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Sector-based producer price indexes: New measures of producer price pressures in Canada

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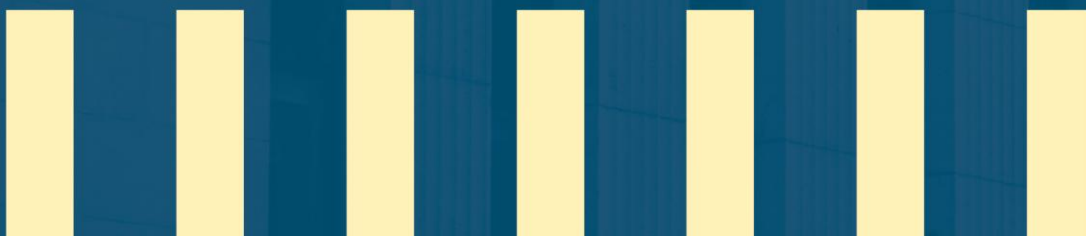
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Overview

Producer price indexes measure changes in the prices that producers receive for their outputs or that they pay for their inputs. Statistics Canada publishes a range of producer price indexes for specific products and industries. For the first time, these series have been combined into a small set of broad sectoral measures.

The Sector-Based Producer Price Indexes (SBPPIs) bring together existing Statistics Canada price indexes into four quarterly measures: goods, services, energy and non-energy. The methodology used to construct the SBPPIs was developed by the Bank of Canada with input from Statistics Canada. The indexes are intended to support research on firms' price-setting behaviour and inflation dynamics, including the development and use of economic models. The SBPPIs align with the sector structure the Bank of Canada uses in its macroeconomic analysis. They do not replace existing consumer or producer price indexes.

The SBPPIs summarize price movements in different sectors of the economy. This sectoral perspective is useful for understanding how price pressures vary across industries and how those pressures might propagate through supply chains before affecting consumer prices (Statistics Canada 2024; Government of Canada 2024). The timing and extent of these price changes can differ across sectors and episodes; the SBPPIs should therefore be interpreted alongside other information on costs, demand, margins and consumer prices.

This document describes what the indexes measure and how they support analysis in Prima—the Bank's macroeconomic model. The [Appendix](#) explains industry coverage, source data, weighting, aggregation, imputation, revisions and limitations.

Data sources and methodologies

The SBPPIs are compiled from existing Statistics Canada price indexes and annual output-share weights. Monthly price indexes are converted to quarterly values where needed, annual output shares are used as weights within each reference year, and component series are aggregated through a hierarchical structure. The [Appendix](#) provides the authoritative methodology, source-series registry, formulas, imputation treatment and revision policy.

The four indexes should be interpreted as analytical aggregates covering selected industries for which suitable producer price indexes are available. *Goods* include manufacturing and selected

construction price indexes; *services* include selected wholesale, retail, transportation, courier, rail and rental and leasing services; *energy* includes oil and gas extraction, coal mining and utilities; and *non-energy* includes selected agriculture, forestry, fishing, metal ore and non-metal mineral mining components. Detailed coverage and source identifiers are provided in the [Appendix](#).

How the Sector-Based Producer Price Indexes support analysis in Prima

Prima incorporates production and pricing at a sectoral level and traces how changes in labour costs, capital costs, commodity prices, import prices and other inputs move through production networks (Coletti 2023; Coletti et al. 2026; Macklem 2024). The SBPPIs provide broad sector-level price information that aligns with this analytical structure.

Within this framework, producer price data are not used as a mechanical predictor of consumer price inflation. These data help the model distinguish where cost pressures are emerging, how they are moving through the production system and how persistent they may be. Consumer price outcomes also depend on demand conditions, firms' pricing decisions, margins, expectations and other information.

Future empirical exhibits should distinguish descriptive evidence from model-based inference. Historical validation exercises and illustrative simulations should be inserted only after the sample, conditioning information, uncertainty treatment and evaluation metrics have been reviewed and approved by the relevant technical owners.

Interpretation and limitations

The SBPPIs are analytical aggregates covering selected industries for which suitable producer price indexes are available. They are not measures of consumer price inflation and do not replace Statistics Canada's existing producer price indexes. Movements in producer prices do not necessarily pass through to consumer prices, and the timing and magnitude of any pass-through can vary across sectors and economic conditions.

