al., 2013). WFP has been a leader in the transition toward local and regional procurement; P4P is one key innovation in its food assistance portfolio (Omamo et al., 2010). Given WFP's humanitarian mandate, lessons from P4P

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* Corresponding author.

E-mail address: erinclentz@utexas.edu (E. Lentz).

will be key for learning how, and if, local food assistance purchases might be leveraged for smallholder development. Yet, very few studies have rigorously examined the possibilities and limitations of engaging smallholder farmers when procuring food for assistance. In Burkina Faso, Harou et al. (2013) find that local smallholders were able to successfully deliver pulses to local schools for a school-feeding program; participating farmers benefited due to higher prices received and reduced transaction costs. In Guatemala, however, the authors find that the organization procuring from smallholders could not reconcile the tension between paying market prices and supporting smallholder farmers, who are often less efficient relative to for-profit millers and traders; ultimately, in this instance, procuring from smallholders was infeasible (Harou et al., 2013). Neither case included supply-side interventions, intended in the P4P pilot to help overcome the challenges of engaging in purchases specifically from smallholders.

An aim of the P4P pilot was to determine whether, by purchasing food locally from FOs, WFP can support smallholder members of the FOs while meeting its ongoing food programming needs. P4P's Development Hypothesis postulates that combining demand-side purchases with supply-side interventions, including expanded capacity for aggregation, quality assurance, and an improved enabling environment, will lead to increases in income for participating farmers (WFP, 2013). That is, P4P sought to assist smallholder farmers to enter formal markets through farmers' sales of aggregated volumes of higher quality products, resulting in higher incomes received by farmers.

In this paper, we examine whether the P4P suite of supply- and demand-side interventions improved income for smallholder farmers in Tanzania. We also examine the impact of P4P on other livelihood and productivity related measures, including food consumption scores, off-farm income, crop value, crop sales, and percent of crops sold four weeks after harvest. We find that participating farmers do, *ceteris paribus*, increase their commercial farming activity, but that there are otherwise minimal-to-no impacts of P4P participation on other wellbeing outcomes. Our results demonstrate the challenges of seeking "win-win" solutions that combine multi-pronged interventions to support procurement from smallholders with humanitarian purposes.

2. P4P program, sample, and intervention

2.1. P4P program

Across the 20 P4P pilot countries, WFP combined purchases from FOs with supply-side interventions tailored to best reflect the needs of participating FOs and their members. WFP and its partners did not directly engage with smallholders; P4P's intervention point was at the FO level. Of the 20 P4P pilots, we focus our analysis on Tanzanian pilot because it utilized a quasi-experimental research design and includes surveys from both participating and comparison FOs and their smallholder farmer members. As discussed below, WFP and its partners' supply-side interventions provided trainings and financing and rehabilitated warehouses located in villages with participating FOs. The demand-side intervention involved purchasing maize and beans through the FOs.

The Tanzanian P4P pilot began in September 2009 and concluded in December 2013. Prior to the start of P4P, Tanzanian legal restrictions prohibited any one organization from providing both marketing services and credit; for FOs in other countries, this combination is common practice. WFP and its partners selected Tanzanian Savings and Credit Cooperatives to receive both demand- and supply-side interventions. These organizations have since become *de facto* FOs, due in part to the end of legal

restrictions, and we refer to them as FOs.

2.2. Sample

Three rounds of data were collected from FOs and their smallholder members: in 2009, 2011, and 2013, including once prior to the implementation of P4P. WFP used a two stage process to select FOs and smallholder farmers. In the first stage, WFP selected which rural FOs to work with based primarily on proximity to warehouse structures (i.e., in the same community), WFP delivery sites, or WFP and partner offices (WFP - Tanzania, 2013). A second criterion was prior experience with rural financing or agricultural marketing. Rural comparison FOs were selected from similar agro-ecological areas so that comparison farmers had similar crop portfolios to participating farmers, but also selected so as to be "...far enough from treatment [FOs] to minimize the potential for members of control [FOs] to move to treatment [FOs] or being [able] to sell through those [FOs]" (WFP - Tanzania, 2013, p. 20). This approach has the benefit of limiting any unintended spillover price effects on comparison farmers resulting from WFP's purchases. The non-random program placement at the FO level may, however, introduce potential bias, and guides our estimation strategy, as described below.

FOs are clustered in two main geographic locations near to WFP operations: the north-east, including FOs from the Kagera, Kigoma, and Tabora regions and the north-central, including FOs from the Arusha, Dodoma, Kilimanjaro, Manyara, and Singida regions (WFP, 2013). In the surplus producing districts of Iringa, Rukwa, and Ruvuma regions, there is one P4P FO each. Thus, the study covers ten out of 30 regions in Tanzania and is not nationally representative. The number of FOs included 25 participant and 25 comparison organizations. Two P4P participating FOs sold maize to WFP prior to implementation of the baseline survey in October of 2009; we excluded members of those two FOs from our analysis, so as to ensure our sample includes only members untreated at baseline.

In the second stage, WFP randomly sampled FO members, but limited the random sample to members with landholdings equivalent to less than two hectares. This sample was chosen to reflect P4P's focus on improving the livelihoods of smallholder farmers. P4P defined "smallholders" as members with less than two hectares. This decision introduces a lack of variation with respect to farm size. About 22% of P4P FO members owned two hectares or fewer; we do not have information on member landholding information for comparison FOs. Therefore, our results are applicable to only the FO members meeting this definition of smallholder. It is likely that larger farmers might be more able to take advantage of P4P, and our impact estimates are likely lower bound estimates of over-all impacts.

Attrition of smallholder farmers between the first and second rounds was relatively high; during the second round, enumerators did not repeatedly seek to re-interview respondents from the first round who were not on-farm the day of the survey. This was corrected in the third round, and enumerators found and surveyed several individuals who responded in round one but not in round two. Therefore, we limit our sample to baseline (first round) and endline (third round) observations. Between October 2009 and February 2010, 780 smallholders were interviewed for the baseline, of whom 371 were members of P4P FOs. At the endline in 2013, 720 smallholders were interviewed, of whom 351 were members of P4P FOs.

Attrition over the five-year period was about 19%. T-tests of differences in means at baseline indicate that slightly better-off smallholders—those with more land and higher incomes—were, at the ten percent significance level, less likely to attrite, on average. This is consistent with the idea that financially struggling

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