Project title: A Behavioural Economic Analysis of Agricultural Investment Decisions in Uganda Funder: DFID/ESRC Growth Programme Duration: 15 Feb. 2012 – 15 Feb. 2015 Investigators: Arjan Verschoor (PI) and Ben D'Exelle (Co-I)

A. Meeting of Grant Objectives

Policies to increase agricultural productivity - policies on agricultural research and extension, crop insurance, agricultural lending, rural infrastructure, and so forth - rely on particular behavioural assumptions about how farmers decide on investments, but much of their investment behaviour is ill-understood. Farmers in developing countries typically face extraordinarily risky environments, which affects their investment decisions in numerous and profound ways. In particular, it has long been recognised that semisubsistence farmers, in order to protect their livelihoods, would have good reason to be ultra-cautious when considering the prospects of risky investments. A large-scale unwillingness of individual farmers to take risks inhibits the growth and modernisation of the agricultural sector, and thus prevents the structural transformation of the economy from proceeding successfully. Behavioural economics research, which observes responses in economic experiments to real monetary incentives, would seem more suitable than questionnaire-based approaches for understanding willingness to take risks. A small experimental literature now exists that studies farmers' risky choice behaviour in poor countries. Paradoxically, none of the studies provide any evidence that would suggest that these farmers are particularly reluctant to take risks. However, the design of the experiments used to date relies rather heavily on those developed in Western labs, in which the focus traditionally has been the testing of received economic theory. We instead designed experiments tailor-made for understanding responses to frequent and unavoidable shocks, which characterises the volatile environments that farmers in poor countries operate in. Moreover, we added realism to the experimental design by measuring subjectivity, imprecision and errors when farmers evaluate risky investment prospects. Finally, we designed a second set of experiments to measure the influence of

(anticipated) peer response on farmers' propensity to invest. We combined these experiments with socio-economic surveys in order to answer the following two broad research questions:

- 1. How do farmers assess the riskiness of investment prospects, and how does this influence their propensity to invest?
- 2. Are farmers' investment decisions influenced by (anticipated) peer responses?

Our specific objectives were the following and have been met and exceeded, as detailed in the next section:

- To improve our understanding of farmer motivation to undertake investments that can raise productivity using behavioural economic research methods (complemented with more traditional methods);
- To do so for the case of Uganda, where farmer investment behaviour has been responsible for the bulk of inclusive growth in recent years but where at the same time a large unrealised potential for productivity growth exists;
- 3. To obtain new insights into agricultural investment decisions in hazardous environments in three particular respects:
- On whether low-to-medium frequency risks tend to be downplayed in farmers' minds when taking investment decisions;
- On whether bias occurs in the processing of probabilistic information, i.e. the formation of subjective probabilities;
- The anticipation of peer response to either the success or the failure of agricultural investments.

In terms of output, our objectives were first to produce a group of articles in international academic journals that answer the questions above; see Section D for the articles published to date and in progress. Second, we had far-reaching plans to engage with policy makers and development practitioners; these are in full swing – see Section C for progress to date and our immediate plans for continuing this engagement.

B. Key Findings and Implications

When more profitable alternatives to traditional, semi-subsistence agriculture are available, why do farmers so often not take these up? Part of the answer could be lack of finance (savings, credit), mistrust or lack of awareness of information about these opportunities, and insufficient access to resources (land, labour in peak time, and so forth). But another part of the answer could relate to the riskiness of these profitable alternatives: they may yield higher profits on average, but also more variance in profits – their best outcome may be better, but their worst outcome worse than is the case for semi-subsistence agriculture.

