MPEP SEMINAR SERIES

Exploring Frontiers in Inclusive Market Development

SMALLHOLDERS IN VALUE CHAINS: EVIDENCE ON SCALE, PRODUCTIVITY, AND BENEFITS

AUDIO TRANSCRIPT

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CONTENTS

PRESENTERS

Elizabeth Dunn, Impact LLC

Jeanne Downing, USAID/MPEP

PRESENTATION

Jeanne Downing: Good morning, everybody. This morning we're really excited to have Elizabeth Dunn here. She has been a presenter for us at this seminar for years now and Elizabeth has a PhD in Ag Economics from the University of Wisconsin in Madison and today she's going to present on some research that we've done over the last couple of years and this research is funded by our FIELD-Support LWA and FHI360. So we want to thank them and the research focuses on something that we've been asking about, value chain development, for some time.

To what extent do smallholders participate in value chain? To what extent are they investing and upgrading or improving their productivity, and to what extent are they benefitting on this participation investment?

And to a significant extent I think this research focuses on scaling. USAID these days is very focused on scaling impact and scaling technology, and I think that this research not only focuses on the extent of scaling that we're seeing in terms of outreach or extent of impact, or scaling of impact in terms of productivity but it's looking at not just the tangible things that are needed to achieve scale, but also the intent.

What kind of decision-making is going on behind decisions to invest or participate and what are some of the incentives that are needed to achieve the kind of scaling that people are looking for? And with that let me turn it over to you.

Elizabeth Dunn: Good morning, everyone. Thanks for the introduction, Jeanne, and I want to thank QED for hosting this event as well as FHI 360 for sponsoring the research, and I want to also thank ACDI/VOCA for their long collaboration, and of course USAID's Impact Office that makes it all possible.

So USAID has a long history of working in agriculture and in recent years there have been several years of experience working to integrate smallholders into competitive agricultural value chains, and more recently USAID's Feed the Future initiative has reaffirmed the importance of investing in smallholder agriculture as a means for reducing poverty and hunger in rural areas.

So I think it's important for us to consider then what are the factors that might affect the success of this strategy? While we know there are large numbers of smallholders in rural areas we shouldn't expect that all of them are going to be likely to contribute to accelerating growth in the agricultural sector. So this talk is about who might participate and who might not. The seminar is going to focus on three important questions about smallholder participation, and the first question is about scale.

The question here is how many smallholders can be reached through agricultural value chain projects and correlated to those questions are what are some of the factors that affect scale of outreach and what can we learn about good ways to go to scale and to integrate large numbers of smallholders?

The second question relates to productivity and it asks if smallholders are reached by agricultural value chain projects then what do we know about their ability to increase their productivity? When will smallholders be willing to make those investments that are required to improve productivity?

The third question has to do with benefits. When smallholders do adopt new practices and improve their agricultural productivity then what happens to farm profits and to household income? Do smallholders benefit from this participation?

So I'll spend relative – a little bit more time on scale and productivity; a little bit less on benefits because the evidence is stronger for the first two but the entire discussion is going to be framed in terms of the smallholder as decision makers, and upgrading and productivity, and participation as decisions – as outcomes of a smallholder decision process. So that way we can look at the conditions that affect smallholder outcomes related to scale, productivity and benefits.

Before I forget I want to let everybody know that the material for this seminar is in a publication and there are lots of copies here. I'll give a little shout out to the people online because I'm usually on-line since I live out of town and there – you should be able to download this report from Microlinks.

So here's the agenda for the presentation; basically two parts. As a brief background I want to tell you about the 12 cases that are included in the study and then I want to introduce the framework for understanding smallholder decision-making; and after briefly touching on this background material then I want to focus on those three issues of scale, productivity and benefits, and for each one I'll show you some of the evidence that's in the paper, some of the evidence that we've found in the cases, and then try to interpret those findings in terms of that decision-making framework.

So let's look at the cases that provide the evidence for the study. As I mentioned there are 12 agricultural value chains included in this study and there also was a handout on your chair and these 12 cases are listed on the table one of the handout.

Of these, 10 are related to donor projects and the other two are not part of a recent donor project. They're just kind of a point of reference of what's out there. There are four donors represented: USAID, DFID, MCC, and the Bill & Melinda Gates Foundation. The projects themselves vary quite a bit in terms of, for example project budgets range from under five million dollars to over 62 million dollars, and the links of the projects range from three to eight years. So there's quite a bit of variation in these projects.

They cover several types of value chains, including maize, smallholder dairy, all – several types of high-value horticultural products as well as agricultural inputs. So those are kind of the four types of values.

