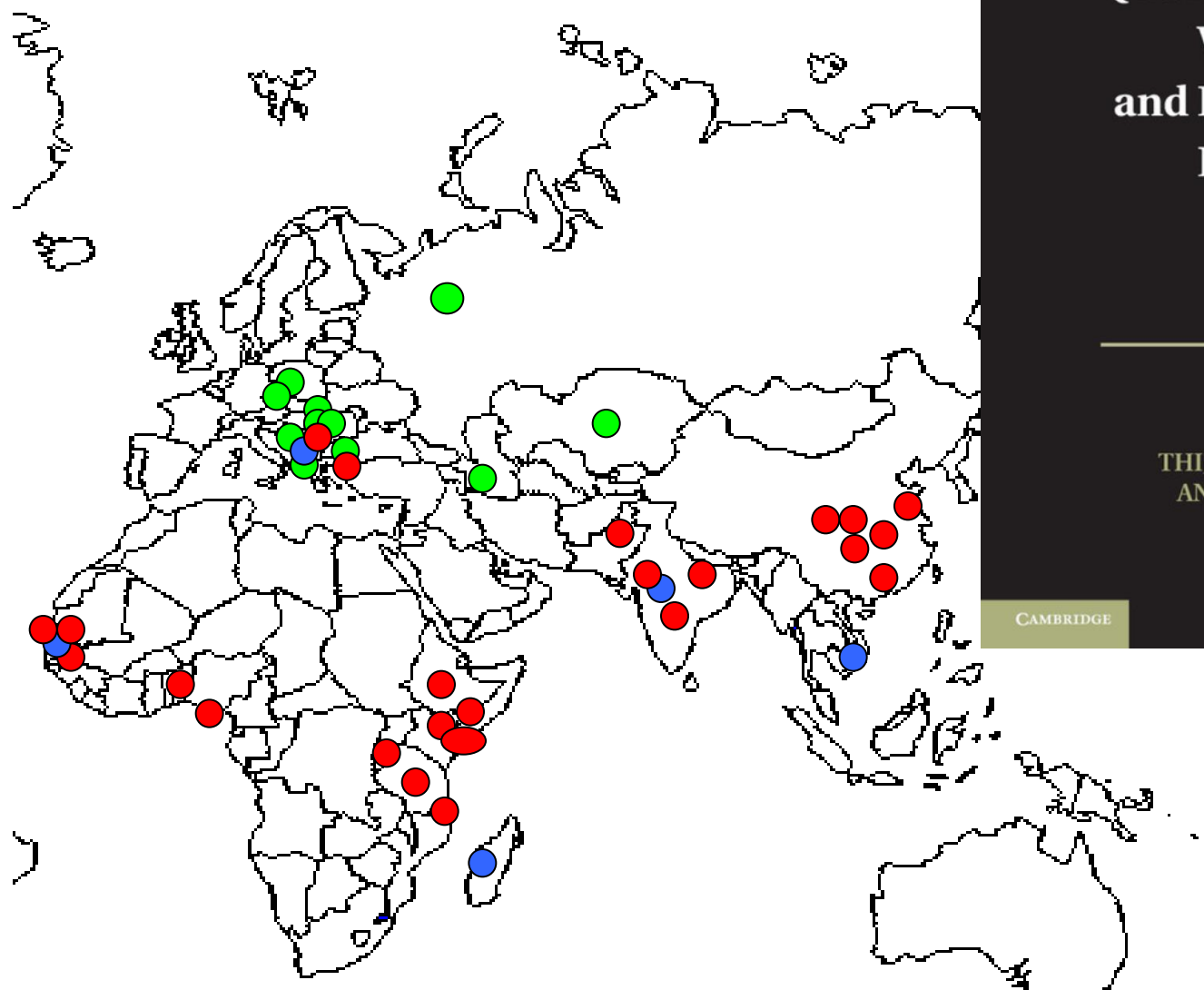


# **Inclusive Value Chains, Agricultural Development and Poverty Reduction**

Johan Swinnen

FERDI – AFD Workshop on  
“Agricultural Value Chain Development and  
Smallholder Competitiveness”

Paris, November 2018



# Quality Standards, Value Chains, and International Development

*Economic and  
Political Theory*

JOHAN SWINNEN,  
KOEN DECONINCK,  
THIJS VANDEMOORTELE,  
ANNELEEN VANDEPLAS

CAMBRIDGE

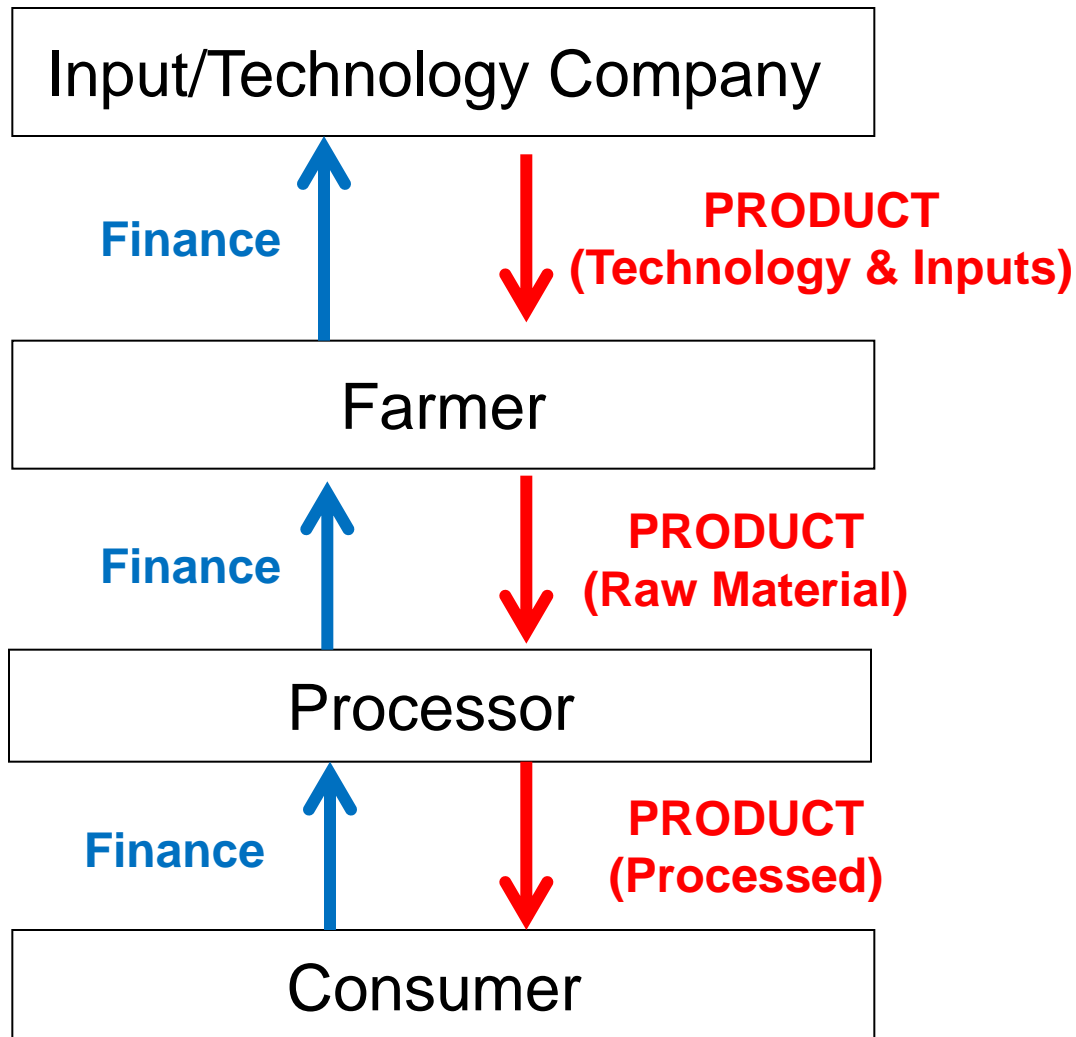
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Empirical Value Chain Studies 1995-2018

# Key Points

- Value chain development (VCD) is a potentially **important** source of agricultural growth
- Type and amount of VCD **varies significantly** across countries / time / commodities
- Much **variation** in the institutional design
- Inclusion of **smallholders** is mixed
- Poverty can be affected through **multiple channels**
- **Significant future potential**, but also limits:
  - Private:
    - Models observed in transition countries in 2000s are increasingly observed in LDCs
    - Private VCD is concentrated in “higher value”-chains
  - Public: Increasing initiatives to use VCD to reach poor farmers

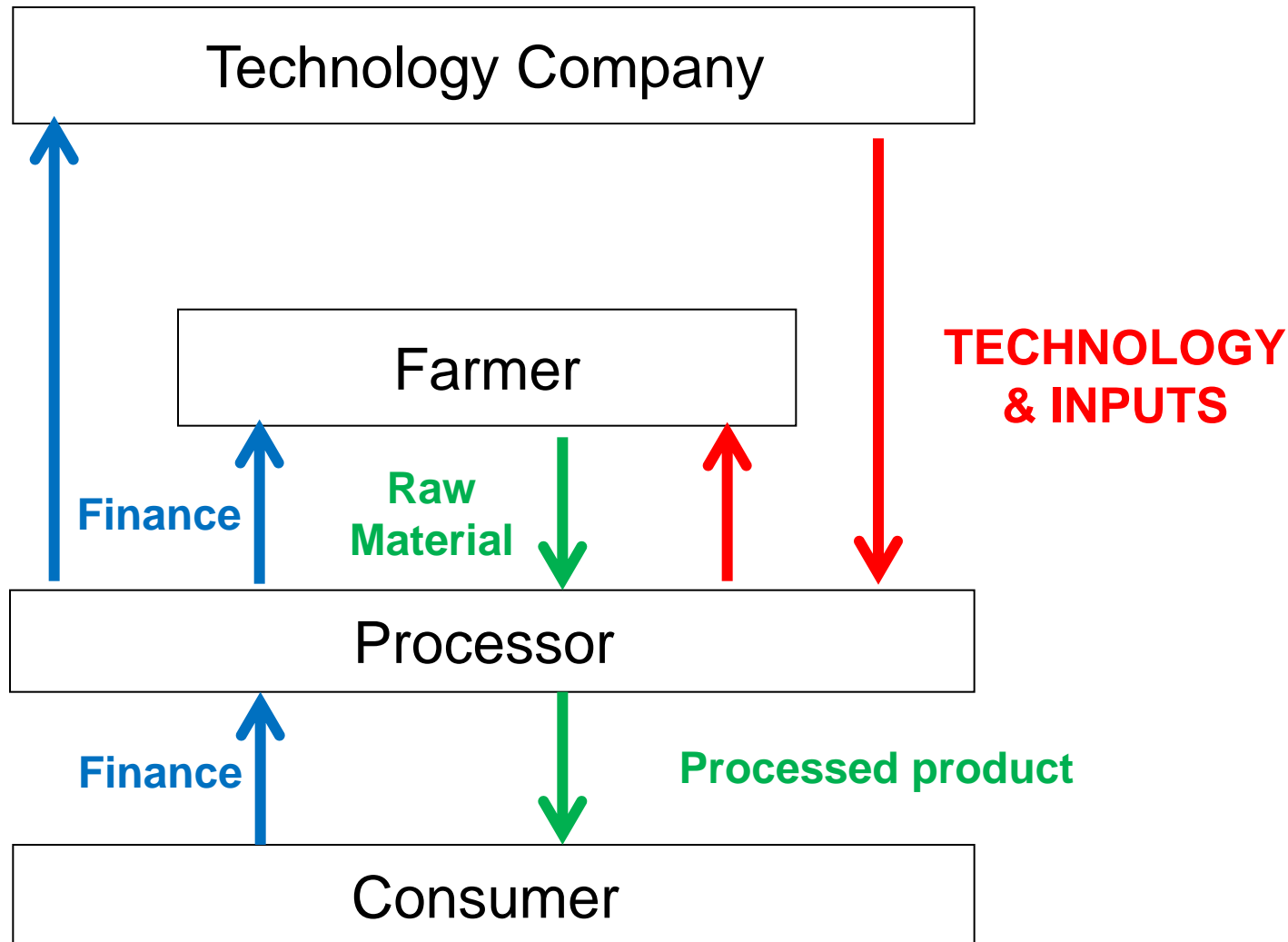
# A simple value chain model



# Finance, technology and value chains

- Nature of the different markets in the value chain will be different because of the nature of the production process and financial requirements
  - **INPUTS** (technology @ farm level / raw material @ processor level) needs to be supplied at the start of the production process
  - Payments for **OUTPUT** comes at the end of the production process
- => **Finance** is crucial to bridge the gap between the two.
- This difference is stronger when
  - **Access to finance** (loans/own liquidity) is more difficult for different agents along the value chain
  - **Duration** of production processes vary