In eastern Uganda, modern, commercial agriculture is indeed both more profitable and riskier than traditional agriculture (Verschoor, D'Exelle and Perez-Viana Martinez, 2015). For example, a farmer who grows tomatoes on an acre of land, with all the inputs such as water and pesticides that experts recommend, will earn about 2m shillings (£500) more profits per season in the best-case scenario, with favourable yields and prices, but 1.7m (£425) less in the worst-case scenario, compared to a farmer who grows maize intercropped with beans with hardly any bought inputs: higher profits on average, but also greater risk. In the part of eastern Uganda where we went to investigate the role of risk in agricultural investment decisions, traditional, low-profits, low-risk agriculture remains the norm. Only 31% deviates in the form of growing cash crops (tomatoes, onions, cabbages, coffee) with the appropriate purchased inputs, which would raise their average profits by 1.1m shillings (£255) per season. And although combining traditional agriculture with some fertiliser use is common, 35% have never purchased fertiliser in the past five years, even though using fertiliser increases average profits of an acre devoted to maize intercropped with beans by 0.9m shillings (£225) per season. For a typical family of six people, this amounts to more than a doubling of their average income. However, in some seasons, it would leave them worse off than had they not bought it.

The idea that risk avoidance keeps farmers poor because they cannot afford to gamble with their livelihoods has a long pedigree in development studies, with surprisingly little empirical support, possibly because it is hard to test. We investigated this idea using economic experiments in which farmers are placed in a stylised investment situation and take decisions that affect the amount of money they earn from the experiment: the more they invest, the more they potentially gain, as well as stand to lose (see Box below). Such risky choice experiments have been intermittently conducted among small farmers in poor countries ever since Hans Binswanger took them to South India in the early 1980s. What we added to this fairly small experimental tradition is a tailor-made questionnaire on farmers' investment behaviour, so that we can tightly make the link with real-life decision-making; we also incorporated realistic features into the experiments such as varying the default risk and the possibility to share risk.

Research approach

We selected through multistage cluster sampling a representative sample of 1,803 farmers from a rural area in eastern Uganda: Sironko District and Lower Bulambuli District. About 95 percent of people in the area are primarily engaged in own-account crop farming. Average land holdings are about 1.5 acres, there are very few big farmers, and irrigation use is low. Semi-subsistence farmers grow maize intercropped with beans with minimal reliance on bought inputs, and some coffee and bananas for cash needs. More market-oriented farmers buy seeds, pesticides and fertiliser, hire labour during peak seasons, and grow in addition to the crops mentioned, more lucrative but input-intensive crops such as cabbages, tomatoes and onions.

We conducted a livelihoods survey and a social network survey (SNS) among these farmers and a series of economic experiments that are variations of the following simple investment game:

"Here you have 8,000 shillings [about 2 days' wages]. Invest any amount you like. We will toss a coin that shows A on one side and B on the other. If A comes up, we will triple your investment. If B comes up, you will lose it."

We first present our key findings and next reflect on their implications.

Finding 1: Risk aversion matters for investment in fertiliser but not for growing cash crops

We consulted agricultural experts in the region to help us understand what risk-taking agricultural investment means in practice. They supplied us with two measures. The first is the simple, one-dimensional measure of buying fertiliser, which can be combined with traditional agriculture to raise yields. As noted, this leads to large extra profits on average, but in seasons in which the price or yield are too low, the investment cannot be recouped, leading to the selling of assets, depletion of savings, increasing indebtedness and/or subsistence being at risk. The second measure they supplied us with is the growing of coffee, cabbages, tomatoes or onions as cash crops, using appropriate purchased inputs, usually fertiliser, pesticides and improved seeds, and sometimes also the hiring of labour. We classified farmers as risk-takers according to these two measures and examined the link with their behaviour in the experiments. We controlled in the analysis for well-established determinants of agricultural investment such as access to credit and wealth, which indeed turned out to be highly significant. We find that farmers who are risk averse according to our experiments are less inclined than others to invest in fertiliser, but not in cash crops (Verschoor, D'Exelle and Perez-Viana Martinez, 2015).

