World Development 108 (2018) 57–73

Contents lists available at ScienceDirect

World Development

journal homepage: www.elsevier.com/locate/worlddev

Can group farms outperform individual family farms? Empirical insights from India

Bina Agarwal

University of Manchester, Global Development Institute, Manchester M13 9PL, United Kingdom

ARTICLE INFO

Article history:
Accepted 3 March 2018
Available online 13 April 2018

Keywords:
Group farming
Women's groups
Small family farms
Agricultural productivity and profitability
Asia
India

ABSTRACT

Is there an alternative model to small family farming that could provide sustainable livelihoods to millions of resource-constrained and often non-viable smallholders in developing countries? Could group farming constitute such an alternative, wherein smallholders voluntarily pool land, labour and capital to create larger farms that they manage collectively? In South Asia, for instance, over 85% of farmers are small and increasingly female. Potentially, group farming could provide them economies of scale, a dependable labour force, more investible funds and skills, and greater bargaining power with governments and markets. But can this potential be realised in practice? In particular, can group farms economically outperform small family farms? A rare opportunity to test this is provided by two experiments begun in the 2000s in the Indian states of Kerala and Telangana. Constituted only of women, the groups lease in land to farm collectively, sharing labour, the cost of inputs, and the returns. But the states differ in several respects, including the technical support the groups receive, and their institutional base, composition, land access and cropping patterns. Based on the author's primary sample surveys in both states, this paper compares the productivity and profitability of group farms with that of small individual family farms in the same state. Kerala's groups perform strikingly better than the predominantly male-managed individual farms, both in their annual value of output per hectare and annual net returns per farm, while in Telangana group farms perform much worse than individual farms in annual output, but are equivalent in net returns. In both states, groups do much better in commercial crops than in traditional foodgrains, where the largely male-managed individual farms, owning good quality land and with longer farm management experience, have an advantage. The factors underlying the differential performances of Kerala and Telangana, and the lessons learnt for possible replication, are also discussed. Overall, the paper demonstrates that group farming *can* provide an effective alternative, subject to specified conditions and adaptation of the model to the local context.

1. Introduction

In the global concern with food security, poverty, and sustainable livelihoods, rather little attention has been paid to the institutional transformation of agriculture. The discussion has focused largely on the desirability or otherwise of two types of farm enterprises: small family farms, which constitute most farms globally,[1] and large-scale commercial farms. Some see smallholders as having substantial potential for providing food security and viable livelihoods (HLPE, 2013; Imai, Gaiha, & Garbero, 2014), while others favour large commercial farms on grounds of economic efficiency (Collier & Dercon, 2014). But neither institutional form adequately addresses the diverse problems encountered by most farmers today. On the one hand, small farmers, and especially the growing proportion of women farmers, face serious resource constraints and poverty in developing countries (Agarwal, 2014). On the other hand, by most assessments, at least in the near future, agricultural development remains the main option for reducing rural poverty and absorbing the vast body of existing and new entrants to the workforce, given limited prospects for this in the non-farm sectors of most developing countries (Imai et al., 2014, Hazell, Poulton, Wiggins, & Dorward, 2010), including India (Chand, Srivastava, & Singh, 2017; Himanshu et al., 2013; Lanjouw & Murgai, 2009). Large commercial farms appear unlikely to play this role (Mellor & Malik, 2017). The situation thus begs for alternative models of farming, involving smallholders.

E-mail address: bina.agarwal@manchester.ac.uk

[1] This can be surmised from two types of assessments for the 2000s: first, out of an estimated 570 million farms globally, at least 500 (88%) are family farms (FAO, 2014; Graeub et al., 2016); second, 84% of all farms across 111 countries are under 2 hectares in size (FAO, 2014:12). Also farm size is declining in most countries (Lowder, Skoe, &, Raney, 2016).

https://doi.org/10.1016/j.worlddev.2018.03.010
0305-750X/

Could an alternative lie in group farming—wherein small farmers voluntarily pool their resources (land, labour, capital and skills) to create a larger enterprise (but without forfeiting rights in any owned land), and cultivate it jointly, sharing costs and benefits. Can group farming enhance small farmer productivity and profitability? This paper empirically examines this little researched question.

The idea of group farming, in itself, is not new, but over the decades it has taken different forms, arriving in what we may term 'waves'. Broadly periodised, the first wave was of socialist collectivisation. The second wave involved efforts to promote cooperative farming in the 1950s and '60s by newly independent postcolonial countries (as part of agrarian reform), and by some European countries, especially France (Agarwal & Dorin, 2017). The third wave emerged in the form of collectivities formed voluntarily after decollectivisation of agriculture in the 1990s, in many former socialist regimes. And the fourth wave is the current one in countries such as India. The first wave is best researched, each subsequent wave less and less so, while the fourth wave is virtually unexamined, especially in relation to the economic effects of group farming.

