



Competitiveness of EU Agri-Food Supply Chains: A Conceptual Framework

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Background

❑ What is competitiveness?

- Multidimensional, dynamic and relative concept – no unique and universally accepted definition!

❑ How is it measured?

- Assessed at various levels, e.g. country, region, industry and firm, supply chain, and with a wide arrays of indicators

❑ Agri-food supply chain competitiveness?

- Limited research on agri-food supply chain competitiveness *per se*
- Literature on agri-food industry competitiveness draws largely on trade, productivity and value added indicators
- Often it ignores social and environmental considerations, i.e. ‘sustainable’ competitiveness

EU FP7 – COMPETE Project

WP2: Conceptual framework for assessing product chain competitiveness

- *D2.2 – Theoretical background and conceptual framework (Gorton et al., 2013)*

Objectives:

- To define the term ‘competitiveness of product chain’
- To review existing theories of competitiveness & identify determinants and indicators of competitive advantage and their interactions
- To develop a conceptual framework for a comprehensive and comparative analysis of competitiveness of agri-food supply chains

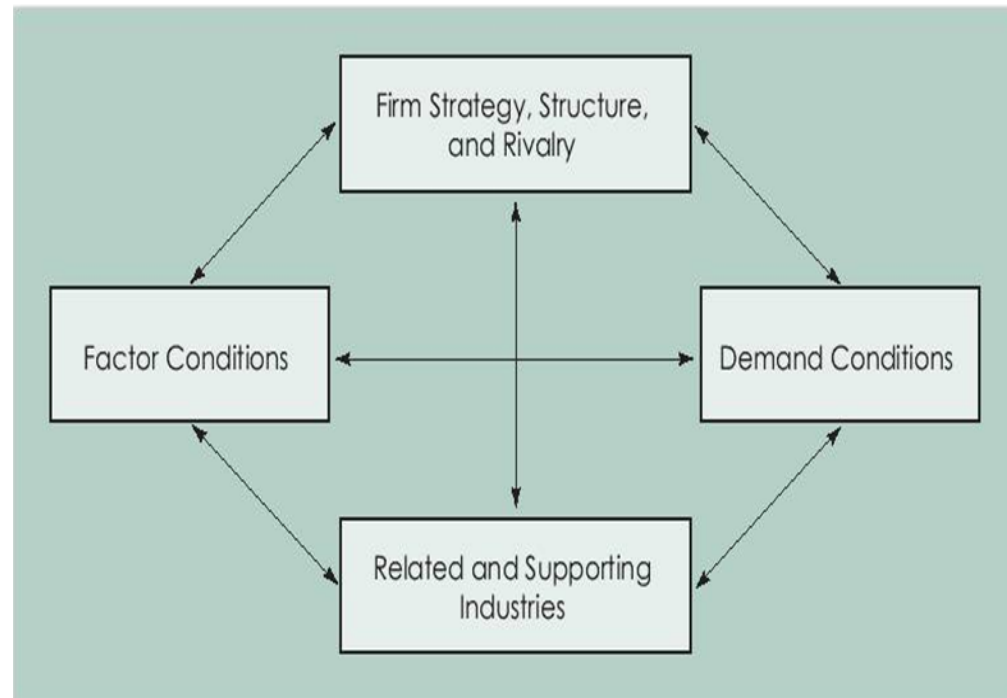
Work Outline

- **Theories of competitiveness**
 - ✓ **National competitiveness**
 - ✓ **Industry and firm**
 - ✓ **Supply chain**
- **Determinants of competitiveness**
- **Indicators & metrics**
- **Conceptual framework**
- **Concluding remarks**

National Competitiveness

- A “country’s capacity to sustain and expand its share of international markets and at the same time to improve its people’s standard of living” (Fajnzylber, 1988:12)
- Roots in theory of Industrial Organisation, particularly the work of Porter (1998)
- Krugman’s criticism (1994): competition between firms is poor analogy for studying national or regional economies
- Traill and Pitts (1998): Porter’s model not suitable to assess agri-food competitiveness – fails to capture policy effects or environmental considerations