# Value chain innovation 1



## What other analyses find ...

*"Private agricultural marketing companies have become **dominant providers** of smallholder input **credit** in Sub-Saharan Africa.*

*In various countries of the region, they are today in practice the **sole providers of seasonal input advances** to the small-scale farming community."*

IFAD (2003, p.5)

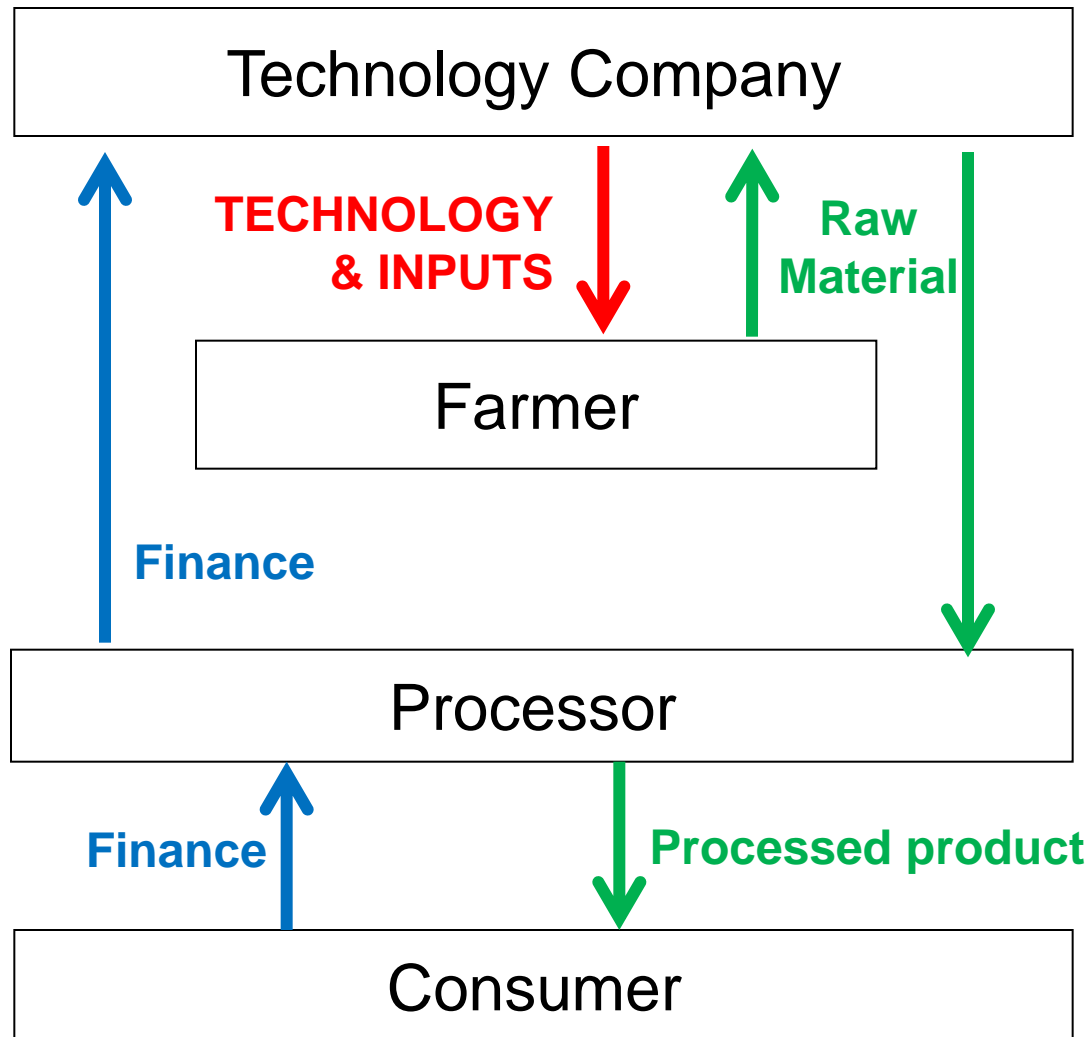
# Why do farmers contract in value chains ?

## Central Asia (Cotton – WB Study)

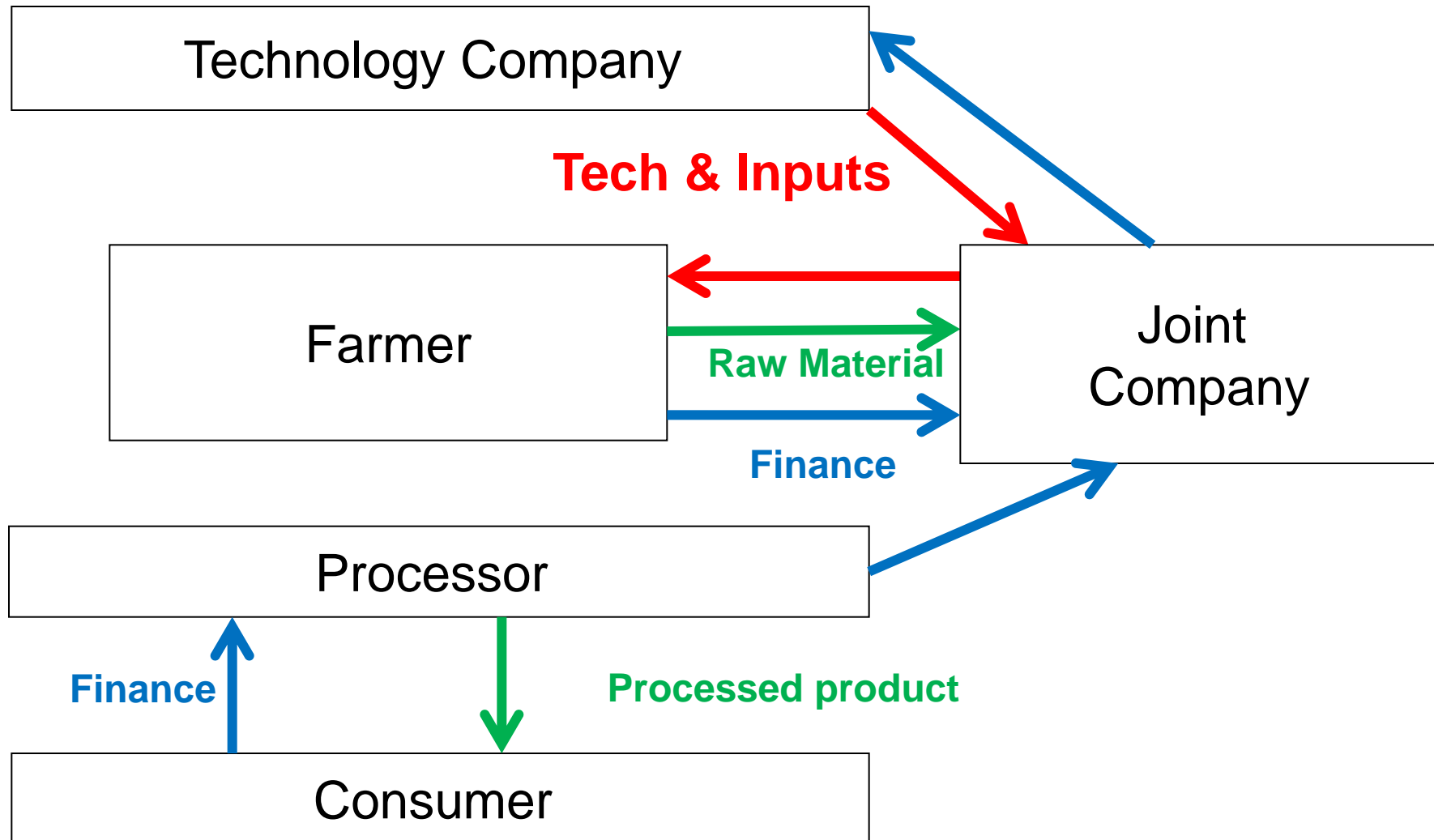
Reason for contracting (%)	Kazakhstan 2003
Guaranteed prices	4
Guaranteed sales	6
Access to credit	81
Access to quality inputs	11
Access to technical assistance	0
Other	4



# Value chain innovation 2

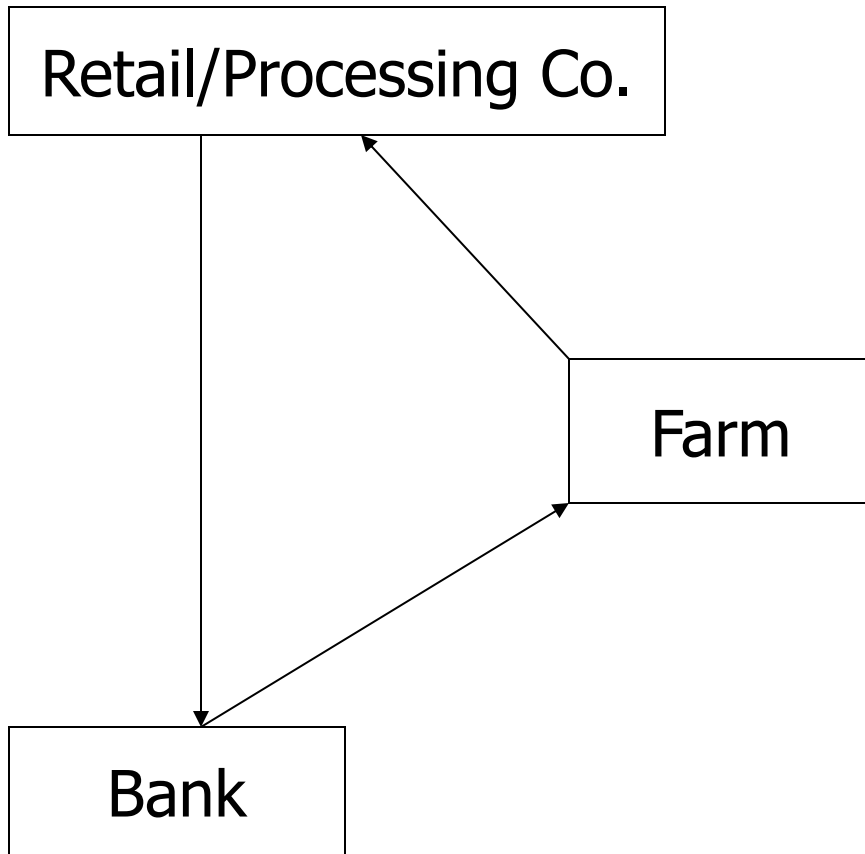


# Value chain innovation 3



# TRIANGULAR STRUCTURES

Processor/Retailer – guaranteed supplier loans:

