

Climate change and adaptation

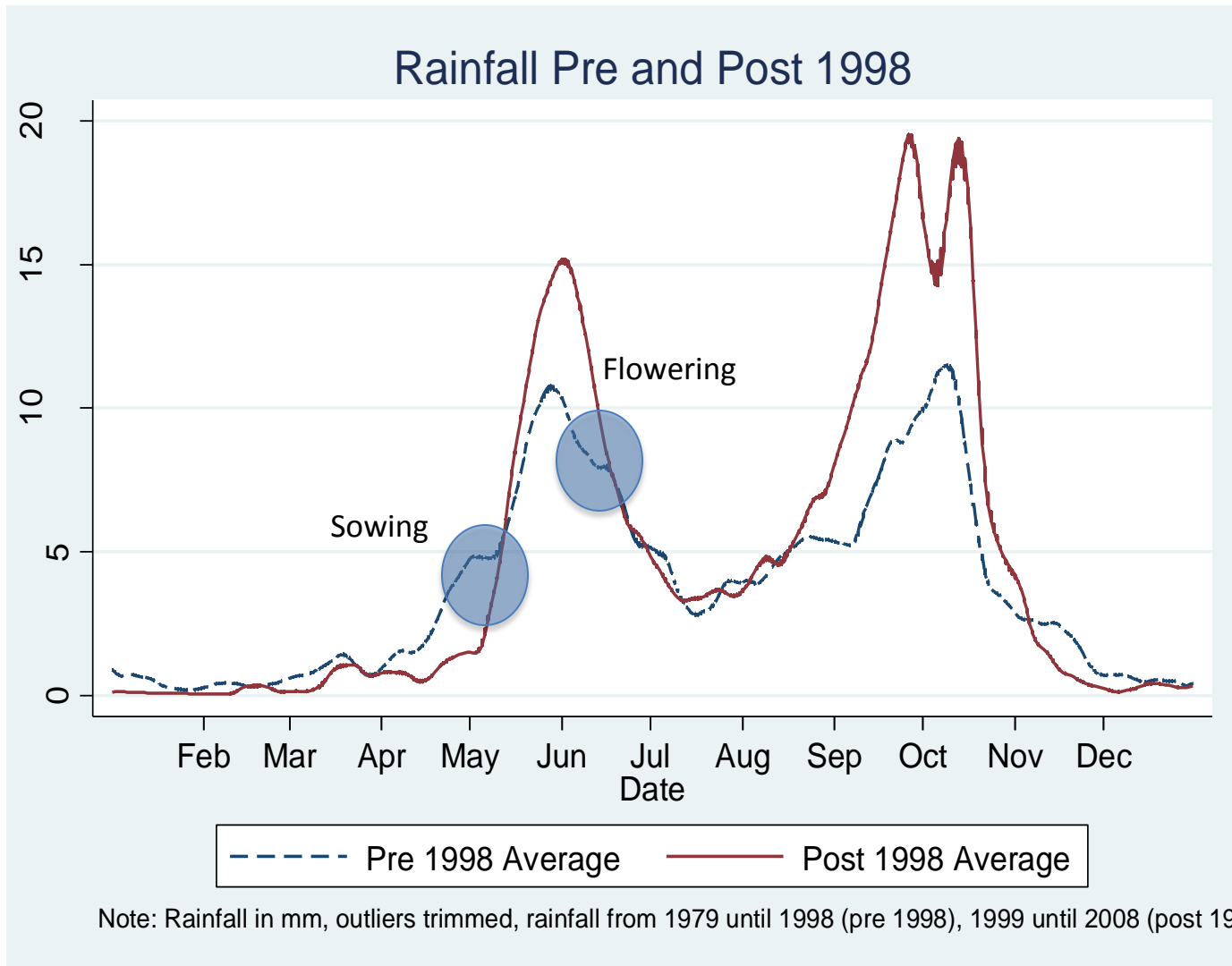
Policy lessons from experiments in Nicaragua

Renos Vakis

September, 2014

The problem:

