

New Paradigm of the World Agriculture

Productivity, Sustainability, Innovations

Johan Swinnen

LICOS Centre for Institutions and Economic Performance

KU Leuven, Belgium

&

The Agrarian Institute

Higher School of Economics (HSE), Moscow

HSE April 2019

Globalization & competition in agri-food Chains

Johan SWINNEN

Centre for European Policy Studies (CEPS)

&

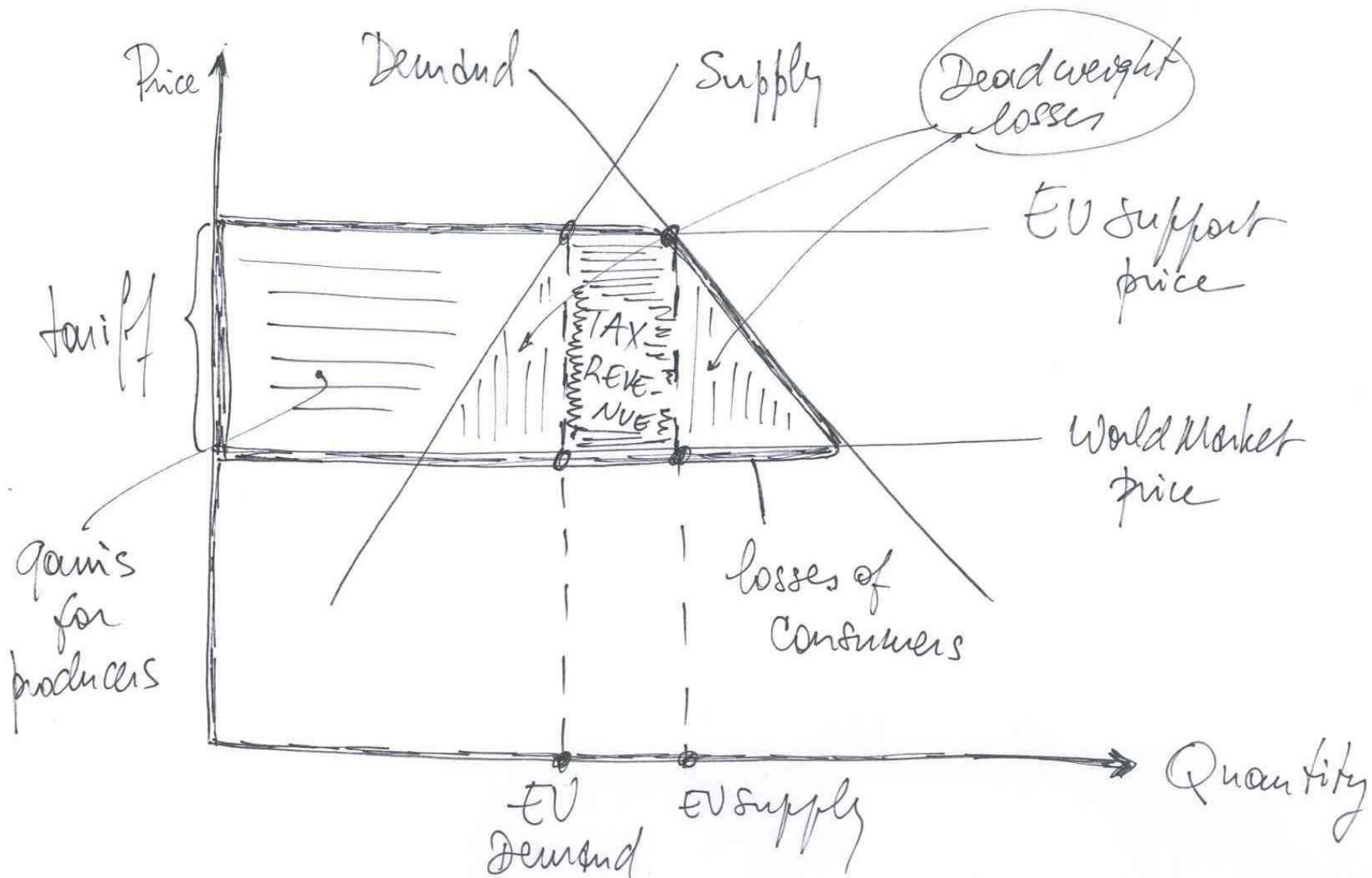
LICOS – Centre for Institutions and Economic Performance

KU Leuven

EU Agricultural Outlook Conference

December 2015

Evaluation of agricultural policy in the "Good Old Days" (example: EU tariffs)



“Misconceptions of modern agricultural markets”

- Microeconomics textbooks continue to point at “agricultural markets” as standard examples of “competitive markets”.
 - ***“Thousands of farmers produce wheat, which thousands of buyers purchase to produce flour and other products. As a result no single buyer can significantly affect the price of wheat.”***
- (Sexton, AJAE 2012)

- Agricultural markets as “examples of competitive markets” requires **several conditions** :
 - Buyers and sellers must be **many and small** relative to the total size of the market
 - Products must be **homogenous**
 - **Information** must be perfect, so all buyers and sellers are aware of prices and product characteristics
 - Contracts are **enforced**

Misconceptions of modern agricultural markets

“I don’t know of any modern
agricultural market that meets all
three of these conditions.

Most don’t meet any of them”

(Sexton 2012)

Some issues

- Who are the “consumers” and the “producers” ? A broader value chain focus.
- The “consumers” and “producers” may be quite differently structured.
- The markets are “interlinked” – through contracting, capital constraints, search costs, ...
- The “commodity” is not just defined by “quantity” and “price” but by additional characteristics – “standards”.
- ...

All these factors will affect the productivity (efficiency) and distribution of income/rents (equity). If important, one cannot ignore them (or assume them away) – Swinnen et al (2015).