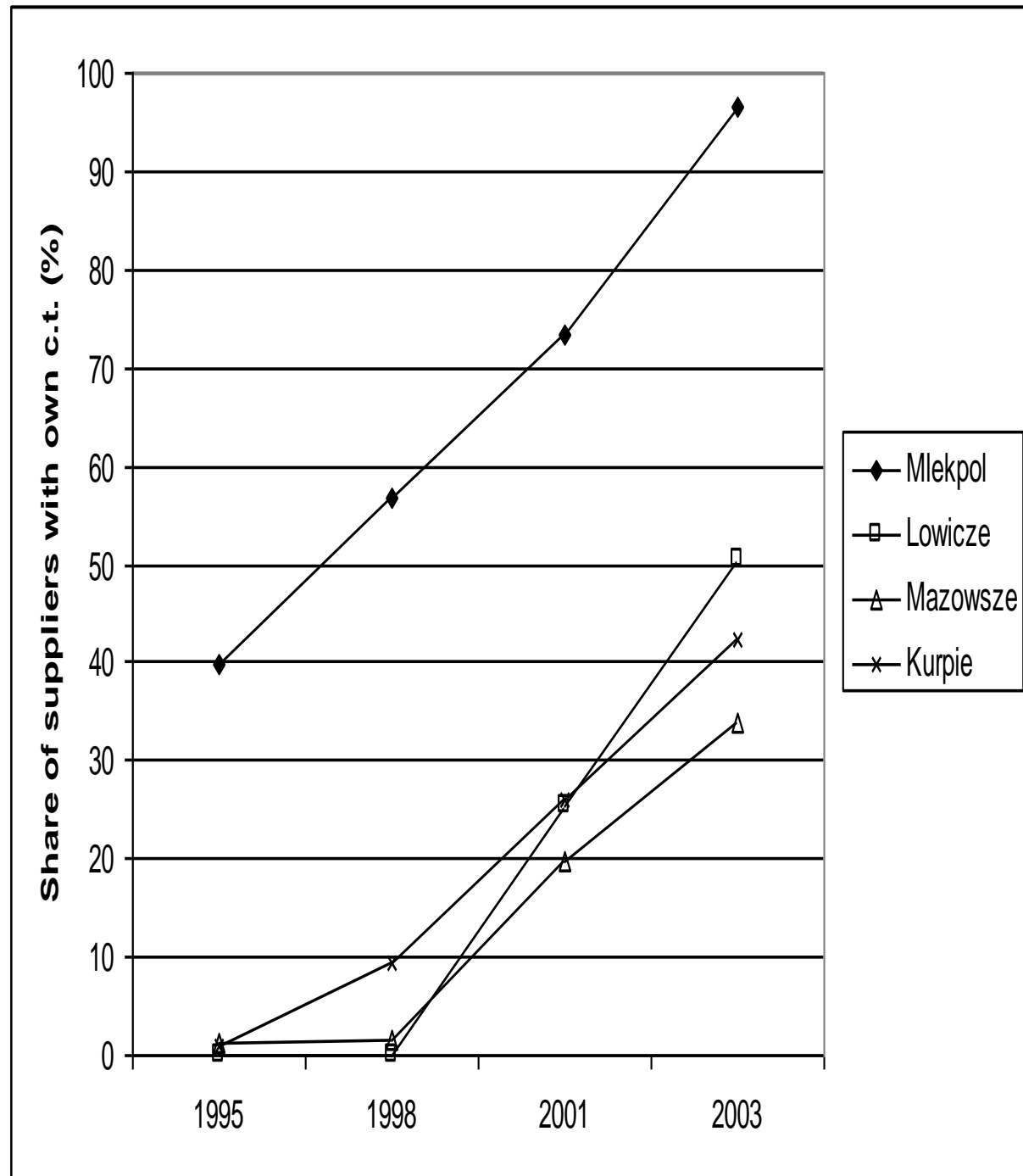


- Retailer/processor provides loan guarantees for bank loans to suppliers

# Poland Dairy Sector 1995 - 2003

VCD innovations  
&  
small farm  
investments  
(milk cooling  
equipment)

(Dries & Swinnen, WD 2002)



# **Value Chain Organization**

## **From “simple” to “sophisticated”**

- Trade credit
  - (Input supply programs)
- Investment loans
- Bank loan guarantee programs
- Leasing
- Warehouse receipt systems
- ...

# VC in Romanian Dairy - 2004

Type of support	DANONE	FRIES- LAND	PRO- MILCH	RA- RAUL
Extension services	X	X	X	X
Quality inputs	X	X	X	X
Input Pre-finance	X	X	X	
Investment loans	X	X	X	
Bank loan guarantees	X	X	X	

# From empirical observations

1. **Value chain innovations** can contribute importantly **farm access to finance** and to **technology transfer**
2. But : **contract enforcement** problems are **very serious** (breach on both sides)
3. **Structure** of the value chain is **endogenous**
  - to market imperfections
  - to enforcement institutions
  - to nature of the commodity
  - to nature of the technology
4. **Benefits for the poor can come through 3 channels:**
  - **Access** to inputs and markets
  - Efficiency **premia** for poor suppliers
  - **Employment** opportunities for poor households

# Value Matters !

Condition for contract feasibility  
(without external enforcement)

**Minimum value** required to enforce contracts via  
efficiency premia

=> Private VCD works better in high value markets  
than low value commodities (eg staple foods)



# Value & VC

Commodity **Value**  
(& Characteristics)

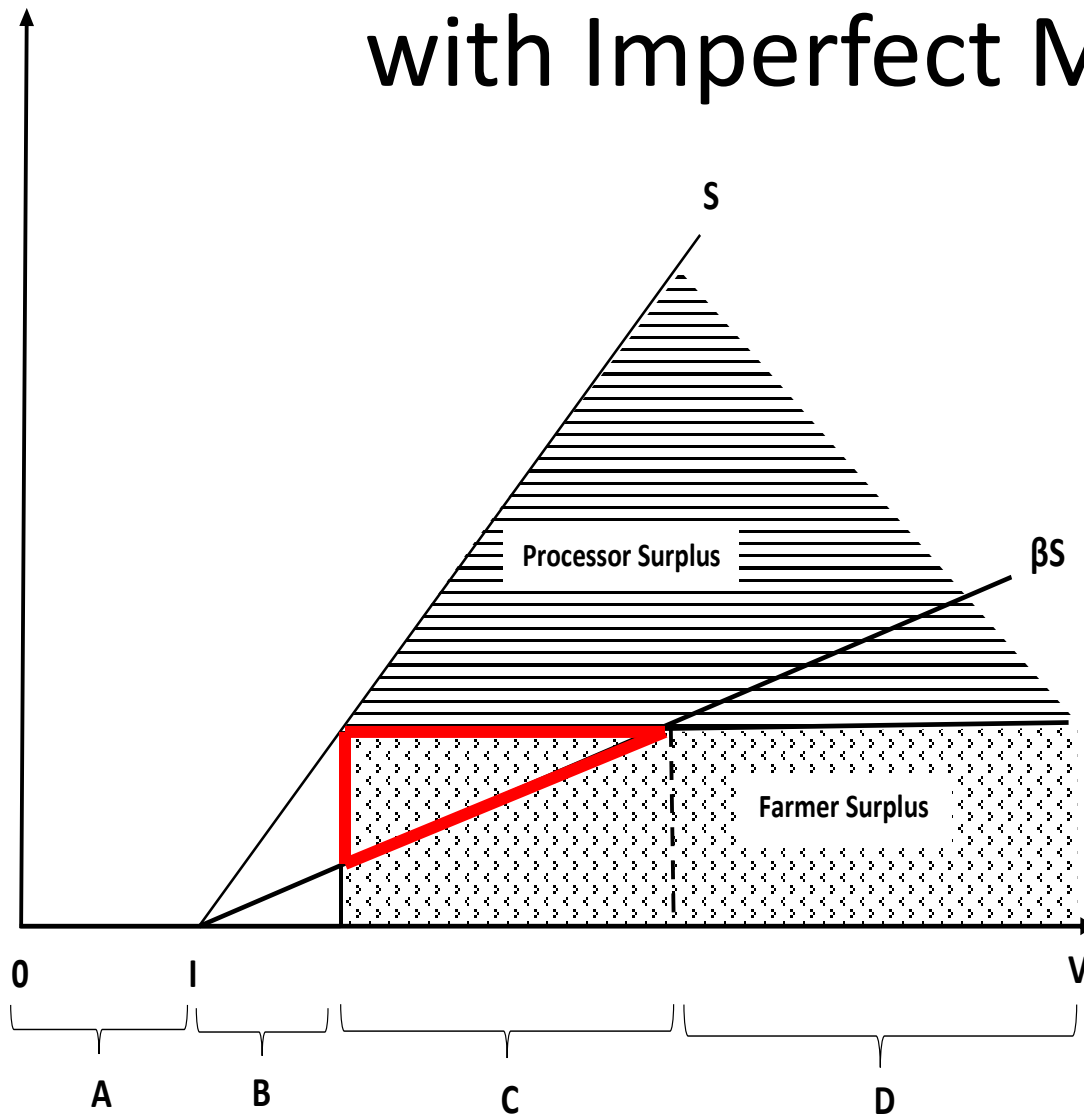


**Governance** of Value Chain (incl VCF)



**Surplus** Creation & Surplus **Distribution**  
along the Value Chain

# Efficiency & Equity in Value Chains with Imperfect Markets



Value affects  
both **surplus  
creation**  
and  
**surplus  
distribution**

Note: with vertical coordination, policy changes that affect output markets will also affect input provisions (“endogenous vertical coordination”). Examples are liberalization programs in the 1980s and 1990s.

Swinnen et al 2013: ***“Liberalization with Endogenous Institutions: A comparative analysis of agricultural reforms in Africa, Asia and Europe”*** World Bank Economic Review

# Staple food crops (low value)

- **State-controlled governance systems** are still prevalent (food self-sufficiency is political issue)
- **Private VC is less developed**, private trade relies mostly on simple spot market transactions

# Traditional export crops

(medium value)

- **Shift to Private Governance** organized around private trading and processing companies, with interlinked VC contracts ...
- **Major contract enforcement problems in VC**

# Non-traditional export crops

(high value)

