

Why Industrial Relocation Does Not Necessarily Upgrade Capabilities in Receiving Regions

A Regional Economic Analysis of Value Chain Governance Local Learning and Value Capture

Yuyao Gao

Xi'an Jiaotong University, Xi'an, China

Corresponding author: 764574165@qq.com

Abstract

Industrial relocation can expand production and employment in receiving regions, but project establishment, capacity expansion, technological upgrading, and local value capture do not necessarily advance together. This article combines theoretical analysis with a comparison of representative studies on value chain governance, absorptive capacity, and regional production networks to explain when incoming investment can support local upgrading. It distinguishes four evaluation outcomes: project establishment, output growth, capability accumulation, and the local retention of benefits. The central argument is that opportunities for knowledge transfer, local firms' learning capabilities, and arrangements for distributing returns jointly shape upgrading. Procurement linkages may support learning or create dependence, while geographical clustering requires organizational and cognitive connections to sustain knowledge diffusion. The article develops testable propositions on supplier entry, functional upgrading, and the persistence of capabilities after an external investor or customer exits. It also discusses identification problems arising from nonrandom investment promotion, selective procurement, and changes in firm composition. The analysis draws on international investment research without treating its estimates as direct evidence of domestic interregional relocation in China. It contributes a framework for separating production expansion from transferable local capabilities and durable regional benefits. Policy evaluation should examine independent operating capabilities and sustainable local returns rather than rely exclusively on investment, output, or local procurement shares. The propositions require further testing with linked project, supplier, worker, and firm data.

Keywords: regional economics, industrial relocation, value chain governance, absorptive capacity, local embeddedness, industrial upgrading

1 Introduction

When a manufacturing project relocates to a region, industrial park output and employment may grow rapidly, but this does not directly establish that local firms have acquired new technology. Key equipment may come from elsewhere, research and development and customer relationships may remain at headquarters, and local production may depend on continued subsidies. If suppliers cannot operate independently after the lead firm leaves, the preceding capacity expansion cannot be interpreted entirely as an accumulation of local capabilities.

Regional economic analysis therefore needs to distinguish four outcomes: whether a project becomes established, whether production grows, whether local actors acquire new capabilities, and who receives the resulting benefits. Coe et al. (2004) examine value creation, enhancement, and capture through global production networks, connecting firm networks with regional conditions. Krugman (1991) explains how increasing returns and market linkages influence production agglomeration, but agglomeration alone does not demonstrate knowledge diffusion.

This article asks under what conditions industrial relocation can create sustainable, transferable operating capabilities in receiving regions. It is an analytical review that uses international investment and value chain

research to develop mechanisms. It does not equate these settings directly with interregional industrial relocation in China, claim a systematic synthesis of effects, or report original causal estimates.

2 From Production Expansion to Local Capability Accumulation

2.1 Distinguishing Process Product and Functional Upgrading

Upgrading can involve reducing defect rates, manufacturing more complex products, or moving from processing into design, research and development, or marketing. Humphrey and Schmitz (2002) examine how participation in global value chains affects industrial cluster upgrading. Different forms of participation may promote some types of upgrading while restricting others. Greater processing efficiency does not imply the ability to determine a product's direction independently.

Gereffi et al. (2005) relate value chain governance to transaction complexity, codifiability, and supplier capabilities. The activities a receiving region obtains thus depend on how lead firms control information, quality, and markets as well as on wages and land costs. The arrival of a factory in a high-technology industry is insufficient evidence that local actors perform knowledge-intensive functions.