The farm share of value in the chain

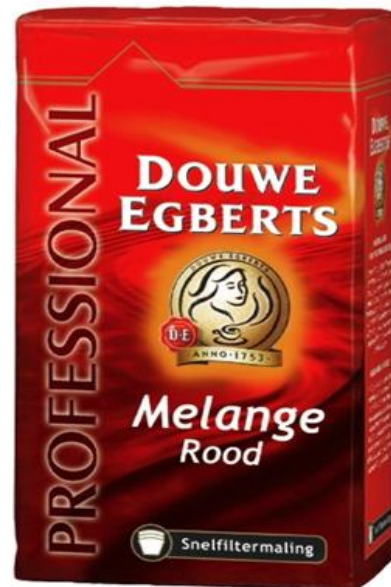
5 euro



2 euro



20 eurocents



1 - 2 eurocents



The World is Complex (Theory & Empirics are Nuanced)

See also:

- Beghin et al ARRE 2015
- Swinnen Ag Econ 2016
- Swinnen AJAE 2017

Quality Standards, Value Chains, and International Development

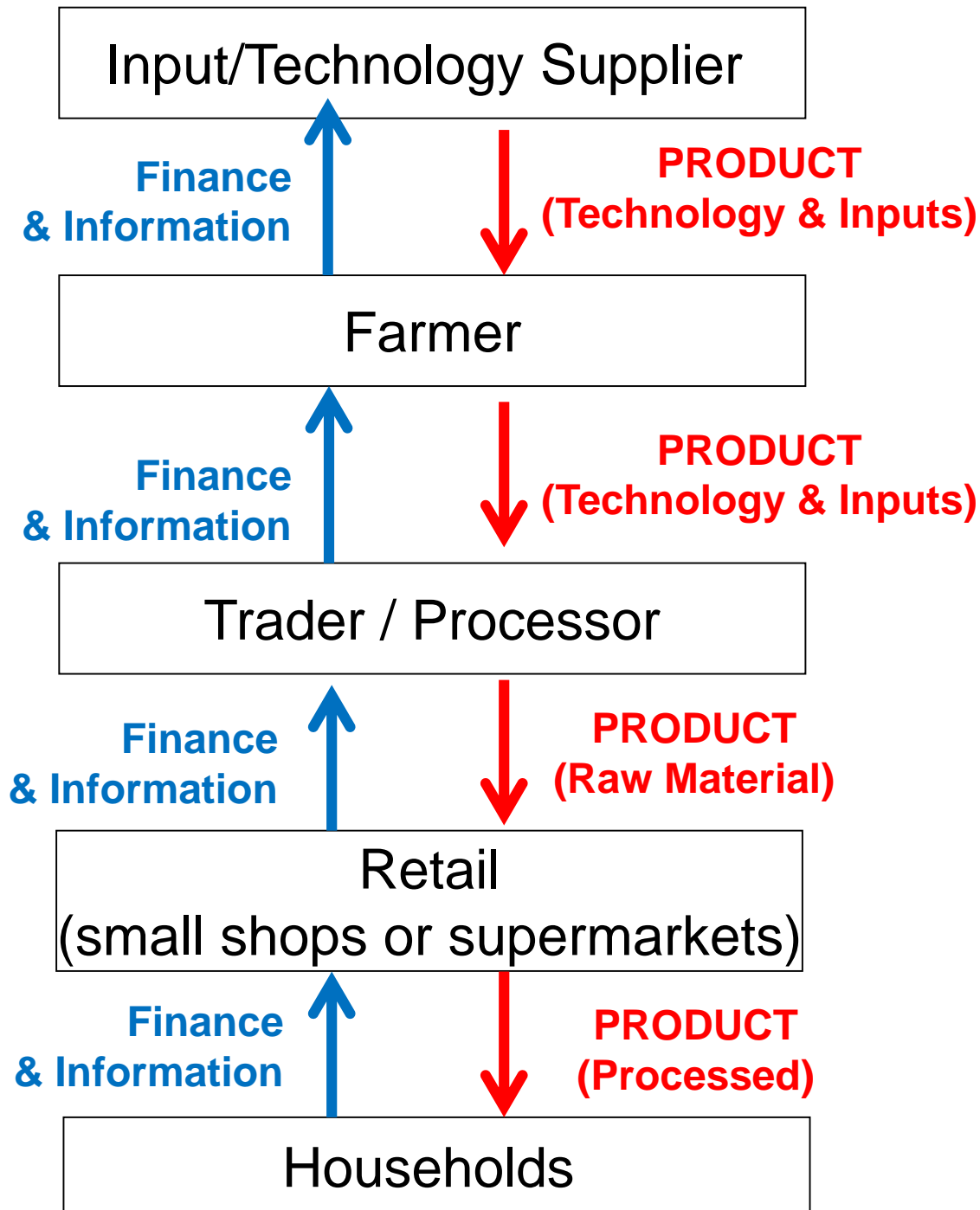
*Economic and
Political Theory*

JOHAN SWINNEN,
KOEN DECONINCK,
THIJS VANDEMOORTELE,
ANNELEEN VANDEPLAS

Some issues

- **Who are the “consumers” and the “producers” ? A broader value chain focus.**
- The “consumers” and “producers” may be quite differently structured.
- The markets are “interlinked” – through contracting, capital constraints, search costs, ...
- The “commodity” is not just defined by “quantity” and “price” but by additional characteristics – “standards”.
- ...

All these factors will affect the productivity (efficiency) and distribution of income/rents (equity). If important, one cannot ignore them (or assume them away) – Swinnen et al (2015).



A simple value chain model:

Who is the “**consumer**” and the “**producer**” ?

Some issues

- Who are the “consumers” and the “producers” ? A broader value chain focus.
- **The “consumers” and “producers” may be quite differently structured.**
- The markets are “interlinked” – through contracting, capital constraints, search costs, ...
- The “commodity” is not just defined by “quantity” and “price” but by additional characteristics – “standards”.
- ...

All these factors will affect the productivity (efficiency) and distribution of income/rents (equity). If important, one cannot ignore them (or assume them away) – Swinnen et al (2015).

The Cocoa - Chocolate Value Chain

- **Farmers : produce cacao beans**

concentrated in a few countries, with **Africa** contributing **72 % of total global production**.

90% produced by **smallholders** (less than 10 ha).



