



INTERNATIONAL  
FOOD POLICY  
RESEARCH  
INSTITUTE

# “INCLUSIVE BUSINESS FOR RURAL DEVELOPMENT AND POVERTY ALLEVIATION”

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Asia Pacific  
Economic Cooperation



APEC PERU  
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Photo: S. Allen, IFPRI

# Background

- Transformation of agriculture
  - Declining importance of grains & other staple foods
  - Rising importance of high-value agricultural commodities
  - Green Revolution was supply-led, but this transformation is largely demand-driven
- Widespread implications
  - Change in marketing channels – more coordination
  - Opportunities and challenges for small farmers
  - New roles for government

## 4 Drivers of shift to high-value agriculture

- Rising income
- Urbanization & population growth
- Outward-oriented trade policy
- Foreign direct investment

# Emergence of farmer-buyer linkages

- Causes
  - Perishability of commodity
  - Specific demand requirements of consumers
  - New crops and varieties not familiar to farmers
- Need for formalized links with farmers
  - To ensure quantity, quality, timing, etc
  - To transmit information, inputs, credit, etc.
  - To establish trust regarding safety & quality through coordination from inputs to table
- Institutional solutions
  - Contract farming
  - Farmer organizations & cooperatives that link to industrial processing or retailing
  - Private and public standards for quality and safety

# Paradox of smallholders

## Efficiency argument




- Lipton (1993) points that there is extensive empirical literature that point to the 'inverse relationship' between farm size and production per unit of land
- Lipton (2005) says economies of scale are weak
- Dyer (1991, 1996): Small farmers more efficient use of labor
- Poulton (2005) says scale of farm operations affects transactions costs for different activities in different ways
- Cornia (1985), Heltberg (1998) show small farmers employ more labor than large farmers (labor markets are imperfect)