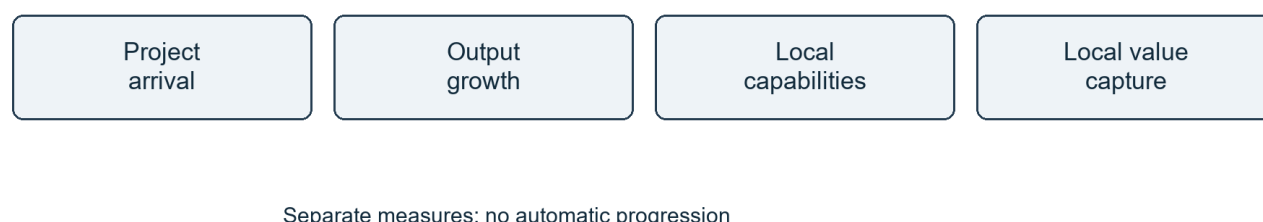
2.2 Identifying the Local Actors Who Upgrade

Productivity gains in incoming firms, capability gains among local suppliers, and wage gains for incumbent residents concern different actors. Automation may increase output per worker without expanding local employment. Headquarters profit growth may not translate into local tax revenue. Evaluation must identify who upgrades and distinguish technological capability from increased capital inputs.

Morrison et al. (2008) emphasize the formation of firms' own technological capabilities. Accordingly, this article defines local capabilities as knowledge that local firms and workers can understand, use, improve, and continue applying to other customers or tasks. This is an operational definition for the analysis; neither patent counts nor research and development expenditure alone represent the full range of capabilities.

Figure 1

Four Dimensions for Evaluating Industrial Relocation



Note. Project establishment, production scale, capability accumulation, and local value capture require separate measurement. Improvement in one dimension does not automatically demonstrate improvement in another.

3 Mechanisms Linking Industrial Relocation to Upgrading

3.1 Procurement Creates Learning Opportunities Without Guaranteeing Learning

Incoming firms' requirements for certification, delivery times, and process stability may encourage local suppliers to improve management. When accompanied by engineering guidance and testing opportunities, procurement can become a channel for knowledge transfer. Using Lithuanian firm data, Javorcik (2004) finds productivity spillovers consistent with linkages between foreign-owned firms and their local upstream suppliers. The study does not establish that all procurement arrangements have equivalent effects.

Conversely, when local procurement consists mainly of low-technology packaging, transport, or catering, higher spending does not directly establish learning in core technologies. Long-term dependence on a single customer may also encourage supplier investment in dedicated equipment and weaken bargaining power. Evaluation should therefore distinguish procurement's technological content, customer concentration, contract duration, and barriers to supplier entry.

3.2 Absorptive Capacity Shapes the Conversion of Knowledge

Cohen and Levinthal (1990) introduce absorptive capacity, linking the recognition, assimilation, and use of external knowledge to an existing knowledge base. In receiving regions, identical training from a lead firm may therefore produce different outcomes across suppliers. Engineering personnel, internal experimentation, and routines for continuous improvement are conditions that need direct observation.

Giuliani and Bell (2005) connect firm-level knowledge bases with cluster learning in a study of Chilean wine producers. Knowledge linkages may be selective, so firms in an industrial park cannot be assumed to benefit equally. Empirical work should examine who participates in knowledge networks and which firms are excluded, rather than conceal differences behind park-wide averages.

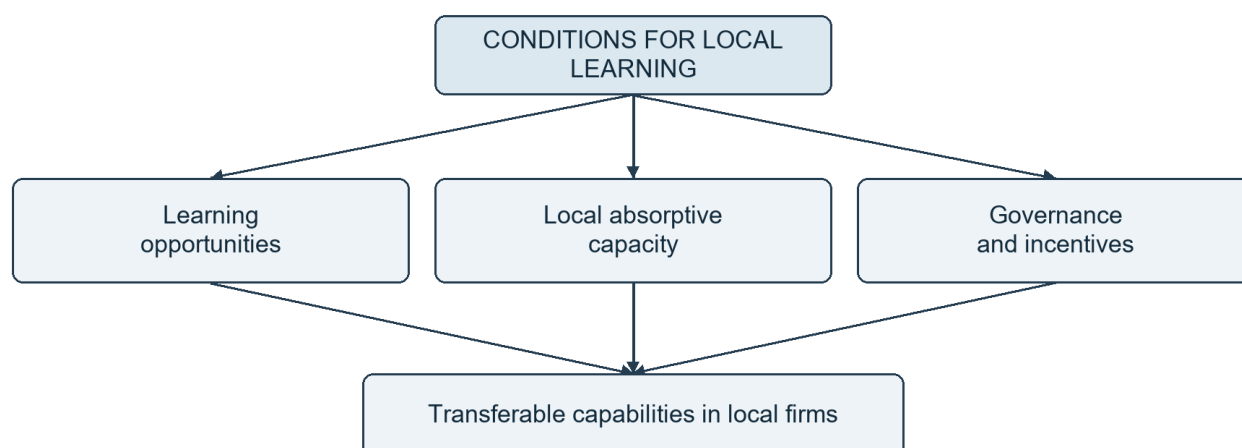
3.3 Geographical Proximity Requires Organizational and Cognitive Connections