The Bank of Canada uses the SBPPIs as part of a broader set of data and analytical tools. Model-based results are conditional on the model structure, assumptions and information available at the time. They should not be interpreted as policy decisions or as stand-alone forecasts.

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Appendix: Methodology for the Sector-Based Producer Price Indexes

1. Industry coverage

The Sector-Based Producer Price Indexes (SBPPIs) are constructed using data aligned with the North American Industry Classification System (NAICS).¹ Industries are grouped into four producer sectors:

- Goods—NAICS 31–33 (Manufacturing), 2361 (Residential building construction) and 2362 (Non-residential building construction)
- Services—NAICS 41 (Wholesale trade), 44–45 (Retail trade), 482113 (Mainline freight rail transportation), 484 (Truck transportation), 492 (Couriers and messengers) and 5324 (Commercial and industrial machinery and equipment rental and leasing)
- Energy—NAICS 211 (Oil and gas extraction), 2121 (Coal mining) and 22 (Utilities)
- Non-energy—NAICS 111 (Crop production), 112 (Animal production and aquaculture), 113 (Forestry and logging), 114 (Fishing, hunting and trapping), 2122 (Metal ore mining) and 2123 (Non-metallic mineral mining and quarrying)

Industries not included in the indexes are excluded primarily due to insufficient or inconsistent historical price data coverage—particularly for services—or the lack of regularly published price indexes at the appropriate level of detail.

2. Data

2.1 Price

SBPPI prices are derived from Statistics Canada’s existing price index publications. Monthly indexes are converted to quarterly values by calculating the arithmetic average of the three months in each quarter. The corresponding data sources are detailed in **Table A-1**.

2.2 Weights

The SBPPI uses a fixed-weight methodology. Each sector’s composite price index is computed as a weighted average of its component industries. Weights reflect the output share of each NAICS industry, derived from annual data in Statistics Canada’s supply and use tables (Table 36-10-0488-01). The weight reference year is 1997, with updates made annually up to 2022. The 2022 weights are used for all periods after 2022 until new weights are introduced.

¹ The standard used is the [North American Industry Classification System \(NAICS\) Canada 2022 Version 1.0](#).

2.3 Cleaning and filtering

The SBPPI compilation uses published Statistics Canada source indexes. Additional filtering is not applied in this aggregation step because the source indexes are subject to Statistics Canada's regular quality assurance processes before publication.

Table A-1 presents the price data source, weight source and data availability timeline for the indexes used in constructing the sector-level price indexes.

Table A-1: Data sources and availability

Sectors	North American Industry Classification System (NAICS)	Price data source	Data availability	Weight data source— Table 36-10-0488-01
Goods	NAICS 31–33: Manufacturing	Industrial Product Price Index (v1230995983) Table: 18-10-0265-01	1997 onward	BS3A0: Manufacturing (v64602050)
	NAICS 2361: Residential building construction	Building Construction Price Index: High-rise apartment residential building construction (v1617908052) Table: 18-10-0289-01	1997–2017	BS23A000: Residential building construction (v64602036)
		Building Construction Price Index: Residential building construction (v1617908004) Table: 18-10-0289-01	2017 onward	
	NAICS 2362: Non-residential building construction	Non-residential building construction (v1617908148) Table: 18-10-0289-01	1997 onward	BS23B000: Non-residential building construction (v64602038)
Services	NAICS 41: Wholesale trade	Wholesale Services Price Index (v1446252464) Table: 18-10-0277-01	2008 onward	BS410000: Wholesale trade (v91609911)
	NAICS 44–45: Retail trade	Retail Services Price Index (v107645719) Table: 18-10-0251-01	2008 onward	BS4A0: Retail trade (v64601892)
	NAICS 482113: Mainline freight rail transportation	Freight Rail Services Price Index (v1138753427) Table: 18-10-0212-01	2018 onward	BS482000: Rail transportation (v64601909)
	NAICS 484: Truck transportation	For-Hire Motor Carrier Freight Services Price Index (v1490434186) Table: 18-10-0281-01	2007 onward	BS484000: Truck transportation (v64601911)

