Empirical Research on Contract Farming: *Quo Vadis?*

Marc F. Bellemare

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Introduction

When Tom invited me to join this pre-conference event, I did not hesitate, nor did I have to think very long before settling on a topic.

After thinking about and conducting research on the topic of contract farming and agricultural value chains for almost 10 years now, I had a number of thoughts on the state of empirical research in this area which did not fit neatly either into a research paper or a series of blog posts.

The title of my talk—*Quo vadis?*—refers to the question which, according to the Biblical apocrypha, Peter asked Jesus while fleeing crucifixion in Rome: "Lord, where are you going?"

Introduction

Introduction

But rather than asking where the research is going, I will try to provide an answer to the question: Where *should* the empirical research on contract farming be going over the next 10 years?

Beyond my own work on the topic and my editorial work at *Food Policy*, this is my humble attempt at steering the research agenda in directions which I believe are important.

In doing so, I hope to provide younger researchers with a few things to think about as they develop their own research on contract farming.

Outline

Outcomes: Beyond Income

The bulk of the empirical research on contract farming has focused on income (as in Bellemare, 2012), some variant thereof (e.g., farm revenue or profits), or some proxy for income (e.g., productivity, as in Bellemare, 2010) or variant thereof.

Income and other related measures are convenient outcomes to study because they are somewhat easy to measure and because, from a utilitarian perspective, it is easy to make the case that as income goes, so does welfare—indirect utility functions are increasing in income.

Outcomes: Beyond Income

Income, however, is but one aspect of overall welfare. And even accounting for the imperfect identification strategies put forth in the literature and accounting for publication bias, we have a reasonable case for the claim that participation in contract farming leads to increased incomes.

So what I suggest is looking at other outcomes. Dedehouanou et al. (2013) look at the self-reported happiness of smallholders, which is a good start. But there are other outcomes we can look at.

Outcomes: Beyond Income

But recall that development economists are generally interested in many outcomes beyond income.

We could ask, for example, whether participation in contract farming leads to better access to credit, better health outcomes, better educational attainments, better nutrition and food security (as in Bellemare and Novak, 2015), increased savings and more assets, to growing fewer crops, etc.

Outcomes: Beyond Income

All of those things capture different aspects of welfare, and many would argue that most of them are no less important than income, farm profits, or productivity.

Granted, it might take some time before the welfare impacts of contract farming manifest themselves in some of those outcomes. But it is also time we go beyond cross-sectional data to study the issue–to get more T, as McKenzie (2012) would have it. An interesting first step in that direction is Muriithi and Matz's (2015) work on Kenya.

Mechanisms: Contract Farming and Market Failures

I presume almost everyone here has read Grosh's (1994) great *Journal of African Economies* article studying contract farming through the lens of New Institutional Economics.

In her paper, Grosh identifies the market failures that the institution of contract farming can help resolve. This points the way to a series of questions one can ask from the data in order to go beyond the usual question of "Does participation in contract farming increase welfare?"

Mechanisms: Contract Farming and Market Failures

According to Grosh (1994), contract farming can help resolve issues of

1. Risk and uncertainty
2. Imperfect factor markets
3. Monitoring and enforcement
4. Extension services and technical advising

Mechanisms: Contract Farming and Market Failures

Given the wealth of data now available, it should be possible to look at whether contract farming indeed helps resolve those market failures. Generally, it should also be possible to study the precise mechanisms through which contract farming leads to welfare improvements.

For example, a simple question might be one like: "Does contract farming lead to the adoption of improved agricultural technologies, given that it insures smallholders against certain risks?" Or: "Does contract farming reduce the scope for moral hazard relative to labor contracts on a plantation?"

In other words, it is time to bring economic theory back into this literature–and vice versa (Wu, 2014).

Identification and Other Empirical Considerations

Since the Credibility Revolution (Angrist and Pischke, 2010), it is no longer possible to talk of empirical research in applied microeconomics without talking about identification.

