Multifactor productivity growth estimates and industry productivity database, 2022

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Multifactor productivity, measured as output per unit of combined labour and capital inputs, increased 0.6% in the Canadian business sector in 2022, following a decline of 2.2% in 2021. The increase in multifactor productivity in 2022 reflected a 4.4% growth in gross domestic product (GDP) and a 3.8% growth in the combined inputs of capital and labour.

Multifactor productivity measures the extent of efficiency in the use of inputs in the production process. Growth in multifactor productivity is often associated with technological change, organizational change or economies of scale.

Multifactor productivity growth was volatile during the COVID-19 pandemic. A strong GDP growth and a much stronger growth of hours worked in 2021 were caused by the recovery of the economy from its large drop in 2020, which led to a large negative multifactor productivity growth in 2021. Overall, multifactor productivity declined slightly from 2019 to 2022, by 0.1% per year.

Multifactor productivity is one of the three components of labour productivity, the other two being capital intensity and labour skill upgrading. An increase in capital intensity arises from investment in equipment, structures and intellectual property that contributes to growth in labour productivity. Skill upgrading is measured by labour composition changes toward workers who are more educated and more experienced. It captures the effect of an increase in worker skills from education and experience on labour productivity.

Lower investment in capital since 2015 contributes to slow productivity growth

Investment in capital, a main contributor to the growth in labour productivity in the business sector in Canada, declined following the collapse of commodity prices that started in 2014. From 1980 to 2015, the increase in capital intensity contributed 0.9 percentage points per year to the growth in labour productivity. From 2015 to 2022, it contributed about 0.4 percentage points to the growth in labour productivity.

From 1980 to 2000, labour productivity rose at 1.8% per year. From 2015 to 2022, labour productivity rose 0.8% per year. This represents a 1 percentage point decline in labour productivity growth between these two periods.

Weaker investment in fixed capital was the most significant contributor to the relatively slow labour productivity growth after 2015 compared with the period before 2000.

About 0.5 percentage points, or half of the decline in labour productivity growth, can be traced to the decline in capital intensity. The decline in multifactor productivity growth after 2015 compared with the period from 1980 to 2000 contributed to a 0.4 percentage point decline in labour productivity growth. The decline in skill upgrading contributed 0.1 percentage points to this decline.

Table 1
Sources of labour productivity growth in the business sector (average annual compound growth rates), 1980 to 2022

	1980 to 2000	2000 to 2015	2015 to 2022	2019 to 2022	2021	2022
	percentage points					
Gross domestic product	3.2	1.8	1.7	1.0	5.5	4.4
Combined labour and capital inputs	2.8	2.0	1.6	1.1	7.9	3.8
Labour input	2.1	1.3	1.4	0.8	11.7	4.9
Hours worked	1.5	0.8	0.9	0.2	11.9	5.0
Labour composition	0.6	0.5	0.5	0.5	-0.2	-0.1
Capital input	3.9	3.1	1.9	1.6	2.2	2.0
Labour productivity	1.8	1.0	0.8	0.8	-5.7	-0.6
Contributions to labour productivity growth						
Capital intensity	0.9	0.9	0.4	0.5	-3.5	-1.2
Labour composition	0.4	0.3	0.3	0.3	-0.1	0.0
Multifactor productivity growth	0.5	-0.2	0.1	-0.1	-2.2	0.6

Note(s): The growth rates represent annual compound growth rates. Numbers may not add up because of rounding.
Source(s): Table **36-10-0208-01**.

Note to readers

Multifactor productivity estimates by major business sector for 1961 to 2022 are now available. The detailed industry productivity database for 1961 to 2020 is also now available.

Revisions

Data in this release reflect the latest supply-use tables for 2020, published in The Daily on November 8, 2023; data on fixed capital, published in The Daily on November 16, 2023; data on real gross domestic product, published in The Daily on November 8, 2023; data on hours worked, published in The Daily on February 9, 2024.

Multifactor productivity measures

Multifactor productivity measures at Statistics Canada are derived from a growth accounting framework that allows analysts to isolate the effects of increases in input intensity and skills upgrading on the growth in labour productivity.

The residual portion of labour productivity growth that is not attributable to gains in input intensity and skills upgrading is called growth in multifactor productivity. It measures the efficiency with which the inputs are used in production. Growth in this area is often associated with technological change, organizational change or economies of scale.

Available tables: 36-10-0208-01 and 36-10-0217-01.

Definitions, data sources and methods: survey number 1402.

A description of the method used to derive productivity measures can be found in the "User Guide for Statistics Canada's Annual Multifactor Productivity Program," part of *The Canadian Productivity Review* series (**15-206-X**), available on our website.

The documentation about revisions to multifactor productivity growth estimates can be found in "Revisions to the Multifactor Productivity Accounts," part of *The Canadian Productivity Review* series (**15-206-X**), also available on our website.

For more information, or to enquire about the concepts, methods or data quality of this release, contact us (toll-free 1-800-263-1136; 514-283-8300; **infostats@statcan.gc.ca**) or Media Relations (**statcan.mediahotline-ligneinfomedias.statcan@statcan.gc.ca**).