Porter’s Diamond Model

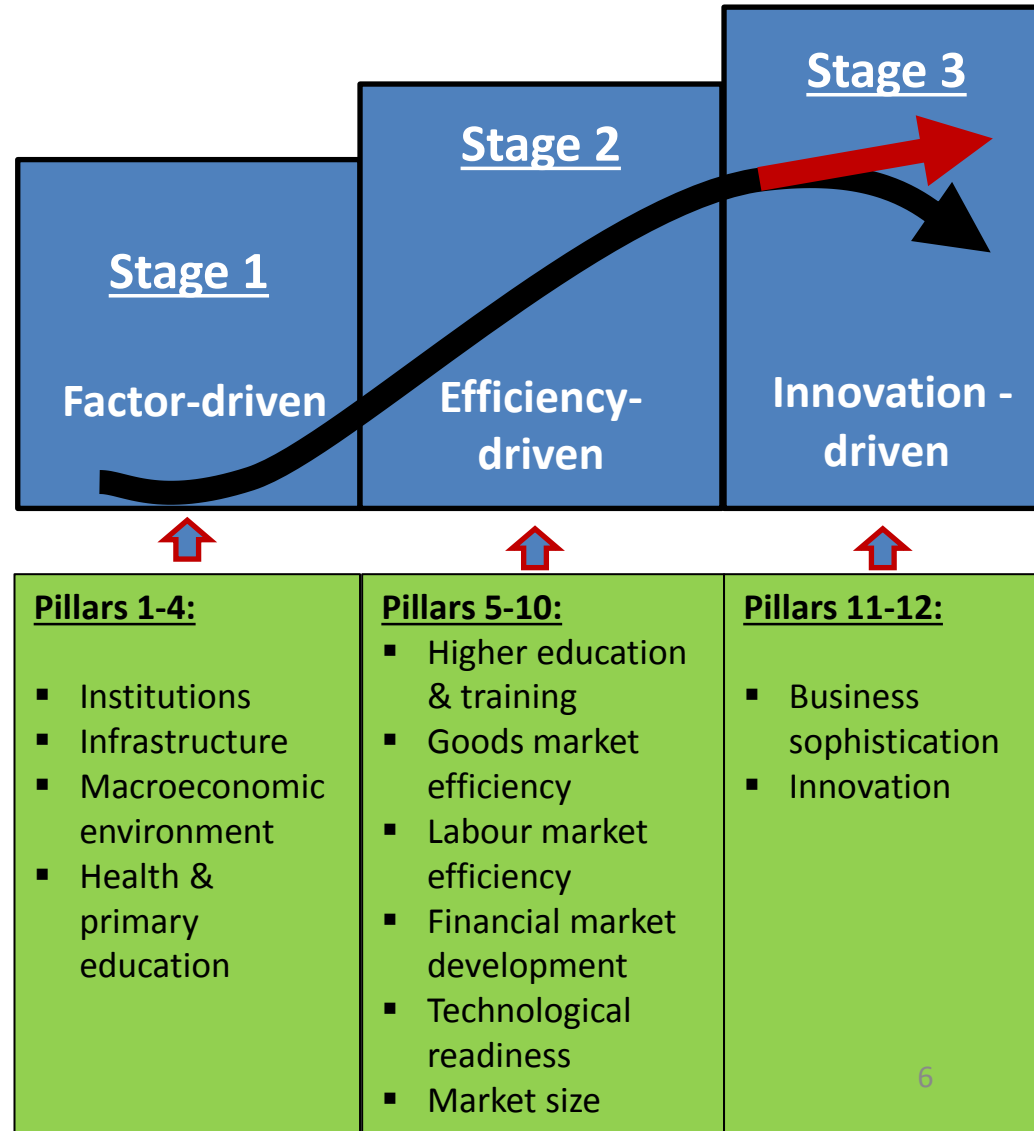


Source: Porter (1998:72)

National Competitiveness

- Most comprehensive approach by the World Economic Forum
- Global Competitiveness Index (GCI)
- Three stage model of economic development with 12 pillars
- Sustainability-adjusted GCI: two additional pillars on environmental & social sustainability

