

# Global Value Chains Meet Innovation Systems

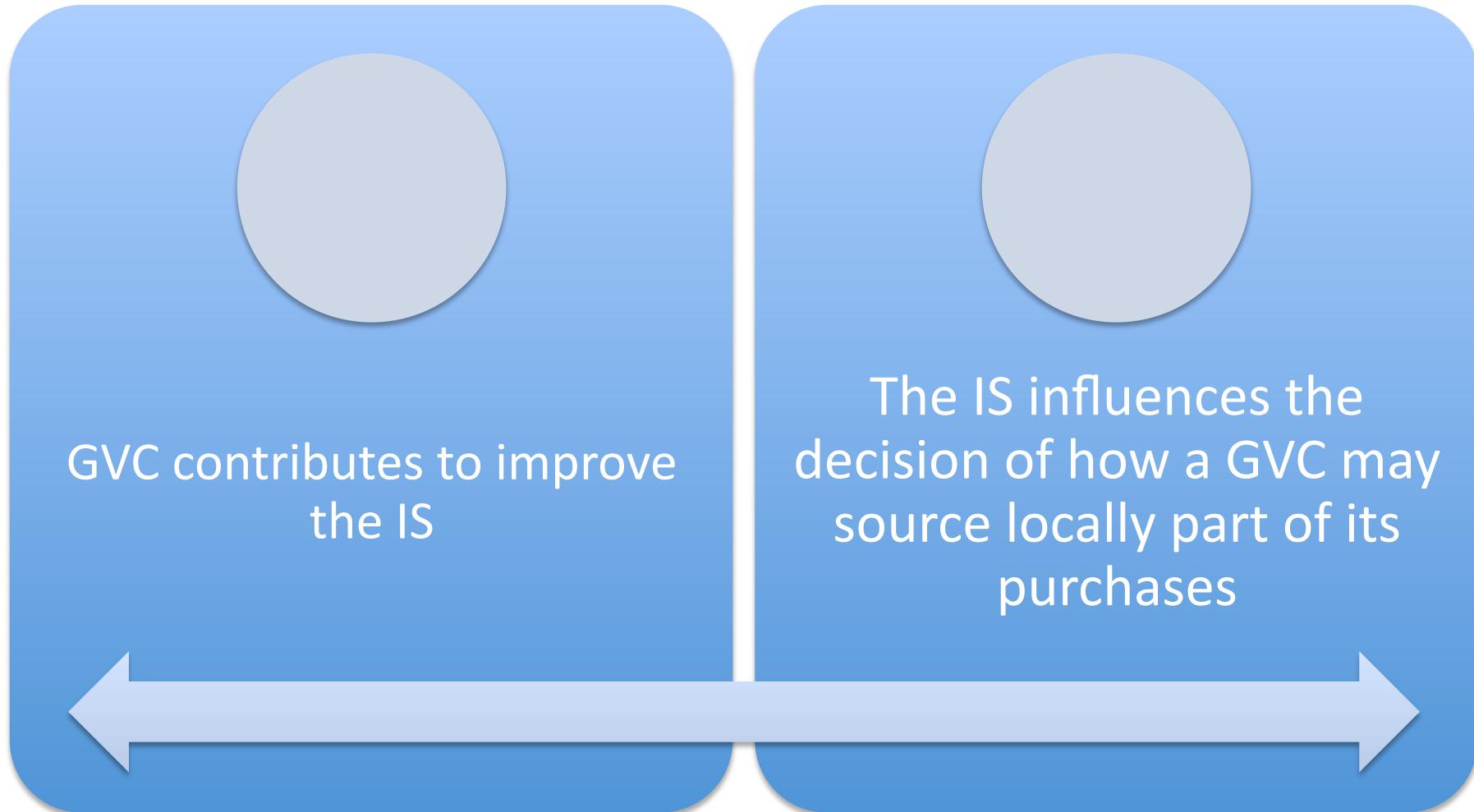
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## IS & GVC: two separate strand of literature

- The Innovation Systems literature underemphasizes the importance of international information exchange and collaboration on the generation and diffusion of knowledge and innovation, through for example inter-firm and intra-firm networks;
- The literature on GVCs stresses the role of inter-firm and intra-firm networks for accessing knowledge and enhancing learning and innovation.

## **Our focus is on the relationship between GVCs and IS: a sequential and endogenous relationship**



# The research questions

- How do different learning mechanisms operate in different types of chains?
  - In which chains are lead firms promoting learning only through increased pressure –‘competition effect’?
  - In which ones are lead firms supporting the innovation process through deliberate knowledge transfer and direct involvement in the learning and innovation process?
  - In which type of chains is learning resulting from unintended knowledge spillovers?
- How do different innovation systems affect the determinants of GVC governance and through this, the opportunity for enterprise learning and upgrading?

