

Information Structure in Coordination of Vegetable Supply Chains in Nepal



Mahendra Khanal, Sandra Martin and Mark Wilson
Lincoln University, Canterbury, New Zealand

Presentation Outline

- ▣ Introduction
- ▣ Theoretical Framework
- ▣ Methodology
- ▣ Results and Analysis
- ▣ Conclusion

NEPAL Topography and Access



50 0 50 100 Kilometers



Introduction

- ▣ Information gap exists in Nepalese vegetable supply chains
- ▣ Nepalese vegetable supply chains:
 - Long and complex, 5 – 6 stages
 - Information is exchanged in dyads when making transaction
 - Rely more on verbal communication
 - Involvement of large number of smallholder producers
- ▣ Producers are organized into **groups and cooperatives** to increase volume of production.

Introduction

- ▣ Producers' groups and cooperatives prepare a **horizontal base** for **vertical coordination** in the chain.
- ▣ Flow of information within these emerging chains has an unknown impact on coordination
- ▣ **Aim of this research is to:**
 - ▣ **Identify information structures**
 - ▣ **Detect and explain patterns between information structure and chain coordination**

Theoretical Framework

- ▣ Information structure and chain coordination are core constructs
- ▣ These constructs disaggregated into their dimensions
- ▣ Dimensions of a complete Information Structure:
 - ▣ Symmetric
 - ▣ High willingness of actors to exchange information
- ▣ Dimensions of chain coordination
 - ▣ Horizontal and vertical

Theoretical Framework

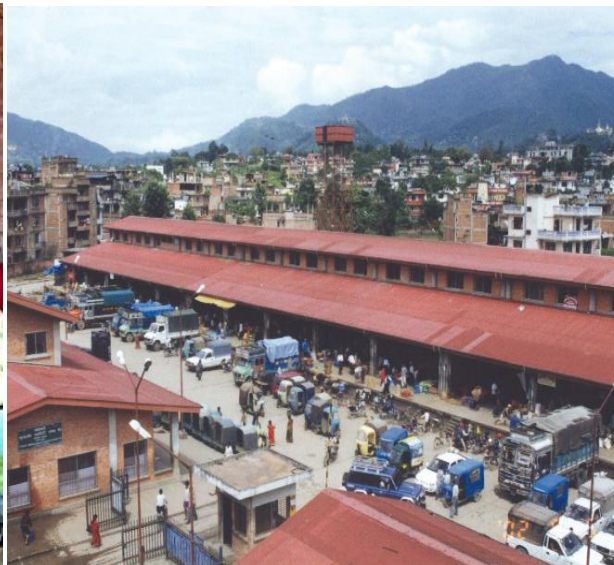
- ▣ Key attributes of symmetric information:
 - ▣ Complete and consistent information
 - ▣ Exchanged in a timely manner at required frequency
 - ▣ Enables operational efficiency of key actors
- ▣ Key attributes of high willingness of actors to exchange information
 - ▣ Information power built within chain
 - ▣ Chain focussed behaviour of actors
 - ▣ Transparency

Theoretical Framework

- ▣ Key attributes of strong horizontal coordination:
 - ▣ Strong alignment of goals and objectives among group and cooperative members
 - ▣ Vertical alignment between groups and cooperatives with other chain actors
- ▣ Key attributes of strong vertical coordination:
 - ▣ Chain activities consumer focussed
 - ▣ Vertical alignment of goals along the chain
 - ▣ Interdependency between actors along the chain

Methodology

- ▣ Method: **Case study**
 - Entire supply chain is the **unit of analysis**
 - An **embedded multiple case design** is carried out
- ▣ Field Work:
 - Carried out in Nepal from the second week of April to the end of June 2009
- ▣ Main source of primary data: **Interview**
- ▣ Collected data were transcribed and coded for analysis



Results

1. Information Structure

| Composition | Chain One | Chain Two |
|--|---|--|
| Sources of information | <i>Assemblers</i> , coops, MB, GOs | <i>Coop</i> , buyers, MBs, GOs |
| Types of information | | |
| Operational | <i>Price</i> | <i>Price</i> , demand, supply, sources of supply |
| Behavioural | Opportunistic to some producers and assemblers; cooperative in other stages | Cooperative in all stages |
| Reliability, completeness and timeliness: Horizontal exchange | Among producers for production purpose | Among producers for production and marketing purpose |

Results

Composition

Chain One

Chain Two

Reliability, completeness and timeliness: Vertical exchange

Not between producers and assemblers but between other actors

In all stages of the chain

Communication means

Face-to-face comm and telephone

Bulletin board, face-to-face comm and telephone

Frequency

Inadequate bet input suppliers - producers and producers - assemblers but adequate in other stages

At required frequency in all stages

Occurrence of information asymmetry

Producers and assemblers

No parties

Results

2. Chain Coordination

| | Chain One | Chain Two |
|-------------------------|---|---|
| Horizontal coordination | Moderate <ul style="list-style-type: none"> Goals and objectives aligned for production purpose but not for marketing | Slightly stronger <ul style="list-style-type: none"> Goals and objectives of majority of producers aligned for production and marketing purpose |
| Vertical coordination | Weak <ul style="list-style-type: none"> Opportunistic behaviour of some of the Producers and assemblers Lack of trust between them Weak horizontal coordination | Strong <ul style="list-style-type: none"> Cooperative behaviour between actors at all levels Flow of reliable, complete and updated information Trust and transparency Slightly stronger horizontal base |

Conclusion

- ▣ Chain 1:
 - ▣ Information structure
 - ▣ Incomplete
 - ▣ Demand and supply uncertainty
 - ▣ Information withholding between producers and assemblers
 - ▣ Flow of inadequate information within this dyad
 - ▣ Asymmetric
 - ▣ Information exchange opportunistic between producers and assemblers
 - ▣ The way that information flows between actors can cause asymmetries

Conclusion

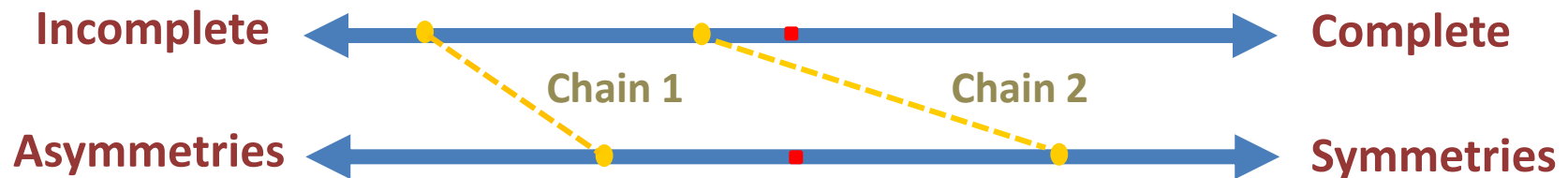
- ▣ Chain 2:
 - ▣ Information structure
 - ▣ Incomplete
 - ▣ Demand and supply uncertainty
 - ▣ *But good flow of information along chain*
 - ▣ Symmetric
 - ▣ Information exchange transparent along chain
 - ▣ Information flows from one source

Conclusion

- ▣ Flow of information from a common reliable source can help develop symmetries in information structures in informal supply chains
- ▣ Flow of symmetric information associated with strong horizontal and vertical coordination

Conclusion

Information Structure



Chain Coordination



Thank you for your kind attention!