Value chains in the study, and it's also one more thing I want to point out about the 12 cases is that I used a variety of evidence and I pulled together a variety of evidence. You might call it apples and oranges but it is all of the 10 donor projects had monitoring data, so I used that. Seven of those projects had longitudinal impact evaluations, of which some were quasi-experimental and some were experimental.

So I used that information and in addition to that one of the cases, the evidence came from an application of the DCED evaluation standard. So that's interesting and then there were a couple of other miscellaneous studies; cross-sectional studies, cross-country studies that I used – that I pulled data from and those are all referenced in the paper.

This slide introduces the framework that I want to use for understanding the context within which smallholders make their decisions and the factors that influenced smallholder decisions are divided into two categories: opportunities and capabilities.

So opportunities reflect the characteristics of the market and the business-enabling environment. These are the market opportunities that provide the incentives to invest; the pull factors that motivate behavior change and the primary question that a smallholder would ask him or herself about market opportunities are is this opportunity worth it?

And I'm an economist so of course the second question has to be is this better than my next best alternative? Okay, capabilities on the other hand reflect the resources, skills, and characteristics of the farm and the household. These are the push factors and they correspond to the household – house smallholder, asking him or herself the questions of, Am I able to do it and do I have sufficient knowledge, resources, and skills?

So and one thing that's really important to keep in mind, it'll help you as we go through, is to realize that opportunities apply to a market or a geographic region as a whole whereas capabilities are distributed unevenly over the smallholder population, okay, so meaning that smallholders are heterogeneous with respect to characteristics such as the size of their landholding, the levels of their food security and corresponding risk tolerances, as well as their own level of knowledge and skills, and their access to information.

Okay, so I want to use this framework then after presenting the evidence for each one. I'll use this framework to try to interpret some of the findings.

So let's turn then to the first topic which is scale and this is a really cool chart, and it shows the scale of outreach for nine agricultural value chain projects. I want to point out that the light blue bar at the bottom does not represent a value chain project. It represents the number of smallholders producing high-value vegetables in Guatemala and in the value chain and not part of a project, so it's kind of a point of reference for the other information.

And all of the dark blue lines on the other hand do represent project outreach and the first conclusion that I'd like to draw you to is that it is possible for agricultural value chain projects to reach hundreds of thousands of smallholders, okay, but I know it's very tempting to try to compare these lines to each other and say, Well, why did this project reach this many and this other project not as many?

And I want to point out a few things that you need to keep in mind to kind of temper that urge to compare, and the first thing is you have to know that this is scale only. This is not benefits, okay, so it's quite possible that a project that reaches a smaller number of smallholders delivers many, many more times the benefits to them; so scale doesn't tell the whole story.

Some of these variations in scale can be understood in terms of differences in the project, such as the length of the projects, you know, which I said varied from three to eight years, or the budgets which varied from five to $62 million.

And in some cases the smaller scale is just due to exogenous shocks that created unexpected limitations on the outreach of the project and, last but not least, I think it's important to understand that some of these differences in scale can be related to the program approach.

A facilitation approach that works indirectly with farmers through other market actors such as input suppliers and lead buyers and processing plants, they have the potential to reach a relatively large number of farmers, so actually the four bars at the top represent projects, are all from projects that use primarily a facilitation approach.

I want to say a little bit about Project Outreach because, in fact, in looking at the data that I used there were differences, and you see in the paper there are differences in the kind of outreach that each project reported on because there are three possible types of project outreach and this figure illustrates those.

A direct delivery approach is associated with two types of outreach to smallholders. First, farmers are reached as direct contacts of a project. In other words, they're the direct recipients of program-sponsored goods and services. In addition there is another type of outreach and those would be the farmers who imitate the direct contacts, and these, in the diagram, are called spillovers. That's just the name I chose?

As I mentioned on the previous slide a facilitation approach usually has limited direct contact with farmers but instead works through other market actors who have commercial relationships with the farmers and, in this way, farmers are reached as indirect contacts.

Okay. There can be two types of spillover in this kind of a situation: first, the kind I mentioned before where farmers imitate other farmers, that's one kind of spillover but there's also spillover among the larger firms as well when a firm recognizes that, hey, their competitor is actually making money off of working with smallholders, and then they, that's another type of imitation or spillover.

And one of the principles of facilitation is actually to really emphasize this demonstration affect in order to attract large numbers of imitators. So if we think about farmers that might be – reach directly through facilitation as the tip of an iceberg then the farmers reached indirectly and through spillover are the much larger submerged part of the iceberg.

This is an interesting figure and actually it's not in the paper, so you'll have to go back to the presentation slides if you want to get this figure again, and it comes from the Kenya Maize case and illustrates the results on scale over time; that is how did scale accumulate over time?