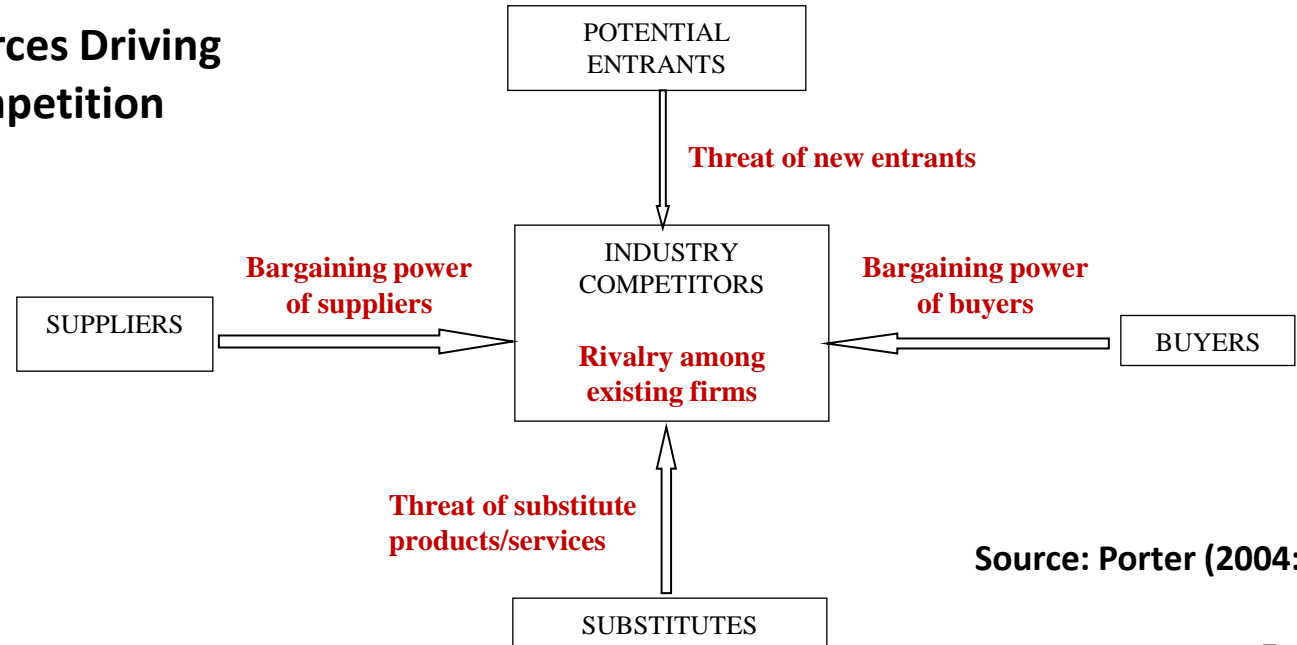
Stages of economic development & global competitiveness



Industry and Firm

- Definition: “the ability of firms to consistently and profitably produce products that meet the requirements of an open market in terms of price, [and] quality” (Domazet, 2012: 294-295)
- Two major schools of thought:
 - The Traditional Industrial Organisation → Structure - Conduct - Performance
 - The Resource-Based View (augmented by the natural-resource-based view of the firm)

Porter’s Five Forces Driving Industry Competition

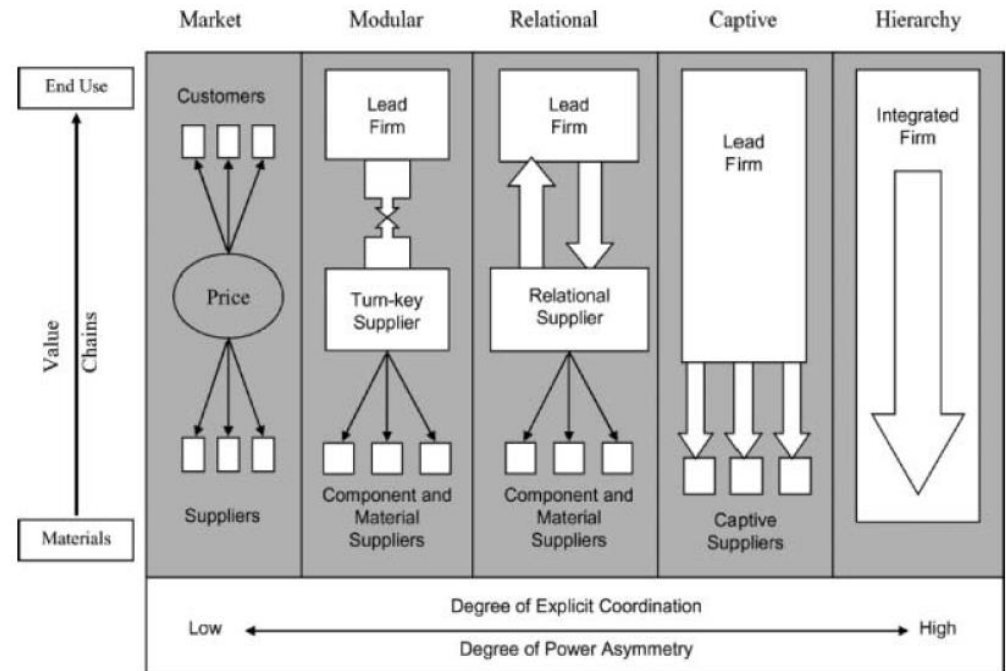


Source: Porter (2004:4)

