

Has “Made in China 2025” Caused China’s Manufacturing Firms to Be More Productive? Probably Not.

Guangwei Li and Lee G. Branstetter (2024). Does “Made in China 2025” work for China? Evidence from Chinese listed firms. *Science Direct*.

China spends between 1.7% and 5% of its GDP on industrial policies. There has been significant global interest around one such policy: “Made in China 2025” (MIC 2025), which aims to transform China from a low-cost manufacturing hub into an innovation-driven economy. The policy explicitly aims to boost China’s innovation and productivity in strategic industries. Does it?

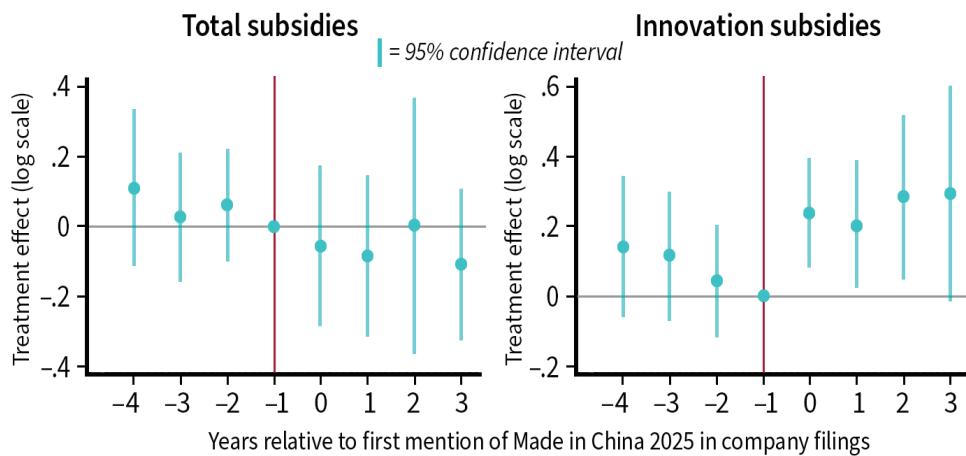
The data. The authors built a dataset of 1,657 manufacturing firms listed in China using firm-level financial and patent data from two sources: the China Securities Markets and Accounting Research (CSMAR) database for financial metrics and Orbis Intellectual Property for patent data. To identify firms “treated” by the MIC 2025 policy, the authors perform a text analysis on the annual reports of listed manufacturing firms (CSRC industry code ‘C’) in China between 2011 and 2018. The authors classify the firms into a “broad treatment” group if they mention “Made in China 2025” in their annual reports, and a “narrow treatment” for those firms also disclosing government financial support related to MIC 2025.

The study focuses on measuring the impact of MIC 2025 on several variables, including the subsidies the firm received and measures of firm innovation and productivity like R&D intensity (R&D/sales ratio), patent counts (Chinese, U.S., and European patents), labor productivity, and total factor productivity (TFP). The analysis measures both the average change in outcomes between 2011 and 2018 and changes by year.

INSIGHTS

- Made in China 2025 (MIC 2025) is just one of a constellation of local and central government programs aiming to grow strategic industries.
 - Analysis of financial and patent data on roughly 1,700 manufacturing firms listed in China reveals that participation in the MIC 2025 program had limited impact on firm productivity and innovation measures.
 - MIC 2025 firms outperformed control firms in subsidy receipt and productivity before the policy, suggesting pre-existing advantages.
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Changes in subsidy amounts to Made in China 2025 firms



Made in China 2025: One of many subsidy programs. MIC 2025 operates through a mix of government tools, such as direct subsidies, preferential loans, bond issuance, leasing arrangements, and government procurement preferences, aimed at supporting selected firms and industries. These include: next-generation information technology; high-end digital control machine tools and robotics; aerospace and aeronautic equipment; advanced rail transportation equipment; oceanographic engineering equipment and high-technology shipping; energy-efficient and new energy automobiles; electric power equipment; agricultural machinery and equipment; new materials; and biopharmaceuticals and high-performance medical equipment.

MIC 2025 is just one of a constellation of local and central government programs aiming to grow favored industries. China’s listed firms receive a variety of subsidies beyond those directly tied to MIC 2025. Subsidies can include financial support for general business operations, environmental compliance, job creation, and other government priorities unrelated to innovation.