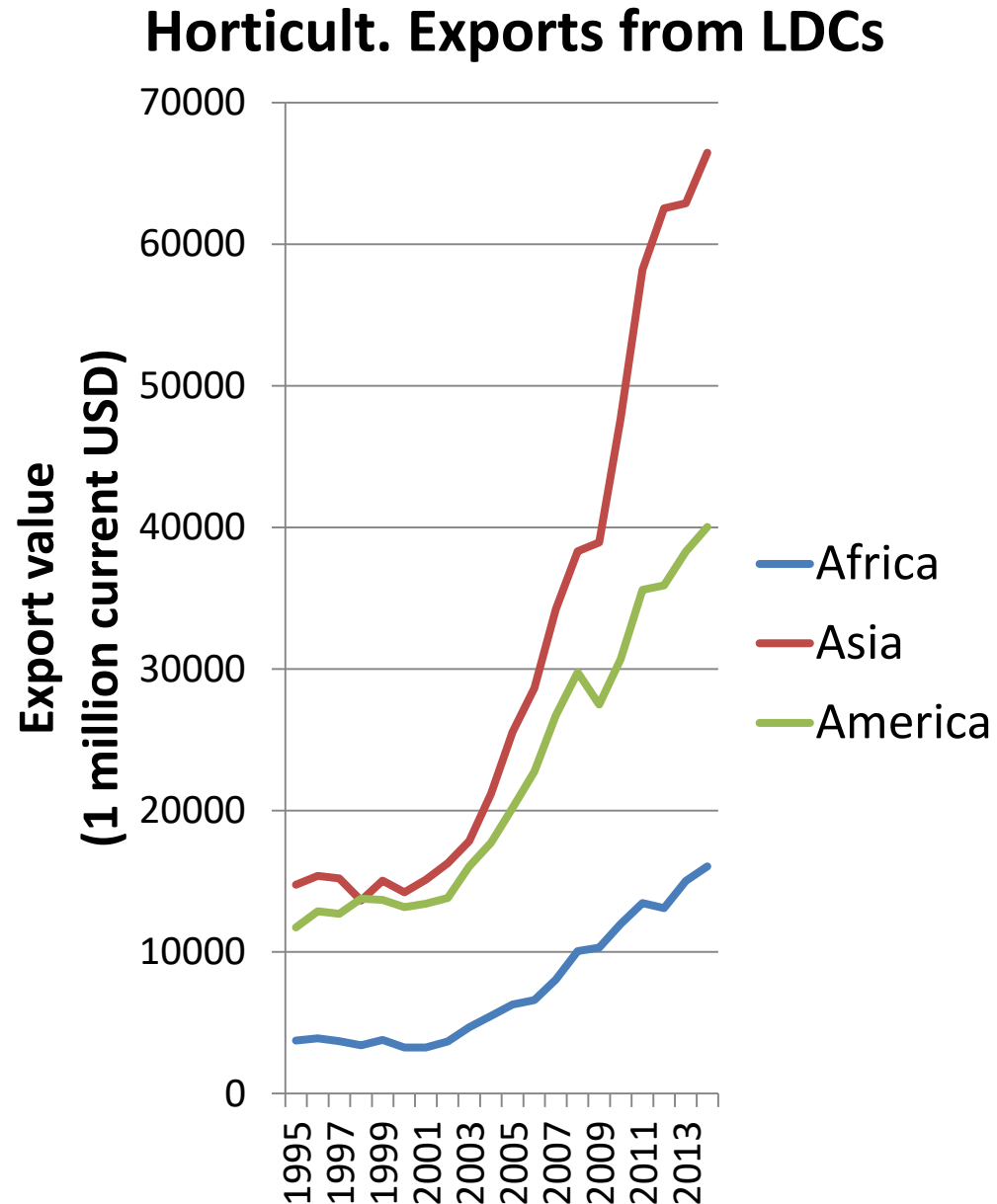
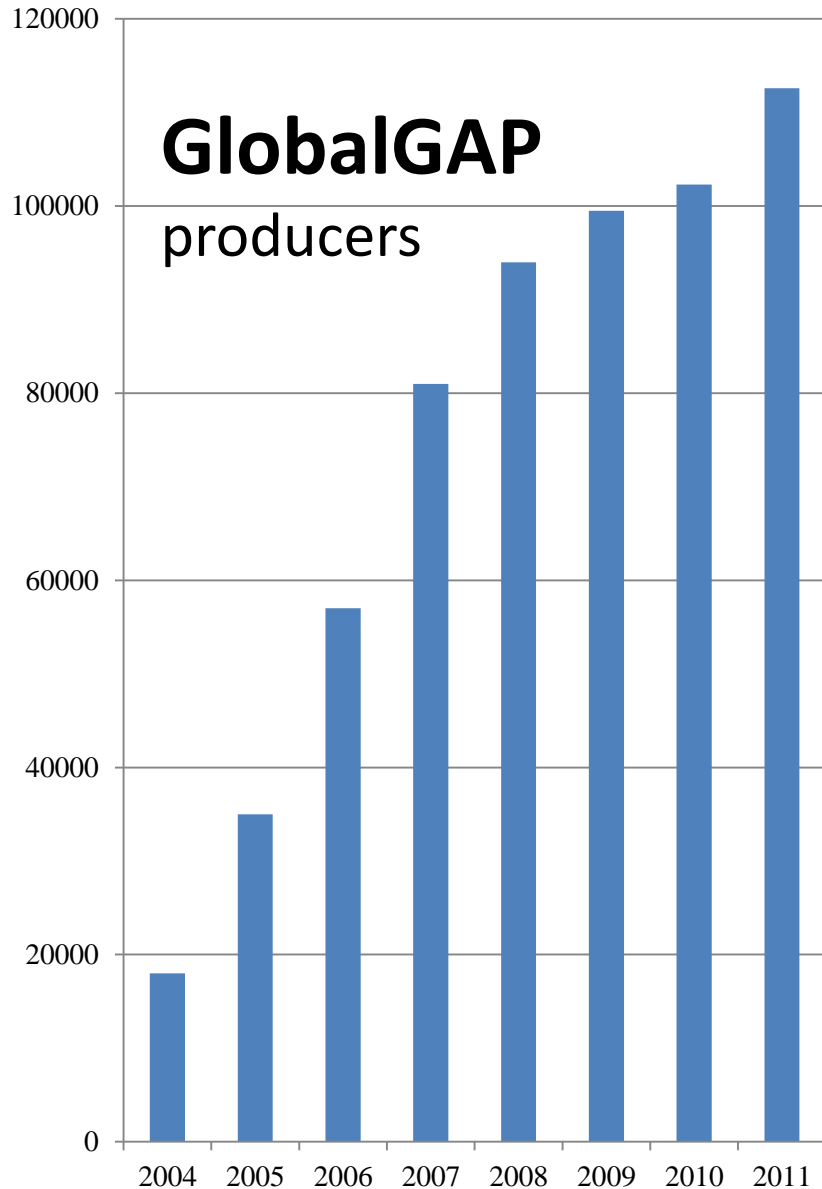
- **Recent phenomenon** with strong expansion after economic reforms
- **Completely private VC governance with extensive vertical coordination**

# Changing structure of trade

## *Product Share in Agri-Food Exports from Developing Countries (%)*

	1980	2010
<b><i>TROPICAL products</i></b> (Cocoa, tea, coffee, sugar, ...)	<b>39.2</b>	<b>16.7</b>
<b><i>TEMPERATE products</i></b> (Meat, milk, grains, ...)	28.8	27.0
<b><i>SEAFOOD, FRUIT &amp; VEGs</i></b>	<b>21.6</b>	<b>44.1</b>
<b><i>Other PROCESSED</i></b> (tobacco, beverages, ...)	10.4	13.2
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

# Standards & Horticultural VC Growth





# Empirical evidence \*

1. Smallholder **inclusion** is **mixed**
2. Smallholders **can** have **significant benefits** if included, even with **concentrated** supply chains
3. Benefits from **employment** can be important for the poorest and women

*\* See also reviews by Maertens and Swinnen (JDS, 2012; WTO 2014; ARRE 2015)*

# Comparative Illustration:

## 3 Cases of SSA Hort Export to EU VC

	Small-holders	Industry structure	High value exports to EU
Madagascar green beans	100% contract	Monopoly	yes
Senegal green beans	Mixed & changing	Competition	yes
Senegal cherry tomatoes	0%	Monopoly	yes

# 1. High standard F&V exports from Madagascar to the EU

- Rapid **growth**
  - 100 farmers in 1990
  - 10,000 small farmers on contract in 2005
- Major **technology** (fertilizer) adoption effects
- Important **productivity spillovers**
  - Rice **productivity** increased by 70%
  - Length of **lean periods** falls by 2.5 months
    - (with contract: 1.7; without contract: 4.3 months)

## Our VC Studies:

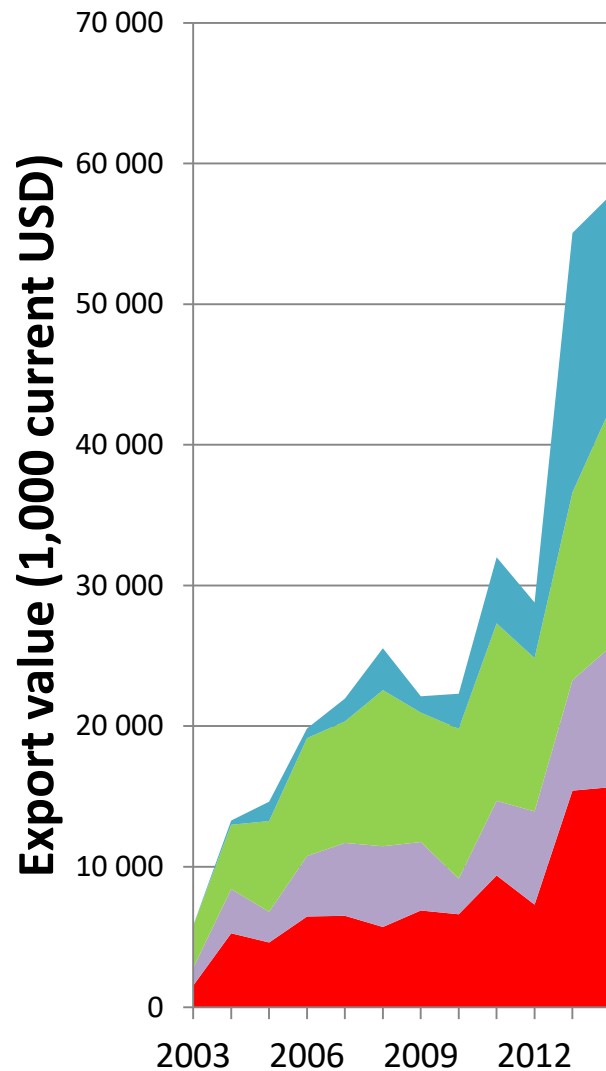
# Why do farmers contract in value chains ?

## Sub Sahara Africa -- Horticultural Exports

Reasons for contracting (%)	Madagascar 2004	Senegal 2005
Stable income	66	30
Stable prices	19	45
Higher income	17	15
Higher prices		11
Guaranteed sales		66
<b>Access to inputs &amp; credit</b>	<b>60</b>	<b>63</b>
<b>Access to new technologies</b>	<b>55</b>	17
Income during the lean period	72	37

*Source: Maertens et al., 2009; Minten et al., 2009*

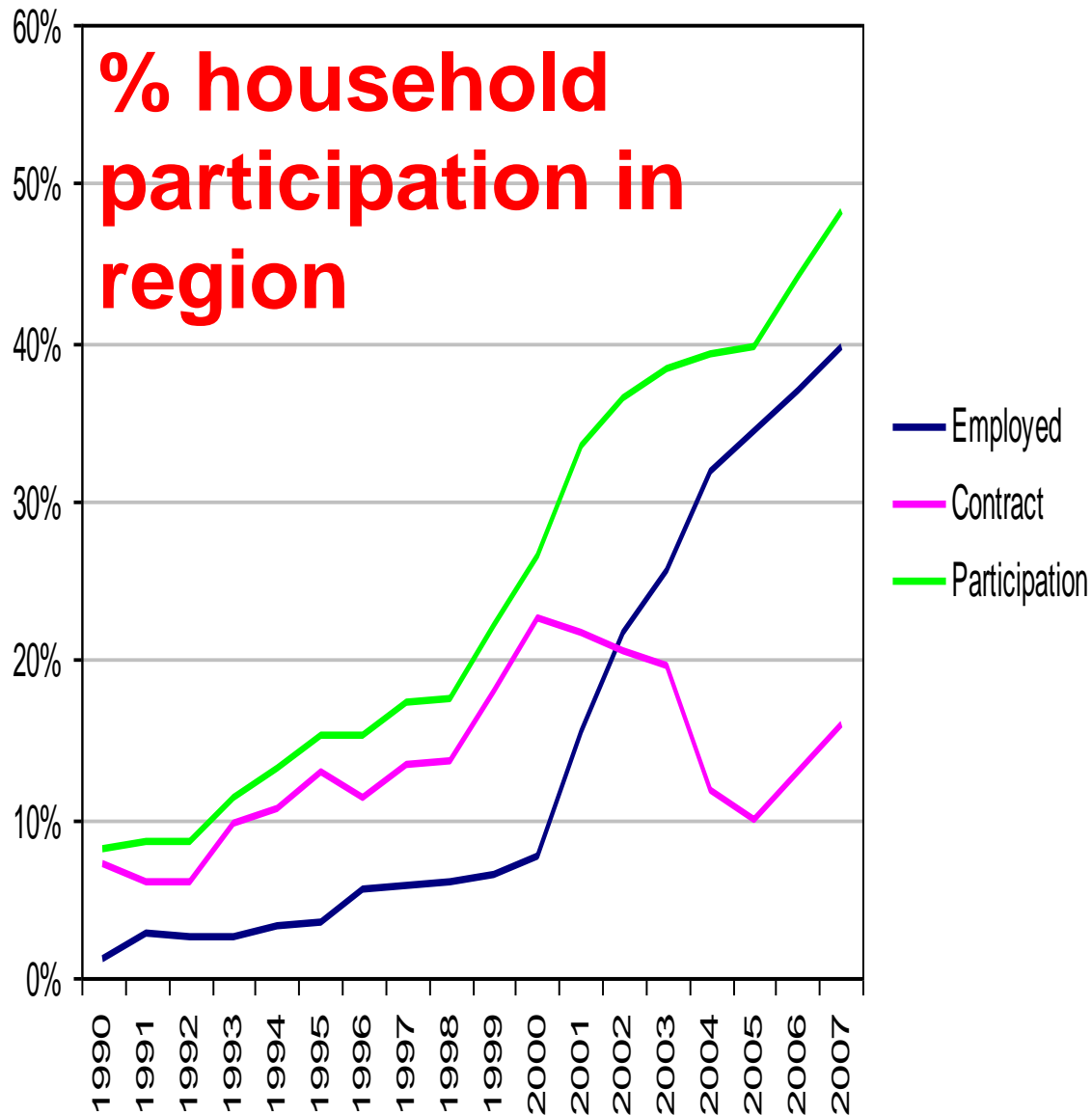
# 2 & 3. Senegal Horticultural Export Value Chains & EU Standards



