The Growing Role of Contract Farming in Agri-food Systems Development: Drivers, Theory and Practice

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- Background
- The drivers of change in agri-food systems
- Vertical coordination and contracting: theoretical issues
- Pros and cons of contracting
- Critical success factors
- Conclusions

Contract farming: basic concepts

- What
  - "agricultural production carried out according to an agreement between farmers and a buyer which places conditions on the production and marketing of the commodity"
- Who
  - producers
  - processors
  - retailers / wholesalers
- How
  - formal and informal agreements
    - market specifications
    - resource provision
    - production management
- Why

Why the renewed interest?

- Contracts are not a new concept
  - references to use in the 19th century in Asia and Latin America
  - much use in the Americas in the 20th century
- Intensified interest and adoption in the recent past
  - the USA: from 12% of agricultural production in 1969 to 36% in 2004
  - Brazil: 75% of poultry production under contracts
  - India and Vietnam: policies to promote contracts
  - The literature: extensive coverage; mounting number of references

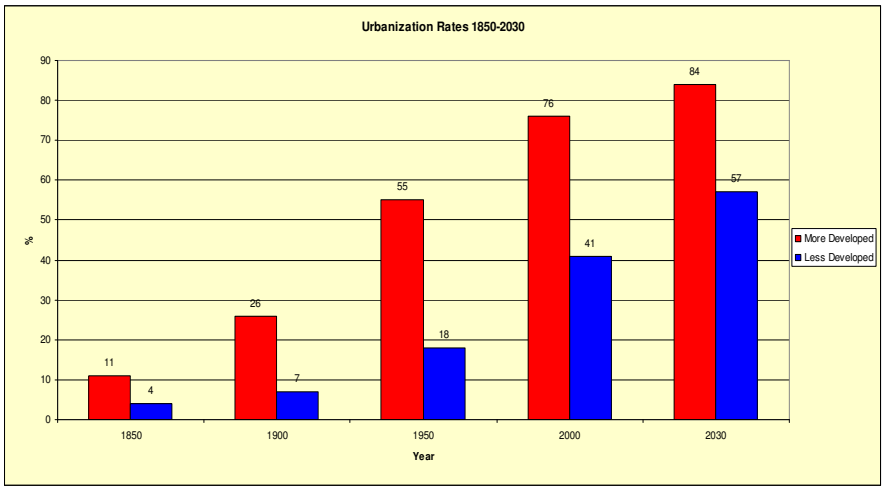
A hypothesis: renewed interest= f (changes in agri-food systems)

- Dramatic changes
  - the “industrialization of agriculture”
    - manufacturing principles
  - the “rapid rise of the supermarket”
  - the new consumer
- Supply chain management
  - better coordination
  - system cost minimization
  - chain alignment
- What are the drivers of such changes?

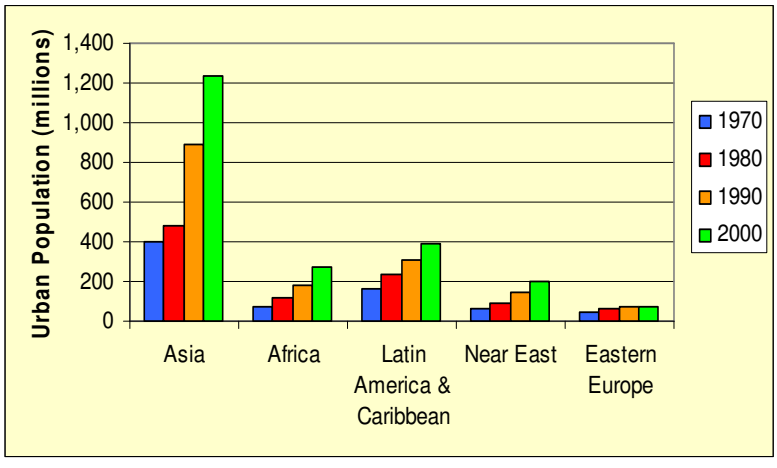
The drivers

- Population and income changes
  - the two are the main food demand affecting factors
  - Population growth
    - 6.4 billion in 2004
    - 80 million more per year
    - 2% yearly growth in developing countries until 2010
- Demographic changes: the growing urbanization

