



# Explaining the performance of contract farming in Ghana: The role of self-efficacy and social capital <sup>☆</sup>



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## ABSTRACT

Self-efficacy is the belief of an individual to have the ability to be successful in a given domain. Social capital is the economic value of a person's relationships. In the context of this study, self-efficacy is the belief of a farmer to be able to improve her income with contract farming, which increases her actual ability. Social capital increases the ability of the farmers through social support.

We surveyed 400 smallholder pineapple farmers and find that both self-efficacy and social capital are decisive for their successful integration into contract farming. To identify causal effects, we use two instruments, which are also of interest on their own: the historical presence of (1) cocoa cooperatives and (2) Christian missionary schools. During Ghana's colonial period, the British established cocoa cooperatives, which differed in their performance as a function of biogeographic factors and thus persistently shaped the self-efficacy of the farmers. Roughly at the same time, Christian missionaries established missionary schools, which impacted the traditional societies so that social capital decreased. The finding that self-efficacy and social capital are still shaped by historic variables could indicate that these variables are only slowly changing, or that they only do so in the absence of policy intervention. The latter raises the possibility that effective policies could benefit from strong reinforcing feedbacks once self-efficacy and social capital improve.

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## 1. Introduction

There is an ongoing debate about the costs and benefits of contract farming for smallholders in Sub-Saharan Africa (Barrett et al., 2012; Bellemare, 2012, 2015; Oya, 2012). It is a forward agreement specifying the obligations of suppliers (farmers) and buyers (processors, exporters, or supermarkets) as partners in business and widely seen as a tool for poverty mitigation, for its potential to resolve market failures (Grosh, 1994). It requires the farmers to supply specified quantities and qualities and the buyers to take up the produce (often at pre-agreed prices). Additionally, the buyer

commonly supplies services such as production-inputs, credit, logistics, or training (Eaton and Shepherd, 2001; Will, 2013).

In Ghana, contract farming has been promoted by almost all recent agricultural development projects (German Society for International Cooperation, 2005; USAID, 2007, 2009; Millennium Development Authority, 2011; World Bank, 2011; USAID, 2013) for its positive, expected welfare effects (Kirsten and Sartorius, 2002; Rao and Qaim, 2011; Barrett et al., 2012; Bellemare, 2012; Wuepper et al., 2014; Bellemare and Novak, 2015). However, research has also shown important constraints to the success of contract farming (Fafchamps, 1996; Fold and Gough, 2008; Wuepper, 2014).

As a case in point, in Ghana the performance of pineapple contract farming has been heterogeneous in time and space (Fold and Gough, 2008; Barrett et al., 2012; Gatune et al., 2013) – with important socio-economic implications. The development of the pineapple export and processing sector in Ghana is directly or indi-

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rectly important for the employment and income of many. A major problem, however, is reliability. Some farmers “side-sell” fruits instead of adhering to their contracts if they can obtain a better price or faster payment locally, and farmers have reported that companies have refused to pick up fruits or pay for them when demand was unexpectedly low. These experiences had a negative effect on how farmers currently perceive contract farming.

However, some companies and farmers have apparently figured out how to make contract farming work, as indicated by the reliability and profitability of their contract agreements.

In this article, we test the hypothesis that two cultural traits, self-efficacy and social capital, explain why farmers with seemingly identical incentives and constraints are integrated into farming contracts with varying success. Both cultural traits will be discussed in the next Section 2, but we will provide the following short definitions here: Self-efficacy is the belief of an individual to have the ability to achieve success in a specific domain (Bandura, 1977, 1997, 2012). The concept is different from self-confidence and other related concepts and has a higher predictive and explanatory value, mainly because it is domain-specific instead of general. We define social capital following Putnam et al. (1994) as “features of social organization, such as trust, norms and networks that can improve the efficiency of society by facilitating coordinated actions.”

To identify the causal effects of these traits, we use “accidents of history”, specifically, the colonial establishment of cocoa cooperatives and the placement of Christian missionary schools.

We find that both cultural traits are crucial for the performance of contract farming, which has important policy implications.

