# Globalization, Supply Chains and Inequality

Dilip Mookherjee

Boston University

November 2016

# Introduction

- International trade plays an important role in small open economies
- Economics textbook argument:
  - Benefits of specialization: produce/export goods in which the country has comparative advantage, import all other tradeables
  - Globalization which lowers trade barriers/costs ought to expand scope for such specialization, and increase gains from trade
- (Increasingly) widespread perceptions of globalization are considerably at odds with the textbook economics view

# Common Concerns with Globalization

- Inequality implications:
  - Gains from trade are (typically) unequally distributed
  - It is difficult to redress these growing imbalances
  - Rising inequality creates political problems, and may aggravate other distortions in the economy
- Gains from trade (eg as proportion of GDP) may be overstated by the textbook argument, owing to departures from underlying assumptions of frictionless markets and well-functioning institutions
- In countries that are less developed, or those with weak institutions, relatively small overall gains from trade liberalization may not be sufficient to justify rising inequality problems

# Outline of This Talk

- To examine this concern more closely, I will focus on role of one specific institution: trade intermediaries
- Examine evidence on related marketing imperfections in commodity supply chains, in range of developing countries in sub-Saharan Africa and South Asia
- Describe recent research results on the organization of these supply chains; specifically:
  - roles played by intermediaries; market relationships with producers and consumers
  - outcomes of a number of policy experiments to affect these relationships
- Summarize: implications for policy responses to globalization opportunities

# 2. Intermediary Margins and Pass-through: Examples

- Average margins between US consumer prices and world prices for beef, coffee, oil, rice, sugar and wheat increased 83% between 1975-94 (Morisset (1998))
- **Barbie Dolls:** cost breakdown of doll sold by Mattel in the US for $10: 35 cents for worker wages in China, 65 cents for remaining material costs incurred in production, $2 price received by Hong Kong intermediaries; at least $1 in profit for Mattel ( Feenstra (1998))
- **Coffee, cashew exports:** Rising export prices in early 2000's following trade liberalization in Uganda and Mozambique resp: less than 50% of these increases were passed on to farmers (Fafchamps-Hill (2008), McMillan-Rodrik-Welch (2003))

# Intermediary Margins and Pass-through: More Examples

- **Edible Oil imports in Bangladesh:** when crude oil import price falls by 100%, the corresponding drop in refined palm wholesale and retail prices is approximately 75%, suggesting intermediary margins rise 25% (Emran et al (2016))
- **Potato 'exports' from West Bengal, India:** pass-through of increases in retail potato prices to wholesale price is 80%, but to farmgate price is 2%, suggesting large margin increases accruing to intermediaries buying from farmers and selling in neighboring wholesale markets (Mitra et al (2016))

# Potato Intermediary Margins in West Bengal: Further Details

| | 2008 | | 2011 | | 2012 | |
|---|---|---|---|---|---|---|
| | Harv | Post-Harv | Harv | Post-Harv | Harv | Post-Harv |
| Wholesale Price | 4.83 | 4.87 | 8.82 | 11.50 | 10.14 | 21.84 |
| Farmgate Price | 2.18 | 2.30 | 3.96 | 4.03 | 5.17 | 5.24 |
| Transport Cost | 0.39 | 0.48 | 0.64 | 0.62 | 0.48 | 0.51 |
| Handling Cost | 0.35 | 0.45 | 0.02 | 0.30 | 0.18 | 0.29 |
| Storage Cost | 0 | 0.91 | 0 | 1.04 | 0 | 1.07 |
| M Margin (LBound) | 1.93 | 0.71 | 4.11 | 5.39 | 4.26 | 14.63 |
| (% farmgate price) | (88) | (31) | (104) | (134) | (82) | (279) |

All prices in Rs per kg (current prices)

# Implications of These Facts

- Wide variations in pass-through rates in different contexts
- If pass-through to ultimate producers of exported commodities is low:
  - most of the gains are accruing to intermediaries rather than farmers, raising inequality
  - supply response of farmers is likely to be low, limiting gains from globalization

# Implications of These Facts, contd.

- McMillan et al (2003) comment on *cause celebre* of anti-globalization advocates: lifting export restrictions on cashews in Mozambique resulted in very small gains:
  - 0.14% rise in GDP
  - $5.13 annual income gain for average farmer
- and many problems:
  - more than 50% of gains accrued to intermediaries
  - many jobs lost in domestic cashew processing industry

# Policy Questions

- If benefits of globalization are limited and trickle down insufficiently:
  - should the country turn its back on globalization?
  - or are there regulatory/developmental policies that can be undertaken to reduce supply chain frictions?

