



The Environment for Development initiative is a capacity building program in environmental economics focused on international research collaboration, policy advice, and academic training. It consists of centers in Central America, Chile, China, Colombia, Ethiopia, Ghana, India, Kenya, Nigeria, South Africa, Sweden (University of Gothenburg), Tanzania, Vietnam, Uganda, and the US (Resources for the Future). Financial support is provided by the Swedish International Development Cooperation Agency (Sida).



## RESEARCH BRIEF

# How to Ask Farmers about Risk to Help Design Agricultural Policies

BY MARIA A. NARANJO, FRANCISCO ALPÍZAR AND PETER MARTINSSON  
DECEMBER, 2019, RB 19-21

Researchers and officials interested in people's attitudes toward risk when designing public policies should make sure that their questions about risk are asked in the specific context of the policy rather than in general abstract questions.

Although field experimental methods are the workhorse of researchers interested in risk preferences, practitioners find surveys easier to implement. We compare results from experimental versus survey-based methods to elicit farmers' risk attitudes, in both general settings and specific contexts. Our results indicate that one should be careful in thinking that a risk attitude in one context will be the same in a different context.

### **Consistency of risk attitudes across contexts**

We begin by investigating whether we can use one general survey-based measure of risk preferences to characterize risk-taking in different contexts, and in agriculture in particular. If that is the case, adding a simple question to a questionnaire can help practitioners characterize risk attitudes. Questions are framed as willingness to take risk in a setting (i) with no context, (ii) with a financial context, (iii) with a general agricultural context, and (iv) with three agriculture-specific contexts: changing or diversifying crops, changing coffee varieties, and applying farm inputs such as fertilizer and pest control.

We find that people's statements about their risk preferences with no context or set in the familiar context of personal finance (changes in income) do correlate with each other, but not with risk preferences that we asked about in specific agricultural settings. Interestingly, we do see a relationship between stated willingness to take risk in different agricultural contexts, like overall farming, pest control and fertilizer application. We find that farmers use two different decision methods to confront risk. One depends on whether the risk is associated with financial decisions, changes in crops or general risk, and the other depends on whether the risk is associated with management decisions like buying farm supplies or changing coffee varieties.

### **Experiments can check on whether survey answers are valid**

Risk experiments are typically designed without a context: individuals are given a game to play and make decisions in which they will gain or lose money. We explore whether what people say about their risk attitudes matches what they do in an experiment in which they have a chance to win money. We find the survey-based estimates of risk preferences in general (with no context) predict risk-taking behavior in an experiment that involves playing a game for money, but has nothing to do with farming.

### **Risk attitudes and real-life farming choices**

Our research aims to analyze how different estimates of risk preferences relate to real-life farming choices in our sample of Costa Rican coffee farmers. We analyze decisions that require significant financial investment: changing to other coffee varieties, changing to other crops, or diversifying coffee farming with other crops. We also analyze fertilizer and pest control applications, which are more day-to-day management practices.

We find a clear relationship between farmers' statements about willingness to take risks in farming and their real-life behavior. These risks include crop diversification and changed coffee variety. On the contrary, context-free (general) survey-based estimates of risk preferences are not associated with farming behavior.

### **Conclusion: Risk Preferences as Policy Design Inputs**

Our study shows that we cannot assume one general trait across different specific contexts within agriculture. Projects or programs interested in using risk preferences as inputs into the design of policy instruments should make sure that preferences are asked about in the specific context targeted by the policy that is being planned. If the policy instrument aims at influencing general financial decisions, the estimation of risk preferences without a context might suffice. However, if the policy instrument targets a specific activity, say fertilizer use or implementation of improved seed varieties, risk preferences should be asked about in that particular context.

### **ABOUT THIS BRIEF**

This brief is based on "Alternatives for Risk Elicitation in the Field: Evidence from Coffee Farmers in Costa Rica." EfD Discussion Paper Series 19-21, by Maria A. Naranjo, Francisco Alpizar and Peter Martinsson (2019).

### **CONTACT**

Maria A. Naranjo, PhD. (maria.naranjo@wur.nl)

EfD America Central, CATIE 7170, Turrialba 30501, Cartago, Costa Rica [efd@catie.ac.cr](mailto:efd@catie.ac.cr)

Environment for Development Initiative, [www.efdinitiative.org](http://www.efdinitiative.org), [info@efdinitiative.org](mailto:info@efdinitiative.org), University of Gothenburg, Sweden