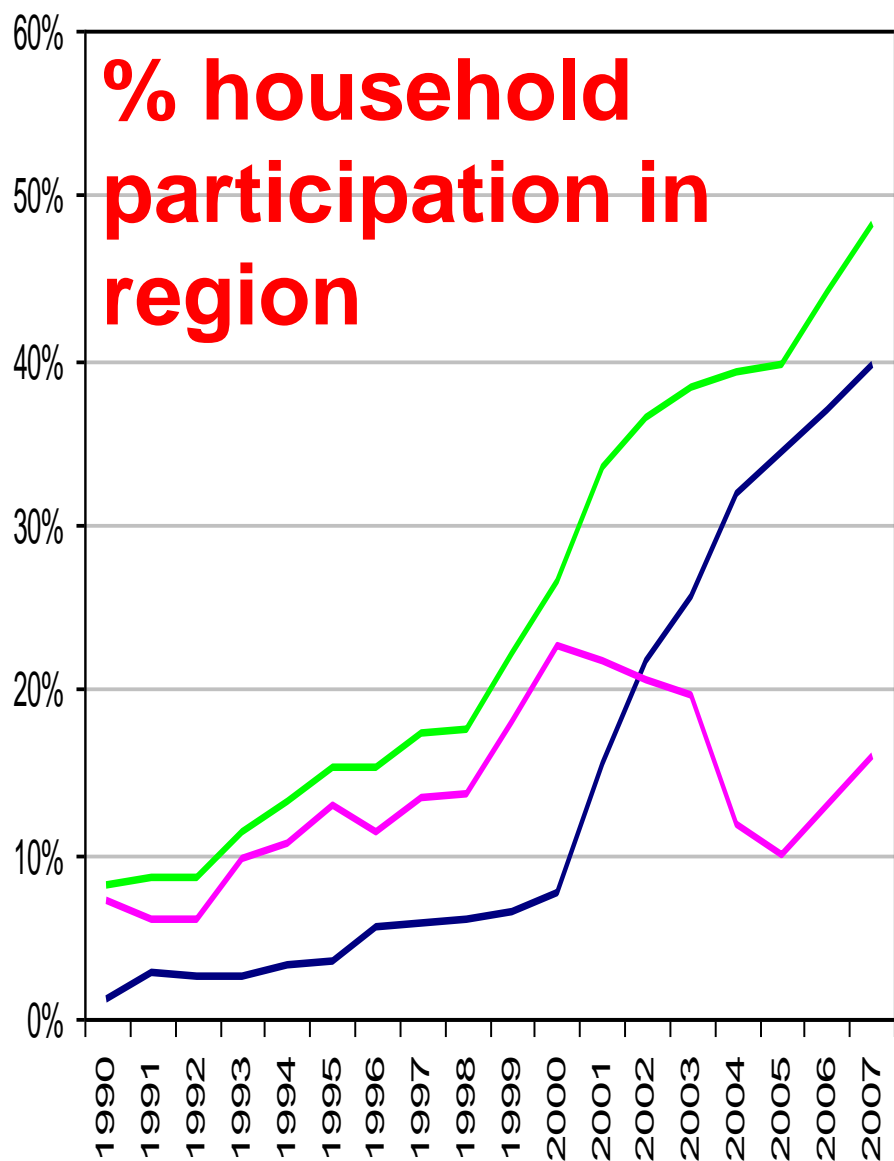
- Other fruits and vegetables
- Tomatoes
- Mangoes
- Beans



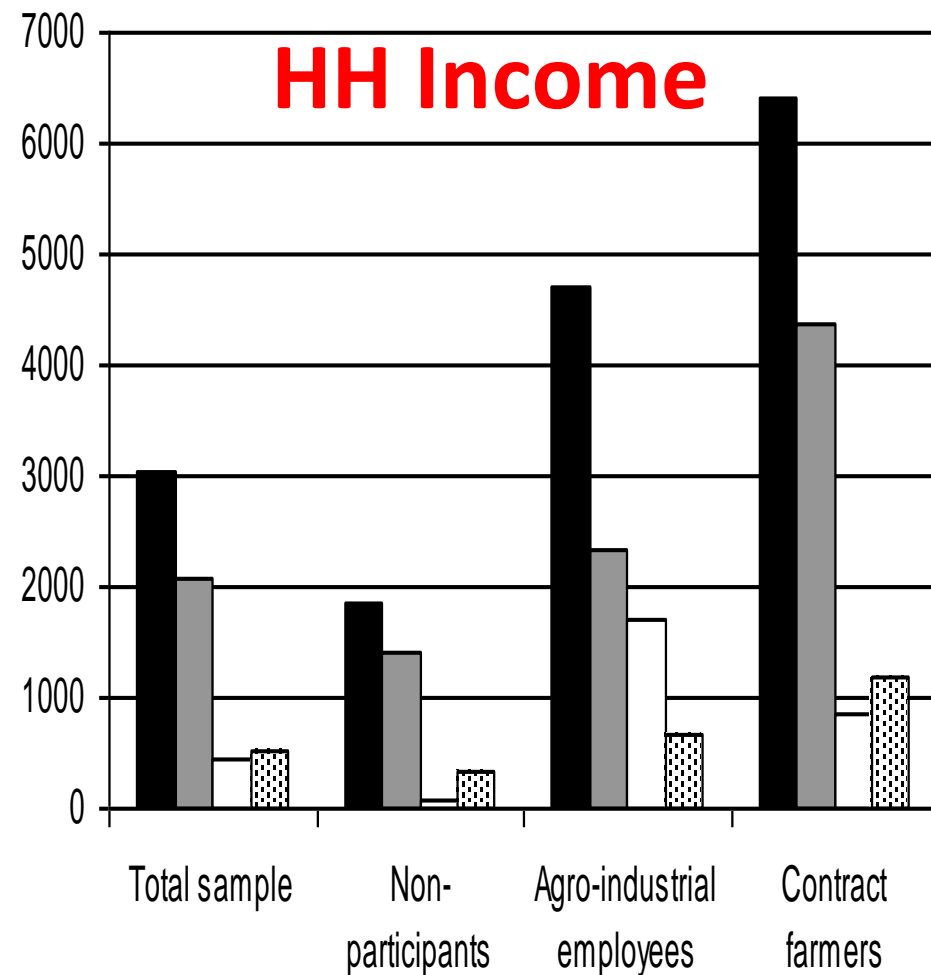
# EU Standards & Value Chain Structure: Green Bean Exports in Senegal



# EU Standards & Value Chain Structure: Green Bean Exports in Senegal



Average household income (1,000 F CFA)



■ Total household income

■ Income from farming

□ Income from agr. wages

▤ Income from non-agr. sources



# Standards & Vertical Integration in F&V Export Value Chains in Senegal River Delta

## Worst Case Scenario ?

1. Very **stringent** standards
2. **Poor** country
3. Complete **exclusion** of **smallholders**
4. Extreme VC **consolidation**
5. Foreign owned multinational