The Kenya Maize case was the longest of the projects lasting eight years. In this case it's the number – the graph reflects the number of farmers using improved seeds and fertilizers over time and there are a couple of important things to note about this. First, you can see that outreach is very slow to start with in the first two or three years but then it reaches a point where it starts to rise steeply when there's kind of a tipping point reached in the process.

This pattern is considered. We don't have a lot of evidence and we're trying to accumulate that but this pattern is considered typical for outreach under facilitation and one of the things that it implies then is we should have realistic expectations of the level of outreach in the first few years of a facilitation project.

So what are some of the minimum conditions that need to be in place for smallholder participation? Under capabilities the first bullet relates to smallholder resources and, for example, we know that there are many smallholders in Africa who have land holdings that are just too tiny to be economically viable; again, remembering capabilities are unevenly distributed over the smallholders.

The second bullet highlights that food security needs are paramount and that the household, that these needs have to be met before a household is going to be willing to make investments in new, more risky alternatives.

The third bullet refers to awareness and information, and we know that these things vary across households. Under opportunities the first two bullets refer to the presence of buyers and the availability of appropriate inputs, and the third one, BEE stands for Business Enabling Environment, and an example of how the Business Enabling Environment can permit market access, there's an example of that from the India Vegetables Case where a law that had previously required all smallholders to sell into the wholesale markets was reversed, allowing smallholders for the first time to participate in more competitive agricultural value chains. It's just like a basic minimum requirement.

I want to turn now to the topic of productivity. In the value chain literature upgrading is defined as investment that increases value added and it's these upgrading investments, these upgrading decisions made by smallholders that are the foundation for productivity growth in agriculture.

There are actually five types of upgrading that are defined in the value chain literature but we're going to focus on two that are relevant here: process and product upgrading. The type of upgrading that improves efficiency is called process upgrading and it can result in higher yields, it can result in lower costs or it can result in both of them happening at the same time.

The type of upgrading that improves product quality is called product upgrading and there's some examples of upgrading – not examples but the types of categories of upgrading listed on the slide and those include cultivating new crop varieties, adopting new technological, production technology packages and attaining new levels of food safety.

The important point to remember here is that productivity gains depend on upgrading and upgrading is a decision made by the smallholder. Therefore if we want to improve productivity in smallholder agriculture we have to understand what motivates or possibly discourages smallholders from making these investments.

You see actually you can refer to table two in the handout for data here. I didn't want to try to put table two up on a slide but the evidence does show that smallholders are capable of significant productivity gains and that they will change their technical and business practices in order to boost yields, lower costs, and improve quality.

So what I've done is I've picked three examples of productivity growth and you can find others in table two. In the case of Kenya Dairy some 90,000 smallholders were reached and adopted or received new genetic strains – did I say dairy – new bovine genetic strains through artificial insemination and that resulted in milk yields that increase by 19 percent and cost reductions on the level, unit cost reductions on the level of 16 percent.

So the smallholder dairy farmers made more profits. Okay. In Zambia, agrochemical and seed suppliers worked through networks of sales agents to increase the use of improved inputs by smallholder households and the result of that was a 70 to 80 percent increase in maize production.

In Nigeria fertilizer was sold in small packets through a rural sales network, resulting in increased fertilizer use by smallholders and an increased yield in maize, sorghum and rice, with an overall productivity increase of 15 percent.

These and other examples listed in the table as you read about the examples they provide insights about the conditions that promote and hinder upgrading, and so let's look at some of those conditions that need to be in place for smallholders to invest in new technologies and new products and boost their productivity.

As before these conditions are organized into opportunities and capabilities, and under capabilities the second bullet emphasizes the need for investment capital. Lack of capital can be a critical constraint since upgrading requires investment. The needed capital might come from a variety of sources, including savings, credit, or other income streams of the household.

In agricultural market systems, in-kind credit offered through other value chain actors such as the product buyer can be an important source of capital for productivity-enhancing investments.

Examples of – under opportunities I want to give examples of business infrastructure that lowers costs, include things such as farm to market roads and utilities; information communication technology and also investments that lower the cost of meeting food safety requirements.

An example of that was – it comes from Kenya where USAID facilitated a project to crate Kenya Gap which then provided a lower-cost way for smallholders to meet European food safety standards.

Let's go from productivity to the question of benefits. In the cases that were reviewed for the study benefits are defined in terms of farm profits and household income. As we know these variables, household income are located near the end of the impact pathway that connects adopting new technologies, increasing productivity, getting higher farm profits and then higher income; so these are closer to the development objective of reducing poverty.

And what we find is that while five of the 10 cases show evidence of positive impacts on farm profits there is much less evidence showing positive impacts on household income.

There are some important exceptions to this statement and I do want to point these out. They include the findings from a longitudinal cross-country study that overlapped with the three Kenya cases and in that study, of course that was done a little bit later as well. In that study they found that poverty rates for smallholders reached both directly and indirectly fell significantly more than did poverty rates for the control groups.