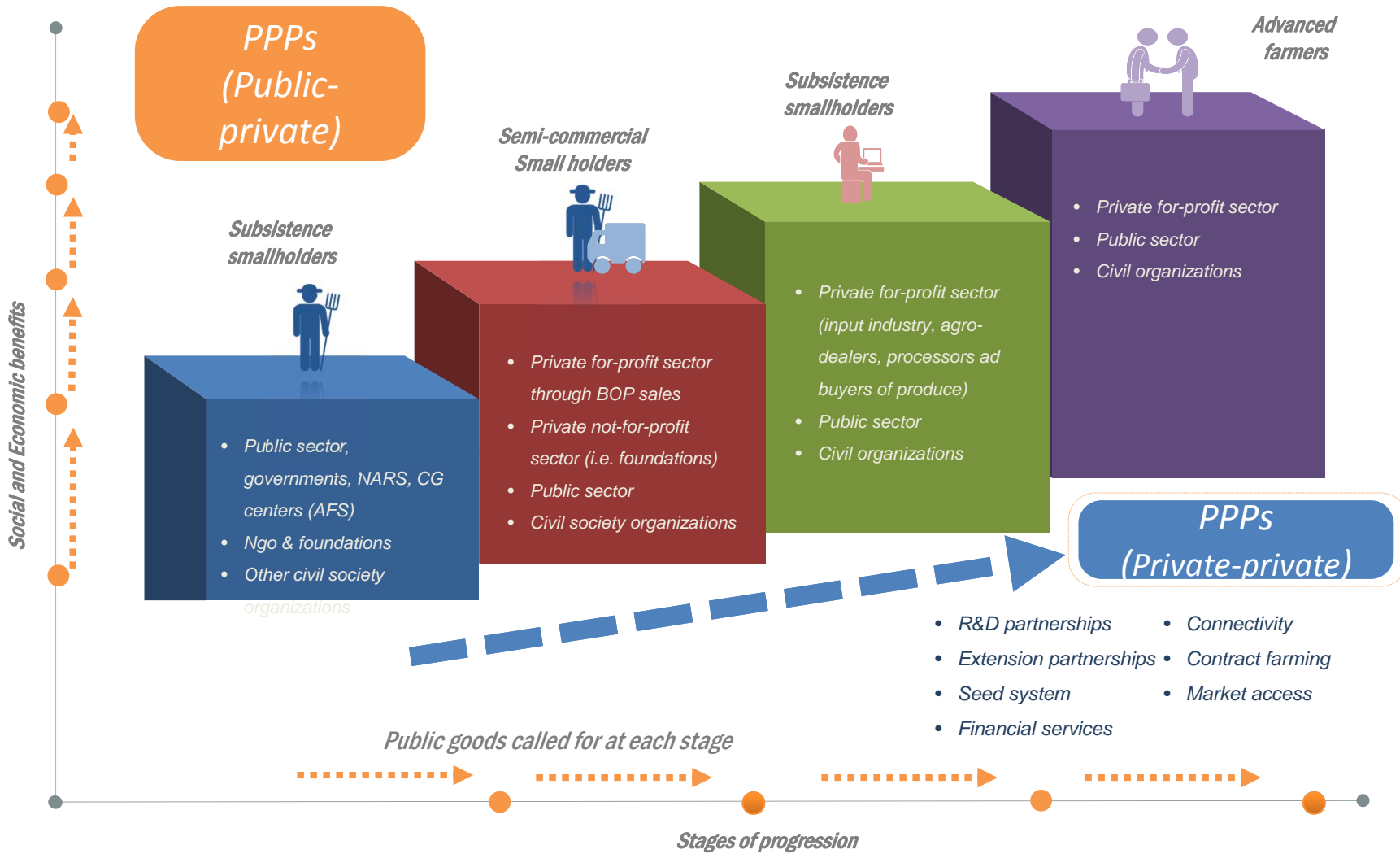
## Problems faced by small farmers

- Changes in production methods are not scale neutral as were with the Green revolution
- Economies of scale in agriculture may apply in input supply, processing of harvests and in transport
- Modern food value chain impose new restrictions for smallholders as a result they are not linked to dynamic markets (e.g. auditing and certification costs, Reynolds 2004, and many papers of Reardon)
- Market imperfections imply higher transactions costs



# Reducing bottlenecks to link farmers to markets

Production	Supply Chain	Processing	Marketing
			
<p>Poor extension Quality inputs Low productivity Non demand linked production</p>	<p>Weak road infrastructure Lack of storage High wastages Multiple intermediaries</p>	<p>Low processing Lack of quality Poor returns Low capacity utilization</p>	<p>Poor infrastructure Lack of grading No linkages Non transparency in prices</p>



What do we aim for?

*Identify market failures  
and bring sustainable  
solutions*


*Use the best possible  
economics*

*Use Experimental  
Methods to bring  
about the best  
possible solutions*





***Identify market failures  
and bring sustainable  
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*Use Experimental  
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*Use the best possible  
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# Examples of interventions to strengthen value chains



Policy reforms; tax and trade



Third party validation of quality in milk marketing in Vietnam



Contract farming incentives to increase regularity of delivery of milk in Senegal, with added incentives for child nutrition



Quality grading of onions in Senegal



Design of working capital loans for farmers' organizations in Uganda to support aggregation for marketing and secure higher prices