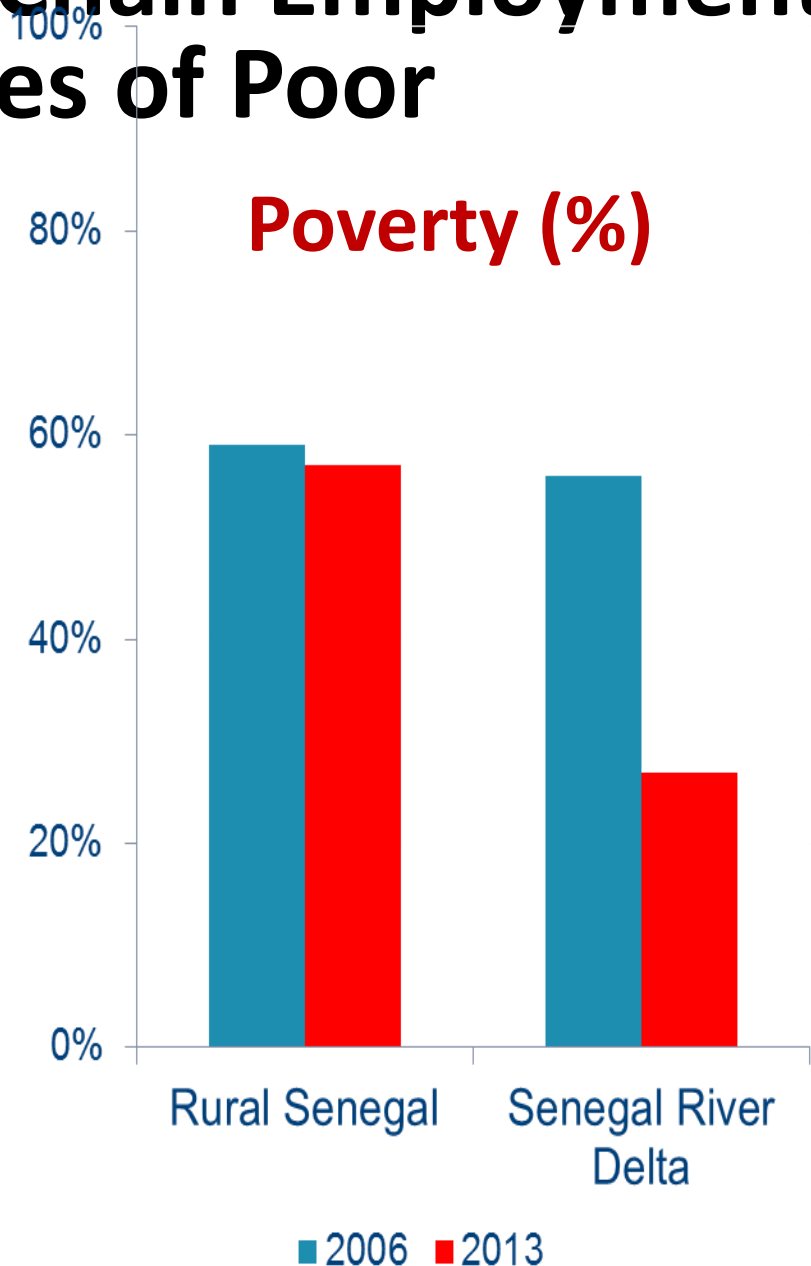


# Standards, Value Chain Employment & Incomes of Poor

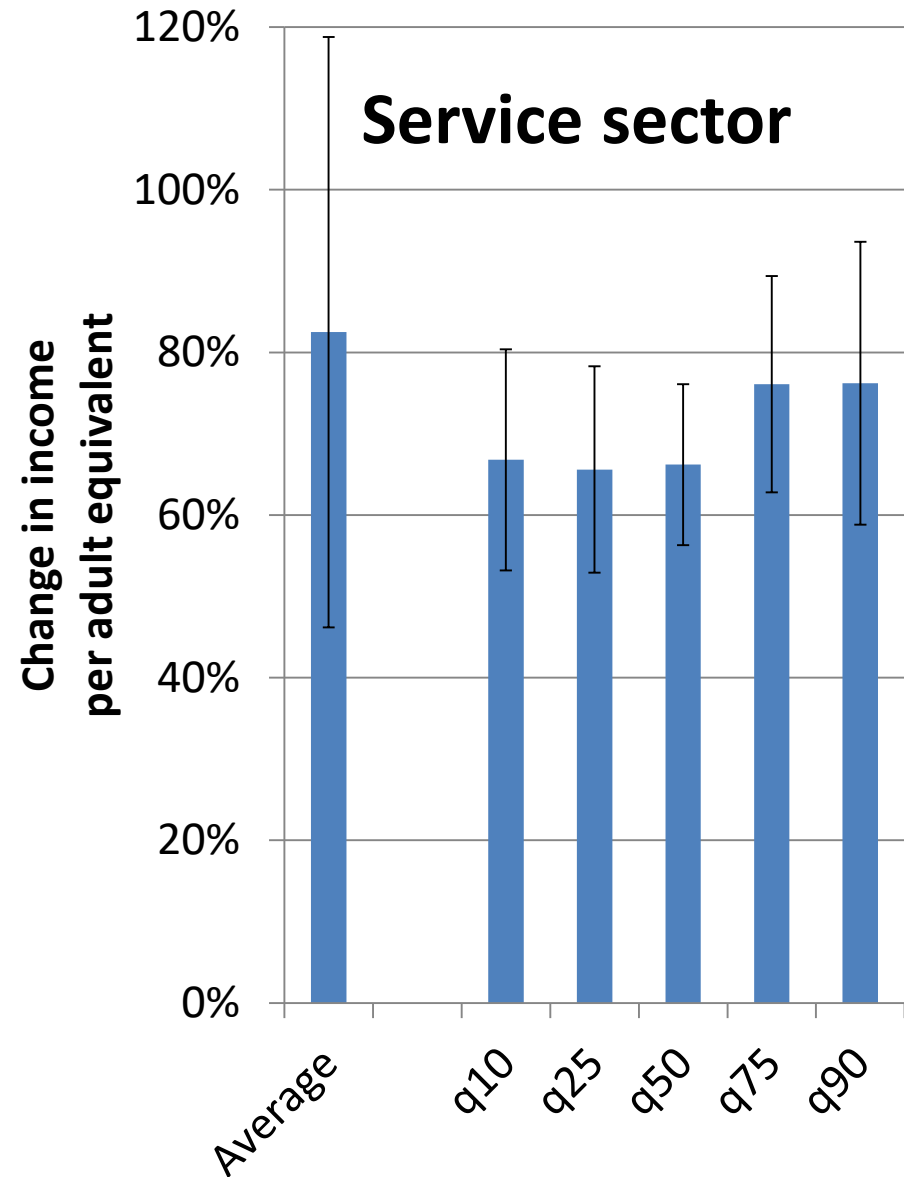
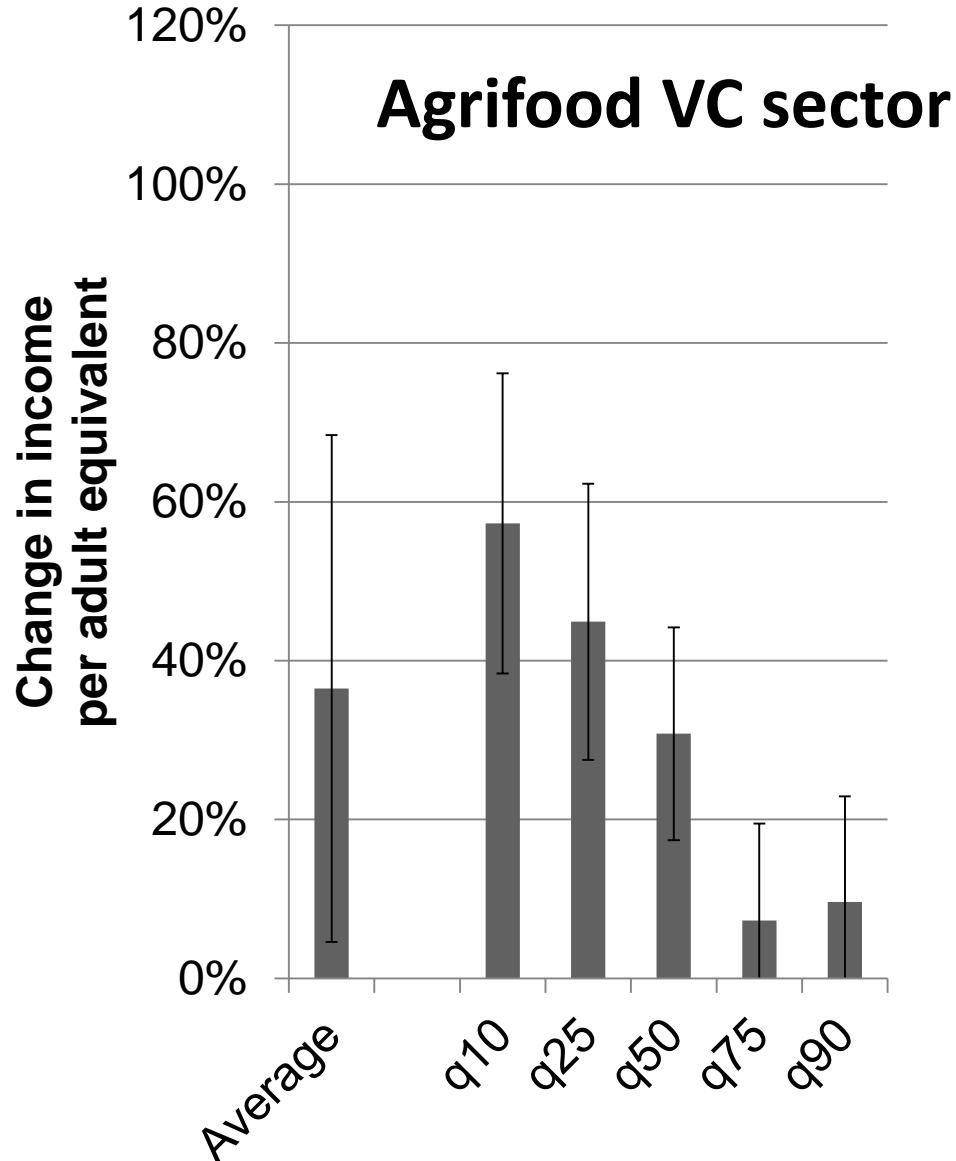
## Worst Case Scenario ?

- Strong employment growth: **40% of households** in the region **employed**
- Strong **positive income and anti-poverty** effects at HH and regional level

(Static estimates)



# Income impact of wage employment

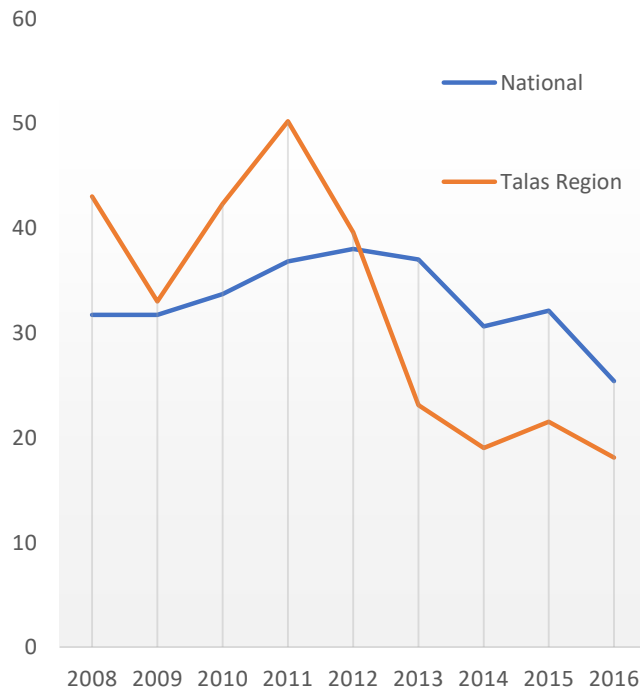


# Case Study: Kidney Bean Value Chain in Kyrgyzstan

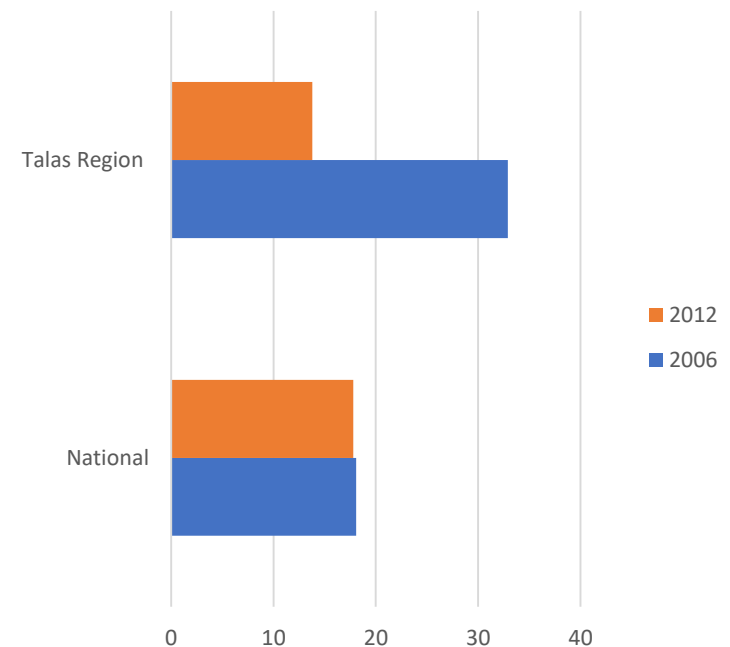
## Development, Nutrition and Food security outcomes

From the **mid-90s, bean production started** to develop for commercial purposes in the Central part of the Talas Valley due to sustainable demand from Turkish trading firms and an increase in the prices for kidney beans. Currently, **the share of beans exports of total export of the Talas region is 92-96%**, and as a result kidney beans are the region's main export commodity.

### Prevalence of poverty



### Prevalence of stunting below age 5



Source: Tilekeyev 2018

# Employment effects

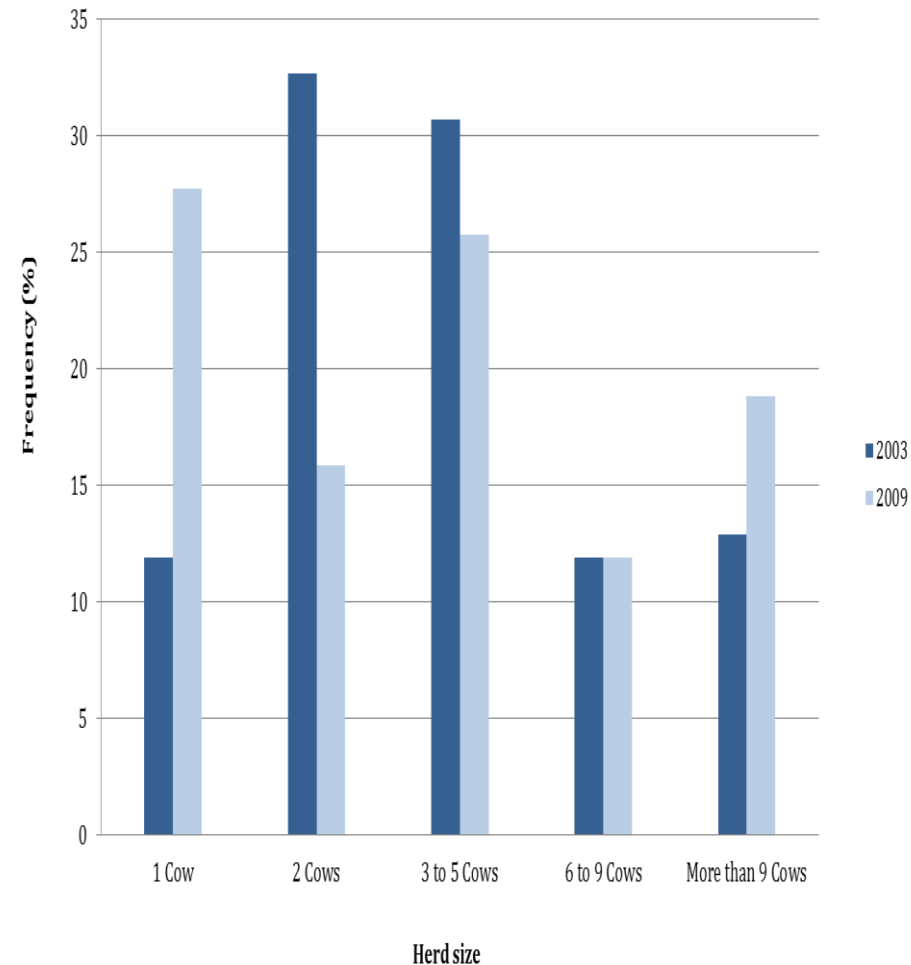
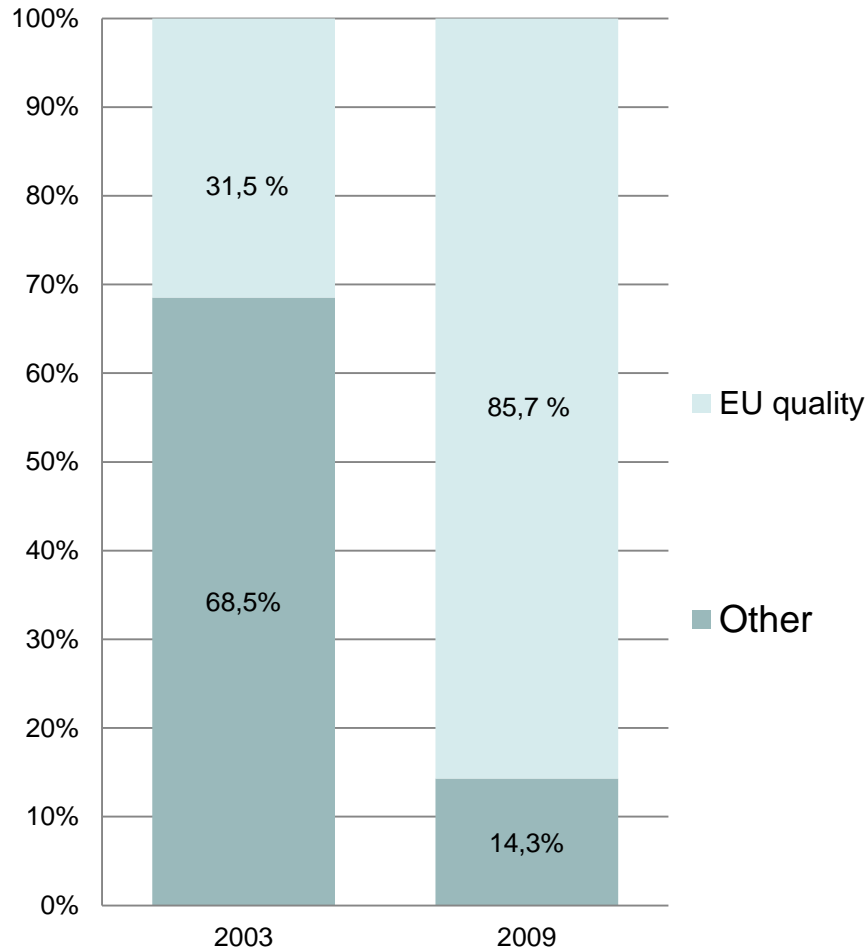
- Especially important for the **poorest** (no land) and for **women**

