

Global Value Chains Meet Innovation Systems

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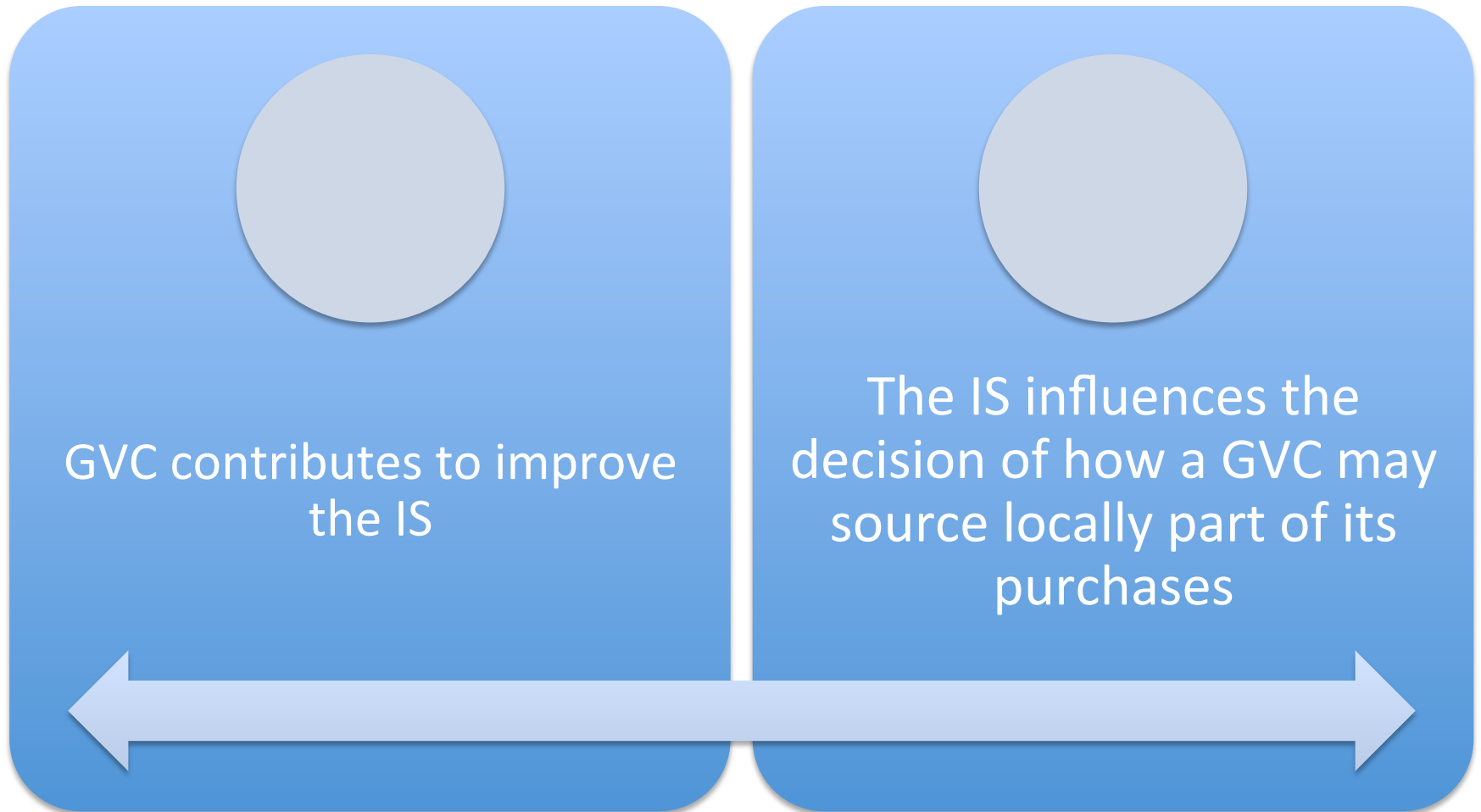
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IS & GVC: two separate strand of literature

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

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		<p>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.</p> <p>Possible Dynamics</p>  <ul style="list-style-type: none"> ▪ 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
		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

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 feedbacks;
- 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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