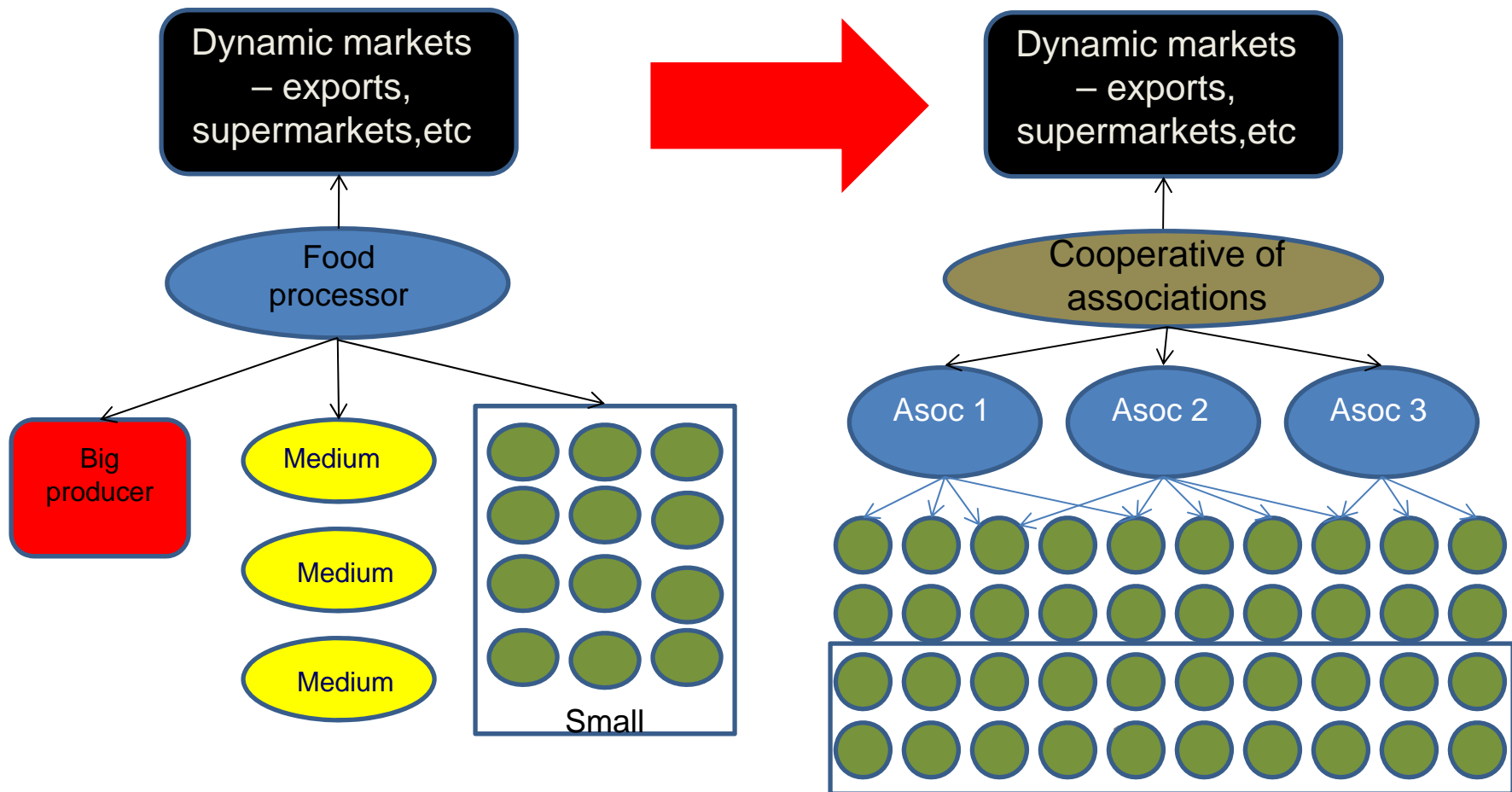
# **Case 1**

## **Contract Farming – Use of Incentives**

### **Contracting out of Poverty**



# Contract farming two extreme models





# Incentive-Compatible contracts

- Costs of monitoring
- Abuse of monopsony power
- Price schemes
- Quality standards
- Access to credit
- Productivity
- Club formation
- Developing strong rural farmer associations and tied products
- Price schemes with incentives on delivery, productivity and quality
- Joint definition of quality
- Double ransom model
- Clear price incentives