Dramatic changes in rainfall patterns and agronomy



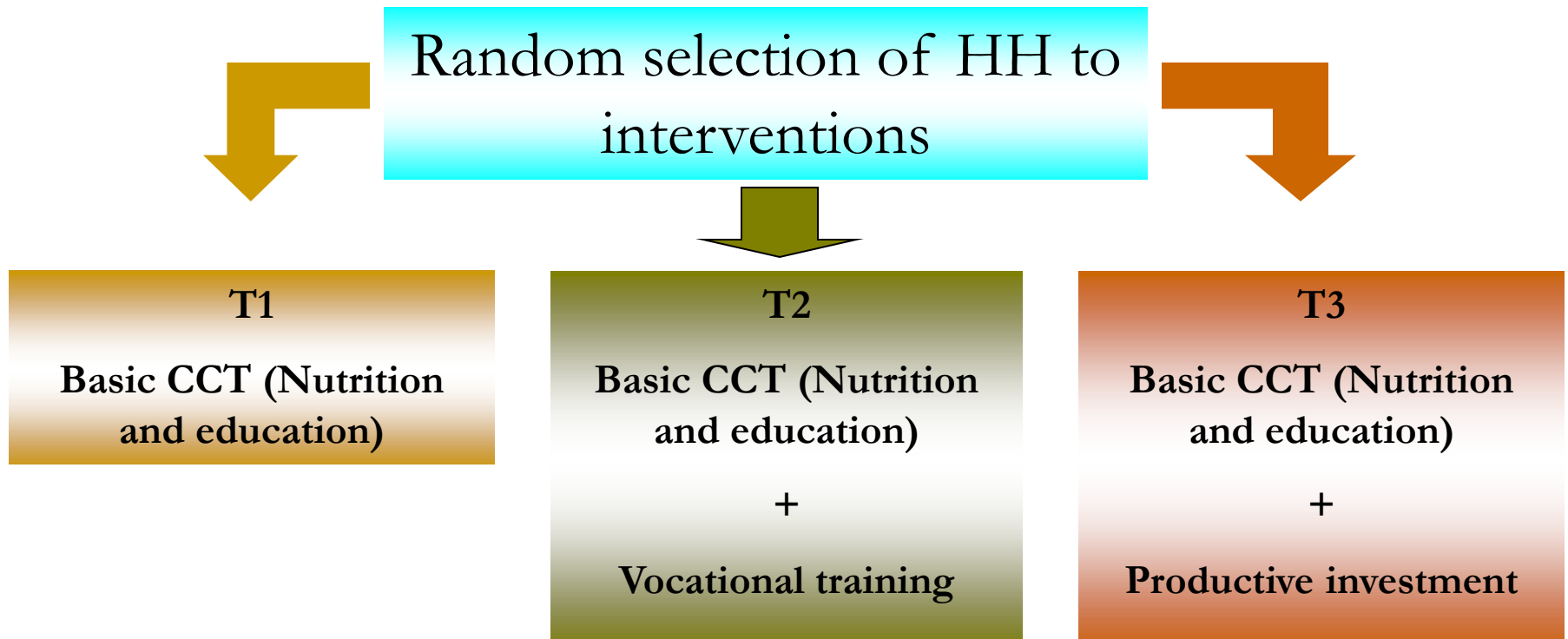
Solutions in THIS context?

- Weather insurance – no market, especially for the poorest (and low take up elsewhere)
- New technologies (seed, irrigation) – expensive, less feasible for poorest
- Safety nets focused on ex-post coping/support – expensive, inefficient especially given climate change
- Informational support? Not tried (opportunity?)

- Diversification
 - Within agriculture – limited options due to credit constraint (among others)
 - In non-agricultural or higher parts of the production chain?

- THIS PILOT:
 - Explore the **complementarities** between a safety net and productive interventions to improve ex-ante risk management
 - **Key research question:** Can vocational training or investment grants help poor rural households deal with weather risk?

Approach – Test diversification options



Key design innovations

- **Multi-treatment** interventions (one of the first of its kind)
- Experimental design allows separating the impact of **different combinations of benefits**
- Women primary beneficiaries of program so strong **gender focus**
- Can study **mid/long term and sustainability** using multiple rounds of follow up data, both qualitative and quantitative (2005, 2006, 2008, 2011...2015)

What have we learned so far?



From “La Panadera Emprendedora”

INSIGHT 1 – SUSTAINABILITY (MID TERM)

Sustainable impacts 2 years AFTER the program ended

- Among those with business grant
 - Consumption is 8 % higher
 - Income is 5 % higher
- Food consumption impacts sustained for all treatment arms (5-10 % range)