Conceptually, there are many reasons why we might expect resource pooling and joint cultivation to help small farmers enhance their productivity and get favourable returns: enlargement of farm size; economies of scale; saving on hired labour and access to a dependable labour force, especially in peak seasons; more funds for investing in machines and inputs; a larger pool of skills and knowledge; and greater bargaining power in input and output markets as well as with government agencies that provide technical information and training. These potential advantages could prove especially important for women farmers who face production constraints over and above those faced by small farmers in general (FAO, 2011; World Bank, 2009). In addition, there can be gender-specific benefits. For instance, cultivating in a group that is separate from the family would give women autonomy in making production decisions, control over output, and an independent identity as a farmer. All this is seldom possible within male-managed family farms where women's contributions are often rendered invisible. Also, women who want to farm but own little or no land (the typical situation) can improve their land access by being part of a group, since this would increase their financial resources as well as negotiating power in land lease markets. Most importantly, women in many cultures face social restrictions on their mobility and ability to interact freely in public institutions and markets. Groups are found to help overcome such restrictions (Agarwal, 2010a). These extended advantages could prove especially important for agricultural development, given a growing feminisation of agriculture (Agarwal, 2014).

At the same time, any type of group functioning can be subject to collective action challenges, such as free riding. Although most collective action theory focuses on common pool resources (Olson, 1965, Ostrom, 1990, Verughese & Ostrom, 2001), issues such as group size and homogeneity, and the risk of free riding raised by that theory, remain relevant, even when focusing on private property resources. Indeed we might expect them to matter even more, given the density, complexity, and daily nature of interaction required in group farming. Can these challenges be overcome?[2]

A rare opportunity to empirically assess the performance of group farms is provided by initiatives taken in two states of India in the early 2000s, one in Telangana (earlier part of undivided Andhra Pradesh), the other in Kerala. In both cases, the groups are constituted only of women. They lease in land owned by group members and/or non-group landlords, which they cultivate jointly, sharing input costs, labour and returns. The two initiatives differ, however, in the origin of the groups, their size and social composition, the state support they receive, the institutional structure within which they operate, and the freedom they enjoy in deciding what to grow. These and other differences can affect productivity. The two examples thus give us an opportunity not only to compare the performance of individual and group farms in each state, but also to assess the conditions under which collective farming, especially by women, is more likely to be successful, economically.

In specific terms, the paper addresses three interrelated questions. First, how do the groups perform relative to small family farms in the same regions, in terms of (a) productivity, and (b) profitability? Second, are there notable differences in this regard between Telangana and Kerala? If so, to what may we attribute these differences? Third, what lessons might these programmes hold for their potential replication in other regions of India, and more generally in South Asia and developing countries elsewhere?

None of these questions have been addressed before. To answer them, I conducted primary surveys in both states. Existing studies which have examined the impact of group farming on farm productivity have focused predominantly on former socialist regimes, usually comparing production under various types of collectivised/cooperatized farms with farm enterprises that emerged in the post-reform period, or after decollectivisation. Given this specificity, their experience is at best indicative; it cannot provide substantive lessons on the potential outcomes of group farming in today's developing countries. This paper seeks to do so.

The paper is divided into 5 sections. Section 2, which follows, outlines the existing literature on group farming and productivity, and provides a background to the Telangana and Kerala initiatives. Section 3, describes the data and the broad characteristics of the farms. Section 4 outlines the model and hypotheses, and Section 5 presents the results. The concluding Section 6 reflects on the broader lessons we can draw from this analysis.

2. Existing studies and Indian initiatives

2.1. Existing studies

Studies which seek to assess the impact of group farming on farm productivity can be divided into two broad sets, both linked to former socialist countries. One set of studies, mostly undertaken in the 1980s and early 1990s, compare farm productivity under smallholder agriculture with various types of large, state-promoted farm enterprises (state farms, producer associations, collectives, communes, as the case may be). These studies present assessments (typically based on production figures for regions, rather than at the farm level) for a diversity of countries—China, Vietnam, Nicaragua, Cuba, and Ethiopia—and give mixed results. Some observe lower outputs or yields under collective enterprises relative to individual farms;[3] others find higher outputs, or mixed outcomes.[4] Some authors, such as Deininger (1993), also argue on theoretical grounds, based on assumptions of neoclassical economic

[2] Cooperation around marketing is widespread, globally and historically, and well researched. But typically it does not involve joint production of the marketed item, and hence does not pose the same challenges, or hold the same potential benefits, as the 'fully integrated cooperation' required in group farming. See Agarwal (2010b) for elaboration.

[3] See, Nolan (1988) and Lin (1990) for China, and Beresford (1990) and Pingali and Xuan (1992) for Vietnam: in both countries output rose after decollectivisation. See Deininger (1993) for Nicaragua on large state farms; and Mengisteab (1990 cited in Deininger 1993) for Ethiopia in the 1970s.

[4] See, Ghai, Kay, and Peek (1988) for Cuba, where output was higher among small cooperative farms relative to large state farms; Kung and Putterman (1997) for China, who find productivity gains both during collectivisation and decollectivisation of agriculture; and Griffin and Hay (1985) who find mixed effects for specific crops when comparing peasant farms, producer cooperatives and state farms for Ethiopia.