Finding 2: People take less risk if losses may be shared

In certain variations of the game, we allowed experimental subjects to share profits and/or losses of their risky investment. For example, in one particular experimental treatment, two farmers would be matched and one of them would be invited to state beforehand what proportion of the losses s/he would be willing to share in case the other's investment went wrong. One might expect this to act as an informal insurance mechanism, so that investment would increase, but paradoxically, when losses may be shared, investment goes down, as if investors don't want to burden others with the consequences of their risk-taking. This effect was especially strong if matched subjects are close in real life; we interpret this as a manifestation of norms against excessive risk-taking (D'Exelle and Verschoor, 2015).

Finding 3: If anything, people take more risk if profits may be shared

In the same experiment, we allowed profit sharing. This does not lead to less risk taking (as might have been expected, on the argument that profit sharing dampens incentives)

but to a (marginally significant) increase in the amount of risk people take. This could reflect magnanimous considerations (wanting others to share in one's good fortune) and more generally is contrary to the common perception that profit sharing in rural Africa of necessity dampens incentives (D'Exelle and Verschoor, 2015).

Finding 4: Divergent risk attitudes are associated with interpersonal conflict

In a social network survey (SNS) we collected data on the nature of the social links between those individuals in our sample who live in the same village. As is known from previous ethnographic research, interpersonal conflict is common in this part of Uganda, often over land; 21.5% of the 917 ties we investigated are conflictual. Strikingly, when risk attitudes differ between connected individuals, they are more likely to be in conflict; a simulation analysis suggests that the direction of causation runs from the former to the latter. This effect is especially strong for males and among kin. The difference in risk attitudes is measured on a 6-point scale: for each point difference, kin are 5 percentage points more likely to be in conflict. Relatives are often tied together in informal risk-sharing arrangements (IRSAs) and joint economic ventures; when their risk attitudes differ, they want different things for their common endeavours, which may give rise to conflict (Lahno, Serra-Garcia, D'Exelle and Verschoor, 2015).

Finding 5: People take more risk when risk-taking is naturally expected

In some treatments, we subtly suggested investment decisions for subjects. They had two baskets in front of them, one "safe", the other "risky". Coins placed in the safe basket would be theirs to keep, whatever happened; the coins in the risky basket would be doubled with a likelihood of 80% and vanish with a likelihood of 20%. In one treatment we first placed almost all of the coins – the money subjects were endowed with – in the safe basket, in another in the risky basket: subjects were next free to move as many coins as they wanted from one basket to the other. In reality, the safe and risky treatment represent exactly the same investment decision. However, when coins were already

placed in the risky basket, subjects invested 28% more (about 64% instead of 50% of their endowment). When new investment opportunities are introduced, risk-taking is not (yet) naturally expected, which may help explain inertia in uptake.

Finding 6: The social mode has a very strong pull on risk-taking

In the experimental set-up just described, when we gave information about the most popular option in other experimental sessions, people quickly adjusted their risky choice towards what they now understood as the most popular choice, so much so that the effect of our initial framing practically vanished (Clist, D'Exelle and Verschoor, 2015).

Although higher profits require taking risks, risk avoidance is not bound to keep small farmers poor. We summarise the implications of our findings as follows:

- Risk aversion among small farmers affects singular but not complex investment decisions (Finding 1)
- In small-scale rural societies, norms against excessive risk-taking may suppress agricultural investment (Finding 2); variation in risk preferences around that norm may be a source of interpersonal conflict (Finding 4)
- Although expectations of low risk-taking may suppress investment (Finding 5), individuals rapidly adjust to new social norms (Finding 6)

In addition to the six findings mentioned, we have intruiging findings that we are still reflecting on, as well as testing the robustness of, related to subjective probabilities (Finding 7) and probability weighting (Finding 8):

Finding 7: Learned helplessness reduces persistence in investment behaviour

Finding 8: Heterogeneity exists in how farmers evaluate probabilities; in particular, traditional farmers are more likely to evaluate according to an inverse S-shaped probability weighting function, entrepreneurial farmers more likely according to an S-shaped probability weighting function

Between them these two findings suggest that some farmers have "learned" to distrust the amount of influence they have on the success ofd an investment and/or are excessively fearful of relatively small probabilities of failure, which holds them back in their investment behaviour.