Boschma (2005) argues that innovation must be understood through several dimensions of proximity; geographical closeness is insufficient. Moving suppliers into the same industrial park may merely shorten logistical distances if they lack a shared technical language, stable communication, and incentives to collaborate. Excessive dependence on one customer or technological trajectory may also restrict exploration of other markets.

Bathelt et al. (2004) connect local knowledge interaction with knowledge channels extending beyond the region. This suggests a conditional policy implication: strengthening local connections should not require severing external networks. Valuable local embeddedness enables collaborative learning while preserving access to new customers and knowledge.

Figure 2

Conditions for Converting External Knowledge Into Local Capabilities



Note. Learning opportunities, absorptive capacity, and governance arrangements jointly influence learning. The diagram presents the article's theoretical framework.

4 Representative Evidence and Its Boundaries

Aitken and Harrison's (1999) study of Venezuelan firms does not support a general claim that domestic firms receive positive productivity spillovers from foreign entry. Compared with Javorcik (2004), a more defensible interpretation is that competition, upstream and downstream linkages, and firm capabilities can alter outcomes. Dividing the literature simply into investment that works and investment that does not would obscure these mechanisms.

These studies concern foreign direct investment, whose ownership structures, technology gaps, and market boundaries differ from domestic interregional relocation. This article uses them only to illustrate the coexistence of competition and learning channels. Their numerical estimates cannot directly establish the benefits of a particular Chinese industrial park. Analysis of a receiving region must also consider headquarters control, labor mobility, and domestic supply-chain structures.

Kline and Moretti (2014) provide evidence relevant to long-term regional development through their study of the Tennessee Valley Authority, but that comprehensive policy package is not equivalent to an individual investment attraction project. Neumark and Simpson's (2014) review of place-based policies likewise calls for distinguishing project types, implementation conditions, and beneficiaries. Even a long-established factory may depend on continued support; survival alone does not establish positive net social benefits.

5 Testable Propositions and Causal Identification

Proposition 1: When incoming firms have similar technological requirements, local firms with stronger engineering foundations before supplier entry are more likely to achieve sustained quality improvements. Tests should measure prior capabilities rather than use research and development expenditure after investment attraction to explain contemporaneous upgrading. Because lead firms typically select stronger suppliers, an association between supply relationships and capability gains does not automatically identify a causal effect of procurement.

Proposition 2: If transferable learning occurs, local suppliers should retain quality and productivity advantages when acquiring a second customer. If benefits appear only while a single contract remains active, analysis should distinguish genuine learning from order-scale economies and favorable pricing. This proposition does not require

every firm to develop its own brand. It tests whether capabilities remain useful beyond a particular subsidy or customer.

Proposition 3: Functional upgrading and local value capture may diverge. More design tasks can coexist with a declining profit share because of contract pricing or intellectual property arrangements. Research should observe functions performed, labor compensation, profit allocation, and net tax revenue together, rather than substitute output for every outcome. This proposition is derived analytically and is not supported by original data in this article.

Investment promotion often favors locations with better locational and administrative conditions. Comparative designs exploiting staggered project establishment may draw on Callaway and Sant'Anna's (2021) multiperiod difference-in-differences method, but still need to justify parallel trends, anticipation assumptions, and comparison-region exposure. Announcements, construction, mass production, and stable procurement should be dated separately to avoid interpreting construction investment as a knowledge spillover.

Firm data should distinguish within-firm improvements among continuing businesses, market-share reallocation, and entry and exit. If average productivity rises only because less efficient firms leave, it cannot all be attributed to technology transfer. Selective government support, attrition caused by supplier exit, and order transfers across industrial parks also require reporting. In particular, post-policy supply relationships should not be included mechanically as controls when doing so would remove the mediating channel being investigated.