Another exception comes from the case of Nigeria Fertilizer where crop income for participating households increased 30 to 40 percent and household income also increased 32 percent. So they're – so in that case productivity – sorry, farm profits and household income tracked with each other but in the other cases they don't; and in general the impact evaluations found evidence of higher profits but not higher incomes, and these findings are consistent with results published by MCC based on the results of five randomized control trials of farmer training programs and they showed significant gains in enterprise income but not in household income.

So how can this be? Is this puzzling? I hope it's puzzling to some people because it was puzzling to me when I first saw it. In fact it was really hard at first when I started out to do this paper. Before I separated – before I separated these two variables I couldn't make sense about what I was finding.

So there's several possible explanations for this inconsistent finding and one set of explanations focuses on problems with evaluation practice. Okay, and I think this is very important in the MCC report. They also pointed this out. First of all, for example, our evaluation horizons are too short in length.

As we saw that curve where scale didn't even start until almost year three, if we have a three-year project and we evaluate impacts at the end of it we might be missing – we might be missing something.

The other thing is that evaluation designs have – are not quite flexible in many cases to kind of keep track with the dynamic context in which we're operating. So there are various problems related to evaluation but there's a second set of explanations and it revolves around really taking a close look at our assumptions about the impact pathway that connects project interventions to poverty reduction.

These receiving outreach from the project, making a decision to upgrade and boosting productivity, getting higher farm profit, getting higher household income, these are all a sequence of events and they can break down at any point, and I think that's – that's really one of the important things to take away here is knowing that these links can break down at any step of the way.

It leads us then to question our assumption that increased productivity will automatically lead to higher income. This slide shows some of the conditions that influence smallholder benefits, and when you look at the conditions you'll notice that the emphasis is on information, awareness, transparency and relationships between firms, including vertical and horizontal relationships.

Smallholders need access to information in order to improve farm and household income. The business-enabling environment can play an important role of leveling the playing field by promoting standards, transparency and wide accessibility of markets, information and other types of information, and in my opinion this is a pretty low-cost intervention, relatively speaking.

All right. This is my last slide and it summarizes some of these results. So I want to reiterate a few of the things that I've said. Under scale we saw that a large number of smallholders can be reached through indirect contact using facilitation approaches. Under productivity we focused on upgrading as an investment decision and we saw that strong market incentives are unnecessary but not sufficient condition for upgrading and productivity growth.

On benefits we saw that the higher-enterprise profits don't automatically imply a higher household income which raised several questions on evaluation practice and, as well, reminds us that we need to question that assumption that improved productivity will automatically lead to poverty reduction.

And I want to emphasize that in order to realize the full potential of smallholder-led agricultural growth it's critical for us to understand the behavioral piece; to understand that smallholders make decisions based in response to market opportunities and based on their own individual capabilities, and if we want to identify which smallholders are most likely to contribute to agricultural growth then we have to consider both the pull of the market forces and the push of the household capabilities.

Knowledge about the distribution of capabilities over the target population can generate more realistic expectations about scale and provide a more nuanced understanding of the factors that encourage or constrain smallholder outreach, productivity growth and income benefits; and those are my comments. Thank you.

[Applause.]

Questions and Answers

Elizabeth Dunn: There are copies of the paper here as well, I believe, and I'd like to open up for questions. Angelina?

Angelina Gordon: Hello, we're going to alternate between taking questions here and we have about 140 people joining us via webinar with really great sort of global presence; we have people from Ghana, Cambodia, India, Senegal, Costa Rica, Uganda, and Tanzania to name a few.

Elizabeth Dunn: Nice.

Angelina Gordon: So, if you would, please raise your hand. We have a couple of people here in the room with questions; and we'll get started.

Dan Norell: Hi, I'm Dan Norell from World Vision, Elizabeth thank you for such an excellent report –

Elizabeth Dunn: Thanks, Dan.

Dan Norell: -- and presentation. To give a broad overview, just around the question of enterprise income, household income, but also household assets in terms of net wealth, net worth, net equity, and then kind of benefits on the children of the household, let's – as you think about that what are some of your recommendations around programming, both for donors and implementers around trying to move that from a program level to actually benefitting not only the income but also trying to get the assets up because some of the criticism of assets or income is that the income is not always used for A, the children or, B, the investment in the business.

Elizabeth Dunn: Right, right. You now, when I took the cases, when I looked at the cases I had to find ways to compare them and so I did focus on enterprise income and – enterprise profits and household income. Some of the studies looked at assets but I didn't really focus on that. Some of the recommendations, I think the important thing, one important thing is for us to realize that the smallholder household is unique.

