

# Can ICT benefit small farmers?

## Tackling the **Smallholder Quality Penalty**

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# Introduction

- “ **Synthesis** of findings of six smallholder focused ICT and agriculture supply chain studies in three countries:
  - . mangoes and pomegranates in India
  - . jute and potatoes in Bangladesh
  - . rubber and pineapple in Sri Lanka
- “ **Perception** (beyond the actual) **of lower quality** leading to lower price

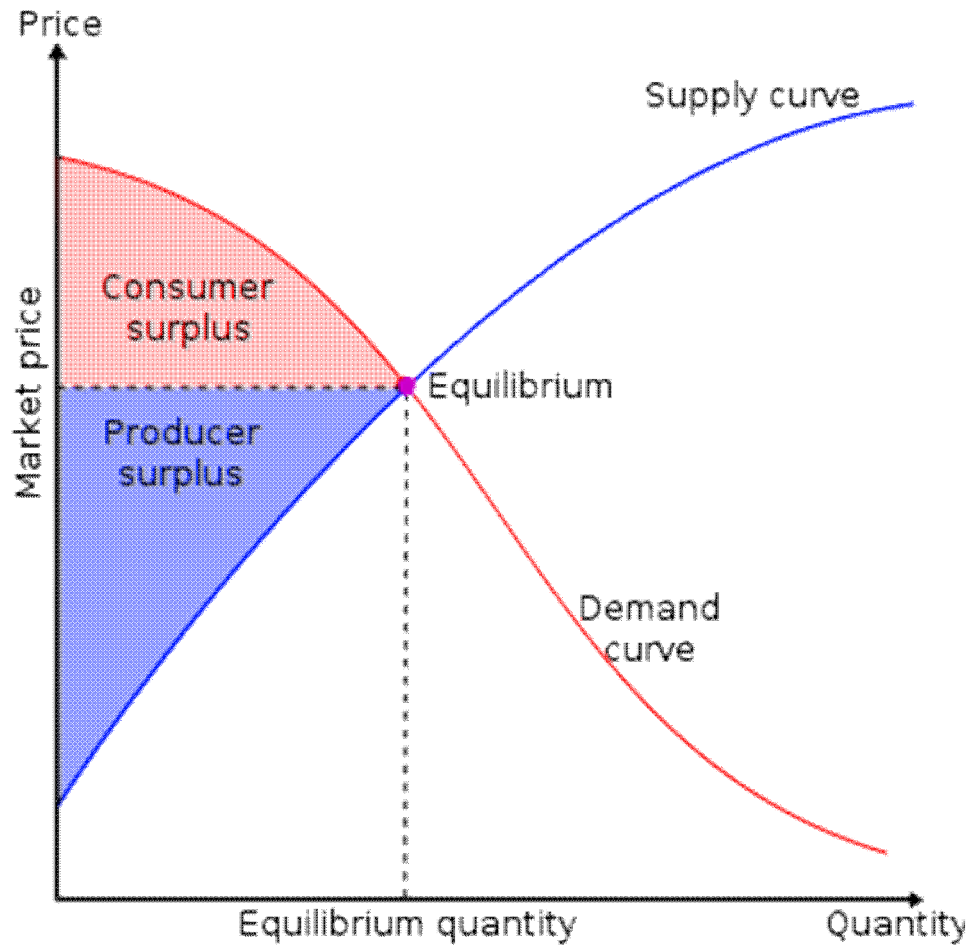
# Smallholder Challenge

“ Overcome quality constraints (real and perceived) to **integrate on more favorable terms**