# Research Questions

- What explains size of intermediary margins and pass-through?

  $===>$ contracting and marketing arrangements in supply chains: what roles do intermediaries play?

- Effects of regulatory/developmental policies on margins and pass-through?

# 3. VARIOUS ROLES OF TRADE INTERMEDIARIES

- **Managing Suppliers:** coordinating and monitoring suppliers, assuring quality/reliability
- **Processing/Distribution:** processing, transport, storage, marketing
- **Search:** bringing buyers and suppliers together to lower search costs
- **Credit:** to suppliers, sometimes also buyers
- **Risk-bearing, Arbitrage:** provide insurance to suppliers, bear price risk, gather information about price movements, decide where and when to sell

# ROLES VARY WIDELY ACROSS CONTEXTS

- Bangladesh oil intermediaries (DOTs) primary role: finance, esp credit; do not physically handle any oil, perhaps some role in managing wholesalers and reducing search costs (Emran et al 2015)
- Sierra Leone crop wholesalers: transport and search are main functions (Casaburi et al 2013)
- West Bengal potato intermediaries: managing suppliers is main role, no role in providing insurance, limited role in credit provision (Mitra et al (2015))

# PRECISE ROLES PLAYED BY INTERMEDIARIES MATTER

- Theoretical analyses indicates that the particular role played by intermediaries matters for pass-through of external price shocks
- If their primary role is to reduce search frictions (Antras-Costinot 2011, Chau et al 2010) as in Sierra Leone:
  - increase in export price results in larger surplus share of producers (inequality falls)
  - this owes to demand-side effects (more intermediaries enter in response to higher export prices/volumes)
  - which outweigh supply-side effects (increased supplies from farmers)

# PRECISE ROLES PLAYED BY INTERMEDIARIES MATTER, contd.

- If instead their primary role is to manage suppliers/quality reliability (Bardhan et al 2011) as in West Bengal potato:
  - increases in export price results in smaller surplus share of producers (inequality rises)
  - increase in intermediary margins necessary to induce entry of lower quality intermediaries

# 4. EFFECTS OF POLICY EXPERIMENTS

- Now I shall describe a number of natural experiments/RCTs with policies intended to reduce supply chain frictions
- Results are highly context dependent
- Natural reason for this is that the roles played by intermediaries vary with the specific context
- Two categories of policy experiments:
  - Regulating intermediaries
  - Developmental (help to farmers w.r.t. price information, credit, infrastructure)

# REGULATION EXPERIMENT: BANGLADESH EDIBLE OIL

- Bangladesh government decided to eliminate DOT layer intermediate between refiners and wholesalers starting July 2011
- This followed sustained rise in wholesale and retail prices of refined oil price between July 2009-early 2011
- Encouraged wholesalers to buy refined oil directly from refiners
- Underlying notion was that DOTs were using their market power in the supply chain to unduly raise prices charged to wholesalers, which outweighed whatever value added financing services they were providing

# REGULATION EXPERIMENT: BANGLADESH EDIBLE OIL contd.

- Import price started falling after March 2011, but wholesale prices remained rigid, thereby **raising** markups aggregating over all intermediary layers
- Refiners had difficulty offloading refined oil stocks; oil imports fell despite falling import price
- Government was forced to abandon the reform by early 2012, and allowed old DOTs to return to their original roles
- Emran et al (2016) explain these outcomes by DOT role in providing trade credit to wholesalers, disruption of which resulted in shrinkage in trade volumes

# DEVELOPMENTAL EXPERIMENTS: HELPING FARMERS

- RCTs in West Bengal: potato farmers in randomly chosen areas were provided with wholesale price information and credit (Mitra et al 2015, 2016)
- Had **zero** average impact on farmgate price received!
- Explained by lack of effective competition among intermediaries buying crop from farmers, and lack of any role of intermediaries in providing credit to farmers
- In other Indian states price information via cellphones increased farmer prices or lowered dispersion of prices across markets (Jensen 2008, Goyal 2010)
- Reason: in these states farmers sold directly in wholesale/retail markets and could engage in arbitrage