Urbanization trends



Urbanization trends



Income growth

- World Bank forecasts growth in income per capita in all regions of the world

Region	2005	2006	2006-2015
East Asia and Pacific	6.2	5.7	5.3
Europe and Central Asia	5.6	5	3.5
Latin America and Caribbean	2.3	2.3	2.4
Middle East and North Africa	2.8	2.5	2.6
South Asia	4.7	4.4	4.1
Sub-Saharan Africa	1.6	1.7	1.6

Source: The World Bank – Global Economic Prospects 2005

The effects of population and income growth

- Increase in demand for foods
  - from 2803 kcal/day in 2000 to 3000 kcal/day in 2015
- Changing diets, changing habits
  - more demand for animal protein, oil crops and sugar
    - animal protein will grow more than 5% a year
  - more demand for "ready-to-eat" foods
  - more demand for "away from home" foods
- Greater value for less tangible attributes
  - health and safety
  - animal welfare
  - social responsibility
  - environmental concerns

Trade liberalization and the mobility of capital flows

- Globalization
  - freer flow of goods, services, capital and technology
  - integration of global agri-food markets via trade mechanisms
- Growth of agricultural trade and change in composition
  - by the end of the 1990's, the share of processed agricultural products trade in relation to commodities had increased from 24.7 % in 1970 to 58.2%
  - traditional export commodities, such as cocoa, coffee and sugar had their relative importance reduced, whereas increased trade occurred in fruits, vegetables and dairy products, a large portion of which in processed form

Trade liberalization and the mobility of capital flows

- More trade + enlarged markets = more competition
  - need to compete affects agri-food systems in diverse ways
    - operational efficiency
    - suitable enabling environments
    - better organization → supply chain management
- Capital flows
  - FDI major driver of globalization in agri-food
  - Transnationality index increased from 59 to 79% between 1990 and 1999
  - Consolidation in retail fuelled by FDI (Wal-Mart, Ahold, Carrefour, etc.)
  - Growth in FDI in production
- Business models reproduced via FDI → changed organization

Changes in transportation and logistics

- Food miles are growing
  - In the US: 1500 to 2500 miles between farm and plate: 25% more than 1980
  - In Europe: 3000 km in average
- Technological advances
  - containerization and reefers
  - inter-modalism
  - vessel sizes and speeds
  - better fuel efficiency
  - satellite navigation
- International sourcing less limited
- Domestic changes as well

Progresses in Information Technology

- More power, more speed, lower costs
  - 1965: 1 transistor cost one dollar; 1st processor had 2200 transistors
  - today: more than 1 billion transistors with a cost of less than 1/10000th of a cent per unit !
- Enabler of data collection, storage, retrieval and inter-organizational exchange
  - information and fund transfers in supply chains
  - tracking and tracing
- Others:
  - precision farming; automated devices; mobile phones; RFID

Advances in Biotechnology

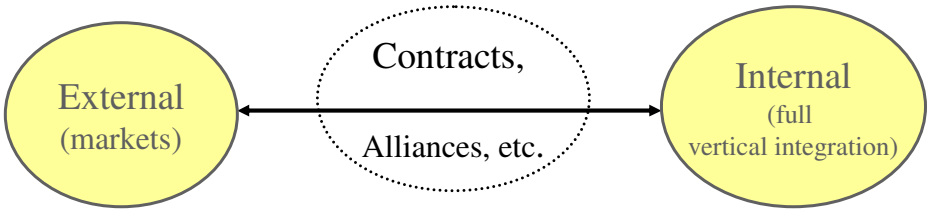
- Technology has driven progresses agricultural production and processing
  - green revolution
  - post-harvest
- Biotechnology is seen as new step forward
  - estimated area with GM crops in 2004 was 81 million hectares, up from 67.7 million hectares in 2003. These crops were grown by 8.25 million farmers in 17 countries, most of which in the developing world.
- Effects
  - Concentration in input supply
  - Consumer concerns: increased need for traceability

In sum

- Agri-food systems are being reshaped in response to the trends
  - more competitive and globalized
- Supply chains increasingly need to be better coordinated
- Better synchronization of the vertical stages of agri-food value chains becomes necessary, as a way to
  - lower costs by improving productivity
  - improve and ensure quality throughout the chain
  - control risks associated with markets and food safety and
  - enhance responsiveness to demand (Tweeten and Flora, 2001).
- Contract farming has resurged as a workable mechanism to govern transactions in supply chains.