The Cocoa - Chocolate Value Chain

- **Cocoa Grinding**

Mostly in destination countries :
50% - 60% in Europe (40-45%)
and North America (12%)

Highly **concentrated**: **41%** of
processing conducted by just
three companies

- Archer Daniel Midland (14%)
- Cargill (14%)
- Barry Callebaut (13%)



The Cocoa - Chocolate Value Chain

- **Chocolate Manufacturing**

Europe and North America: approximately **85% of global production** in the Candy and Chocolate Manufacturing sector

Highly concentrated: almost **50%** of manufacturing conducted by just **four companies:**

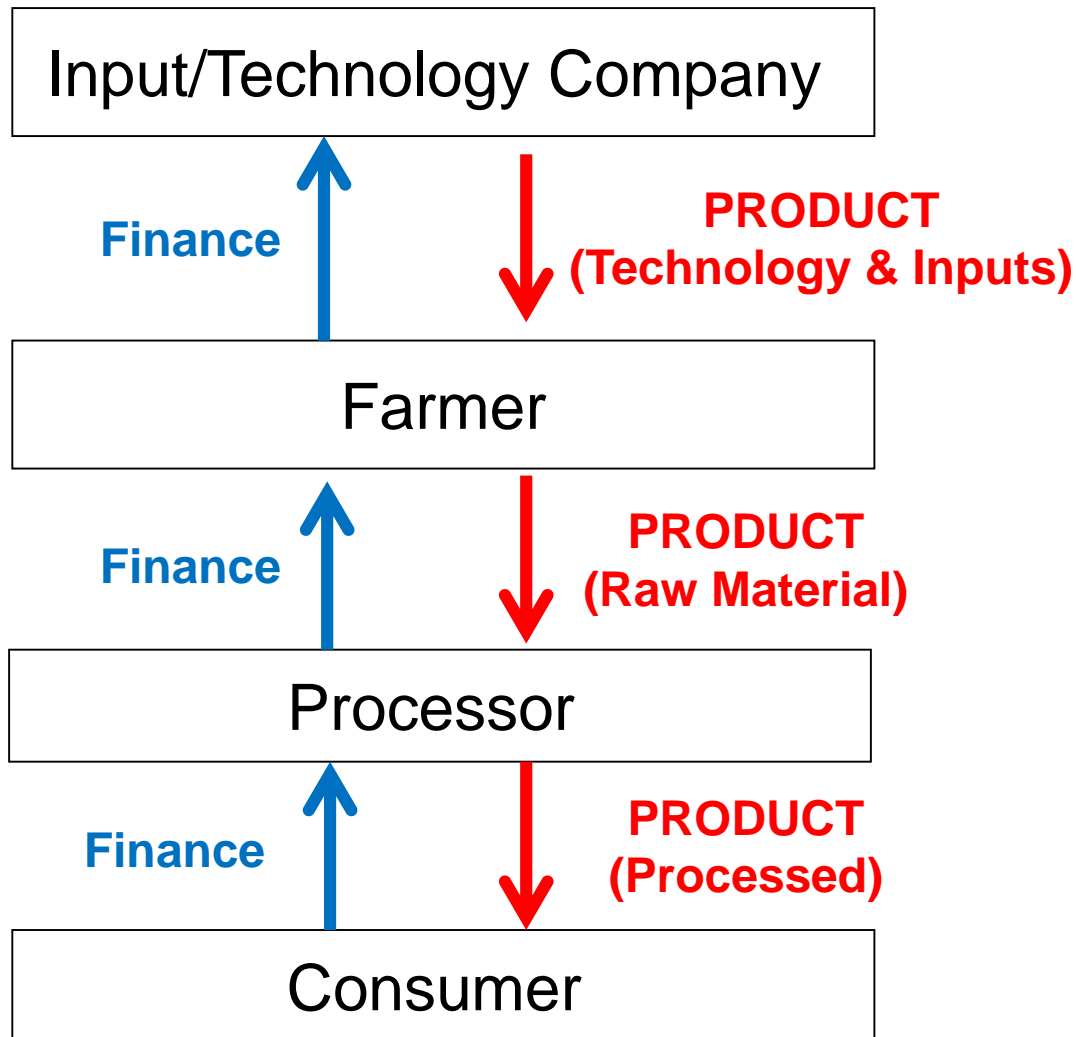
- Mondelez International Inc. (14.7%)
- Mars Inc. (14.1%)
- Nestlé SA (12.2%)
- Ferrero Group (7.7%)

Some issues

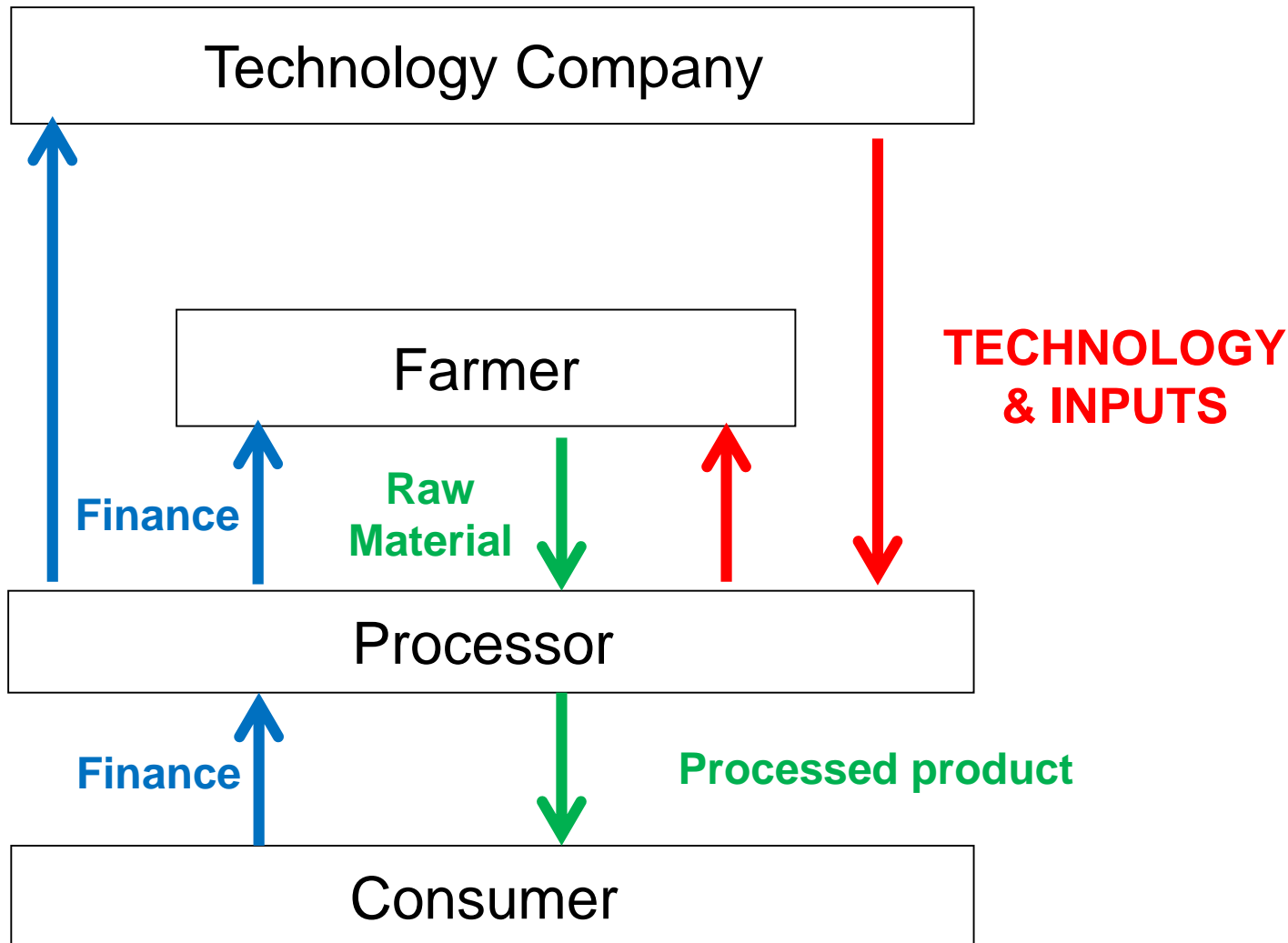
- Who are the “consumers” and the “producers” ? A broader value chain focus.
- The “consumers” and “producers” may be quite differently structured.
- **The markets are “interlinked” – through contracting, capital constraints, search costs, ...**
- The “commodity” is not just defined by “quantity” and “price” but by additional characteristics – “standards”.
- ...