It is, if you're an Ag [Agriculture] Economist like me you were raised on the idea of the household portfolio where the household has all kinds of resources; human resources, financial resources, social resources, and they have to allocate those resources in every decision period among really like three kinds of – three kinds of activities: production activities which are the ones we've been talking about but investment activities are another, and so – and then the third one are consumption activities, and so investment includes things like health and education, and those things that generate higher income in the future. So one of the first things that I think about in terms of why is it possible for an enterprise to have profits with the household not is, you know, I mean one possible explanation is of course reinvesting in the enterprise and, you know, I don't have any evidence about that but of course that's a logical first thought.

But if the question is about what's the best way for that, what should they be investing in or – I think we have to keep in mind that this is really an economic portfolio, that the smallholder household and that there can be multiple decision-makers within the portfolio and depending on the culture some decision-makers have more influence than others and, of course, I mean I think all of us, at least those of us with gray hair, I mean we all know that income – we know the evidence is strong that income to women tends to be invested more in children, in their education and their care.

So I would say – I'm afraid it's an inadequate response but I would say we need to attend – we need to realize that this is not, this is not a simple decision, that this is a balance of many different activities that they have to allocate their resources to, yeah.

Joy Chen: We'll take one from the webinar. This question comes to us from Guital of West Virginia. Guital asks is it possible to have scale and participation presented as a ratio of smallholder farmers versus other farmers?

Elizabeth Dunn: So is the question about what percentage of these are smallholders versus others?

Joy Chen: So possibly a scale of participation presented as a ratio of smallholder farmer versus other farmers; that ratio?

Elizabeth Dunn: Jim?

Jim Yazman: If it's a denominator versus a numerator issue. How many farmers –

AV Tech: If you're going to speak, we ask that you use a microphone.

Elizabeth Dunn: Right – oh, oh, oh, I see, I see. Yeah, in some of these cases it would be possible. In some of these cases I could look at that. In others though I mean it's hard to get information sometimes about how many smallholders are participating but in some of these, in many of these cases when we're talking about productivity investments and upgrading we're talking about new ways of doing things, new technologies in which case you know there is no baseline of people who are not doing it. You know it's like the ones who grow the new crop are the ones who are able to sell into the value chain.

Male: Yeah, my name is Bob Ogle and I'm currently working with the IFC. I've done a lot of work in finance but one of the things that's always occurred to me is risk minimization versus profit maximization and strikes me is that the advantage from the higher income – well not the higher income but the higher profits are devoted to risk minimization and also to benefits that aren't captured; sending kids to school that you can now afford to do.

Elizabeth Dunn: Right.

Male: So that doesn't come as part of recorded income --

Elizabeth Dunn: Right.

Male: -- or a kid goes off to the city to drive a taxi and that income doesn't get reported.

Elizabeth Dunn: Mmm-hmm.

Male: So to me there's no surprise, really, because of the risk reward versus the patient and all of that, the importance of that, that you don't get this direct limit linkage --

Elizabeth Dunn: Right.

Male: -- between profitability and household income.

Elizabeth Dunn: Yeah, that's a very good comment. I agree with you on that and it kind of brings me back to Dan's question and what I didn't mention is that the household is not making their decisions based on just one criteria like profit maximization.

They're balancing lots of objectives including food security, including the desire to build a better future for their kids and other, preparing for retirement, and those sorts of things.

Angelina Gordon: Any questions here?

Bill Grant: Yes, Bill Grant from DAI, thank you very much, Elizabeth. It was a very good, clear presentation.

Elizabeth Dunn: Thank you.

Bill Grant: I especially liked your emphasis on it's the behavior of the individual farmer, it's their choice, so really we're talking about the behavior change --

Elizabeth Dunn: Right.

Bill Grant: -- and what influences behavior change. I was interested, in particular, your charts you put up on the Kenya and Kenya Maize, and it reinforced to me the fact that while we've taken individual projects here, that you actually look at the range of other programs that are running simultaneously in the same countries that there is actually an accumulated effect of all of those things. In Kenya when you saw the greatest increase in the uptake of services, also coincided with the creation of a media program in agriculture, and the chief of party of the maize project said --

Elizabeth Dunn: Love it! *[Laughter.]*

Bill Grant: -- the biggest single beneficiaries of this, and then organized by somebody else --

Elizabeth Dunn: Mmm-hmm.

Bill Grant: -- but it got the information out and really created a dynamic that reached millions of people indirectly.

Elizabeth Dunn: Mmm-hmm.

Bill Grant: So a great method of facilitation but not tied necessarily directly to maize.

Elizabeth Dunn: Right.