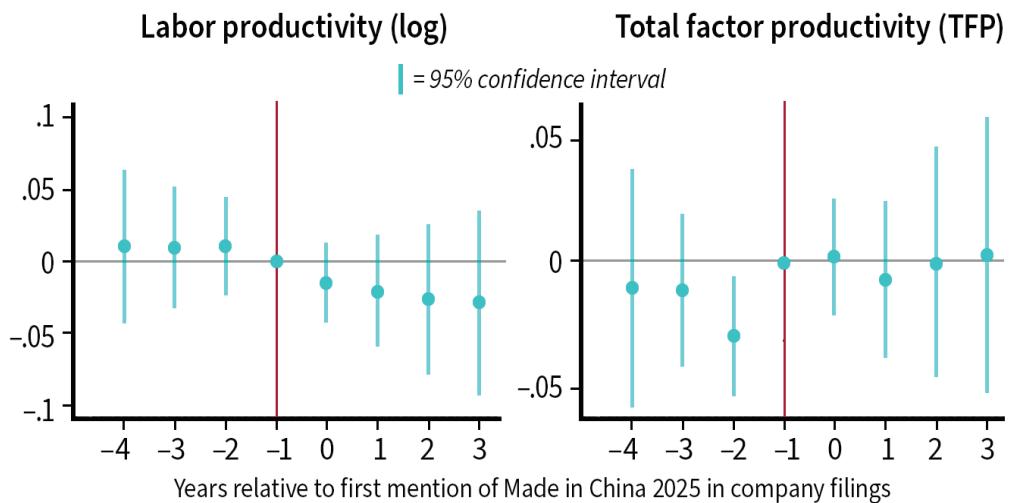
■ MIC 2025 firms received more innovation-focused subsidies than control firms but not more total subsidies.

■ MIC 2025 firms show an increase in R&D intensity but no clear gains in innovation and productivity outcomes, such as patent counts or total factor productivity gains.

■ Despite having invited foreign backlash, the MIC 2025 program may not have yielded intended innovation outcomes beyond what firms would have achieved without the additional support.

The paper assesses the impact of MIC 2025 on firm outcomes and on two subsidy measures: total subsidies, which includes all types of government financial support reported by a firm; and innovation subsidies, which includes a subset of total subsidies, focusing specifically on R&D and innovation-related financial support. By separating innovation subsidies from total subsidies, the authors assess whether MIC 2025 increased the overall flow of innovation-related subsidies to these treated firms.

Changes in firm innovation and productivity measures for MIC 2025 firms



Made in China 2025 firms outperformed others even before the policy. MIC 2025 firms tended to receive higher total subsidies and innovation subsidies and have a higher level of R&D spending, R&D sales ratio, U.S. utility patent counts, TFP, total assets, and employment after MIC 2025 was launched. However, most of these differences already existed before the policy was launched. This suggests that treated firms were already larger and more R&D-intensive and may have been chosen for MIC 2025 because of their pre-existing advantages.

Made in China 2025 firms received more “innovation” subsidies than other firms. Compared to similar firms in the control group, MIC 2025 firms also received slightly more innovation subsidies. However, they did not necessarily receive more total subsidies — they may just have received a larger share of their support earmarked for innovation (control firms received just as many total subsidies as the treated firms). This finding is consistent with the idea that MIC 2025 reallocated subsidies rather than expanding subsidy resources.

No change before and after Made in China 2025 on firm productivity and innovation measures. The paper finds little statistically significant improvement in firm-level productivity or innovation outputs following participation in MIC 2025. While the treated firms did show an increase in R&D intensity, the authors find few clear gains in innovation outcomes, such as patent counts (including Chinese invention patents, U.S. utility patents, and European patents) or productivity indicators like labor productivity and TFP. The lack of measurable improvement suggests that although MIC 2025 may have succeeded in channeling resources toward R&D activities, it did not translate into meaningful innovation or efficiency gains beyond what the firms had achieved otherwise.

China’s firms perform similarly without Made in China 2025, revealing high costs. Detailed financial and patent data shows that while MIC 2025 increased innovation-related subsidies and R&D spending, it did not lead to measurable improvements in innovation outputs or productivity. These findings suggest that even well-funded industrial policies may not automatically yield the intended innovation outcomes above and beyond what firms could achieve without the additional support. On the other hand, while rising trade friction between China and its principal trading partners has many causes, there is little doubt that the MIC 2025 policy has resulted in foreign retaliation. These costs should also be considered when evaluating the overall impact of the policy.