All these factors will affect the productivity (efficiency) and distribution of income/rents (equity). If important, one cannot ignore them (or assume them away) – Swinnen et al (2015).

A simple value chain model



Value chain innovation



What other analyses find ...

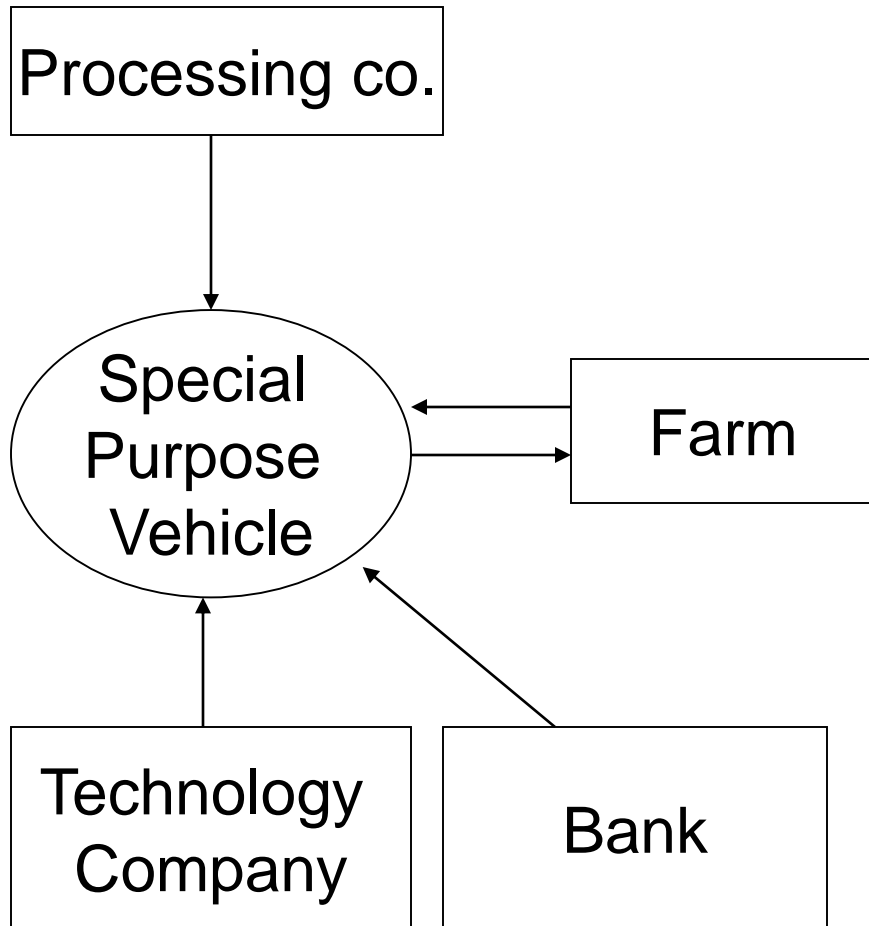
***"69% of 35 billion \$ credit in the
Brazilian agri-food system is
supply-chain credit"***

Banco do Brasil (March 2004)

VC in Romanian Dairy - 2004

Type of support	DANONE	FRIES- LAND	PRO- MILCH	RA- RAUL
Extension services	X	X	X	X
Quality inputs	X	X	X	X
Input Pre-finance	X	X	X	
Investment loans	X	X	X	
Bank loan guarantees	X	X	X	