	NAICS 492: Couriers and messengers	Couriers and Messengers Services Price Index (v1354181065) Table: 18-10-0275-01	2010 onward	BS49A000: Postal service and couriers and messengers (v64601919)
	NAICS 5324: Commercial and industrial machinery and equipment rental and leasing	Commercial and Industrial Machinery and Equipment Rental and Leasing Services Price Index (v1481613644) Table: 18-10-0279-01	2006Q3 onward	BS532A00: Rental and leasing services (except automotive equipment) (v64601942)
Energy	NAICS 211: Oil and gas extraction	1997 to 2010: Conventional crude oil (v1230998138) and Natural gas (v1230998141) price Indexes 2010 onward: Crude oil and bitumen (v1230998137) and Natural gas (v1230998141) price Indexes Table: 18-10-0268-01	1997 onward	BS211000: Oil and gas extraction (v91609846)
	NAICS 2121: Coal mining	1997 to 2010: Hard coal Price Index (v1230998143) 2010 onward: Coal Price Index (v1230998142) Table: 18-10-0268-01	1997 onward	BS212100: Coal mining (v64601915)
	NAICS 22: Utilities	Electric Power Selling Price Index (v107792869) Table: 18-10-0204-01	1997 onward	BS220: Utilities (v64602030)
Non-energy	NAICS 111: Crop production (except greenhouse, nursery and floriculture production)	Farm Product Price Index: Total crops (v66449853) Table: 32-10-0098-01	1997 onward	BS111A00 – Crop production (except greenhouse, nursery and floriculture production) (v64602032)
	NAICS 113: Forestry and logging	1997 to 2010: Logs and bolts Price Index (v1230998188) 2010 onward: Logs, pulpwood, natural rubber, and other forestry products Price Index (v1230998186) Table: 18-10-0268-01	1997 onward	BS113000: Forestry and logging (v64602076)
	NAICS 112: Animal		1997 onward	BS112000: Animal production (v64602054)

	production and aquaculture	Animals and animal products Price Index (v1230998165) Table: 18-10-0268-01		
	NAICS 114: Fishing, hunting and trapping		1997 onward	BS114000: Fishing, hunting and trapping (v64602098)
	NAICS 2122: Metal ore mining	1997 to 2010: Gold, silver and platinum group metal ores and concentrates Price Index (v1230998203) 2010 onward: Metal ores, concentrates and scrap Price Index (v1230998193) Table: 18-10-0268-01	1997 onward	BS21220: Metal ore mining (v91609848)
	NAICS 2123: Non-metallic mineral mining and quarrying	Non-metallic minerals Price Index (v1230998177) Table: 18-10-0268-01	1997 onward	BS21230: Non-metallic mineral mining and quarrying (v91609849)

3. Price index aggregation structure

The SBPPI uses a hierarchical aggregation structure across four producer sectors. Each sector follows a standard structure, from lower-level elementary aggregates to a top-level sector index.

Figures A-1 to A-4 illustrate the aggregation hierarchy for each sector.