Identify market failures and bring sustainable solutions



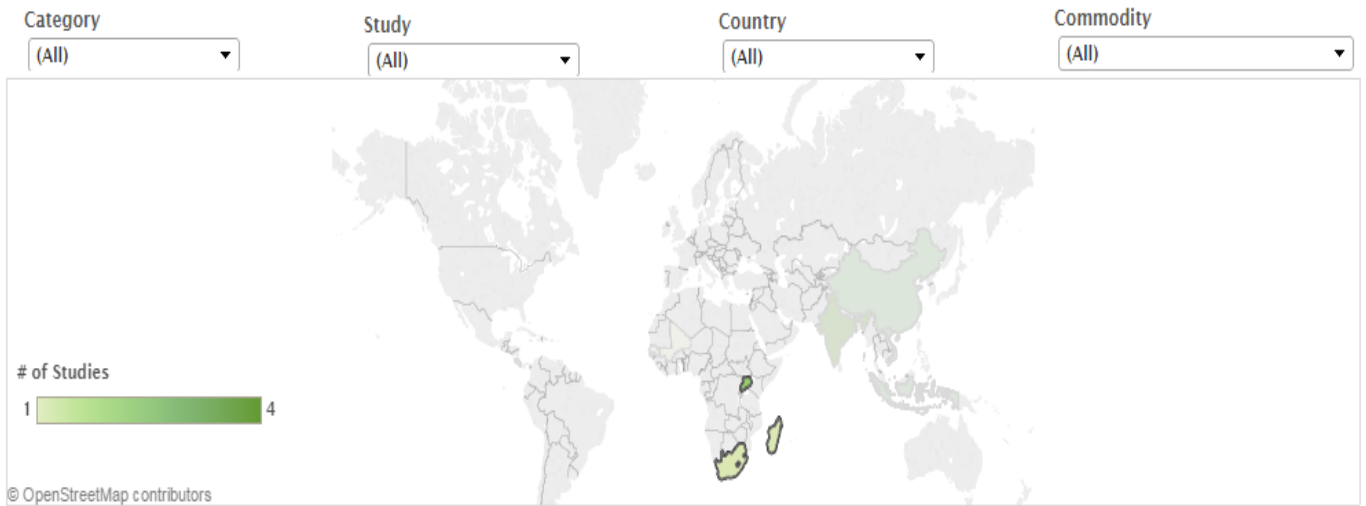
Use best possible economics and experimental methods



Scale up through partnerships

## Contract farming: Risks and Benefits of Partnership Between Farmers and Firms

(Nicholas Minot and Loraine Ronchi)