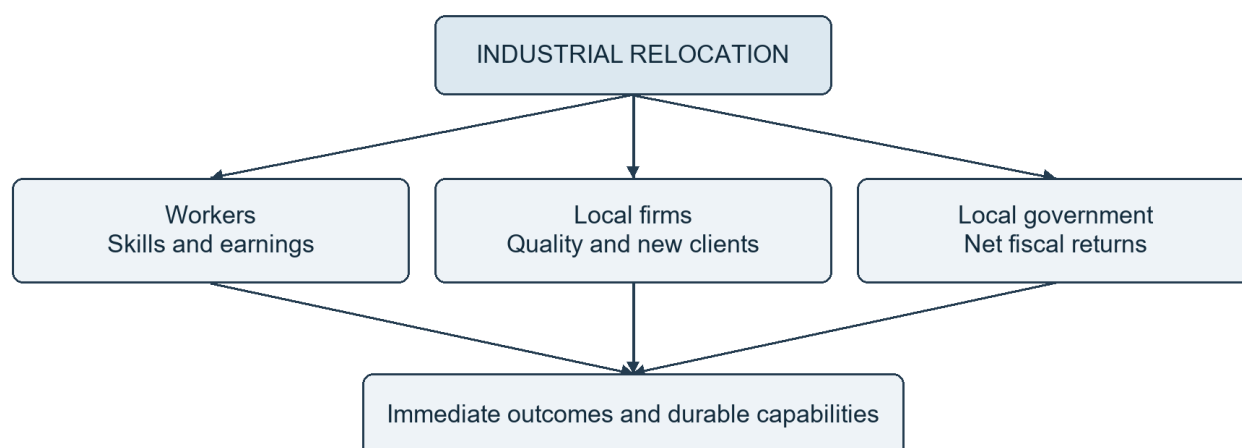
6 Evaluating Capabilities and Benefits Alongside Investment

Policy should first identify specific barriers to learning among local firms. If testing and certification are missing, shared laboratories may be more targeted than general rent reductions. If skills are lacking, transferable training can be organized around actual jobs rather than subsidizing only firm-specific internal procedures. These are mechanism-based policy options whose value requires cost and demand evidence.

Barca et al. (2012) emphasize the importance of local conditions for regional intervention. Receiving regions should build on existing related capabilities while avoiding protection for inefficient firms in the name of local distinctiveness. Supplier-development programs need open eligibility and periodic evaluation, rather than allowing lead firms or park managers to designate beneficiaries indefinitely.

Evaluation can separately track new employment and the share obtained by incumbent residents, quality certification and customer diversification, research and design tasks, fiscal returns net of subsidies, and environmental costs. Short-term production scale and long-term learning indicators should be reported separately. A uniform research and development expenditure ratio is an unsuitable upgrading threshold for different industries within the same region.

Figure 3

Beneficiaries and Time Horizons in Industrial Relocation Policy Evaluation

Note. Policy evaluation should examine both immediate outcomes and capabilities remaining after support ends.

Exit arrangements are equally important. Subsidy duration, disclosure requirements, and remedies for noncompliance should be agreed in advance. Evaluation should consider alternative equipment uses, land remediation, and worker reemployment after a project leaves. The aim is to prevent regions from being left with only specialized assets and fiscal burdens after firms adjust their operations, rather than to prevent all firm mobility.

7 Conclusion

Industrial relocation can expand production in receiving regions, but local upgrading requires further explanation. This article distinguishes project establishment, capacity growth, capability accumulation, and local value capture. The technological sophistication of an incoming firm does not directly represent the capabilities mastered by local actors. Regional development evaluation should trace who acquires knowledge and whether it remains useful across other tasks and customers.

Procurement linkages, personnel exchanges, and joint improvement activities offer potential learning channels whose effects depend on value chain governance and local absorptive capacity. Geographical clustering requires organizational, cognitive, and external knowledge connections. Open networks are compatible with local collaboration; excessive dependence on a single customer may instead weaken sustainability.