C. How Will Key Findings Be Taken Forward?

Key insights around which we have formulated policy recommendations

The research that our policy-relevant insights derive from is in the form of economic experiments, social network surveys and household surveys among thousands of small-scale farmers in Uganda, Ethiopia and India. The key insights are the following:

- 1. The vast majority of smallholders do want to engage in risk-taking agricultural investment, but the investment opportunities are often not available on a sufficiently small scale.
- 2. When investment opportunities are framed as natural risk taking, farmers take much more risk than when they are framed as deviating from safety.
- 3. Social norms on risk taking exert a very strong pull: when these change, individuals rapidly adjust to new social norms.
- 4. Diverse risk attitudes in farmer organisations are a major reason hindering their effectiveness in securing collective benefits (e.g. pemiums for good-quality agricultural produce; intertemporal arbitrage that good storage facilities make possible; etc.).
- 5. Loss sharing in informal risk sharing networks reduces incentives to invest, which suggests complementary design features of formal weather insurance that (a) make them more attractive for individual farmers, and (b) encourages investment among insured farmers.

Anticipated impact of key findings

Much of global poverty arises from low-productivity agriculture by smallholders in the semi-arid tropics. Encouraging agricultural investment (such as fertiliser purchase, growing cash crops and market orientation more broadly) is vital for helping the rural

poor escape from low-productivity poverty traps. Our research focused on understanding the conditions under which uptake of such investment opportunities could take place, specifically on individual farmer motivation as regards risk taking. Together with a broad range of representatives from stakeholder organisations, we have identified several policy recommendations that have generated considerable interest among key policy actors (more on this below). These recommendations are in the following broad areas (the numbering corresponds with the five key research insights above):

- 1. Making agricultural inputs available in sufficiently small quantities. For example, fertiliser is now sold in bags of 50kg. Agro-dealers will sell smaller amounts, but the farmers fear adulteration of the product once a bag has been opened. AT Uganda (one of our partners) piloted a scheme in our study area of selling fertiliser in packs of 2, 5 and 10kg pre-packed and from a reputable supplier in Kenya which led to overwhelming uptake. A small-pack approach resonates with the cautious approach to investing that we find in our research: we therefore have evidence of a policy intervention that will lead to investment among small-scale farmers, as well as on the reasons why this will be the case.
- 2. Framing investment opportunities in terms of opportunities foregone: i.e. emphasise losses associated with not investing. Our research shows that this increases farmers' investment by about 30 percent relative to a scenario in which losses associated with investing are emphasised. Our partners in Uganda recommend the development of teaching materials on the risk/profitability relationship in various plausible scenarios (with realistic and to farmers well-known price and yield data), in which investment opportunities are framed along the lines that our research suggests will be effective. Teaching farmers about this can take place in farmer field schools, radio campaigns, etc.
- 3. Influence the social norm on risk-taking agricultural investment: through the same channels as just listed disseminate information to farmers about adoption rates elsewhere and the risk/return profile inherent in these. We found in our

research very strong effects of influencing the social norm on individual investment.

- 4. Reconciling divergent risk attitudes in farmer organisations: insight (4) above suggests the development of new financial instruments that allow individual claims on collectively deposited agricultural produce.
- 5. Ensuring complementarity between formal and informal insurance: we are helping design new insurance instruments that would appeal to smallholders as they take into account the nature of the informal risk sharing arrangements already present among them.

Through persistent lobbying and dissemination, we expect these to modify policy interventions in Uganda and the policy thinking of the relevant international development agencies. Ultimately, modified policy interventions in this area may benefit the hundreds of millions of poor farmers in the semi-arid tropics: the reach of this research impact is therefore potentially very large.