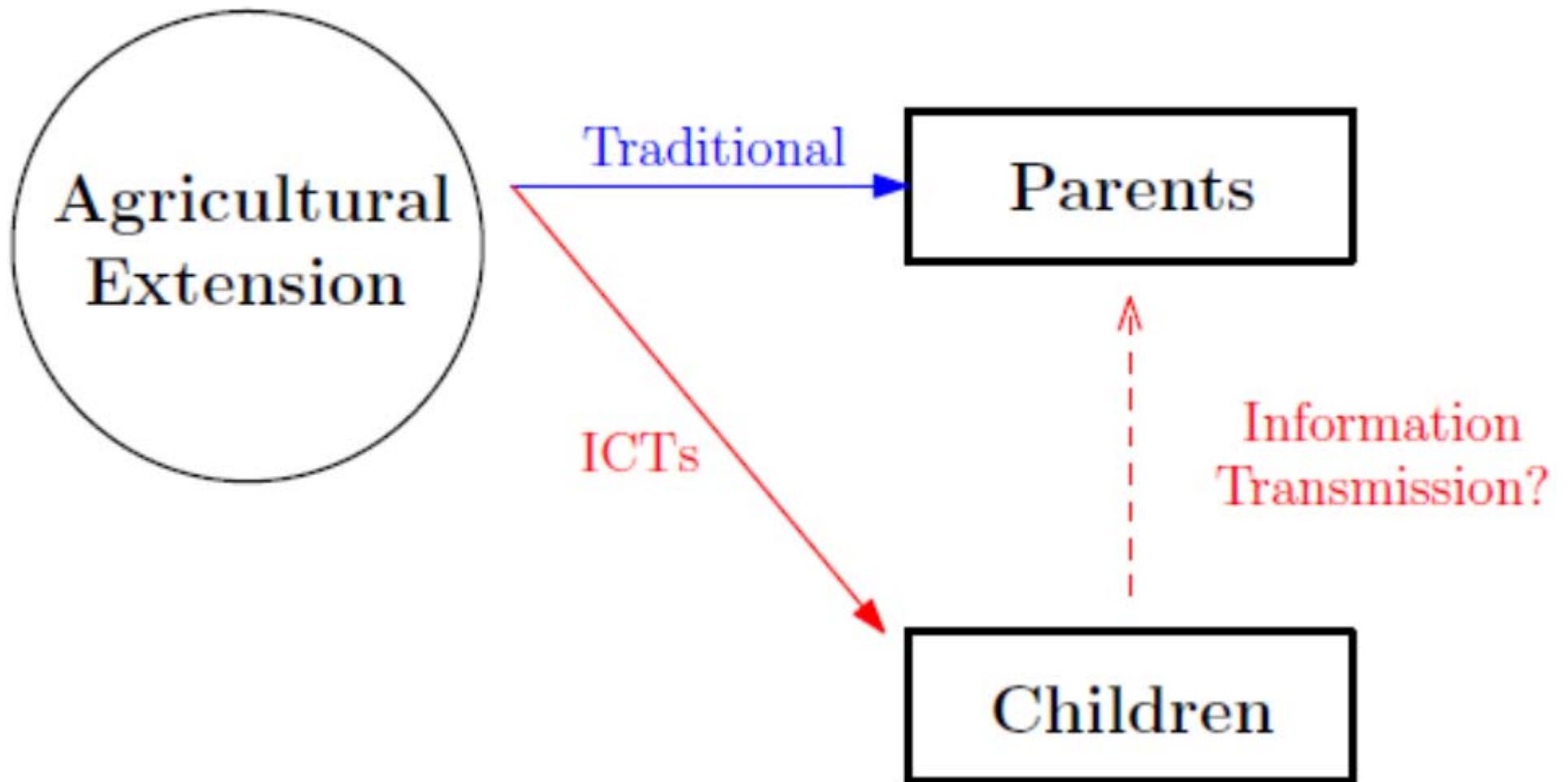


Category	Study	Country	Commodity	Results
Impact of contract farming on income or revenue	Bellemare, 2012	Madagascar	Fruit	A 1% increase in the likelihood of participating in contract farming is associated with a 0.5 percent increase in household income. This implies 50% of income. The study also found that participation also increases income from non contract..
			Grain	A 1% increase in the likelihood of participating in contract farming is associated with a 0.5 percent increase in household income. This implies 50% of income. The study also found that participation also increases income from non contract..
			Vegetables	A 1% increase in the likelihood of participating in contract farming is associated with a 0.5 percent increase in household income. This implies 50% of income. The study also found that participation also increases income from non contract..
	Bolwig, Gibbon, and J..	Uganda	Coffee	Positive revenue effect for contract farmers compared to a control group on non-contracting farmers. With full information maximum likelihood revenue increase of 75% in net coffee revenue relative to no contract participation.

# **Case 2**

**Upward  
Intergenerational  
transfer of information  
Happy Phases**

- Traditional Agricultural Extension: costly, hard to reach remote areas, accountability of extension worker
- ICTs can solve many of these shortcomings.
- Problem: Computer-illiterate adult population in rural areas.



# Intervention

- One school in the Northern Highlands of Peru (enrollment  $\approx 210$ )
  - Students involved in farm chores: 95% help in agricultural activities ( $\bar{x}=3.1$  hrs/week) and 96% help in animal rearing ( $\bar{x}=12$  hrs/week).
- Most severe problems for farmers: blight & flea beetle (potato), earworm (corn), ticks & bloating (guinea pigs), and cold (chicken)
- Cost-effective and simple mechanisms.
- Randomize information (individually) among students.



How to identify the problem?



Explain the problem



Simple Solution (Molasses Trap)



How does the solution work?





## Not any type of knowledge...

- Include variable indicating if the student in the household was assigned to watch ANY video:  

$$Y_{ij} = \beta Video_{ij} + \theta AnyVideo_i + \alpha_j + \varepsilon_i + \mu_{ij}$$
- Effect only coming for practices taught through videos.

