

# The role of supply chain in knowledge transfer: A case study of South African automotive industry

October 19 2023



FDI, production networks and firm behaviour: Evidence from the South African automotive industry  
Higuchi et al. (2023) | The World Economy | DOI: 10.1111/twec.13491

Researchers analyze the link between the performance of foreign vehicle assemblers and local parts suppliers in South Africa, highlighting that the benefits of technology transfer through foreign direct investment have not reached local firms. Credit: Cannot be reused without permission

Unemployment among the youth is a serious problem in many

developing countries, especially in Africa. This issue stems in great part from a stagnant manufacturing sector. Firms in African countries have failed to grow significantly over the past decade, leading to fewer job positions for the youth.

Foreign direct investment (FDI) is a promising avenue for addressing this challenge. Local [firms](#) in developing countries can learn advanced technologies and management strategies from [multinational companies](#). This transmission of knowledge, in general, helps make local companies more productive, leading to economic growth in the manufacturing sector. However, the flow of foreign technology and management know-how depends on the structure of production networks (supply chains), which means local firms may not automatically benefit from FDI.

Against this backdrop, a research team led by Associate Professor Yuki Higuchi from the Faculty of Economics at Sophia University, Japan, has recently shed further light on the relationship between FDI, knowledge transmission, and firm behavior.

They used the South African automotive industry as a [case study](#), peering into the relationships between the behavior of vehicle assemblers and parts suppliers, which represent [foreign companies](#) and local firms, respectively.

Their paper, [published in \*The World Economy\*](#) on 23 August 2023, was co-authored by Dr. Justin Barnes of the Gordon Institute of Business Science at the University of Pretoria, Dr. Anthony Black of the School of Economics at the University of Cape Town, and Dr. Keijiro Otsuka of the School of Economics at Kobe University.

The team collected firm-level data from the South African Automotive Benchmarking Club, containing information about the location, ownership, and "tier level" of automotive firms in South Africa. In this

study, the "tier" of a firm refers to its relative position in the supply chain. Put simply, first-tier firms supply products directly to the foreign assemblers, whereas second-tier firms supply products to first-tier firms, and so on. Most of the lower-tier firms were local, whereas some of the first-tier firms were foreign-owned.

The researchers conducted various statistical analyses using annual observations from 162 firms between 2002 and 2017, focusing on key performance indicators representing business performance, management, and growth. Through [regression analysis](#), they gained insights into how multinational assemblers and local suppliers responded to the expansion of the automotive industry in South Africa.

"Our approach serves to illustrate the presence, or lack thereof, of the transmission of technology and knowledge from foreign assemblers to other firms," explains Dr. Higuchi. "It is a novel analysis regarding FDI spillovers from foreign assemblers to various layers of local suppliers."

These analyses revealed that while the production of first-tier suppliers increased with the expansion of automobile production in South Africa, a similar growth was not observed among lower-tier suppliers. This suggested that the automotive supply chain in South Africa cannot be represented by a pyramid, as typically observed in Southeast Asia, especially in Thailand, with assemblers on top and the rest of the tiers occupying the wider layers below. Instead, it would have a diamond shape, with a comparatively smaller share of second- and lower-tier suppliers.

The researchers suggested that the benefits of FDI and the associated technology transfer have not reached second- and lower-tier firms.

"While South Africa's industrial policies might have aimed to increase local content, they instead enabled downstream firms, including foreign

assemblers and first-tier suppliers, to replace locally produced parts with imported ones," points out Dr. Higuchi.

"Such policies have resulted in a missed opportunity for employment creation as the production of parts suppliers in the lower tiers is labor-intensive." Moreover, the firm-level data suggested that only multinational, and not local, first-tier suppliers benefited from knowledge transmission, which further exacerbates the current problems.

Overall, the present findings bring pertinent issues to light and can serve as a starting point for working toward feasible solutions. Dr. Higuchi said, "I am currently working with the Japan International Cooperation Agency to provide training in Japanese-style Kaizen management to parts suppliers in South African automotive industry. I hope that this project will increase their productivity and contribute to industrial development in Africa."

**More information:** Yuki Higuchi et al, FDI, production networks and firm behaviour: Evidence from the South African automotive industry, *The World Economy* (2023). [DOI: 10.1111/twec.13491](https://doi.org/10.1111/twec.13491)

Provided by Sophia University

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