

Study: Long-run Productivity Dispersion in Canadian Manufacturing

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Labour productivity growth slowed in Canada and in many developed countries over the 2000s. A striking, yet lesser known feature of this slowdown in a number of Organisation of Economic Co-operation and Development countries including Canada was that a group of firms actually exhibited very strong productivity growth. Moreover, the gap in labour productivity growth between the most productive and the least productive firms widened over this period. This growing dispersion in labour productivity has been linked to rapid technological advancements that have favoured the growth of only those firms that can first unlock the potential of these new technologies.

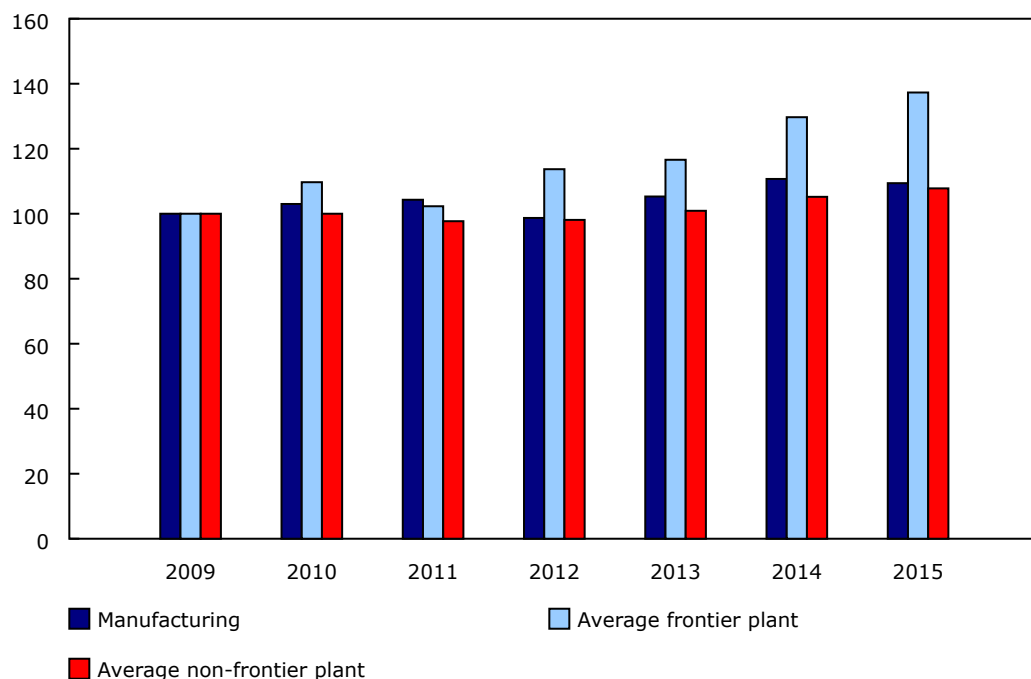
A new Statistics Canada study, "*Long-run Productivity Dispersion in Canadian Manufacturing*," presents Canadian evidence of the increasing labour productivity gap between frontier (those plants in the top decile in terms of productivity levels) and non-frontier plants (that is, all remaining plants) in the manufacturing industry for the 1973-to-2015 period. This period not only covers the years in which the phenomenon was observed, but also allows those developments to be considered over a longer term.

The study finds that labour productivity (measured as value added per worker) in the Canadian manufacturing sector rose by 1.5% per year during the 2009-to-2015 period. Over the same time period, the average labour productivity growth of frontier plants was 5.4% per year, compared with 1.3% growth per year for non-frontier plants.

Chart 1

Average labour productivity of frontier and non-frontier plants, and manufacturing labour productivity, Canada, 2009 to 2015

index (2009=100)



Source(s): Annual Survey of Manufactures and National Accounts Longitudinal Microdata File.