Male: It was actually started originally from dairy and other products but how do you take that into consideration? You know you have that, kind of those externalities that actually lead to a direct effect into the assessment of a project's impact. Because we're going to look at one project yet it's actually the sum of the parts, all of the parts around it that make it successful.

Elizabeth Dunn: Right, you know, that's a great question and I've been working in impact evaluation for a few years now and I have a prediction. I predict we're going to see a sea change maybe in 10 years or maybe 20 but right now we're very, very focused on what we want to attribute changes to a specific project and I think that concept is getting outdated.

What we – a lot of people are moving toward what they call contribution analysis where you look at what was the additionality of this project. Even that is hard but I think your point is well-taken, Bill, because one of the studies that's cited here and that's referenced in the back is that cross-country longitudinal study done by Michigan State University; Jim Keegan and Tom Jade, and so the value of that was that it actually was looking at the combined impacts of several different projects over time, and so maybe that's the way to go is we have to start thinking about kind of combining forces on impact evaluations. Yeah?

Angelina Gordon: We have a question from David of FAO from Rome, Italy. Does the research cover post-project impact assessments? Perhaps many farmers can be reached but with project assistance remains a critical factor driving adoption upgrading. How sustainable are the results presented?

Elizabeth Dunn: Yeah, that's a great question from Rome. *[Laughter]* It's a great question and it's something that is really bothering me a lot. I'm very much hoping that we'll get some resources in order to do post-project evaluation because so many of these impact evaluations occur at the end of a project, and especially if we're talking about a facilitation approach where we think there's slow start, and then a tipping point.

And one of the justifications for a facilitation approach is that it's expected to continue with full steam ahead even after the project funds have been ended and – but we don't have a lot of proof of that, I'm afraid. Maybe our friend from Rome can send us some – has some information but I would really like to see us do some post-project evaluation.

Angelina Gordon: Questions in the room?

Nora Weisman: Hi, I'm Nora Weisman from USAID/FDA. I was just curious. I'm looking at the sheet and you mentioned the cross-country study in Kenya and, if I'm reading it right, it sounds like property rates actually went down more for indirect treatment households than for those who got direct treatment, and if I am reading that right then I'd be curious to know if you would talk about why that might be so.

Elizabeth Dunn: Well, a couple of things might explain that and one was that this was a study that looked at beneficiaries of several projects. Okay, so again we could have variation in the type of benefits that were delivered and it just may be that there was a facilitation project with indirect beneficiaries that had a big impact and there is another thing too that I've been seeing lately. This is not completely unheard of and a lot of impact evaluations use this kind of – they use two control groups.

They use a control group that's away in location and they use a control group that's in the same location as the participants, and some of these are finding that it's the people who are in the areas but not participating in the projects who really gain the most.

I mean they – their income may not end up being higher than the ones who participated but their gain just – I guess the demonstration effect; another thing we haven't talked about also is that there are benefits beyond – there is outreach beyond the direct, indirect and spillover, and then there are also multiplier effects that can happen when there is a lot of money that's now circulating in a rural community.

So I don't have a definitive answer but I think it's very intriguing and but I would say probably my first response to your question is that there were a variety of projects and that probably explains it.

Eric White: I've got the – Eric White, Integra. First of all, thank you very much for this presentation.

Elizabeth Dunn: You're welcome.

Eric White: It's been very enjoyable, I got a lot out of it. The question I have is you presented evidence that shows that smallholders will make productivity-enhancing investments, and you talked about some factors that pushed them to do so or that pull them or allow them to do so --

Elizabeth Dunn: Right.

Eric White: -- and then you talked about some projects and showed how the different cases, different of these pull or push factors were the driving force in making productivity-enhancing investments; and the question I have is is there a systematic way of evaluating which of these factors is going to be decisive?

There are, I saw from the list of projects you mentioned there were some instances where access to credit was what you opened and another, it seemed to almost be hand-holding with your – and another, this gentleman mentioned the media program; in another, there may be an issue of security.

Elizabeth Dunn: Right.

Eric White: And how are we, as project designers, supposed to know which of those interventions is really going to elastic the strings? Is there a methodology to this?

Elizabeth Dunn: Well I have an idea, I have a concept, and so if we think about – and this kind of comes from if you look at graphs a lot, if you're an economist and you look at graphs, and you've got two different surfaces. So if we think about the pull factors, the market as being a blanket that's coming down, so just think it's something coming down and so here it is, right here, but we think about the households, remember we said they're heterogeneous.

And so some of them come up into the blanket and others don't, okay, and then if we lower the blanket then more households come under the blanket, right, but okay, so I would say then a good approach is first of all to know what the pull factors are but, secondly, to be very knowledgeable about your target population because it's within the target population that you'll be able to determine what's really needed to bring as many of those in as you can. Did that analogy make sense? It's coming down like this but the people are uneven and then if you bring it down you're going to get more of them?