# What about domestic VC & staple foods ?

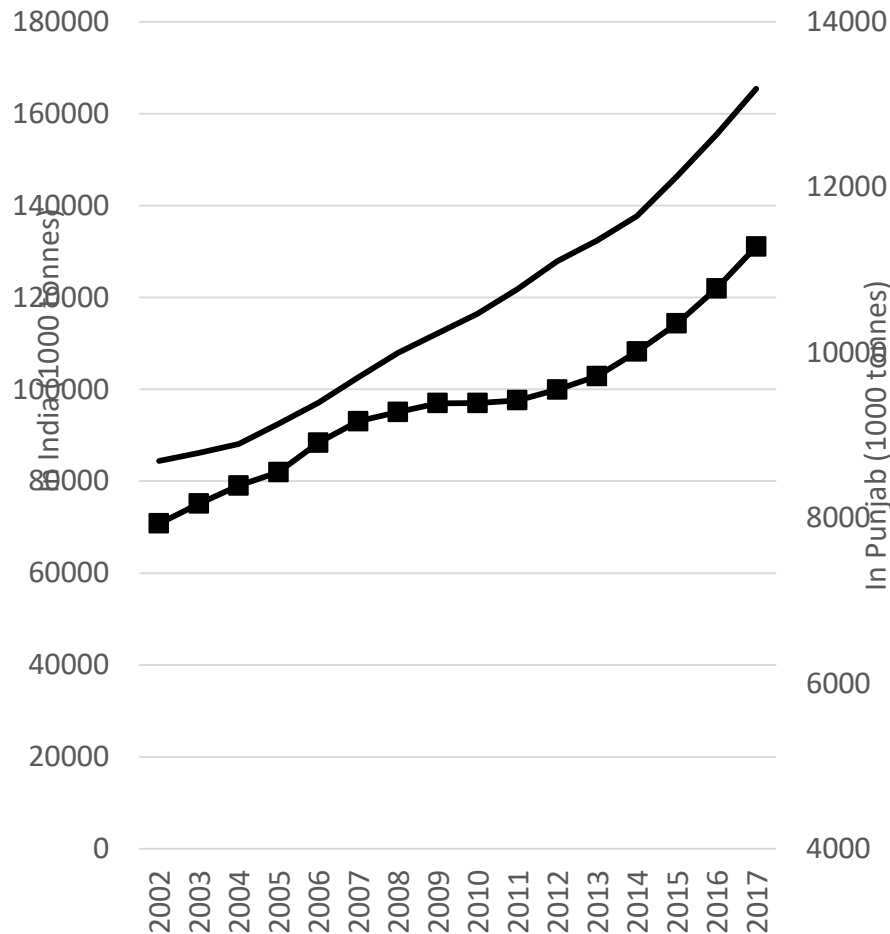
- Much of our research on Eastern Europe & co focused on found extensive and widespread VC innovations in domestic VC
- In poor countries (eg India & SSA), VC innovations seem concentrated in high-value VC  
*=> Can development programs help ?*

# Small dairy farmers in Bulgaria (2003-09)

## Quality standards & Size distribution



## Milk production in India and Punjab 2002-2017



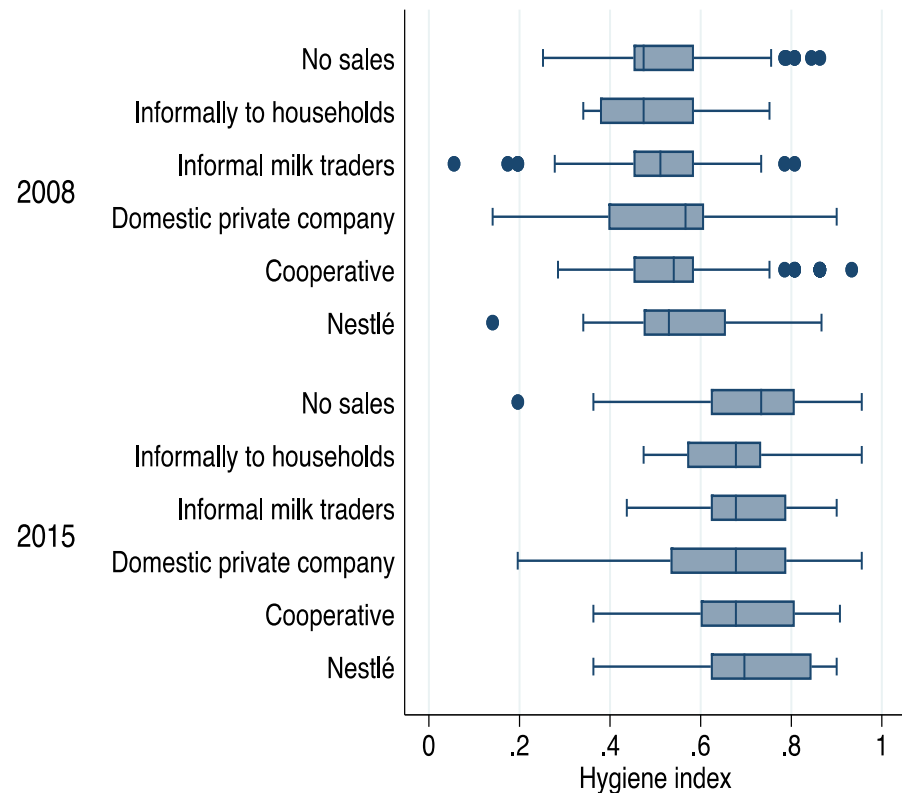
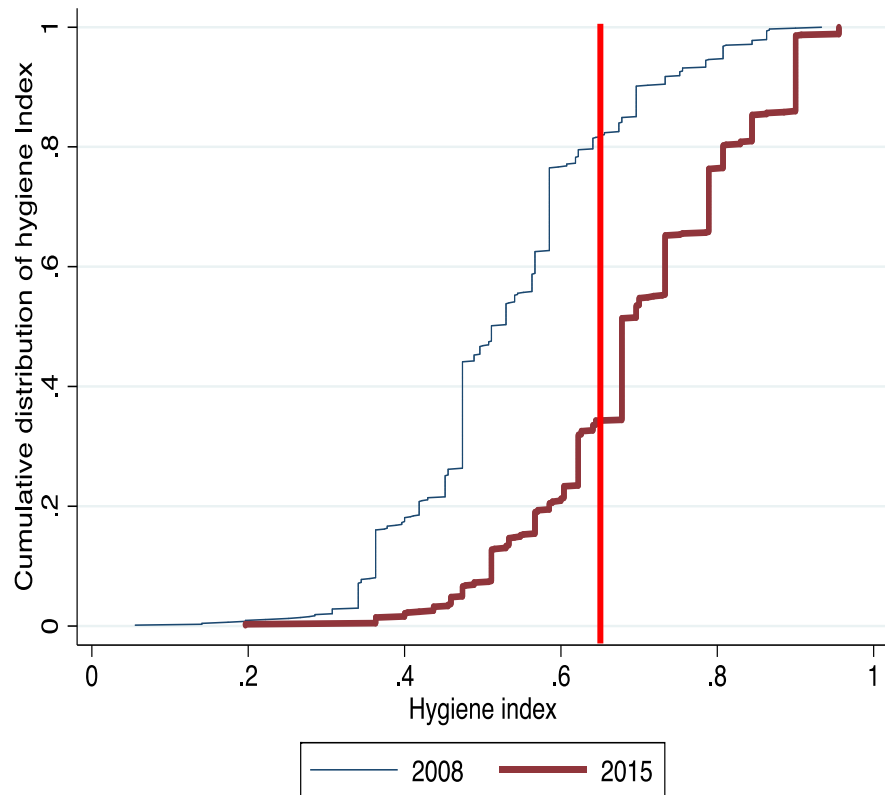
Source: Official statistics

## Dairy in India 2008-2015

- Panel evidence from dairy farms in Punjab shows limited VC innovations despite significant market growth
- Very limited among smallholders
- Concentrated and emerging in (new class ?) of larger farmers

# Punjab (India) dairy value chain 2008-2015

## Farm investments (Hygiene index) and VC channels



Source: Burkitbayeva, Janssen and Swinnen (2018)



# Two stories from Ethiopia

## Two VCs with increasing consumption

- Extensive empirical analysis of **Teff (staple food)** value chains in Ethiopia shows **no VC innovations** despite strong growth in consumption
  - (see various papers by Bart Minten, Seneshaw Tamru & co, incl “*The Economics of Teff*” 2018, IFPRI)
- **Growing beer value chains with extensive VC innovations.**
  - Beer consumption is increasing with rising incomes and expanding urbanization, and so are the number of beer factories (12) . The most pressing challenge for breweries is quality and availability of malt barley.
  - Imports of malt (barley) are hampered by shortage of foreign exchange.
  - Contract farming for malting barley are growing in the most productive areas, with breweries providing free improved seed and technical assistance to farmers. Improved seeds are expected to increase yields by 100% and farmers are guaranteed a 10-15% price premium.
  - However, contract breach is widespread (50% of farmers stick to the contract) because with excessive demand for the malting barley, side selling is very attractive.

