



Development Review

Does contract farming improve welfare? A review [☆]Marc F. Bellemare ^{a,*}, Jeffrey R. Bloem ^b

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ABSTRACT

Although many urban areas around the world have grown steadily in recent years, the structural transformation, wherein an economy goes from relying primarily on agriculture and natural resources to relying primarily on manufacturing, has eluded many developing countries. In those countries, contract farming, whereby processors contract out the production of some agricultural commodity to growers, is often seen as a means of spurring the development of an agribusiness sector, and thus launch the structural transformation. As a result, economists and other social scientists have extensively researched contract farming over the last 30 years. We review the findings of the economics literature on contract farming and discuss its implications for development policy and research. In so doing, we highlight the methodological weaknesses that limit much of the literature on contract farming in answering questions of relevance for policy. Despite valiant research effort, many of the core features of contract farming imply substantial challenges for researchers aiming to study the question “Does contract farming improve welfare?” We conclude with a discussion of where we see the literature on contract farming evolving over the next few decades.

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1. Introduction

A key factor distinguishing the poor—those who live on less than \$3.10 on average per day—from the extreme poor—those who live on less than \$1.90 on average per day—is that the latter are much more likely to derive their livelihood from agriculture

(Castaneda, 2018).¹ An easily observable and widely accepted reason for this reality is a persistent lack of economic specialization throughout the developing world, particularly in rural areas and the agricultural sector. Despite the rapid growth of urban areas, the structural transformation—the transition from an economy based on agriculture and natural resources to an economy based on manufacturing—has so far eluded many of the world's poorest countries. Improving the livelihoods of the extreme poor by increasing the productivity of agriculture is therefore an often explicitly stated goal of international development policy.

One popular policy proposal among donors and multilateral agencies is for recipient governments to facilitate the expansion of contract farming,² wherein growers and buyers come to an agreement about the production of a specific agricultural commodity. Such schemes are not uncontroversial. On the one hand, many understand contract farming as an efficient and beneficial means of reducing transaction costs (Grosh, 1994), thereby leading to improvements in terms of efficiency, if not of welfare. A host of empirical studies purport to find positive income effects for growers who participate in contract farming (Ashraf, Gine, & Karlan, 2009; Bellemare, 2012; Minten, Randrianarison, & Swinnen, 2009; Miyata, Minot, & Hu, 2009; Narayanan, 2014; Rao & Qaim, 2011; Schipmann & Qaim, 2010). Others observe benefits in the form of farm profitability (Briones, 2015; Huddleston & Tonts, 2007; Mishra, Kumar, Joshi, & D'souza, 2016), household asset holdings (Michelson, 2013), household food security (Bellemare & Novak, 2017), and subjective well-being (Dedehouanou, Swinnen, & Maertens, 2013).

On the other hand, many are skeptical about the impacts of contract farming. Singh (2002a, 2002b) raises concerns about environmental degradation; Porter and Phillips-Howard (1997) argue that even if there are monetary gains from participating in contract farming, this need not be welfare-enhancing since participating farmers are forced to work longer hours and perhaps use their own children for cheap labor; Little and Watts (1994) worry that contract farming may increase income and wealth inequality. Supporting inequality concerns, Isager, Fold, and Nsindagi (2018) observe that contract farming leads to the concentration of wealth in Tanzania, and Michelson (2013) finds that farmers with more advantageous endowments of land and water are likely to participate in contract farming in Nicaragua. Finally, Ragasa, Lambrecht, and Kufolor (2018) find that the average increases in yield associated with participation in contract farming are not large enough to compensate for the associated higher input requirements in Ghana. Each of these findings suggest limitations to contract farming as an effective strategy to alleviate poverty in rural areas.