Dairy Equipment in Russia



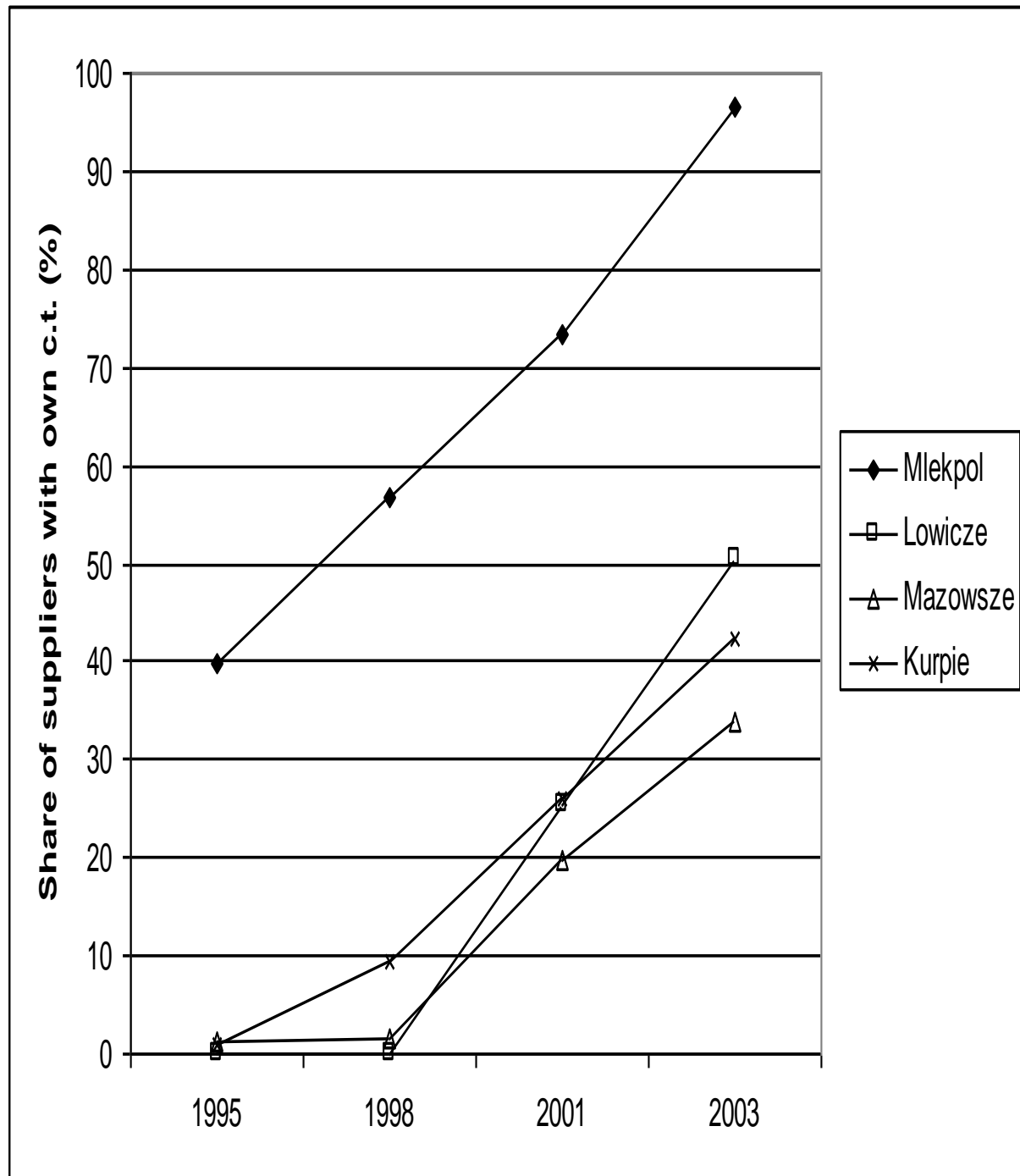
- Special purpose vehicle (SPV) to distribute among partners
- Leasing dairy equipment by joint project
Wimm Bill Dann -- De Laval in Russia

IMPACT

Poland Dairy 1995 - 2003

VCD innovations
&
small farm
investments
(milk cooling
equipment)

(Dries & Swinnen, WD 2002)