Policy should direct resources toward verifiable barriers to learning and gaps in public services, while examining workers', firms', and governments' benefits separately. Investment, procurement shares, and industrial park output provide useful information but cannot substitute for tests of independent operating capabilities and net social benefits.

This article uses no original firm data and does not synthesize effect sizes across project types. Future research should link investment projects, procurement contracts, personnel mobility, and firm operations, distinguish selection from learning effects, and follow performance after external support ends. Examining what remains after a project's departure is essential to a more defensible assessment of whether industrial relocation supports long-term regional development.

References

- Aitken, B. J., & Harrison, A. E. (1999). Do domestic firms benefit from direct foreign investment? Evidence from Venezuela. *American Economic Review*, 89(3), 605–618. <https://doi.org/10.1257/aer.89.3.605>

- Barca, F., McCann, P., & Rodríguez-Pose, A. (2012). The case for regional development intervention: Place-based versus place-neutral approaches. *Journal of Regional Science*, 52(1), 134–152. <https://doi.org/10.1111/j.1467-9787.2011.00756.x>
- Bathelt, H., Malmberg, A., & Maskell, P. (2004). Clusters and knowledge: Local buzz, global pipelines and the process of knowledge creation. *Progress in Human Geography*, 28(1), 31–56. <https://doi.org/10.1191/0309132504ph469oa>
- Boschma, R. (2005). Proximity and innovation: A critical assessment. *Regional Studies*, 39(1), 61–74. <https://doi.org/10.1080/0034340052000320887>
- Callaway, B., & Sant’Anna, P. H. C. (2021). Difference-in-differences with multiple time periods. *Journal of Econometrics*, 225(2), 200–230. <https://doi.org/10.1016/j.jeconom.2020.12.001>
- Coe, N. M., Hess, M., Yeung, H. W.-C., Dicken, P., & Henderson, J. (2004). “Globalizing” regional development: A global production networks perspective. *Transactions of the Institute of British Geographers*, 29(4), 468–484. <https://doi.org/10.1111/j.0020-2754.2004.00142.x>
- Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1), 128–152. <https://doi.org/10.2307/2393553>
- Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of International Political Economy*, 12(1), 78–104. <https://doi.org/10.1080/09692290500049805>
- Giuliani, E., & Bell, M. (2005). The micro-determinants of meso-level learning and innovation: Evidence from a Chilean wine cluster. *Research Policy*, 34(1), 47–68. <https://doi.org/10.1016/j.respol.2004.10.008>
- Humphrey, J., & Schmitz, H. (2002). How does insertion in global value chains affect upgrading in industrial clusters? *Regional Studies*, 36(9), 1017–1027. <https://doi.org/10.1080/0034340022000022198>
- Javorcik, B. S. (2004). Does foreign direct investment increase the productivity of domestic firms? In search of spillovers through backward linkages. *American Economic Review*, 94(3), 605–627. <https://doi.org/10.1257/0002828041464605>
- Kline, P., & Moretti, E. (2014). Local economic development, agglomeration economies, and the big push: 100 years of evidence from the Tennessee Valley Authority. *The Quarterly Journal of Economics*, 129(1), 275–331. <https://doi.org/10.1093/qje/qjt034>
- Krugman, P. (1991). Increasing returns and economic geography. *Journal of Political Economy*, 99(3), 483–499. <https://doi.org/10.1086/261763>
- Morrison, A., Pietrobelli, C., & Rabellotti, R. (2008). Global value chains and technological capabilities: A framework to study learning and innovation in developing countries. *Oxford Development Studies*, 36(1), 39–58. <https://doi.org/10.1080/13600810701848144>
- Neumark, D., & Simpson, H. (2014). *Place-based policies* (NBER Working Paper No. 20049). National Bureau of Economic Research. <https://doi.org/10.3386/w20049>

AI Use Declaration

The author declares that no generative AI tools were used in the preparation of this manuscript.

Copyright and License

Copyright © 2026 Yuyao Gao. This article is licensed under the Creative Commons Attribution 4.0 International License (CC BY 4.0). <https://creativecommons.org/licenses/by/4.0/>