Figure A-1: Aggregation hierarchy for the goods sector

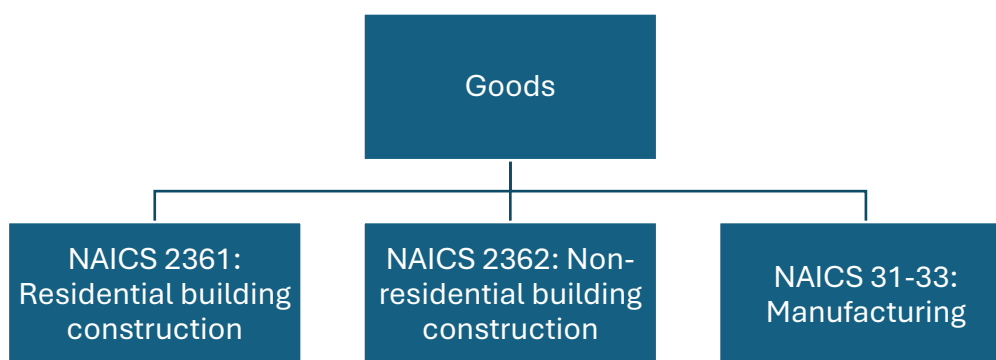


Figure A-2: Aggregation hierarchy for the energy sector

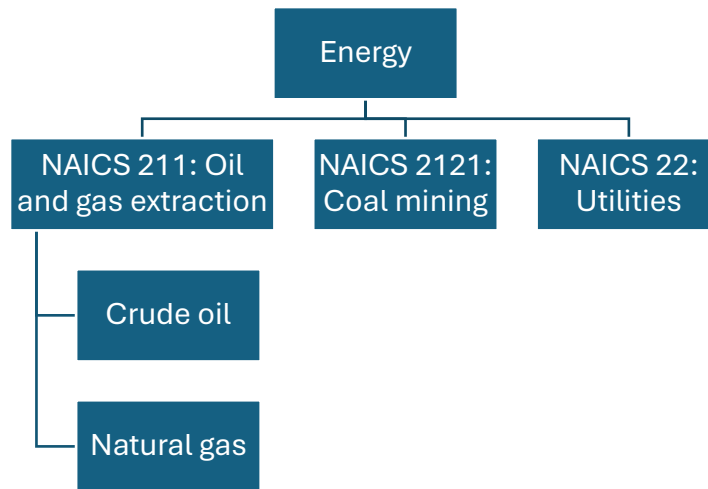


Figure A-3: Aggregation hierarchy for the non-energy sector

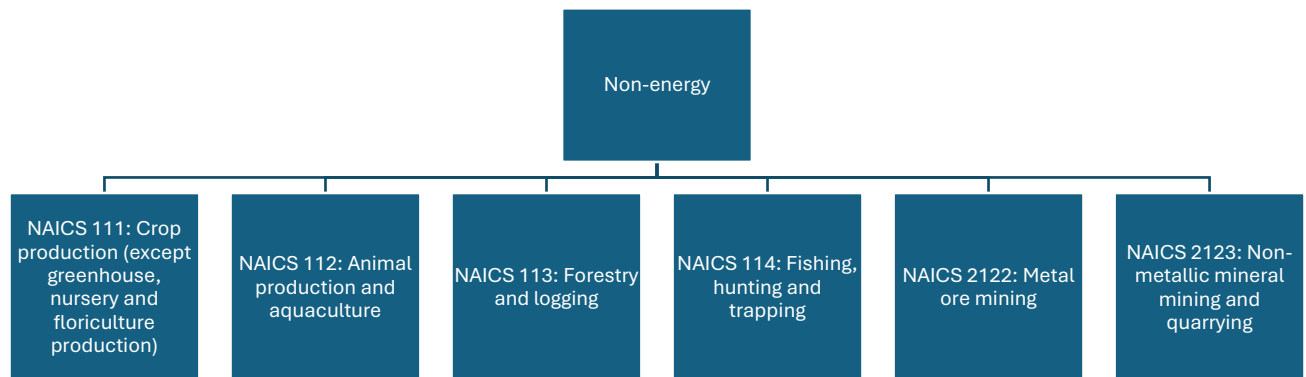
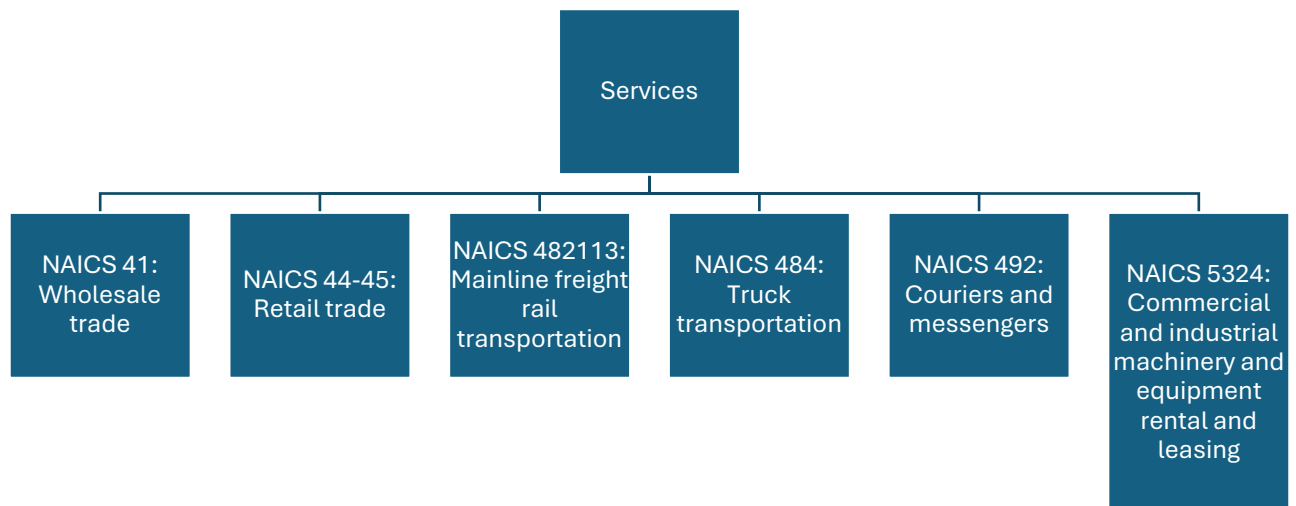