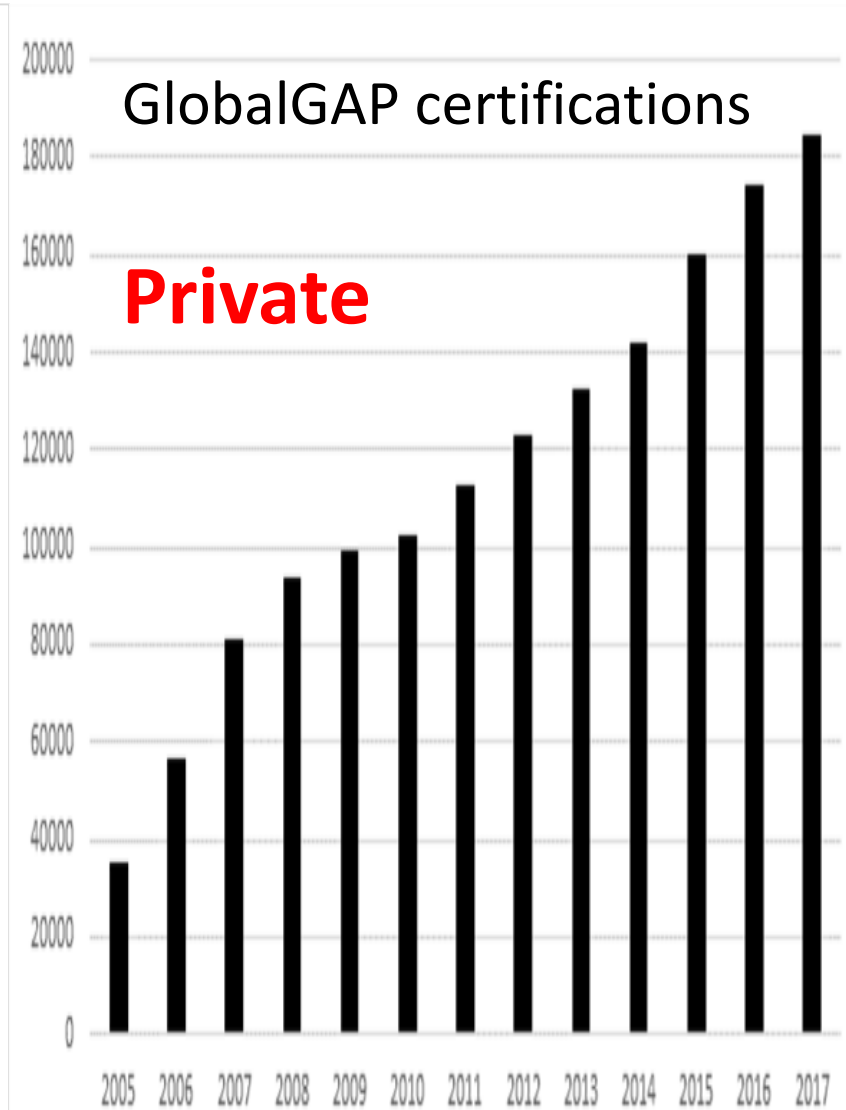
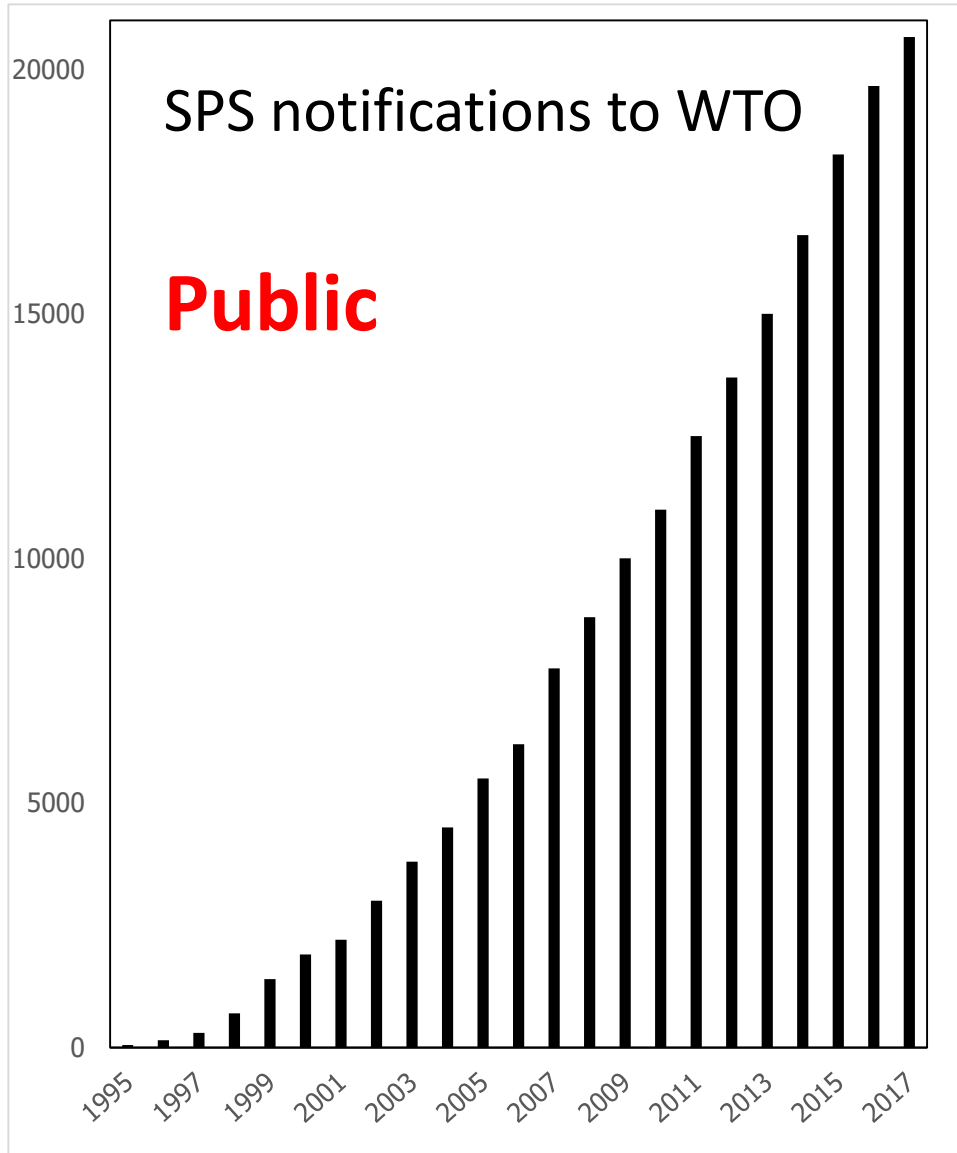
Some issues

- Who are the “consumers” and the “producers” ? A broader value chain focus.
- The “consumers” and “producers” may be quite differently structured.
- The markets are “interlinked” – through contracting, capital constraints, search costs, ...
- **The “commodity” is not just defined by “quantity” and “price” but by additional characteristics – “standards”.**
- ...

All these factors will affect the productivity (efficiency) and distribution of income/rents (equity). If important, one cannot ignore them (or assume them away) – Swinnen et al (2015).

Recent: Rapid Growth of Standards

More, More stringent, More widespread



China



Before ...



After ...

Value & VC

Commodity **Value & Standards**
(& Characteristics)