The theoretical basis for contract farming

- Supply chain governance
  - how to coordinate the flow of products, resources and information between farmers and consumers?
  - what are the alternative forms of coordination?



Vertical coordination and transaction cost theory

- Firms seek to minimize their transaction costs
  - costs occurring before a transaction takes place, such as obtaining information and negotiating the exchange conditions,
  - ex-post costs of monitoring and enforcing the transaction terms
- Transaction aspects must be examined
  - asset specificity (site, physical, temporal, human capital)
  - uncertainty
  - frequency

Vertical coordination and transaction cost theory

- Choice of governance: a summary

Characteristic	Open Markets	Tightly Aligned Chains
Asset specificity	-	+
Uncertainty	-	+
Frequency of transactions	+	-

Vertical coordination and transaction cost theory

- Market failures increase transaction costs
  - asymmetries in production and marketing information
  - imperfect markets for credit, inputs and agricultural support services
- Incentives to increased coordination in the transactions, leading to contracting or to full vertical integration
- Scale complementarities
  - contracts x full integration

The pros and cons of contract farming

- Advantages for farmers
  - inputs can be provided (less uncertainty regarding availability, timing, credit, etc.)
  - services can be provided (mechanization, transportation, etc.)
  - technological assistance can be provided
  - production and management skills enhanced, with spill-over effects
  - market outlet is secured
  - income stabilization is promoted
  - credit access enhanced (in kind or via banks)
  - by-products can be used

The pros and cons of contract farming

- Disadvantages for farmers
  - firms might renege on contractual terms if market circumstances change or if other conditions for opportunistic behaviour arise
  - vulnerability to output and productivity manipulation by agribusiness firms
  - delivery schedules might be set by firms so as to influence prices paid to farmers
  - unintentional lack of transparency in price discovery
  - loss of flexibility in enterprise choice
  - declining real prices in the long run
  - former linkages with markets are lost
  - traditional farming practices lost
  - risks associated with monoculture are enhanced
  - social structures might be disrupted
  - risk of indebtedness grows
  - risk of dependency on the contracting firm on non-farming issues

The pros and cons of contract farming

- Advantages for agribusiness firms
  - greater regularity of agricultural product supplies to the firm
  - greater conformity to desirable product quality attributes and to safety standards
  - access to land is facilitated.
  - input costs per unit are reduced
  - access to agricultural credit and eventual financial incentives and subsidies is facilitated
  - labour costs are reduced
  - expansion and contraction of production is facilitated
  - managerial efficiency in farming may be favoured

The pros and cons of contract farming

- Disadvantages for agribusiness firms
  - risk of contractual hold-ups
  - risk of misuse or deviation of supplied inputs and of final products
  - transaction costs of dealing with large numbers of farmers are high
  - internalization of support service costs
  - loss of flexibility to seek alternative supply sources
  - risk of undermining the corporate image

Critical success factors

- Basic tenet
  - contractual relationships will only be sustainable if partners perceive that they are better off by engaging in it
  - Corollary: contract farming will fail if parties do not develop mutual trust and reciprocal dependency (SYNERGY is the key word)
- The importance of the enabling environment
  - No successful contracting scheme can exist or remain sustainable where the institutional and political setting is not conducive to it

Critical success factors

- Minimization of contractual hold-ups
  - farmer: enhancement of bargaining power via collective action
  - firm: group lending; improved communication; quality and scope of services provided; strict treatment of defaulters; extend contract duration
- Need to countervail uneven balance of power
  - promote farmers association
  - third party mediation
  - legal provisions

Critical success factors

- Need to reduce the transaction costs of dealing with multiple contracting parties
  - work with groups
  - the preference for larger farmers
- Appropriate consideration of production and marketing risks in the design of contracts
  - some risk sources can be known ex-ante; others not
  - insurance funds; arbitrage mechanisms
- Choice of enterprise
  - no a priori exception but: high value, processing and exports are better candidates

Crops and livestock produced under contracts

- Asparagus, Acquaculture, Baby Corn, Banana, Barley, Blakberry, Cassava, Coffee, Corn, Cotton, Cucumber, Eggs, Flowers, Fruits*, Green Beans, Hogs, Honey, Melon, Milk, Oil Palm, Papaya, Passion Fruit, Peaches, Peanuts, Pineapple, Poultry, Rice, Rubber, Seeds, Silkworm, Soybeans, Spices, Strawberry, Sugar beets, Sugarcane, Sunflower, Tea, Tobacco, Tomato, Vegetables*, Wheat

Conclusions

- As agri-food systems change, supply chains will become increasingly coordinated
  - Need to deal with new asset specificities and uncertainties
- Contracts are an appealing mode of governance: potential advantages
- Contracts are no panacea: maybe ill-advised under some circumstances
- Need for measures to lessen effects of potential disadvantages
  - the role of third parties
  - the role of information
- FAO
  - Book: Contract Farming: Partnerships for Growth (2001)
  - Web site (http://www.fao.org/ag/ags/subjects/en/agmarket/linkages/index.html).