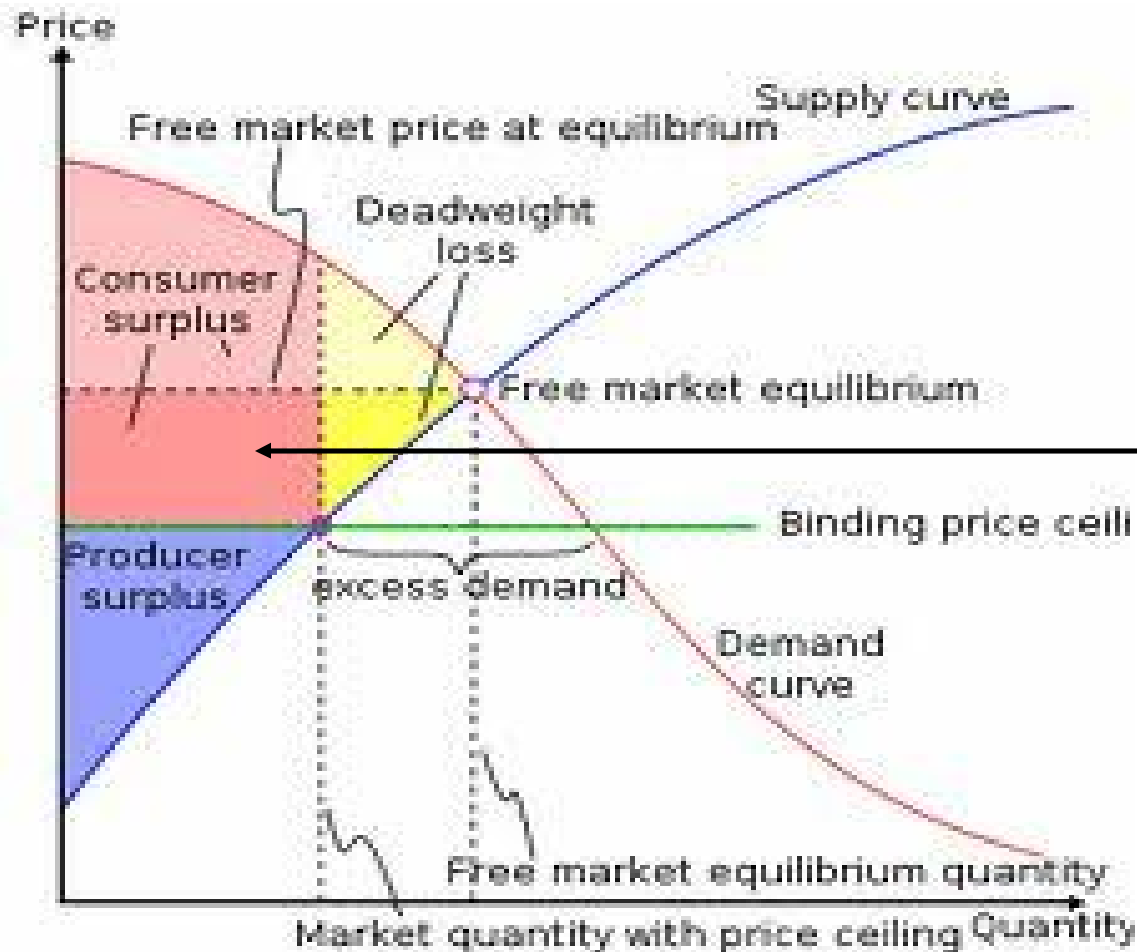
# Smallholder Quality Penalty

- “ A **financial penalty** imposed on the smallholder by the first handler of the produce
- “ This amount is **collected** by the first handler
  - . **to be used**, in total or part, **if called upon by the second handler downstream** to compensate
- “ SQP
  - . Not only between smallholder and first handler but **can exist at every transaction** throughout the supply chain

# SQP continued; **no SQP**



# SQP continued; SQP transfers



Smallholder quality penalty is this amount that is transferred from the producer (farmer) to the consumer (collector)

# SQP with an **inelastic supply** curve

- “ More inelastic the supply curve, less deadweight loss and transfer mostly to consumer
  - . Already harvested and brought to collector
  - . Perishable; lack of storage if non-perishable
  - . Low mobility (take to another market)

# How the **smallholders see** the SQP

- ” Mangoes in India
  - . “Whether or not we follow good post harvest methods like de-sapping, washing and drying they manipulate grades and deduct for wastage”
- ” Jute in Bangladesh
  - . “They take 2- 4kg from 40kg bundle to makeup for possible loss in selling down the chain...”
- ” Rubber in Sri Lanka
  - . “Even though we have produced RSS 3 grade sheets, they categorize as RSS 5”



# Perceived quality

- “ Quality (ISO): The totality of **attributes and characteristics** of a product (or service) that contributes to its ability to **satisfy specific or implicit requirements**
- . Extrinsic and intrinsic
  - . Search and experience
  - . Credence

# Reducing the subjectivity in perceived quality

## “ Standardization

- . Need to introduce and **implement standards and communicate downstream**

“ Neither easy nor cheap.

## “ Trust

- . Two-way construct. Must be developed internally and grow over a **period of time**

“ Greater frequency of interaction between smallholder and collector; greater trust

# Using ICT to reduce SQP

- “ Communicating standards and adherence up and down the supply chain
  - . Traceability to implement standards
- “ Build trust through more frequent, accurate and cost effective communication
  - . Significant improvements in information and knowledge flows
- “ Only possible now because of the ubiquitous mobile phone

# In differing market structures

- “ Disaggregated smallholders
  - . Atomistic market
- “ Out-grower or contract farming model
- “ Smallholder farmer association (structured format)

# Disaggregated smallholders

## “ Atomistic markets

- . Large number of smallholders; exogenous to the supply chain and collectors
  - “ In reality more of an oligopsony structure with limited number of buyers (first handlers)
- . Smallholders have **very little power, SQP applied** and **fully exposed to downside risk**
- . Very difficult to effectively communicate ‘better quality’

# Out-grower schemes (top-down)

- “ Purchasing entities down the supply chain create larger entities upstream
  - . The **smallholder is endogenous**, or inclusive, and cannot be ‘seen’ from the outside
  - . Authorized representative of the processor enters in to agreement with smallholder
    - “ Transactions **governed by rules by the upstream entity**
    - “ Participants along the supply chain are **protected, to the extent possible, from market risks** (shared)
  - . Possible to communicate ‘better quality’, build trust and adherence to agreements and standards
    - “ **ICT solutions** are implementable along the administrative structure; **traceability**
    - “ Processor agent can keep smallholders in the system via **incentives**

# Smallholder farmer associations (bottom up)

- “ Maintaining individual ownership of assets but yield control of processes of production and marketing to the association
  - . The **smallholder is endogenous** and cannot be ‘seen’ from the outside; it is the **collective that has to be dealt with**
    - “ Members are **bound by internal rules**, regulations on produce quality determined by the association; **binding quality benchmarks**
    - “ A common problem is of **free-riders**; those who benefit from being in the association but do not contribute to the common objectives
  - . **Difficult to keep together**; politicization. Leadership.
  - . Possible to communicate ‘better quality’, built trust and address the free-rider problem via ICT solutions
    - “ Also ‘binds the virtual organization together’

# Summary

- “ **Smallholder Quality Penalty** blocking the movement towards improved efficiency and greater inclusivity in smallholder agriculture
- “ Can use **ICT solutions to communicate adherence to accepted quality standards, to build trust** and avoid free-rider problems as market structures move from atomistic to out-grower and smallholder farmer association models
- “ Now possible with simple solutions on the **ubiquitous mobile phone**; even more efficient solutions with the adoption of mobile 2.0 MTV services with inexpensive smart phones (PDAs and the like)



For more information:

[www.lirneasia.net/projects/agriculture](http://www.lirneasia.net/projects/agriculture)

search term: Agriculture, KBE