Right, so the business-enabling environment, the market can bring that and, of course, if we thought, Oh well, the market goes all the way down to the floor and now everybody's in but that's not the way it works, right. So I would say focus on the characteristics of the target population.

Joy Chen: Carrie Max asks what is the thinking that might explain the disconnect between higher farm profits and no significant impact on household income?

Elizabeth Dunn: Yeah, he's probably heard a few of the answers already to that and we talked about a leakage, you know, there can be leakage in that we know that measuring household income is a pretty inexact science and some people take a consumption approach and some people take an income approach and either way we're – we are – it's easy to overlook some categories if they go into – if money is spent in ways that we're not measuring, that's one way, and we talked about reinvestment in the enterprise. That's another, another explanation.

And then another explanation is the complexity within the household and who's receiving the income; who's receiving the farm profits and then where are they going. I mean I hate to tell this story but I will. I mean it was a recent story of farmers that were selling their crops into a great market and they'd get paid on Friday, and that's when they went to the bar and then that's where the money went.

Male: Some spiel on what's a smallholder?

Elizabeth Dunn: Yeah, a smallholder is of course defined, you know, it depends on the productivity of the soil and the market opportunities. I use – so it depends. In Africa the holding can be larger if the land is not as productive. In places where land is totally productive you might call somebody under seven acres a smallholder, under five acres.

You know there's smallholders that produce, like you know, I'm really familiar with the case of high value vegetables in Guatemala and there's some really rich soils there and with very intensive labor they can take a couple, or three or four acres and make a lot of money whereas with corn, it's not the case.

You need more land and I don't know. I guess I kind of use a rule of thumb as under 10 acres. That's my rule of thumb. Hello?

Huck Freeman: Hey Elizabeth, how are you? I'm Huck Freeman. I just have kind of a combination/comment, having just come off of working on some deep proposals that are using value chain approaches, I was just curious. I couldn't tell from the list of projects that this study looked at.

How many of those were funded by Title 2, and I asked that because while they don't necessarily look, their primary focus, of course, isn't implementing through the value chains, one of the tools that they bring to the table --

Elizabeth Dunn: Right.

Huck Freeman: -- but all of the data that they're gathering the uses of that income at the household level whether it's being spent on health or child education, it might be kind of fun to go in there and kind of try to play around with some of those numbers and try to get at some of those questions that have been popping up today.

Elizabeth Dunn: Yeah, I don't know. I'm not really sure about what Title 2 and what's not.

Male: None of them.

Elizabeth Dunn: None of them, none of them. The answer is none of them.

[Laughter.]

Elizabeth Dunn: *[Laughter.]* Thank you, yeah, yeah, thanks, Mark.

Joy Chen: Jed Bayers asks what is the role of the private sector in helping commercialize smallholder farmers. What are the risks and benefits that result from trying to incentivize private sector actors to incorporate smallholders?

Elizabeth Dunn: Wow *[laughter.]* That's a big question. In terms of what can the private sector do, you know, first of all we know that larger firms, private sector, that working with a large number of small holders is costly, and so mechanisms for aggregating and linking them horizontally so that you can work through, work with the group rather than the – rather than the individuals can reduce the cost in the private sector to the larger firm.

We're also seeing that one of the most effective mechanisms seems to be branching out through the use of village agents so that the firm might be the large holder – I mean, sorry, the large firm might be located in the regional capital or wherever but as inputs and procurement goes down to the local level then it's possible for this large actor to really expand the number of smallholders that they're working with, so I'd say that. Yeah, Ann?

Anna Garlock: Anna Garlock from *Casa dia Loca*. My question is about household income. You touched on that a little bit. Can you talk a little bit about the methodologies that were used in a few of these studies to measure household income? Was it looking at income over the course of a year? Was it one point in the year? Was it just capturing income from participation in a certain value chain or was it capturing all of the household portfolio?

Elizabeth Dunn: Right, right.

Anna Garlock: And then in your experience would you say there is – are there – what would you say are some of the better methodologies for capturing, I'll say.

Elizabeth Dunn: Oh that's great, I haven't had to struggle with this for a couple of years. The studies, not all of the cases reported on household income, first of all, and it was generally from the impact evaluations, the ones that had impact evaluations of them that we got information on household income, and of those, I'd have to look again but I'd say several of those were MCC and I think they use a consumption approach, if I'm not mistaken.

I know that a couple of them, I'm familiar with them, they used an income approach and there's always that trade-off between breaking it down into small, small pieces in order to get lots of good quality information or, asking in categories of income in order to make the questionnaire shorter and not bore the person terribly.