Potential beneficiaries and how we are engaging with them

- 1. Local policy makers. District Agricultural Officers and National Agricultural Advisory Services (NAADS) officials.
- National policy makers. Cross-sector coordination among the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), the private sector, civil society and development partners is provided by the National Agriculture Sector Secretariat (NASSEC). A pivotal organisation in this network is IFPRI-Kampala, our local partner.
- 3. Ugandan civil society organisations and development partners with an interest in agriculture. Through an extensive stakeholder consultation exercise (see below), we have a good overview of them.
- 4. International development agencies, international agriculture organisations and agricultural research institutes that influence Ugandan and international policy on

agricultural development (e.g. the FAO, IFAD and the 15 research centres united in the CGIAR consortium, the World Bank, DFID).

5. Poor farmers in the semi-arid tropics

Our policy recommendations, listed in outline above, have resulted from an extensive stakeholder consultation exercise. First, we consulted about 30 representatives from local stakeholder organisations in individual and small-group (twos and threes) brainstorms about the policy relevance of our findings. This resulted in four small-scale workshops in the study area in eastern Uganda and a policy brief. Next, we consulted about the same number of national stakeholders (individually), which resulted in a revised policy brief, containing our up-to-date policy recommendations that have broad backing of the stakeholders consulted.

Our immediate plan is to organise a multi-stakeholder workshop in Kampala (to be held on the 12th of June 2015) to consolidate on the considerable interest in our policy recommendations. After that, we wish to target key policy makers, making use of the personal networks of the workshop participants, and visit these individually with tailormade oral policy briefs.

We also aim to write a policy brief for international stakeholders – the international development agencies and others with an interest in agriculture for development – and initiate a dialogue with them, which we plan to follow up with presentations in person. In previous work (also ESRC-funded), we followed a similar approach, which led to invitations to present our findings and discuss their policy relevance to the World Bank, IFPRI-Washington, DFID (in their Chief Economist's Office) and the Bill and Melinda Gates Foundation.

Finally, with a local partner AT Uganda, we have planned policy experiments (which also can be thought of as intervention studies) to measure and understand the uptake of the investment opportunities generated by the policy recommendations we suggest.

Non-academic organisations, stakeholders or influential individuals that can contribute to the potential impact

The following have all expressed willingness to be involved in actively promoting the uptake of the policy recommendations that follow from our research insights: (a) International Food Policy Research Institute (IFPRI) - Kampala. They are a pivotal organisation in the agricultural policy dialogue in Uganda; and through them we will have access both to national and international (via IFPRI-Washington) policy makers; (b) Policy experts hired by IFPRI on their PASIC project (Policy Action for Sustainable Intensification of Ugandan Cropping Systems); these are typically former government officials who maintain good contacts with Ugandan ministries; (c) Appropriate Technology (AT) Uganda, an NGO with an impressive track record in promoting agricultural innovation in Uganda. This new partner will collaborate with us on translating our findings into policy recommendations; (d) Overseas Development Institute (ODI), London. ODI manages the DFID-ESRC Growth Research Programme (DEGRP) Directorate, which facilitates, monitors and stimulates the non-academic impact of the ESRC programme that our research project was part of. They have worked with us in that capacity during the funded phase of that project and are keen to continue the collaboration now that funding has come to an end. ODI's contribution to the collaboration is to provide the international perspective: to relate and suggest modifications to our recommendations in the light of what has been tried and learned in other countries. They are also well placed to provide access to international development agencies with an interest in agricultural policy making.

D. Project Papers Reporting on Key Findings

Project papers accepted for publication

- D'Exelle, B. and A. Verschoor (2015), 'Investment Behaviour, Risk Sharing and Social Distance' *Economic Journal* forthcoming.
- Lahno, A. M., M. Serra-Garcia, B. D'Exelle and A. Verschoor (2015), 'Conflicting Risk Attitudes' *Journal of Economic Behavior and Organization* forthcoming.