	(1)	(2)	(3)
Ag Practice Video ( <i>Video<sub>ij</sub></i> )	0.078*** (0.023)	0.100*** (0.030)	0.079*** (0.023)
Any video	0.004 (0.034)	-0.005 (0.038)	0.007 (0.038)
Constant	0.600*** (0.034)	0.589*** (0.036)	0.623*** (0.039)
Observations	3,045	2,415	2,565
Households	203	161	171
Sample			
Both BL and EL	Yes	Yes	Yes
Only BL	Yes	Yes	No
Only EL	Yes	No	Yes

## Adoption of Agricultural Practices

- 17 questions about agricultural practices explained in the videos.
- ITT estimate: videos increased adoption of agricultural practices by 3.5 pp.

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<i>Video<sub>ij</sub></i>	0.035* (0.021)
Constant	0.242*** (0.026)
Observations	3,451
Households	203

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## **Case 3**

# **Poverty Score Card for Lending**

# The Problem

In underdeveloped markets lending risks for smallholders are high because contracts are difficult to enforce and higher probability of adverse selection (wrong choices when the type of the borrower is unknown)

# What is missing

- In developed financial markets a system of score cards are used to mitigate the problem of adverse selection by identifying creditworthiness
- Riskiness of a borrower or a grantee is not the only criterion in case of development lending
- **If the objective is development** the menu of projects has to be assessed also in terms of their **potential for reducing poverty**
- Thus, for the optimal use of funds there might be a possible trade off between profitability and poverty impacts

# What we have done

- We have implemented a two dimensional score card:
  - **risk score of the grantees**
  - **poverty score card**
- We combine both score cards so that project selection will not only focus on targeting the poor but also in assuring sustainability



# Impact pathways

## Outputs – Poverty Score card

- 2 Academic papers
- Poverty scorecard web-based tool
- Implementation of a fund with IADB and Austrian cooperation
- Impact evaluation

## Outcomes

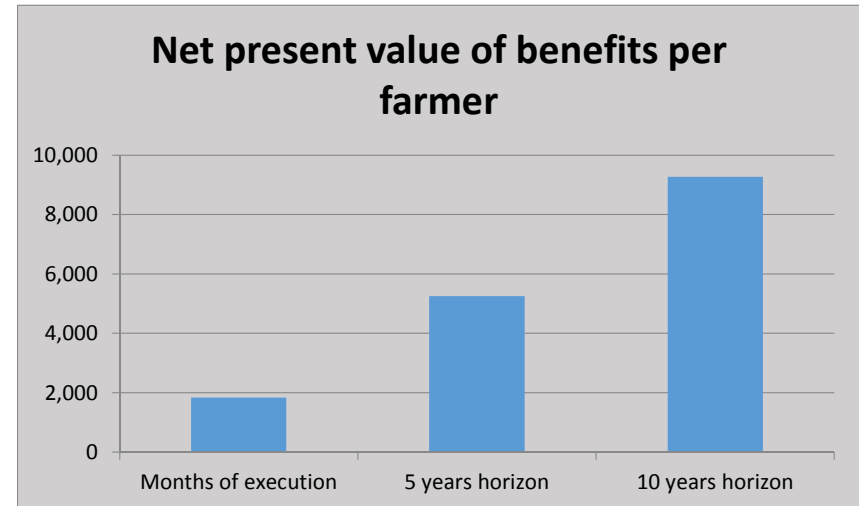
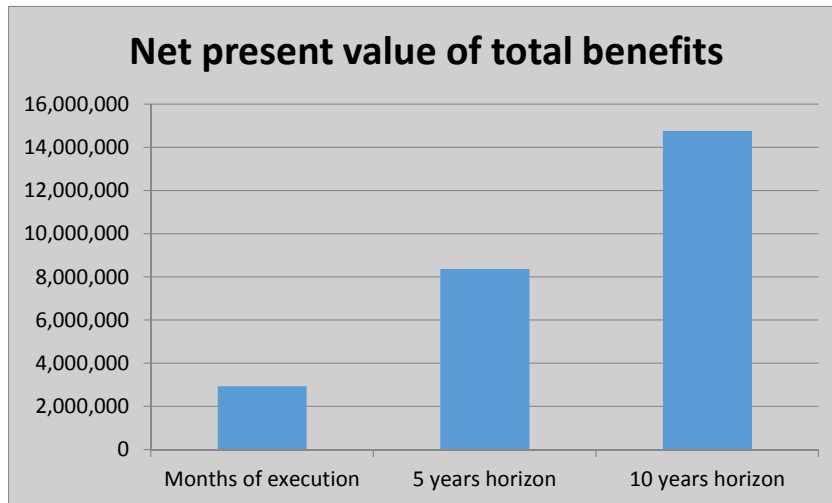
- Tool implemented in a web base platform for competition for projects valued in US\$ 4,469,400
- Building capacities in 5 central American countries
- Expansion of the concept to Asia and Africa
- Institutionalize development of tool in Peru within the Ministry of Finance