Supply Chain

- Competition is not limited to individual firms but encompasses complete value chains
- The nature of supply chain relations can be a source of competitive advantage or disadvantage
- Governance structure of global value chains (Gereffi *et al.*, 2005)
- Captive value chains characterise the agri-food sector (Hingley *et al.*, 2006)

Five Types of Value Chain Governance



Source: Gereffi *et al.* (2005:89)

Determinants of Competitiveness in Agriculture

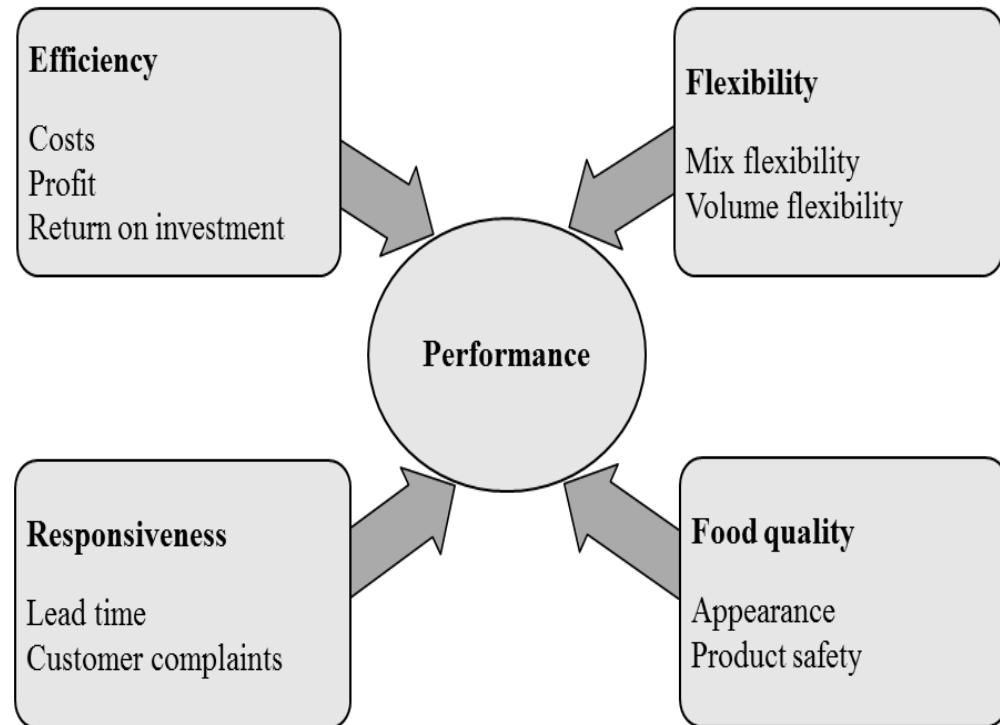
Endogenous Determinants (controlled by firms)	Exogenous Determinants (beyond the firm)
<ul style="list-style-type: none">• Business size• Legal status (ownership)• Factor intensity (e.g. capital-labour ratio & land-labour ratio)• Product specialisation vs diversification• Production and marketing practices• Characteristics of (farm) labour	<ul style="list-style-type: none">• Factor endowment (e.g. labour, capital and land)• Consumer demand• Government intervention in agriculture (e.g. policies, regulations, taxation)• Research and development• Investment in infrastructure• Firm location

Source: Latruffe (2010) and OECD (2011)