Project papers under review and in progress [status]

- Verschoor, A., B. D'Exelle and B. Perez-Viana Martinez (2015), 'Lab and Life: Does Risky Choice Behaviour Observed in Experiments Reflect That in the Real World?' [Submitted to the *Journal of Economic Behavior and Organization*]
- Clist, P., B. D'Exelle and A. Verschoor (2015), 'Nature's Frames, Reference Lotteries and Truly Risky Choice: Evidence from a Ugandan Field Lab. [Completed several drafts: final draft to be submitted in the Summer of 2015 to *American Economic Review*]
- B. D'Exelle and A. Verschoor (2015), 'Investment Behaviour and Network Centrality: Evidence from Rural Uganda'. [First draft complete: To be submitted in Autumn 2015 to *The Economic Journal*].
- Perez-Viana Martinez, B., B. D'Exelle and A. Verschoor. 'Is Risk Aversion All that Important in Explaining Agricultural Investment Decisions?' [To be submitted in Autumn 2016 to *Journal of Agricultural Economics*]
- Verschoor, A. and B. D'Exelle, 'Likelihoods and Livelihoods: Probability Weighting and Investment Behaviour among Small Farmers in Eastern Uganda'. [To be submitted in Spring 2016 to *Journal of Risk and Uncertainty*.]
- Munro, A., B. D'Exelle and A. Verschoor "Fate and Fear" in Investment Decisions among Smallholders in Eastern Uganda. [To be submitted in Spring 2016 to *Review of Economic Studies.*]

E. Presentations of Key Findings to date

List of academic presentations (presenter)

 Centre for Behavioural and Economic Social Science (CBESS) seminar, University of East Anglia (UEA), Tuesday 12/02/2013, "Status Quo Bias in Investment and Insurance Behaviour: Evidence From A Ugandan Field Experiment", *Paul Clist*, Ben D'Exelle and Arjan Verschoor

- University of Hohenheim (insurance workshop organised by LMU, University of Hamburg and University of Hohenheim), Friday 1/03/2013, "The Role of Social Ties in Risk Taking: Experimental Evidence from Uganda", Ben D'Exelle, *Amrei* Lahno, Marta Serra-Garcia and Arjan Verschoor
- LMU-Munich, Monday 10/06/2013, "Investment Behaviour, Risk Pooling and Social Distance: Experimental Evidence from Rural Uganda", *Ben D'Exelle* and Arjan Verschoor (invited presentation)
- BVS Holzhausen/Ammersee, Workshop on Natural Experiments and Controlled Field Studies, Friday 14/06/2013, "Social Ties and Risk Attitudes: Experimental Evidence from Rural Uganda", Ben D'Exelle, Amrei Lahno, *Marta Serra-Garcia* and Arjan Verschoor
- CERDI (Centre d'Etudes et de Recherches sur le Développement International), based at the Université d'Auvergnein Clermont-Ferrand, Tuesday 17/09/2013, "Nature's Frames, Reference Lotteries and Risky Choice: Evidence From Uganda", *Paul Clist*, Ben D'Exelle and Arjan Verschoor (invited presentation)
- School of Management, UC San Diego, staff seminar, Monday 14/10/2013, "Social Ties and Risk Attitudes: Experimental Evidence from rural Uganda", Ben D'Exelle, Amrei Lahno, *Marta Serra-Garcia* and Arjan Verschoor
- School of Economics, University of Nottingham, CREDIT Development Seminar Series 2013/14, Wednesday 20/11/2013, "Nature's Frames, Reference Lotteries and Truly Risky Choice: Evidence from a Ugandan Field Lab", *Paul Clist*, B D'Exelle and Arjan Verschoor (invited presentation)
- The Choice Lab, Norwegian School of Economics, Bergen, Norway, Symposium on Economic Experiments in Developing Countries (SEEDEC) Dec 5-6, 2013 (presentation on 5/12/2013), "Investment Behaviour, Risk Pooling and Social Distance", *Ben D'Exelle* and Arjan Verschoor
- 9. The Choice Lab, Norwegian School of Economics, Bergen, Norway, Symposium on Economic Experiments in Developing Countries (SEEDEC) Dec 5-6, 2013 (presentation on 6/12/2013), "Nature's Frames, Reference Lotteries and Truly Risky Choice: Evidence From a Ugandan Field Lab", *Paul Clist*, Ben D'Exelle and Arjan Verschoor