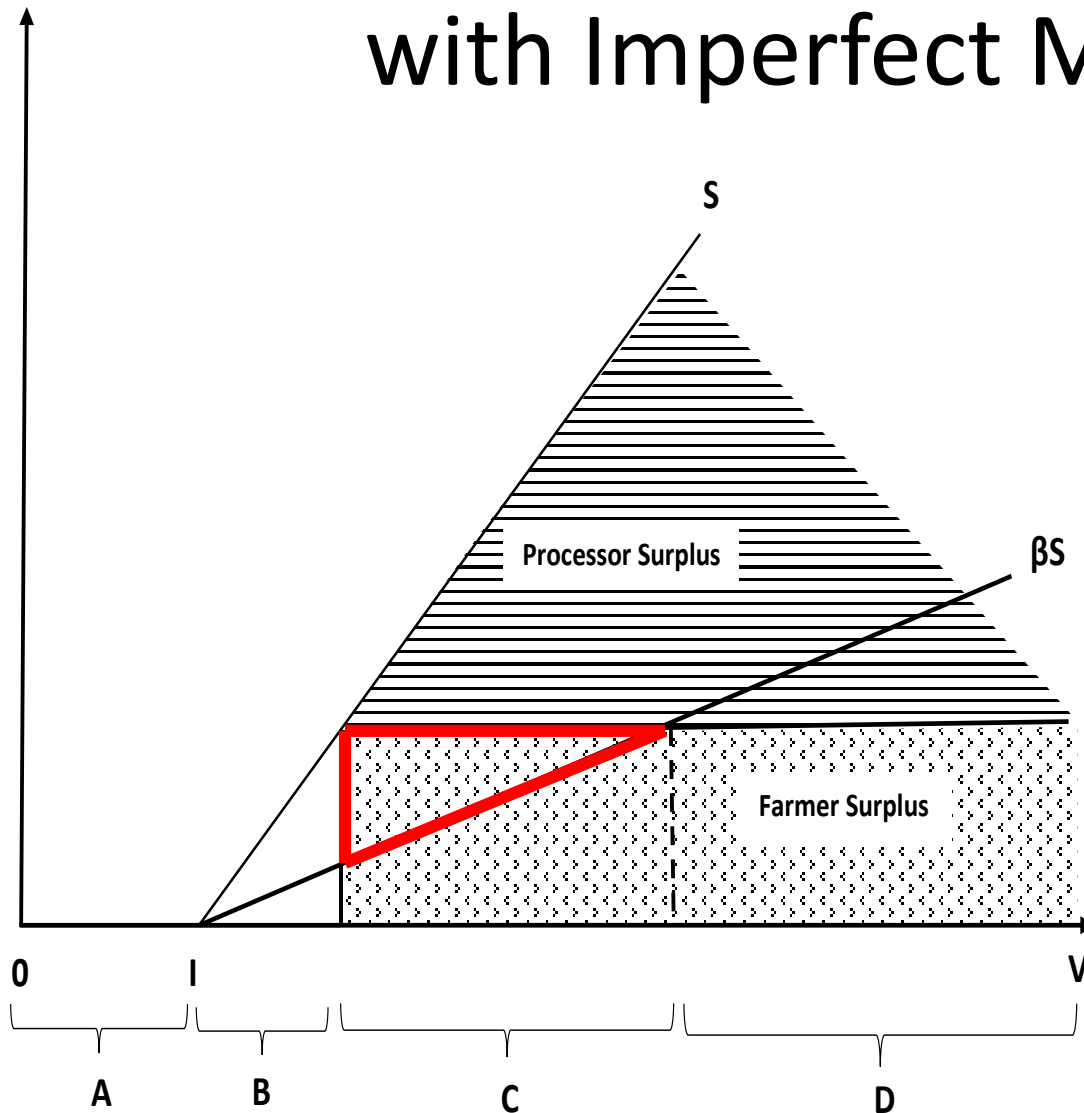


Governance of Value Chain (incl VCF)



Surplus Creation & Surplus **Distribution**
along the Value Chain

Efficiency and Equity in VCD with Imperfect Markets



Value affects
both **surplus
creation**
and
**surplus
distribution**

With vertical coordination and value chains, policy changes that affect output markets will also affect input provisions (“endogenous vertical coordination”).

Swinnen et al 2013: “*Liberalization with Endogenous Institutions: A comparative analysis of agricultural reforms in Africa, Asia and Europe*” World Bank Economic Review

Value and Standards Matter !

Condition for contract feasibility
(without external enforcement)

Minimum value required to enforce contracts via
efficiency premia

=> Private VCD works better in high value markets
than low value commodities (eg staple foods)

Q: WHO BENEFITS ?

- Market power and globalization in agri-food chains is an important economic issue and a sensitive item on the policy agenda all around the world.

Reality: Crucially important...

- **Major growth in concentration in parts of the agri-food value chains, in particular at the retail sector**

Reality: Crucially important...

- Major growth in concentration in parts of the agri-food value chains, in particular at the retail sector
- **Contracting & vertical relationships are widespread in modern supply chains**

Reality: Crucially important...

- Concentration & market power
- Contracting & vertical relationships
- **Quality & Diversity requirements**

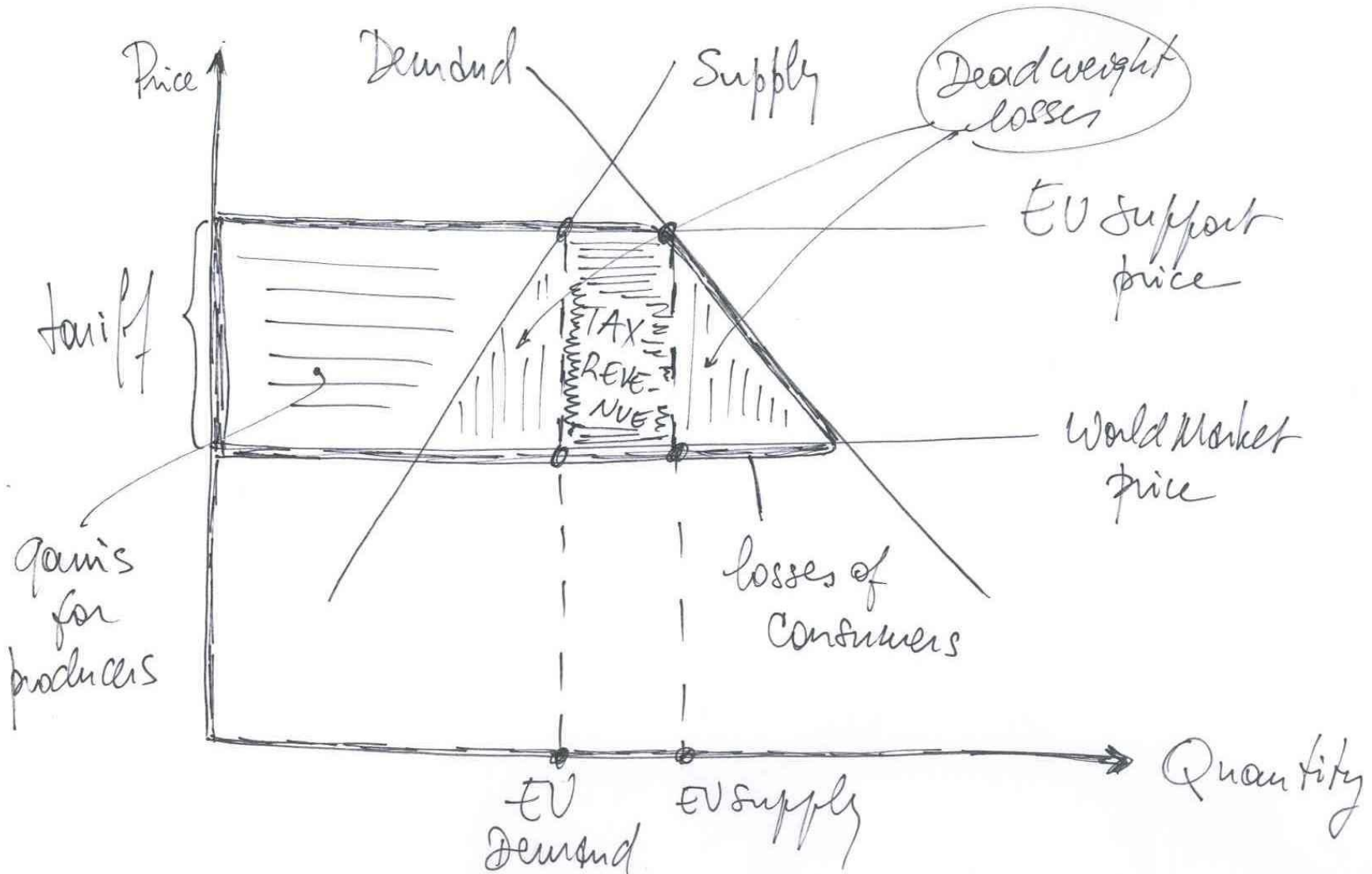
Policies for the “new paradigm” ...