# DEVELOPMENTAL EXPERIMENTS: HELPING FARMERS, contd.

- Improved rural roads in Sierra Leone resulted in **decline** in crop prices received by farmers esp. in remote areas (Casaburi et al 2013)
- Owed to induced supply side effects which exceeded demand-side increases, in a context where search/transport costs matter a lot
- Results inconsistent with standard models of Bertrand competition or oligopsony

# EXPERIMENTS HELPING TRADERS

- RCT in Sierra Leone provided cocoa traders a bonus for supplying high quality cocoa (Casaburi-Reed 2013)
- Higher price paid to traders was not passed on to cocoa farmers
- However, significant increase in credit provided by traders to some farmers, accompanied by lower crop prices
- Traders benefitted but unclear whether farmers benefitted at all

# ALTERNATIVE POLICY APPROACHES: ENCOURAGE ENTRY OF OTHER INTERMEDIARIES

- Efforts to stimulate competition among intermediaries by encouraging entry: not so common
- In India, recent dicussions of need to repeal APMC Acts which regulate entry of wholesale buyers in agricultural markets
- Some of these APMCs also regulate entry of sellers, making it difficult for farmers to sell directly
- Political resistance from traders

# ALTERNATIVE POLICY APPROACHES: ENCOURAGE ENTRY OF OTHER INTERMEDIARIES contd.

- Attempts to encourage online markets whereby distant buyers can purchase from farmers
- These are likely to be hampered by problems in ensuring quality and supply assurance, besides lack of familiarity of farmers with online platforms
- Possibility of using local traders/large farmers as intermediaries in online transactions (ICICI franchises) or corporate buyers offering to buy locally (ITC e-choupals)

# ALTERNATIVE POLICY APPROACHES: VERTICAL INTEGRATION

- Could encourage large agri-business conglomerates or retail chains to integrate backwards, eliminating trade intermediaries and their margins
- Buyers contract directly with producers (‘contract farming’)
- Many potential advantages:
  - economies of scale
  - coordination of consumer needs with inventories, processing and production
  - ability of large buyers to provide superior crop varieties, credit and price supports in direct contracts with farmers

# ALTERNATIVE POLICY APPROACHES: VERTICAL INTEGRATION/CONTRACT FARMING

- Recent initiatives in China and India with vertical integration however do not seem to be faring well; range of reported problems (but no proper academic study):
  - two-sided moral hazard problems
  - concerns about farmer exploitation by buyers
  - inability of large buyers to bypass traditional trade channels
  - political resistance from traders

# ALTERNATIVE POLICY APPROACHES: PRODUCER COOPERATIVES

- Could instead encourage producers/farmers to integrate forward into processing and marketing, via **cooperatives**
- Many efforts in Asia and Africa in second half of 20th century to 'create' such cooperatives
- Apart from a few singular exceptions, these have not succeeded
- Problems with free-riding, low member participation rates, corruption, conflict between managers and between managers and members (Braverman et al 1991)
- Few success stories are instances of organic 'bottom-up' cooperatives (based on community networks with high social capital) rather than ones created from above

# 5. SUMMARY

- Outcomes of various policy efforts to reduce supply chain frictions in SS Africa or S Asia on the whole: rather disappointing
- Equally true for both regulatory and developmental approaches
- Part of the problem has been lack of proper understanding of how these supply chains function, and the precise roles played by intermediaries
- Most policy approaches did not succeed because the conditions under which they might have succeeded did not apply in the specific context where they were attempted

# WHICH WAY FORWARD?

- However, economists have started studying supply chains systematically only recently
- Some negative lessons learned: we now have a better broad understanding of how context is likely to matter
- However, this is yet to be harnessed in designing more successful policy interventions

# WHICH WAY FORWARD?

- I am personally in favor of approaches involving:
  - vertical (backward) integration by retail chains or conglomerates
  - utilizing local intermediaries (private traders or local governments) as agents on a commission basis, to take advantage of their connection with local producers
  - subjected to oversight by regulatory bodies

# WHICH WAY FORWARD?

- I have some ongoing experiments providing agricultural credit to small farmers using such a mechanism, with encouraging results
- Need to combine this with ‘contract farming’ experiment (or option provided to farmers)
- An urgent need to experiment with new variants, so that growth and anti-poverty benefits from globalization can be realized