- Center for the Economic Analysis of Risk (CEAR), Robinson College of Business, Georgia State University, Atlanta, CEAR/MRIC Workshop IV: Behavioral Insurance, December 9 & 10, 2013 (presentation on Monday 9/12/2013), "Social Ties and Risk Attitudes: Experimental Evidence from Rural Uganda", Ben D'Exelle, Amrei Lahno, *Marta Serra-Garcia* and Arjan Verschoor
- 11. International Food Policy Research Institute (IFPRI), Kampala, Feb 2, 2014, "Investment Behaviour, Risk Pooling and Social Distance: Experimental Evidence from rural Uganda," *Ben D'Exelle* and Arjan Verschoor. People in the audience included Per Hartmann (senior advisor for the ministry of agriculture, animal industry and fisheries, agricultural planning department;), Piet van Asten (Country Representative of IITA, also part of CGIAR), some junior researchers from the International Growth Centre, and IFPRI researchers based in Kampala.
- 12. Centre for Behavioural and Economic Social Science (CBESS)/Behavioural and Experimental Development Economics Research Group (BEDERG) seminar, University of East Anglia (UEA), Tuesday 11/02/2014, "Investment Behaviour, Risk Pooling and Social Distance" *Ben D'Exelle* and Arjan Verschoor.
- 13. Centre for Behavioural and Economic Social Science (CBESS)/Behavioural and Experimental Development Economics Research Group (BEDERG) seminar, University of East Anglia (UEA), Tuesday 18/02/2014, "Nature's Frames and Reference Lotteries" *Paul Clist*, Ben D'Exelle and Arjan Verschoor.
- CSAE, Department of Economics, University of Oxford, Centre for the Study of African Economies 2014 Conference 23-25 March 2014, "Investment Behavior, Risk Pooling and Social Distance", *Ben D'Exelle* and Arjan Verschoor
- 15. CSAE, Department of Economics, University of Oxford, Centre for the Study of African Economies 2014 Conference 23-25 March 2014, "Nature's Frames, Reference Lotteries and Risky Choice: Evidence From Uganda", *Paul Clist*, Ben D'Exelle and Arjan Verschoor
- 16. University of Manchester, Royal Economic Society Conference, 7th April to Wed 9th April 2014 (presentation on Tuesday 8 April, in session: Development Economics: Credit Markets and Insurance), "Investment Behavior, Risk Pooling and Social Distance", *Ben D'Exelle* and Arjan Verschoor.

- 17. Toulouse School of Economics, 29th Annual Conference of the European Economic Association, 25th August to 29th August 2014 (presentation on 25th August), "Conflicting Risk Attitudes," Ben D'Exelle, *Amrei Lahno*, Marta Serra-Garcia and Arjan Verschoor
- International Food Policy Research Institute (IFPRI) Kampala, September 3, 2014, 'A Behavioural Economic Analysis of Agricultural Investment Decisions,' invited presentation, *Arjan Verschoor* (project overview, main findings, policy implications).
- University of Manchester, Department of Economics, April 21, 2015, 'Learned Helplessness and Investment Behaviour in a Ugandan Field Lab,' invited presentation, Alistair Munro, Ben D'Exelle and Arjan Verschoor
- **20.** Institute for Fiscal Studies (IFS), Centre for Evaluation of Development Policy (EDePo), Goodenough College London, 8 and 9 July 2015, paper presentation at the "Improving Productivity in Developing Countries: Identifying Bottlenecks and Obstacles to Productive Investment and Technology Adoption" Conference of "Investment Behaviour and Network Centrality: Evidence from Rural Uganda," *Ben D'Exelle* and Arjan Verschoor.