So, two of those studies I know used kind of an abbreviated income approach and personally I go with the income approach and I know that very smart people disagree with me about that but I go with the income approach because I think you can do it in a less tedious way and so – so that requires a lot of pre-testing to know what the different income sources are and to make sure that you're capturing that, and then of course you try to – then you also have to be very clear about the periodicity of income.

So when does that – so as – in agricultural households of course we know they have a lot of what do you call it –

Male: The cycles.

Elizabeth Dunn: Right, cycle over the year of income, crop cycles and all that stuff. So you have to be very, very careful, you know, usually an impact evaluation is going to be measured at two or more points in time, right, and so it's critical in agriculture that those be in exactly the same period of a year, and that's really hard to do in practice but it's very, very important for the validity of the data.

Joy Chen: Carrie Nielson asks, has a two-part question. One of the recommendations made is to have longer impact evaluation horizons, so the first question, is there a recommendation as to how long is long enough, and the second part, how do you balance the need for longer time frames while also trying to protect treatment and comparison groups from contamination by other projects over these longer time frames?

Elizabeth Dunn: Now see this goes back to what we were talking about before about I do believe that our methods are going to have a big overhaul in the next 10 or 20 years because the idea of isolating people to serve as perfect controls, it's just not that feasible and secondly, you know, people use randomized control trials, and I respect that a lot, and I respect the kind of information that you can get from those.

However, what I'm observing is that in the case of agricultural value chain projects which have lots of different aspects to them; they may be working in the enabling environment, they may be working in inputs, they may be working push factors for households; what – in order to do a randomized control trial of those projects they tend to narrow, narrow, narrow, narrow down and only look at one aspect of the project and, even then, they – and if you look, MCC has written about this and you can look on their – on-line on their page of their impact evaluations and they've noted that the sequencing of project activities are really important.

So if you try to measure the impact on households of a multi-part project where many of the parts have not been delivered yet then you're not really getting a true picture of impact. So the answer to the question, I think, is that we need to re-examine how we do impact evaluation and I recognize there are a lot of trade-offs there; it's not as easy as it might sound, yeah.

Angelina Gordon: Thanks everyone so far for your questions. We'll take a couple of more as we begin to wrap up.

Kim Ha: Hi, my name is Kim Ha from AZMJ. You spoke about investment capital as a constraint or opportunity to increasing productivity and cited reinvesting income or using any kind of capital as a means to make these investments, and I just wanted to know if you have any particular findings about which type of investment capital is more successful or what seemed to occur more often; any kind of observations you've found?

Elizabeth Dunn: A couple of observations. One is that it is different, the short-term and the long-term credit, because in upgrading a lot of times – well there's one thing is purchasing the improved seeds and that's a seasonal thing. You just need short-term capital for that but if you're gonna put in an irrigation system or do some terracing or something like that, you need some long-term capital.

Short-term capital tends to be easier to come by; micro finance tends to serve short-term capital a little better. Longer-term capital is harder to come by. I'm not really seeing a lot of banks that are reaching out to farmers for that.

Now it's important to keep in mind that the buyer has a vested interest in this smallholder upgrading because then the buyer gets the products that they want and so that's why in kind credit, you know, from the buyer is often done but when we talk about longer-term credit that's not quite as viable.

I have seen a few things; a few cases where a buyer has provided three or five year credits for irrigation systems to be built but they're really exposing themselves to a lot of risk when they do that, and so that's why we don't see it that often, I think.

I think another thing to keep in mind here is to keep in mind that this is – that the smallholder householder is complex; that there's a lot of stuff going on there, and over the years I have found that the households that do the most investment are the ones that have additional income streams; whether because the son is driving a taxi or the daughter has gone to be a maid, or maybe they also – they've got another person in the household now and I haven't mentioned remittances, and that's another possibility.

Joy Chen: We'll take a final question from our webinar participants. I apologize if I mispronounce you name but Haben Burhi has a question. Was there evidence where agriculture technology adoption by smallholders significantly increased the push and pull factors you mentioned?

Elizabeth Dunn: Where smallholder investment – well one – yes, one very clear way that that happens is when smallholders invest and when they are successful they set up a powerful demonstration effect. So and many projects use demonstration sites just for that purpose but you can imagine, then, if I am sitting here and I'm thinking, I probably don't wanna do that; I don't have the money, it's too risky, I don't even know if it works.

Okay, but then my neighbor down the street, I pass by her house on my way in and out every day and all of the sudden I'm watching and her corn is growing, and growing, and growing, right.

So that would increase the push factors, all right. As far as increasing the pull factors nothing comes to mind right off the bat. Okay.

Angelina Gordon: We'd like to thank everyone for their participation today, both in the room and via our webinar. Thank you very much, Elizabeth.

Elizabeth Dunn: Thanks so much for the opportunity.

[Applause.]

[End of Audio]