BIG result for a 1 year intervention

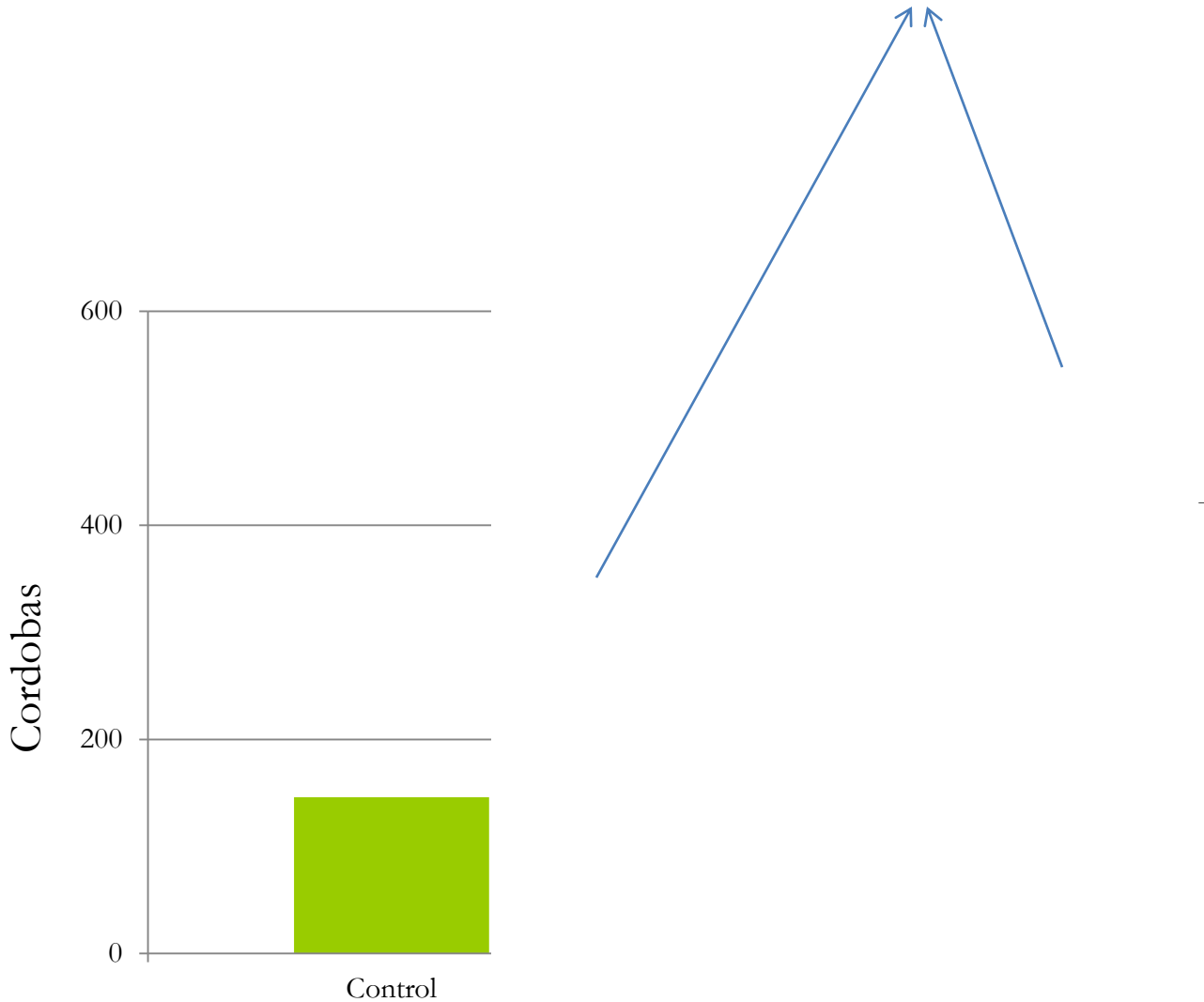
INSIGHT 2 – COST BENEFIT ANALYSIS

For those receiving business grant

Rate of annual return = 20%

Cost recovery after 3.5 years!

INSIGHT 3 – ATTITUDES AND AGENCY



For policy design: enhancing social interactions, peer effects

INSIGHT 4 – RISK

- Linking productive with traditional safety nets worked
- 2 years after the intervention ended beneficiaries of
 - **Productive grants** (business and training) are fully protected against drought shocks
 - **CCT** have **no protection** against shocks (Important lesson!)
- Mechanisms:
 - Productive grant induced diversification (increases in non-ag. activities, higher current and expected future profits) –weaker for those with training
 - Changes in attitudes towards non-agricultural activities and risk
 - No strong evidence of risk premium at play

In summary: 2 years after the end of the intervention

– Productive investment grant

- both income and consumption are protected against weather shocks
- impacts on consumption and income persist
- High rates of return – 20% and cost recovery in 3.5 years

– Training component

- both income and consumption are protected against weather shocks
- no average impacts on consumption and income

– Traditional CCT

- Short-term impacts for consumption/income disappear
- Except for food consumption where average impacts persist
- After the end of the program, no protection against shock

Opportunities for future research

Welfare

- ✓ Consumption
- ✓ Poverty

Human capital

- ✓ Health
- ✓ Education

Early childhood development

- ✓ Health
- ✓ Nutrition
- ✓ Stimulation
- ✓ Parenting

Income generation

- ✓ Labor markets
- ✓ Entrepreneurship
- ✓ Child labor

Social interactions

Gender

- ✓ Aspirations
- ✓ Depression

Risk management

- ✓ Shocks
- ✓ Ex-ante risk management
- ✓ Climate adaptation

Opportunities for future research

Specific areas of future collaboration on climate change agenda

- With existing information
 - Rural diversification (ag/non-ag linkages)
 - Analysis on commodity prices and general equilibrium effects in climate change context
 - Productive safety net agenda (CCTs graduation strategies - Prospera!)
 - Jobs agenda and climate change – SME, skills, Gender
- Funding required
 - Sustainability of pilot long term – 10 years later (2015)
 - New pilot expanding modalities to test cost effectiveness of portfolio of solutions
 - Diversification scenarios
 - Subsidized insurance
 - Information
 - Technology adoption (seeds, products...)
 - Behavioral insights (and attitudes)

Gracias!



www.worldbank.org/atencionacrisisevaluation