- The welfare implications are **complex**
- The policy implications are **not trivial**

OUR BOOK !!!

Swinnen, J., and A. Vandeplas. 2010. “**Market Power and Rents in Global Supply Chains.**” *Agricultural Economics* 41: 109–120

CAP Evaluation in the "Good Old Days"



Policy Evaluation in the “New Paradigm”

- On farmer’s income:

$$\frac{\partial Y}{\partial \Psi} = \frac{\partial Y}{\partial \alpha} \cdot \frac{\partial \alpha}{\partial \Psi} + \frac{\partial Y}{\partial \varphi^f} \cdot \frac{\partial \varphi^f}{\partial \Psi} + \frac{\partial Y}{\partial \gamma} \cdot \frac{\partial \gamma}{\partial \Psi}$$

– with $\partial Y/\partial \alpha \geq 0$, $\partial Y/\partial \varphi^f \leq 0$, $\partial Y/\partial \gamma \geq 0$

- On contract feasibility:

$$\frac{\partial[\theta - \theta_{\min}]}{\partial \Psi} = \left[\frac{\partial \theta}{\partial \alpha} - \frac{\partial \theta_{\min}}{\partial \alpha} \right] \cdot \frac{\partial \alpha}{\partial \Psi} - \frac{\partial \theta_{\min}}{\partial \varphi^f} \cdot \frac{\partial \varphi^f}{\partial \Psi} - \frac{\partial \theta_{\min}}{\partial \gamma} \cdot \frac{\partial \gamma}{\partial \Psi}$$

– with $\partial \theta/\partial \alpha < 0$, $\partial \theta_{\min}/\partial \alpha \leq 0$, $\partial \theta_{\min}/\partial \varphi^f \leq 0$, $\partial \theta_{\min}/\partial \gamma \geq 0$

Agricultural Policy Discussion

From

“(un)fair prices”

to

“(un)fair trading practices” (UTPs)

Conceptual and Empirical Studies

find complex and
mixed effects on
farmers and
households

Quality Standards, Value Chains, and International Development

*Economic and
Political Theory*

JOHAN SWINNEN,
KOEN DECONINCK,
THIJS VANDEMOORTELE,
ANNELEEN VANDEPLAS

Theory : The simple argument

High concentration → market power →

a) buyer power: lower prices for suppliers

b) seller power: higher consumer prices

Theory : Some complications

While concentration is a useful first indicator of market power, **high concentration does not necessarily translate into market power**

- **Asymmetries** in size, cost, or strategy may impede collusion

(Compte et al., 2002; Kühn, 2002; Barla, 2000; Dobson et al., 2001)

Theory : Some complications

While concentration is a useful first indicator of market power, **high concentration does not necessarily translate into market power**

- **Vertical relationships** matter : strong competition may lead to break-down of buyer-supplier relationships

(McCorriston & Sheldon, 2007; McCorriston, 2015; et al 2015)

Swinnen

Theory : Some more complications

... high concentration **may enhance welfare** if it :

- Increases SCALE economies
- Reduces TRANSACTION costs
- Secures return on investments in R&D
- Offsets market power of other agents
supplier (“COUNTERVAILING power”)
 - (Very different debate today than 20 years ago)

Empirical Studies - consumers

- **Diverging conclusions on the effects of retail concentration / modern retail on consumer prices:**

OECD COUNTRIES

- **HIGHER PRICES:** Lamm (1981), Marion et al. (1993), Cotterill (1986), Cotterill Harper (1995), Cotterill (1999)
- **LOWER PRICES or NO EFFECT :** Kaufman Handy (1989), Newmark (1990), Binkley Connor (1998), Binkley et al. (2002)

DEVELOPING COUNTRIES

- **HIGHER PRICES:** Minten (2011)
- **LOWER PRICES :** Reardon and Hopkins (2006), D'Haese and Van Huylebroeck (2005), Neven et al (2006)

Empirical Evidence - farmers

- **Results vary and depend on variety of model assumptions & case specificities (McCorrison, 2015)**
 - RICH COUNTRIES
 - **Significant** market power (e.g. Lloyd et al 2009)
 - **No or weak** market power (e.g. Dobson et al (2001), Scokai et al (2009))
 - EMERGING and DEVELOPING COUNTRIES
 - **Mixed findings** (Sadler et al 2007; Minten et al (2009), Maertens et al (2009))

Conclusion : A Complex Chain System

- Obvious need for better understanding
- Data & information is limited :
 - “it is practically impossible to measure retailers buying power as prices paid by retailers to their suppliers are typically not revealed” (Sexton et al 2005)
 - With contracts, data problems are worse
- Endogeneity problems:
 - Comparative analyses between commodities and countries are problematic because the vertical structure of the chain is likely to be endogenous to the institutional constraints and commodity characteristics

Sources

- Conceptual frameworks and reviews:
 - Swinnen et al (2013), “Liberalization with endogenous institutions”, *World Bank Economic Review*
 - Swinnen et al (2015) *Quality Standards, Value Chains and International Development*, Cambridge Univ Press
 - Swinnen (2016), IAAE Presidential Address (published in *Agricultural Economics*)
 - Swinnen and Kuijpers (2018), *Value Chains and Technology Transfer*, *Food Policy*
- Comparative Studies:
 - Swinnen (2006), VC in ECA, Report for the World Bank
 - Dries et al (2009), *World Development*
- Dairy in India:
 - Janssen and Swinnen (2017) *Food Policy*
 - Burkitbaeva, Janssen and Swinnen (forthcoming)

