Policy Brief

Large-Scale Agriculture and Outgrower Schemes in Ethiopia: Land Acquisition, Productivity, Labour Markets and Welfare Effects

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Background

Because of the growing demand for food, feed and industrial raw materials, and the usually welcoming policies regarding investors amongst the governments of developing countries, renewed interest in the acquisition of land for large-scale farming emerged. This was closely followed by an intense debate about the consequences of large-scale land acquisition for the rural populations of developing countries (see, e.g. White et al., 2012; Poulton et al., 2010). While proponents believe that large-scale agriculture can reverse the enduring underinvestment in farming in developing countries, generate more employment, and facilitate access to better technologies and skills which could improve productivity of small-scale farming, its critics frame it as "land grabbing" by argue that the rush for large-scale land acquisition in an environment where property rights are ill-defined and state capacity to monitor these deals is weak, is likely to cause massive displacement of the rural poor from their land without proper compensation, ultimately resulting in food insecurity, resource use conflicts, and environmental degradation (e.g. Andersen and Robertson, 2010). Against this background, outgrower schemes and contract farming are increasingly being promoted to avoid the displacement of smallholder farmers from their land due to 'land grabbing' for large-scale farming, to integrate them into global agro-food value chains and to increase their productivity and welfare. However, the impact of large-scale agriculture and outgrower schemes on productivity, household welfare and wages in developing countries is highly contentious.

The main objectives of this project are: (i) to identify the key factors that contributed to the failure (lack of implementation) of large-scale biofuel projects; (ii) to examine sugarcane productivity on a factory-operated plantation with the productivity of outgrower-operated plots; (iii) to examine the effects of participation in sugarcane outgrower production on household income and asset stocks; and (iv) to investigates wage and working conditions in irrigated large-scale and small-scale agriculture in Ethiopia.

The study was conducted in four districts (Adama, Dodota, Bora and Dugda) in central part of Ethiopia. Both qualitative and quantitative data collection methods were used in the study. The quantitative data come from 377 plot level observations of sugarcane production, and survey data from 368 household and 317 laborers. In addition to the quantitative data, qualitative data were collected through more than 10 focus group discussions and more than 100 semi-structured interviews with key informants.

Results

Key factors underlying the failure of large-scale jatropha plantation

This study shows moisture stress was a key agronomic factor which resulted in a very disappointing agronomic performance (i.e. stunted growth and very poor branching pattern) of large-scale jatropha plantation in Ethiopia, despite the fact that jatropha was promoted based on the assumption that it could be commercially grown on marginal land without the use of irrigation. A second relevant agronomic factor was the use of untested germplasm. In addition, conflict with local communities over the land acquired for jatropha plantation was another key factor that contributed to the termination of biofuel projects. The semi-structured interviews with biofuel experts at the regional and national levels revealed that there are also other factors that contributed to the overall declining interest in biofuel. These include the world economic downturn (following the financial crisis), the international politics of biofuel, the declining international oil price, and technical issues related to project implementation (e.g. very limited knowledge about the agronomic requirements of jatropha, the absence of a feasibility study and a lack of farming experience).

Productivity of outgrower-operated plots versus factory-operated plantation

This study reveals that outgrowers achieve, on average, significantly higher productivity (13%) than the factory plantation. Furthermore, the gross margin on outgrowers' plots is on average significantly higher (21.4%) than on the factory plantation. Our finding is consistent with the majority of previous studies, which suggest that small-scale farmers have higher productivity than large-scale production due to the higher productivity of family labor compared to hired labor (e.g. Mazumdar, 1965; Berry and Cline, 1979; Benjamin 1995). The identified productivity difference between the two production types is mainly caused by different incentive structures between the outgrowers and the laborers and managers at the plantation (i.e. while the outgrowers and their managers are residual claimants, estate laborers are paid a daily wage).

Impacts of outgrower schemes on household income and asset stocks

This study indicate that the effect of participation in outgrower schemes crucially depends on whether the land that was allocated to sugarcane outgrower scheme had access to irrigation prior to outgrowers joining the scheme. The analysis based on the survey data of participant and non-participant households in sugarcane outgrower scheme show that participation in outgrower scheme has significant negative effects on the income and asset stocks of outgrowers whose land had access to irrigation prior to participation in the sugarcane outgrower scheme. However, for outgrowers whose land had no access to irrigation prior to participation in the sugarcane outgrower scheme, participation has no statistically significant effect on their income or on their asset stocks.

Wages in the large-scale and small-scale irrigated agriculture

Although the superiority of large-scale farming in generating wage employment (with higher wages) is used as a main argument in favor of large-scale agriculture over small-scale agriculture, irrigated small-scale (informal) commercial agriculture commands a significant wage premium over

irrigated (formal) large-scale irrigated commercial agriculture. This study show that while observed human capital characteristics (education and experience) partly explain differences in wages within the formal sector, it play no significant role in the determination of wages in the informal sector.

Conclusions

- Unrealistic expectations about the versatility of jatropha and conflicts over land are the main underlying causes for the failure of large-scale jatropha projects in Ethiopia.
- When the use of family labor is combined with easy access to credit and technology outgrowers achieve higher productivity than that achieved on the nucleus estate farm
- Participation in the outgrower scheme has significant negative effect on the income and asset stocks of outgrowers whose land had access to irrigation prior to participation in the sugarcane outgrower scheme.
- Large-scale formal agriculture does not always offer higher wages compared to informal small-scale agriculture. Thus, if irrigated small-scale farming is provided with necessary support, for instance, through better access to technology and markets, it could create more jobs (with higher wage) in rural areas.
- Compulsory participation in outgrower-schemes where the buyer has monopsony market power may keep farmers in poverty
- Overall, large-scale agriculture does not appear to be a promising development strategy for developing countries because of: (i) the conflicts it generates over the land, (ii) its lower productivity than outgrowers, (iii) it lower wages for laborers than irrigated small-scale agriculture, and (iv) its unmet promises about benefits for local communities.

Recommendations

- Proper feasibility studies, appropriate selection of planting materials, and sufficient moisture, and securing uncontested access to land are very crucial for successful implementation and profitability of large-scale biofuel projects
- If governments encourage or even force smallholder farmers to participate in outgrower schemes, they should ensure "fair" prices for outgrowers produce e.g. based on outgrowers' best alternative option with the same or less risk in the absence of these schemes
- Government should protect the laborers working in the large-scale agriculture from exploitation, example through introducing a minimum wage.

Areas for further research

To provide better-founded policy advices further research is required

(i) to consider wider geographical areas, more crops, and various contractual arrangements when examining the effects of contract farming on household welfare

(ii) to investigate the effects of contract farming and outgrower schemes on local food security, since food insecurity is an important concern in most developing countries

(iii) to consider the heterogeneity that encompasses the types of employer and employment type, crops and geographical locations when conducting labor studies.

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