Indicators and Metrics

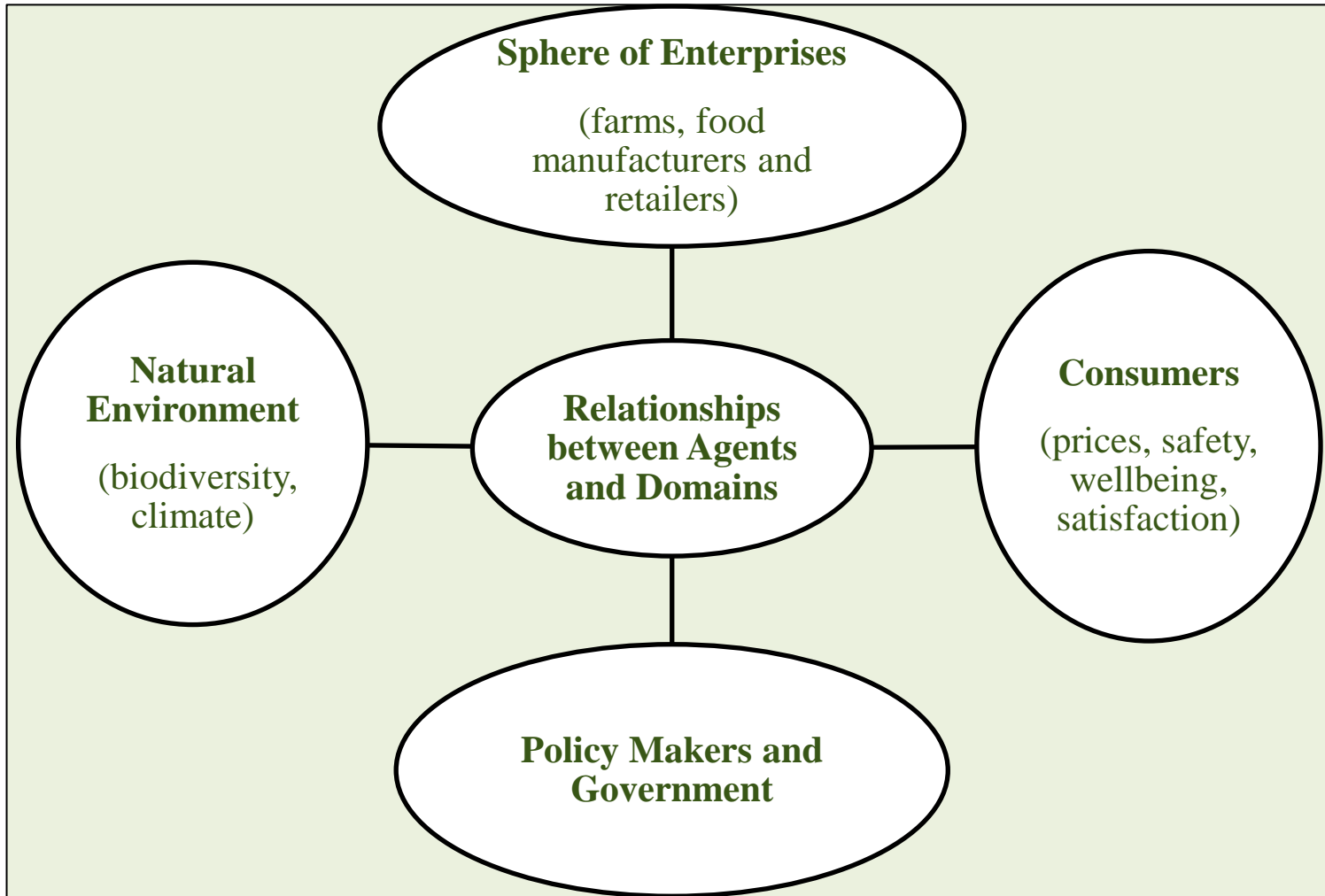
- Agri-food industry competitiveness - trade, productivity & value added indicators
- Agri-food sector not addressed by GCI (only agricultural policy costs)
- Supply chain - order lead time, delivery reliability and total inventory costs (Gunasekaran *et al.*, 2001)
 - But lack adaptation to the agri-food sector (derived from studies of electronic and automobile manufacturing)
- Agri-food supply chain performance: efficiency, flexibility, responsiveness and food quality

Indicators of agri-food supply chain performance



Source: Aramyán *et al.* (2007: 313)

Conceptual Framework – Key Domains



Source: Own construction

Conceptual Framework - Main Metrics

Domain	Metrics
Enterprises	Profitability, productivity, return on assets, R&D investment and financial stress
Consumers	International comparison of retail prices, consumer satisfaction/service quality scales, farm gate – retail price spreads Food safety and consumer health
Policy makers and government	Trade indicators: revealed comparative advantage, domestic resource cost ratios, intra-industry trade Beneficiaries versus non-beneficiaries of support measures (propensity score matching analysis)
Environment	Emissions of N, P, K and heavy metals to soil and water (kg/ha), length of hedgerows (m/ha), number of threatened and characteristics species per ha, Greenhouse gas emissions per ha
Relationships between agents and domains	Profits, value added, and mark ups at each stage of the supply chain

Concluding Remarks

- ❑ Framework for conceptualizing the competitiveness of agri-food supply chains at the international level
- ❑ Basis for comprehensive and comparative analysis of agri-food product chains
- ❑ Study the determinants of agri-food supply chain competitiveness:
 - ✓ Trade performance & export competitiveness
 - ✓ Assessments of productivity & innovation strategies
 - ✓ Efficiency of domestic & international markets
 - ✓ Governance structures & market performance
 - ✓ Policy measures & business environment