Thank you!

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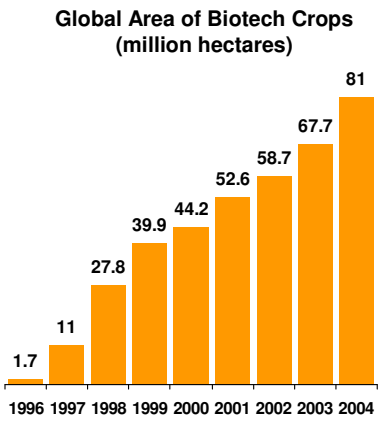
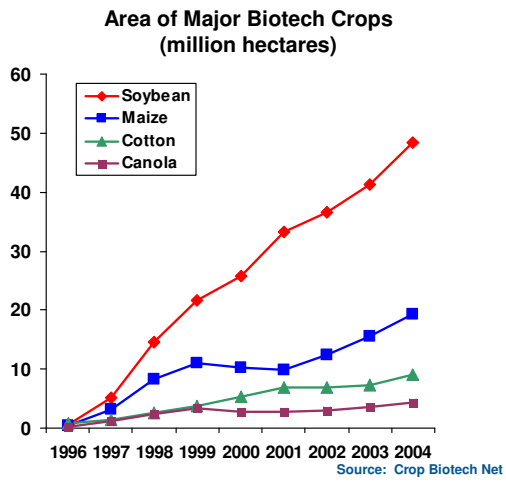
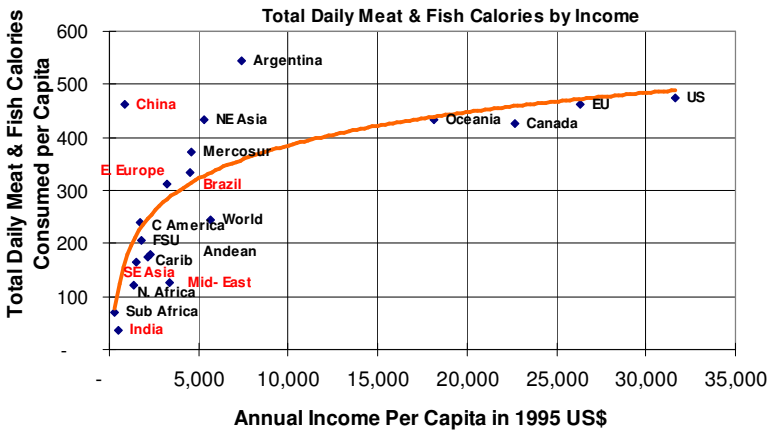
Advances in Biotechnology





Source: Crop Biotech Net

Fastest Growth in Meat Consumption Occurs When Income is Less Than $5000 Per Year



The Baghlan Sugar Factory Project (Afghanistan)

- Objective
  - FAO was requested to assist in the rehabilitation of the factory, which is controlled by a public-private partnership (MLIF, private investors, KWS)
- Donor: German government
- Budget: US$ 1.33 million
- Time frame: 3 years
- Project formulation:
  - Started in late June 2004
  - Approved by donor in November 2004
- Implementation started in February 2005

Baghlan Sugar Factory Project

- Components

a) Planning the Factory's Raw Material Supply Chain

- assist the design and initial operation of the sugar beet supply chain
- support the design of a model farming contract
  - 2000 small farmers will be growing beets under contracts
- assist farmers in improving management skills and in organizing for collective bargaining

Baghlan Sugar Factory Project

- Components

b) Establishment of a Factory Run Extension Service

- planning
- staffing

c) Assist in the Provision of Farm Inputs and Agricultural Mechanization Services

- input funds
- machinery provision
- service provision

d) M&E