Self-efficacy increases how much the farmers believe to be able to benefit from contract farming, which increases their reliability, and social capital directly helps the farmers to be more reliable, e.g. by compensating for market imperfections. Policies to increase self-efficacy encourage farmers (face to face or media based) to pursue more ambitious goals (Bandura, 1997, 2001; Bernard et al., 2014, 2015), support them to achieve their more ambitious goals (Bandura, 1995, 1997), expose the farmers to successful peers (Bernard et al., 2014; Magnan et al., 2015), and avoid negative emotions (Bandura, 2012; Haushofer and Fehr, 2014; Dalton et al., 2016). Whereas these policy promise to increase the self-efficacy of the current farmer generation, it is also important to directly raise the self-efficacy of children, so that they grow up with higher levels of self-efficacy. Dercon and Singh (2013) and Dercon and Sánchez (2013) show that malnutrition during childhood persistently lowers self-efficacy in later years and Krishnan and Krutikova (2013) demonstrate in India how a specifically designed mentoring program can significantly improve the self-efficacy of poor school-children.

In the short term, important actions for policy makers and company managers is to encourage the farmers to take on more ambitious goals and to avoid failure that the farmers could attribute to their lack of ability. Furthermore, extension and trainings should not only diffuse technical knowledge but also aim at the farmers’ self-efficacy – especially, it is important to avoid criticism that could make the farmers doubt their capabilities.

Policies to increase the social capital of the farmers should increase the amount of social interaction between the farmers, as demonstrated by Feigenberg et al. (2013) in India and Atanasio et al. (2009) in Colombia, and contracts must be designed to avoid trust issues, such as described by Barrett et al. (2012), so that negative experiences can be avoided.

The main contributions of our research are the identification of a cultural foundation for the performance of contract farming, an understanding of the historical roots of this cultural foundation, and a discussion of policy recommendations based on such findings.

In the next Section 2, we discuss why self-efficacy and social capital matter for contract farming. In Section 3, we provide a succinct background of the historical sources of self-efficacy and social capital, which we later use for the identification of their effect on contract farming performance. We then turn to our data and variables in Section 4 and explain our empirical framework in Section 5. In Sections 6 and 7 we then report our baseline and main results, respectively, and in Section 8 we perform additional investigations into the effect of culture on locally generated income and participation in contract farming. We conclude our study with a discussion of our findings in Section 9.

## 2. Self-efficacy and social capital

The performance of contract farming depends to a large extent on transaction costs. Lower transaction costs make contract farming more profitable; thus, more reliable business partners make contract farming more profitable. The following analysis is concerned with two cultural traits, one individual and one collective, that are hypothesized to affect the performance of contract farming through transaction costs. The individual trait is self-efficacy and the collective trait is social capital.

Self-efficacy is a fundamental behavior determinant that can potentially explain why some individuals are risk averse and have high discount factors in some domains. It describes how much an individual believes to have the ability to achieve success in a specific domain (Bandura, 1977, 1997, 2012). It was developed originally in psychology to explain why some treatments are more helpful than others in assisting phobics with overcoming domain-specific fears (Bandura, 1977). Not long after, it was discovered to explain a wide range of more common behaviors, such as educational attainments and choice of profession (Bandura, 1997). Recent research in agricultural economics includes the finding that self-efficacy increases the aspirations of farmers in Ethiopia and thus motivates increased saving, credit-taking, and investments into education (Bernard et al., 2014). Whereas aspirations are only one effect of self-efficacy, it is an important one, because low aspirations caused by poverty can be a poverty trap (Moya and Carter, 2014; Dalton et al., 2016). Self-efficacy can explain why poverty lowers aspirations (Bandura et al., 2001; Chiapa et al., 2012; Tafere, 2014; Pasquier-Doumer and Brandon, 2015) and why poverty impedes cognitive functioning, planning, and self-control (Bertrand et al., 2004; Shah et al., 2012; Mani et al., 2013; Haushofer and Fehr, 2014; Laajaj, 2014). Recent research in Ghana also shows that farmers with higher self-efficacy respond to adverse weather conditions with the adoption of climate-smart technology whereas others do not (Wuepper et al., 2016) and that these farmers achieve significantly higher incomes than others because they generally invest more into their fields (Wuepper and Drosten, 2015).

The mechanism behind the self-efficacy effect is the following: A farmer usually only invests into a domain if she thinks it is worthwhile. Thus, it is usually insufficient for a farmer to believe that contract farming is generally profitable or has a high potential to improve welfare. Only if the farmer believes to have the ability to be increase her welfare through contract farming will she invest into it. This means her behavior is determined by what she believes to be able to achieve, not what she is objectively able to achieve (which is, however, connected, because the belief affects the outcome). Investing into contract farming can take many forms, including not side-selling when the local market price is higher; investing in quality even if quality is difficult to monitor; or adhering to the contract even if it means a lower than maximum profit in some years, all of which are for the sake of the long-term relationship with the company.

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