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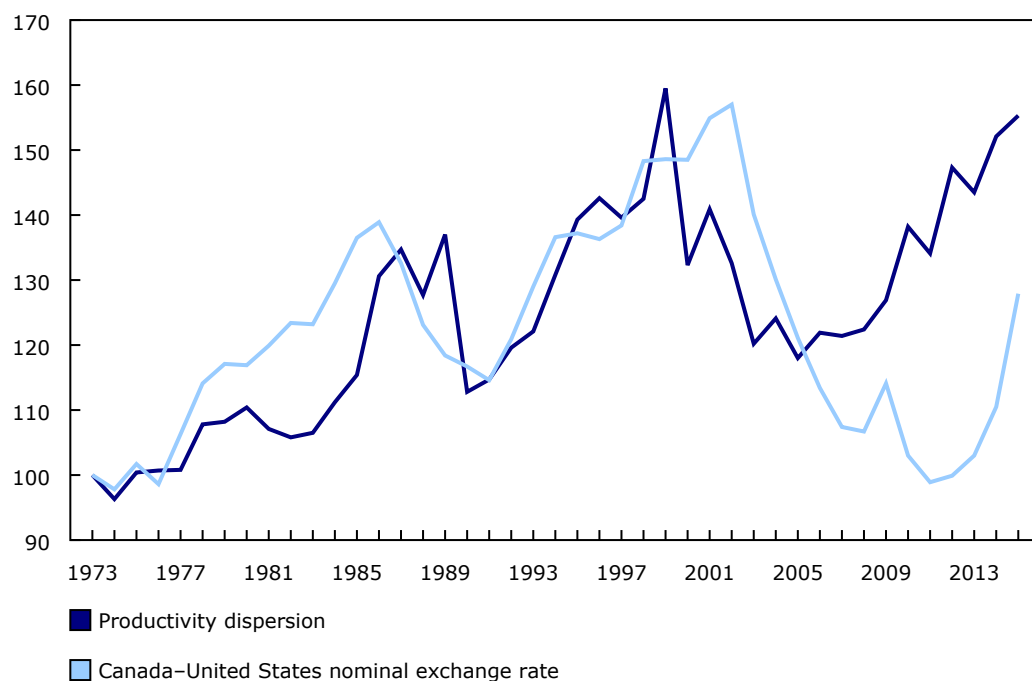
Compared with non-frontier plants, frontier plants more often exhibited the characteristics associated with faster productivity growth. Specifically, frontier plants were more likely to conduct in-house research and development (R&D) or purchase R&D, and were more likely to export and to belong to a foreign multinational.

Some of the hypotheses that have been put forward to explain this include digitalization, the increasing complexity of technology, and the rising importance of tacit knowledge. Digitalization has allowed the provision of goods and services at a low cost around the globe. This has enabled industry leaders to capture larger portions of the market share. The increasing complexity of technology and the rising importance of tacit knowledge act as barriers to entry into markets and inhibit the diffusion of technology and know-how.

The study also shows that increasing productivity dispersion is not a recent phenomenon in Canada. In 1973, the average labour productivity of frontier plants was 3.2 times that of non-frontier plants. This advantage grew to 3.6 times by 1990, and 5.0 times by 2015.

Chart 2
Labour productivity dispersion and the Canada–United States nominal exchange rate, 1973 to 2015

index (1973=100)



Note(s): Labour productivity dispersion is the ratio of the average labour productivity of frontier plants to the average labour productivity of non-frontier plants.
Source(s): Annual Survey of Manufactures and National Accounts Longitudinal Microdata File.

The changes in productivity dispersion before 2009 are correlated with movements in the Canada–United States exchange rate. Since frontier plants are more likely to export and more likely to be foreign multinationals, their profits (a major component of value added and hence productivity) are more sensitive to changing competitive pressures from exchange rate movements. The impact of the exchange rate became less important after the mid-2000s.

The research article, "[Long-run Productivity Dispersion in Canadian Manufacturing](#)," which is part of *Economic Insights* (**11-626-X**), is now available.

For more information contact us (toll-free 1-800-263-1136; 514-283-8300; [STATCAN.infostats-infostats.STATCAN@canada.ca](#)).

To enquire about the concepts, methods or data quality of this release, contact contact Wulong Gu (613-951-0754; [wulong.gu@canada.ca](#)), Economic Analysis Division.