# Future potential of VCD for poverty reduction

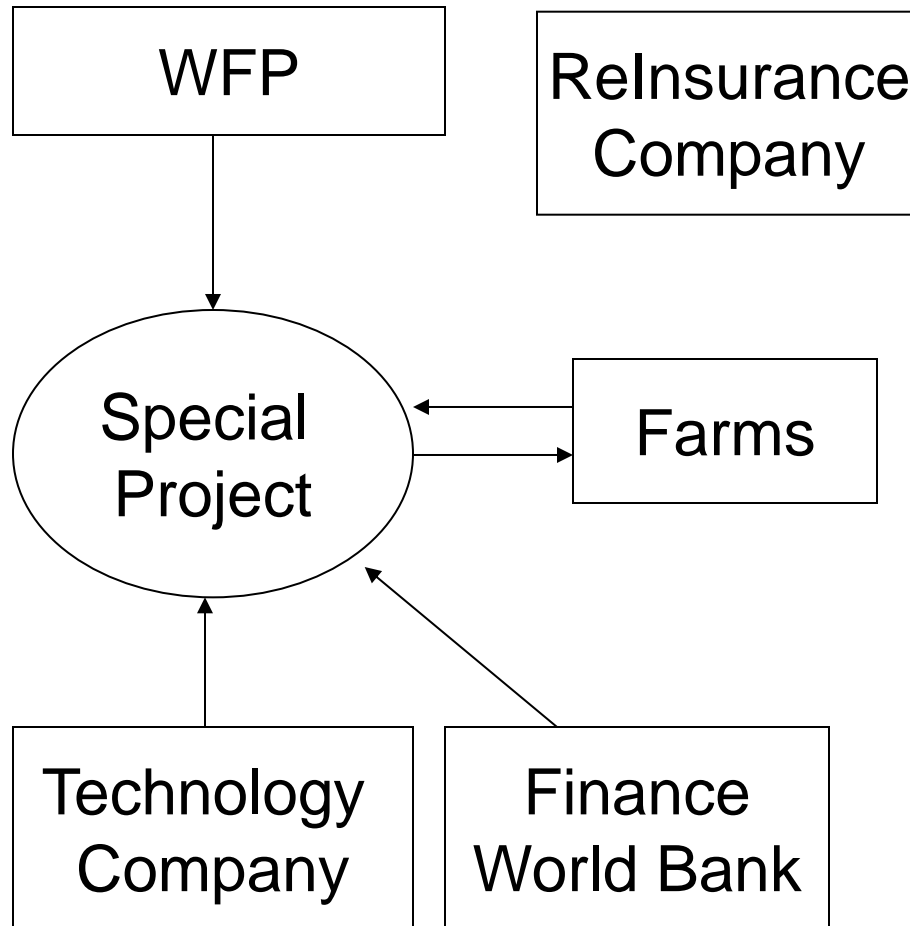
- **Private sector:**
  - strongest growth in high value sectors (with innovation requirements and potential)
  - Many of the models observed in East Europe in the 1990s are now developing in higher vl poorer countries, such as SSA
- **Public/Private/NGO sector**
  - Much of the CSR & NGO programs include VC-type elements
  - **How can one make VCD work in staple food markets ? (80-90% of poor countries' agriculture)**

# VCD Initiatives by Gov'ts, NGOs & Development Organizations

- Much variation in VCD programs.
  - **Entry point** (farmer, buyer of agri-food producer, financial institution, multi-stakeholder platforms)
  - **Narrow** (focused on one actor/constrain) vs **integrated**
  - **implementation agency** (public, semi-public, or private)
  - **finance modality** (grant, subsidy, or (concessional) loan)
  - and the **intensity and length** of public involvement (one-time or continuous).

# Example:

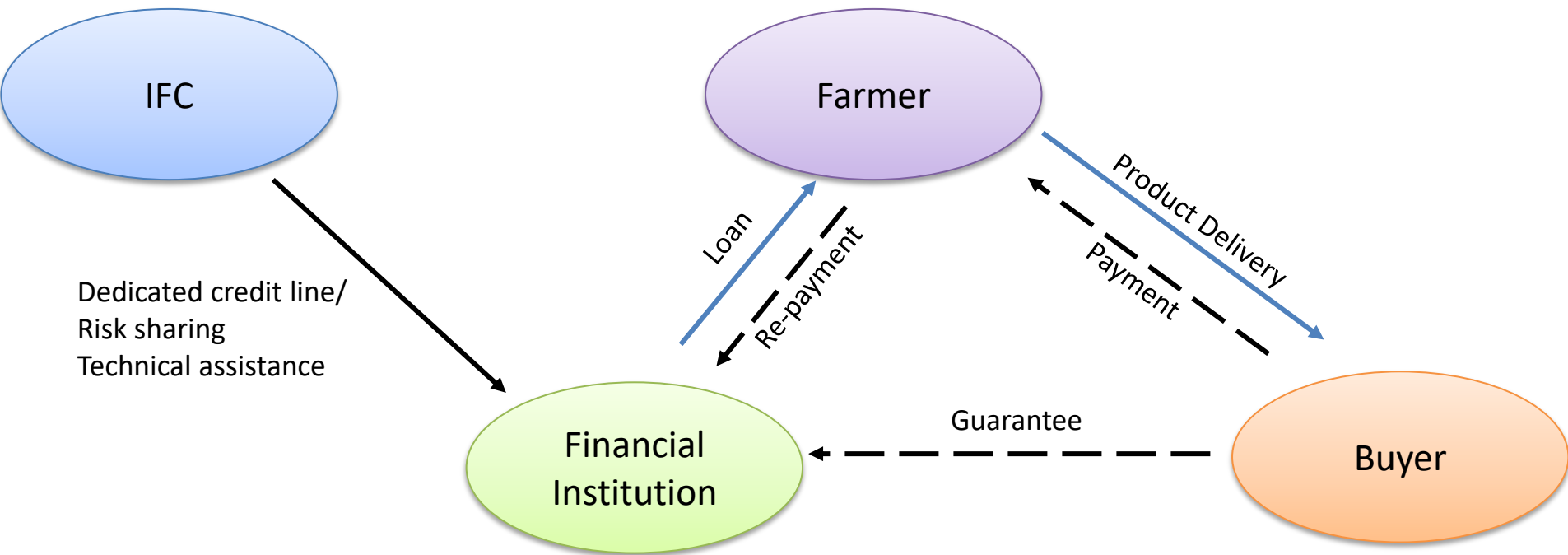
## VCD model for SSA food staple sourcing



- Special purpose vehicle (SPV) to source staple foods by WFP in East Africa
- Joint project with World Bank, input supplying companies and re-insurance companies

# VCD through Financial Institutions (VCF)

One potential model (IFC):



- Many variations possible.

# Farmers Associations

Can help smallholder benefit through:

- Reduction of **transaction costs**
- Reduce small farmer **constraints**
  - Training (reducing human capital constraints)
  - Enhancing access to capital
- Enhance **bargaining** power

Evidence: “yes, but”

[And: are the poorest smallholders part of the associations  
?]

-- see Section 6 of WB note

# SUMMARY SLIDES

- Summary of “why do value chains work”
- Summary of policy implications
- Summary of lessons

Based on

Swinnen and Kuijpers, “***Inclusive Value Chains to Accelerate Poverty Reduction in Africa***”,  
Background paper for the 2018 World Bank  
“Accelerating Poverty Reduction in Africa” report

# When do value chains “work” ?

Value chains are more likely to overcome imperfections in credit and technology markets:

- If the total surplus created by the value chain is higher (“high value”);
- If the costs of contract breach (incl. reputation costs) are higher;
- If the specificity of the contract/technology/product is higher (i.e. if the specific value of the product is lower for alternative buyers);
- If products are perishable and/or require specific storage and processing;
- If transaction costs in sourcing product are lower.



# When do value chains include smallholders ?

Smallholders are more likely to be included in value chains:

- If the farm sector is more homogeneous (i.e. when there are only/mostly small farms in the region);
- If sourcing from smallholders is “cheaper or not too much more expensive” than sourcing from large farmers or vertically owned estates. This is more likely
  - for products for which smallholders have a competitive advantage, i.e. products that are labor intensive;
  - if transaction costs per farmer (for searching, screening, communication of requirements, technology transfer, quality monitoring, etc) are not (much) higher on small farms;
  - if small farmers are less likely to breach contracts than large farms.

# When do value chains reduce poverty (given that they work) ?

The poor can benefit

- directly from modern value chains either by participating as self-employed (contract) farmer or
- by being employed as worker on larger farms or in processing activities

# When do value chains reduce poverty (given that they work) ?

Smallholders are more likely to benefit

- If the value in the chain is larger;
- If farmers have stronger bargaining power;
- If there is significant demand for the produce and the farmer's opportunity for side-selling the produce or for alternative uses of the value-chain-provided inputs/technology is larger (i.e. if the farmer's hold up opportunities are larger);
- If the buyer's alternatives and hold-up opportunities are lower; which is more likely if:
  - There are more alternative buyers
  - There are fewer alternative suppliers.
  - The specificity of the product requirements are less (i.e. product's valuation by other buyers is higher)
  - The transferred technology has long term effects.

# When do value chains reduce poverty (given that they work) ?

**Employment creation through value chains is more likely to reduce poverty ...**

- If the employment creation is complementary to small farms' activities (i.e. employment is on large farms which do not take land from small farmers; or on processing and marketing activities in the chain);
- If new employment requires relatively low-skills, creating opportunities for the very poorest.

# Policy Implications I

*Improve the enabling environment for value chain development*

- **Recognize the importance** of value chain developments for rural development policy.
- Create the **right policy and regulatory environment** for conditions for investment.
  - Property rights, low corruption, low administrative burden
  - Macro-economic stability
  - Contract enforcement institutions
  - Competition policy..

# Policy Implications II

## *Enable smallholder inclusion in high value chains*

- Lower trading costs through **improvements in rural infrastructure** (particularly important to reach remote areas).
- Reduce the number of transactions by investing in **intermediary institutions and farmer organizations**.
- **Empowering** farmers is needed to strengthen their position in the chain for bargaining for better contract terms and vis-à-vis governments for better policies.

# Policy Implications III

## *Rethinking the role of the government*

- Focus **public support on sections not served by private sector**
  - those firms or farms being excluded from private initiated programs,
  - those low-value market segments for which private solutions are unlikely,
  - those technologies that are not provided by the private sector.
- Value-chain development only part of the solution -> **part of a wider rural development strategy**
- Opportunities for **engaging with other partners** in VCD (PPPs, NGOs, multi-stakeholder platforms, ...)
- Selective government involvement in markets carries a **number of risks** (additionality, sustainability, distortion..)

# Policy Implications III

## *Rethinking the role of the government*

- Focus public support on those firms or farms being excluded from private initiated programs, those low-value market segments for which private solutions are unlikely, and those technologies that are not provided by the private sector.
- Value-chain development only part of the solution -> part of a wider rural development strategy
- Look for new opportunities to become directly involved in value chain development through PPPs, value chain finance, long term NGO support to farmers, and the facilitation of multi-stakeholder platforms
- Selective government involvement in markets carries a number of risks (additionality, sustainability, distortion..)
- Inclusiveness does not guarantee poverty reduction. The surplus created by value chain development might be claimed by other value chain actors.



# Lessons I

1. Value chain developments are often driven by a need for quality upgrading and/or guaranteed supplies.
2. Private contractual initiatives have emerged to overcome problems of supply and poor public institutions for governing exchange
3. Traders, agribusinesses and food companies contract with farms and provide inputs and assistance in return for guaranteed and quality supplies
4. Many institutional innovations for technology transfer use both a pull and push strategy. The push strategy consists of improving access to technology. The pull strategy consists of providing better incentives for investments in technological upgrading.
5. Access to finance by the initiator of the technology transfer program is essential.

# Lessons II

6. Contract enforcement is key whether vertical coordination is feasible.
7. Successful programs create the right conditions for successful and self-enforcing contracting.
8. More competition may spread equity and efficiency benefits but also undermine enforcement.
9. Companies *prefer* working with relatively fewer, larger, and more modern suppliers.
10. In reality, companies work with surprisingly large numbers of suppliers and of surprisingly small size.

# Lessons III

11. The effects of these programs can be very substantial as they can move the entire value chain towards a higher equilibrium, with impacts for all agents.
  - Increased output and productivity of the company that initiates vertical contracting
  - Positive effects on farm productivity, product quality , and farm incomes.
  - Poverty reduction through employment creation on larger farms.
  - Increased access (and stability of access) to high quality and safe products by consumers.