Currently Running:

Projpred var selection on ref model

Rerun of variable addition, excluding form

Simulation to see the impact of project or village number

**What does this procedure do:**

The mcmc pair plots can help us determine whether two separate effects actually exist, or whether the model cannot determine which is which. As sample number increases, we begin to see separation between these effects

The partitioning of variance can help us understand at which level most of the variation in a particular indicator is occurring.

This could have implications about how interventions are designed. In theory, it would mean areas are quite similar, and we need to identify what are the characteristics of these areas which

Secondly, this model helps us understand whether effects vary by location.

Multi-level models are used widely, but this simulation, along with the case study, show how they can be translated to understanding the “levels” at which variation occurs.

Moreover, in the case of the data we are seeing, we do not have sufficient projects per area to fully understand whether differences are due to different projects or different countries (although considering the same survey tool was used, it is reasonable). Wider uptake of these tools across areas, along with a modelling procedure that accounts for between survey effects, could help the AR4D development community better understand the between project effects.

**What are the implications for policy Makers**

Does it mean that simply speaking the wealth of a particular country (or its human development index) is an important factor for determining the performance and welfare of farmers. Exploring the fundamental differences in these countries, rather than micro level differences may be fruitful

Now there is a risk of confounding. There could be systematic differences going on at the farm level which express themselves as country effects. In the simplest terms, imagine all farmers in a particular country weren’t engaging in a particular practice. However there could also be important country level determinants. For example, a subsidy for agricultural inputs, improved infrastructure, or imporved access to roads/markets.