If you are not familiar with the term, it refers to the proper identification of causal relationships (as distinct from mere correlations)—an issue that is particularly salient when using observational (e.g., survey) rather than experimental data.

In Bellemare (2012), I developed a field-experimental method that purported to have a better claim at causal identification than extant methods and which has since been used by others (e.g., Verhofstad and Maertens, 2013; Bellemare and Novak, 2015), but even that was not perfect.

Identification and Other Empirical Considerations

At this point in time, the gold standard of identification remains the randomized controlled trial (RCT; cf. Duflo et al., 2007).

Though RCTs have so far not been applied to contract farming, it remains in principle possible to study the institution using that method, which would lead to more credible inference regarding the effects of participating in contract farming.

For example, with sufficient funding, it should be possible to work with a processing firm and offer random cash incentives to participate in contract farming (i.e., an encouragement design. This would in principle allow credibly estimating the LATE and the ITT of participation in contract farming on a host of outcomes.

Identification and Other Empirical Considerations

Likewise, although perhaps less ideal, if one were to develop a good relationship with one or more processing firms, it should be possible to use a difference-in-differences methodology.

To do so, one would have to know *where* processing firms next plan on extending their contracting activities in order to collect baseline data in these (i.e., treatment) and other communities (i.e., control) communities, then collect follow-up data in both treatment and control communities.

This is perhaps the most promising identification strategy given its relatively low cost compared to an RCT.

Development and Industrial Organization

At its core, the study of contract farming and agricultural value chains is equally concerned with development economics and with industrial organization–contract farming is a vertical coordination mechanism (Bijman, 2008), i.e., a first step away from spot markets and toward vertical integration.

Development economics has now incorporated insights from many other fields of economics (e.g., agricultural, education, environmental, health, and labor economics). The time is ripe for development economics to incorporate more insights from the field of industrial organization.

Development and Industrial Organization

This means that the time is also ripe to incorporate structural econometrics in the study of contract farming. I have tried to do some work of that nature as far back as 2006, to no avail.

Although most development economists wouldn't be caught dead using structural econometric methods, I expect those to make a comeback given that experimental methods now allow incorporating the (plausibly) exogenous sources of variation necessary to make credible inference.

Structural methods would also allow studying the mechanisms through which contract farming improves welfare.

Development and Industrial Organization

But perhaps more importantly, combining industrial organization and development economics would allow looking at bigger questions than the narrow ones posed so far by the empirical research on contract farming.

This would allow looking at entire markets, and it might allow looking at entire value chains, which would be much more relevant for policy and business than what has so far been done.

It might even allow developing countries to put in place effective agricultural-industrial policies.

The Structural Transformation

The foregoing leads to looking at what is perhaps *the* defining question of development economics: Empirical research on contract farming and agricultural value chains offers what is perhaps our best hope for understanding once and for all the process of structural transformation, which involves

> *... a falling share of agriculture in economic output and employment, a rising share of urban economic activity in industry and modern service (Timmer, 2007).*

I say this is *the* defining question of development economics, given that industrialization brings with itself the promise of more stable sources of income for people in developing countries.

The Structural Transformation

We should thus analyze broader outcomes than just what happens to participating households and firms.

In particular, we should be asking questions of a more macro- or meso-economic nature–we should be looking at the structural transformation (Wang et al., 2014).

Are participating households, for example, more likely to have members who migrate to the city in order to find employment? Does the development of agricultural value chains cause the development of an industrial sector, or does causality run the other way?

Conclusion

The empirical research on contract farming has so far been interesting, but it has been limited in scope.

I have attempted to anticipate the most promising areas for research. Those areas relate to (i) outcomes beyond income or closely related measures of welfare, (ii) the mechanisms whereby contract farming improves welfare and whether the institution helps resolve market failures, (iii) causal identification, (iv) a possible marriage of development economics and industrial organization, and (v) the structural transformation.