## Impacts

- Change in practices on how public resources are used to promote interventions in value chains
- More transparency in the selection of projects in value chains upgrading

# Cost-benefit analysis



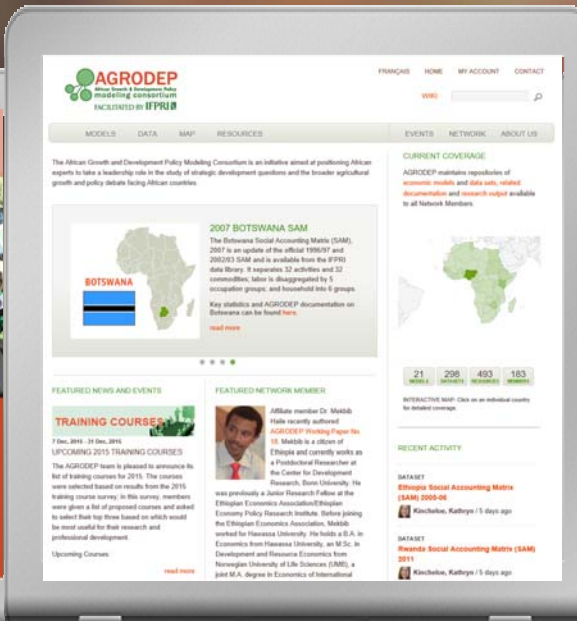
- Total cost of projects **\$1,630,633**.
- If changes in income reported by farmers is only during duration of projects, **total net benefit of \$2,929,187 and net benefit per farmer of \$1,840**.
- Total net benefits increase by **3 times in a time horizon of 5 years** and by **5 times in a time horizon of 10 years**.



## Tools 4 Value Chains

[www.tools4valuechains.org](http://www.tools4valuechains.org)

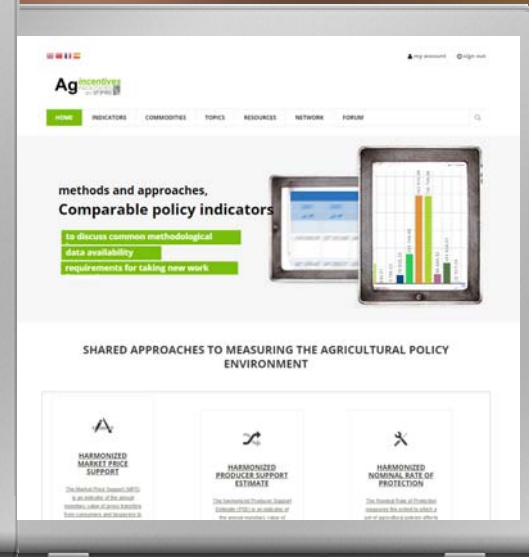
PIM Value chains knowledge warehouse provides tools and best practices customized by researchers, development practitioners, private sectors, and farmers.



## AGRODEP

[www.agrodep.org](http://www.agrodep.org)

AGRODEP is an initiative aimed at positioning African experts to take a leadership role in the study of strategic development questions and the broader agricultural growth and policy debate facing African countries.



## Ag incentives

[www.ag-incentives.org](http://www.ag-incentives.org)

This Ag-Incentive website seeks to bring together agricultural policy researchers, analysts, and practitioners from various international organizations and agencies