# Learning mechanisms within GVCs

Governance Type	Complexity of transactions	Codification of transactions	Competence of suppliers	Learning mechanisms within GVC
Market	Low	High	High	<ul style="list-style-type: none"> <li>▪ Knowledge spillovers</li> <li>▪ Imitation</li> </ul>
Modular	High	High	High	<ul style="list-style-type: none"> <li>▪ Learning through pressure to accomplish international standards.</li> <li>▪ Transfer of knowledge embodied in standards, codes, technical definitions</li> </ul>
Relational	High	Low	High	<ul style="list-style-type: none"> <li>▪ Mutual learning from face-to-face interactions</li> </ul>
Captive	High	High	Low	<ul style="list-style-type: none"> <li>▪ Learning via deliberate knowledge transfer from lead firms confined to a narrow range of tasks – e.g. simple assembly.</li> </ul>
Hierarchy	High	Low	Low	<ul style="list-style-type: none"> <li>▪ Imitation</li> <li>▪ Turnover of skilled managers and workers</li> <li>▪ Training by foreign leader/owner</li> <li>▪ Knowledge spillovers</li> </ul>

Source: adapted from Gereffi *et al.*, 2005

# How IS may affect the three key determinants of governance

	Governance Type	Determinants	Innovation Systems
1	Market	Low complexity	
		High codification	MSTQ organizations matter
		High supplier competence	Education, training organizations matter
2	Modular	High complexity	
		High codification	MSTQ organizations matter
		High supplier competence	Education, training organizations matter
3	Relational	High complexity	“Local” systems and complementary knowledge matter
		Low codification	MSTQ are perhaps less crucial
		High supplier competence	Education, training organizations matter
4	Captive	High complexity	
		High codification	MSTQ organizations matter
		Low supplier competence	
5	Hierarchy	High complexity	Local R&D organizations may benefit from interaction
		Low codification	
		Low supplier competence	GVC is expected to improve human technical skills

Source: authors' elaboration

A well-structured, complete, smooth system makes **1-2-3** more likely to occur.

**4-5** may prevail also with ‘poorer’, fragmented systems. The chain leader may compensate system weaknesses, but upgrading is restricted.

## Possible Dynamics



- **From 5 and 4 to 2:** thanks to improvement in MSTQ
- **From 5 and 4 to 3:** thanks to improvement in “local” systems
- **From 5 and 4 to 2 and 3:** thanks to IS supporting the co-evolution of suppliers and GVC competences

## Complexity of transactions & IS

- A well functioning and effective IS increases the capabilities to cope with complex transactions;
- In weak IS contract enforcement is costly and risky. Inter-firm coordination and transactions are more difficult, **favouring non-market forms of governance**, possibly vertical integration;
- **The existence of active technical bodies**, where the chain leaders and their local partners can meet, easing the exchange of their complementary knowledge and reducing the complexity of transactions, facilitates the establishment of relational value chains.

# Codification of transactions & IS

- Well functioning standards and metrology organizations facilitate to handle complex transactions;
- Modular chains are more likely to prevail, provided that local suppliers are competent, understand and use technical codes and standards, and codification is possible;
- Standards increasingly matter for a variety of sectors. This is the case for instance of the agro-processing industry.

# Suppliers' competence & IS

- The IS includes all the institutions and organizations that contribute to improve suppliers' competence;
- As suppliers learn and improve their competences, the GVC governance is also likely to change accordingly;
- Increasing capabilities in the supply-base help to push GVC away from hierarchy and captive networks and toward more relational and modular chains.

## Governance dynamics across different chains

- Firms, embedded in a well functioning IS, may participate in more than one GVC and therefore they can leverage competences across chains;
- There are examples (e.g. Taiwan, Brazil) where suppliers learn and employ different competences by working with two or more VCs (different sectors or different markets);
- Public policies may sustain the diversification of value chains and the mechanisms of learning from one chain to the other (for example, an information organization for identifying emerging/promising markets).

## Conclusions

- The relationship between the GVC and IS is **intrinsically dynamic**, with frequent two-way directions of causality and continuous feed-backs;
- Governance patterns in GVC are dynamic and subject to continuous adjustments and changes;
- The characteristics of the innovation system affect this evolution;
- Future research is needed to further explore the co-evolving link between suppliers and the lead firms, and with them, of the related IS.

# THANK YOU

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Forthcoming in 2011 in *World Development*:  
Pietrobelli C, Rabellotti R., 2010, "Global Value Chains Meet Innovation Systems:  
Are There Learning Opportunities for Developing Countries?"  
*IDB Working Paper Series*, No. 232, November  
Inter-American Development Bank, Washington

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