Recent work has attempted to summarize and synthesize these findings. Wang, Wang, and Delgado (2014) reviewed the literature on the effect of contract farming on farm productivity and household income. They find that 92% of studies estimate a positive effect of contract farming participation on productivity, and 75% estimate a positive effect on income. More recently, in a systematic review of the literature on the income effect of contract farming, Ton, Vellema, Desiere, Weituschat, and D'Haese (2018) found evidence of both publication and survivorship bias. This allows for

potentially spurious general conclusions about the effectiveness of contract farming.³

Our goal is to shed a more nuanced light on the literature on contract farming in developing countries. Several factors limit researchers' ability to draw any broad conclusions about the effectiveness of contract farming as a policy tool or institutional arrangement. First and foremost, causal identification is difficult in empirical studies on contract farming (Barrett et al., 2012) and so the internal validity of this literature is relatively low. Many early empirical studies rely on cross-sectional data and simply compare mean outcomes between households who participate in contract farming and those who do not (Goldsmith, 1985; Singh, 2002a, 2002b). A particularly challenging limitation of these studies is selection bias, or the fact that farmers choose whether to participate in contract farming on the basis of factors that are both unobserved by researchers and highly likely to be confounders. Aiming to improve on these early studies, many researchers employ econometric techniques such as a selection-correction methods or instrumental variables estimation (see, for example, Bolwig, Gibbon, & Jones, 2009; Briones, 2015; Miyata et al., 2009; Schipmann & Qaim, 2010; Simmons, Winters, & Patrick, 2005; and Warning & Key, 2002). The legitimacy of the estimates using both selection-correction and instrumental variable techniques relies on the validity of the variables excluded from the equation of interest. As we discuss below, the identifying assumptions in many of these studies do not hold up very well to closer scrutiny. These challenges limit internal validity, i.e., the ability of a study to credibly identify treatment effects.

Second, the effects of contract farming are highly heterogeneous and context-dependent, and so external validity is also relatively low. Simmons et al. (2005), for instance, study contracts for maize, poultry, and rice in Indonesia, and find higher returns for participating households than for nonparticipants in both maize and poultry contracts, but not in rice contracts. Therefore, even within a common context, effects are inconsistent across commodities. This heterogeneity aligns with the idea that contract farming arrangements arise out of the need to reduce transaction costs (Grosh, 1994). Since different settings experience different types of transaction costs, the effects of contract farming will likely differ across a variety of settings. Ultimately, this limits external validity, i.e., the ability to extrapolate research findings across time and space.

The remainder of this article is organized as follows. In the next section we offer some background information on the institution of contract farming and define the central question of this literature, viz. "Does contract farming improve welfare?" In section 3 we review the literature. Section 4 discusses our perspective on the directions the contract farming literature should take over the next few decades. We conclude in section 5 with a summary and some concluding remarks.

2. Defining the question

Our core question in this review is "Does contract farming improve welfare?" Before we can begin answering this question, it is worth spending time defining what the constituent parts of this question—"contract farming," "improve," and "welfare"—actually mean. At the outset, focusing this review around a specific—and perhaps narrowly defined—question may seem limiting. We acknowledge this point. The question about the welfare effects of contract farming, however, remains the first-order question of policy relevance in the contract farming literature. There are indeed

¹ See Ferreira et al. (2016) for a discussion of the poverty line conventions we adopt here.

² See, for instance, Eaton and Shepherd (2001) in a document prepared for the Food and Agriculture (FAO) of the United Nations titled *Contract Farming: Partnerships for Growth*. More recently, Sarkar (2014) discusses leaked policy documents from a leading consulting firm which suggested that the government encourage farmers to enter into contract farming in West Bengal. For their part, Kaur et al. (2016) suggest that institutions such as contract farming can counter the spate of farmer suicides in India, and Shukla et al. (2016) discuss the role of public-private partnerships in agricultural development policy.

³ For other reviews, see also Bijman (2008), Croppenstedt et al. (2013), Minot (1986), Oya (2012), Senanayake (2005), and Singh (2000).

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