Figure A-4: Aggregation hierarchy for the services sector



4. Index estimation

4.1 Calculation of elementary aggregates

Within each NAICS, a single price proxy is used to calculate the period-over-period price change.²

4.2 Upper-level indexes

At the next level, NAICS-level indexes are aggregated to sector-level indexes using a weighted arithmetic average. For each sector, only the top-level aggregate index is published. The formula to calculate period-over-period sector-level indexes is:

² For NAICS 211, the elementary aggregate is constructed from oil and natural gas prices. Given the limitation of industry weight disaggregation, the price index of NAICS 211 is calculated as a geometric average of price relatives for oil and natural gas, weighted by oil and natural gas shares derived from the supply and use tables.

$$I_i^{\frac{t}{t-1}} = \sum_{i=1}^n (w_i^t EA_i^t); t \geq 1,$$

where

$$w_i^t = \frac{EA_i^{t-1} w_i^{t-1}}{\sum_{i=1}^n EA_i^{t-1} w_i^{t-1}}; t \geq 2$$

$$w_i^0 = \frac{p_i^0 q_i^0}{\sum_{i=1}^n p_i^0 q_i^0}; t = 0, 1$$

$I_i^{\frac{t}{t-1}}$: period-over-period index for sector i at time t
 w_i^0 : the base weight of NAICS i
 w_i^t : the price-updated weight of NAICS i
 EA_i^{t-1} : the elementary aggregate relative for sector i

Period-over-period sector indexes are chained to create a continuous index series with 2018 = 100 as the base year.

$$I_i^t = I_i^{t-1} * I_i^{\frac{t}{t-1}}; t \geq 1,$$

where

$$I_i^0 = 1$$

I_i^t : index at period t for sector i
 I_i^{t-1} : index at period $t-1$ for sector i
 $I_i^{\frac{t}{t-1}}$: period-over-period index for sector i at time t
 I_i^0 : index at period 0 for sector i

4.3 Imputation

When data for a specific NAICS are unavailable in a given quarter, parental imputation is applied. The sector-level price movement is used to estimate the missing NAICS value.

5. Revision and basket updates

Each quarterly release may include revisions to data in the preceding two quarters. Revisions are prompted by the availability of updated or revised source data.

Basket weights are reviewed and updated periodically to reflect changes in the economy's structure. When new basket weights are available, data are revised, starting from the newly released weight reference year through to the current quarter in production. Historical indexes are linked using a factor calculated from the overlap period between the old and new baskets, ensuring consistency in the time series.

6. Limitations

The SBPPIs should be interpreted with four main limitations in mind:

- Coverage is incomplete because suitable industry-level producer price indexes are not available for all sectors, particularly services.
- Historical availability differs across source series, so the services-sector index begins later than the goods, energy and non-energy indexes.
- Mapping between available price indexes and NAICS industries is sometimes imperfect, which means some sectoral price movements may not be fully captured.
- Some source indexes are published with a lag and may be revised, so release timing and revision policy should be stated consistently in the final publication metadata.