Market concentration and vertical integration

London, 22 September 2015
Outlines

1. Value added by the global cocoa chain

2. Level of market concentration in the cocoa sector

3. Degree of asymmetry in the transmission of prices along the UK and US chains

4. Concluding remarks
Value Added by the global cocoa chain
Source: Euromonitor, Global Trade Information Services, ICCO
Price in Cocoa Bean Equivalent ($US/tonne, 2014)

- Cocoa beans
- Cocoa liquor
- Chocolate confectionery products

Source: Euromonitor, Global Trade Information Services, ICCO
Level of market concentration in the cocoa sector
Brand-name Chocolate Manufacturers
who control in-house product definition and innovation as well as the related marketing function

Merchant Contractors
who manufacture semi-finished and finished cocoa products in accordance with the specifications of the *brand-name firms*
**Market Concentration ⇒ Economic Inefficiencies**

A consolidated industry might price its products & services to a level lower than otherwise would been the case.

A vertical integrated enterprises are expected to lower their overall mark-up because of its double marginalization.

**The structure of the global cocoa chain raises concerns**
Cocoa Farming
Cocoa Grindings
Chocolate Manufacturing
Retailers

High Barrier to Entries
High Barrier to Entries

Potential for the exercise of oligopolistic or monopolistic power in cocoa purchasing
Do cocoa stakeholders share the same bargaining power?

If cocoa stakeholders share the same bargaining power, then we will observe a symmetric transmission of price changes in the supply chain.
Testing the hypothesis of symmetric price transmission

1. Model the price change in the upstream process $\Delta P_t^{Upstream}$ as a function of the positive and negative price variations occurring in the downstream process, $\Delta P_t^{Downstream(+)}$ and $\Delta P_t^{Downstream(-)}$, respectively

$$\Delta P_t^{Upstream} \approx a \times \Delta P_t^{Downstream(+)} + b \times \Delta P_t^{Downstream(-)}$$

2. If the estimated coefficients are statically equal, $a = b$, then we are in presence of a symmetric transmission.
UK Cocoa Supply Chain
UK Cocoa Supply Chain

\( P_t^R \)  \quad \text{CPI Sugar, Jam, Honey, Syrup, Chocolate & Confectionery, monthly, UK Office National Statistics}

\( P_t^W \)  \quad \text{PPI 1082220000: Chocolate & Food Preparations containing Cocoa (except sweetened), monthly, UK Office National Statistics}

\( P_t^F \)  \quad \text{ICCO nominal price (£/tonne), monthly, ICCO, deflated by CPI All Item Index, UK Office National Statistics}
Real Cocoa Price

\[ p^R \text{ CPI Confectionery} \]

PPI Chocolate & Chocolate confectionery

\[ p^W \]

ICCO Price (£/tonne, const)

\[ P^F \]

- **p^R**: CPI Confectionery
- **p^W**: PPI Chocolate & Chocolate confectionery
- **P^F**: ICCO Price (£/tonne, const)
\[ \Delta P_t^R \approx +0.330 \times \Delta P_{t-1}^{W^+} - 0.051 \times \Delta P_{t-1}^{W^-} \]

\[ \Delta P_t^W \approx -0.046 \times \Delta P_{t-4}^{F^+} - 0.006 \times \Delta P_{t-4}^{F^-} \]
US Cocoa Supply Chain
US Cocoa Supply Chain

\[ P_t^W \]  PPI \( NDU3113303113301 \): Confectionery manufacturing from purchased chocolate, monthly, US Bureau Labour Statistics

\[ P_t^W \]  PPI \( WPU02550301 \): Chocolate and chocolate-type confectionery, monthly, US Bureau Labour Statistics

\[ P_t^F \]  ICCO nominal price (US/tonne), monthly, ICCO
  CPI All Item Index, US Federal Reserve Bank of St Louis
Real cocoa price

Producer price index

P^W PPI Chocolate & Chocolate confectionery

P^W PPI Chocolate confectionery from couverture

P^F ICCO Price ($US/tonne, const)
Chocolate confectionery from coverture

\[ \Delta P^W_t \approx 0.060 \times \Delta P^F_{t-4} - 0.004 \times \Delta P^F_{t-4} \]

\( (0.022)^{***} \quad (0.233) \)
Chocolate and Chocolate-Type Confectionery

Chocolate Manufacturing

Cocoa Farming

\[ \Delta P^W_t \approx 0.059 \times \Delta P^{F+}_{t-4} - 0.0005 \times \Delta P^{F-}_{t-4} \]

(0.026)** (0.025)
Concluding Remarks
1. There is an asymmetric distribution of bargaining power in the global cocoa chain

2. There is no definite legal framework to multinational mergers (i.e. ongoing discussion at WTO)

3. Provide countervailing power to primary producers
Retailers’ Market Shares in UK 2015

- Tesco: 28.5%
- Sainsbury: 16.4%
- Asda: 16.5%
- Morrisons: 10.9%
- Others: 27.7%

Source: Euromonitor International

Retailers’ Market Shares in US 2008

- Wal-Mart Stores Inc: 22.80%
- Kroger Co: 7.10%
- Safeway Inc: 3.80%
- Royal Ahold NV: 3.00%
- Others: 63.30%

Source: Euromonitor International
Estimated World Retail Shares of Chocolate Manufacturers in 2015

- Mars Inc, 14.50
- Mondelez International Inc, 14.30
- Nestlé SA, 12.40
- Ferrero Group, 8.20
- All others, 50.60

Source: Euromonitor International, 2015
Estimated Grindings Capacity in West and Central Africa

- Barry Callebaut, 24.9
- Cargill, 15.9
- OLAM, 7.4
- ADM, 11.0
- Others, 40.8

Source: CCC, COCOBOD, CICC, CAN
Cocoa Trade in West and Central Africa in 2012

- Cargill, 13.9%
- ADM, 10.7%
- Olam, 8.4%
- Barry Callebaut, 7.3%
- Others, 59.7%

Source: ECOBANK, 2012
Cocoa trading and Processing in West And Central Africa

Source: CCC, COCOBOD, CICC, CAN, ECOBANK