



VOORBURG
GROUP

ISRAEL
Voorburg Group
Meeting
February 2023

Voorburg Group (UN City Group) on Service Statistics

Modernising CPI Production

PPI as an Official User

Rohan Draper

Marcus Fridén

Xin Ha

Angela Hernandez
Santacoloma

Siiri Pesonen
Susanna Tåg



Statistics
Canada



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Statistics Finland



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Modernising CPI Production: PPI as an Official User Contents

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Voorburg Group Meeting
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Modernising CPI Production: PPI as an Official User Introduction

36th Voorburg Group Meeting on Services Statistics

Virtual Meeting held by the US Bureau of Labor Statistics

Alignment of Methodology and Scope between Services Producer Price Indices (SPPIs) and Consumer Price Indices (CPIs): Developing a framework for using CPIs in SPPI calculation

September 2021

D. Blank – Destatis (Germany)
M. Santiago - BLS (USA)
N. Elversoe – Statistics Denmark
R. Draper - SCB (Sweden)
R. Vaizner – CBS (Israel)
A. Bertin, S. E. Maillfert, J. M. Fournier – INSEE (France).

The views expressed by the authors do not necessarily represent the positions of their institutions. Any errors and omissions are only the responsibility of the authors.


Revised version in 2022 to include a guidance on blending (segmentation). That is, B2B; B2C; B2E.

37th Voorburg Group Meeting

Virtual Meeting hosted by Canada
September 13-22, 2022

Cross-Cutting Paper:
Guidelines for Incorporating Alternative Data Sources in Official Statistics

Central Statistics Office, Ireland - Anthony Dawson
Statistics Denmark - Rohan Draper
Office for National Statistics, UK - Scott Kilbey
Statistics Canada - Martin Beaulieu, Kyle Virgin



Modernising CPI Production

PPI as an Official User

Paper presented at the Meeting of the Group of Experts on Consumer Price Indices

Palais des Nations, Geneva, 9 June 2023

R. Draper – Danmarks Statistik (Denmark)
X. Ha – Statistics Canada (Canada)
A. Hernandez Santacoloma – BFS (Switzerland)
S. Pesonen – Statistics Finland (Finland)
S. Tåg – Statistics Finland (Finland)

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Modernising CPI Production: PPI as an Official User Introduction

Meeting Outcome - Group of Experts on CPI, June 2023

A summary version of the framework plus the case studies was presented at the Group of Experts on CPI Conference and was well received.

Work subsequently progressed and was raised at the International Working Group on Price Statistics (IWGPS).

The IWGPS agreed to review both papers and are happy to refer to the papers on the IWGPS website. The group also agreed to consider the material in the update of the PPI Manual.

The IWGPS has provided consideration and valuable feedback which are currently under review.

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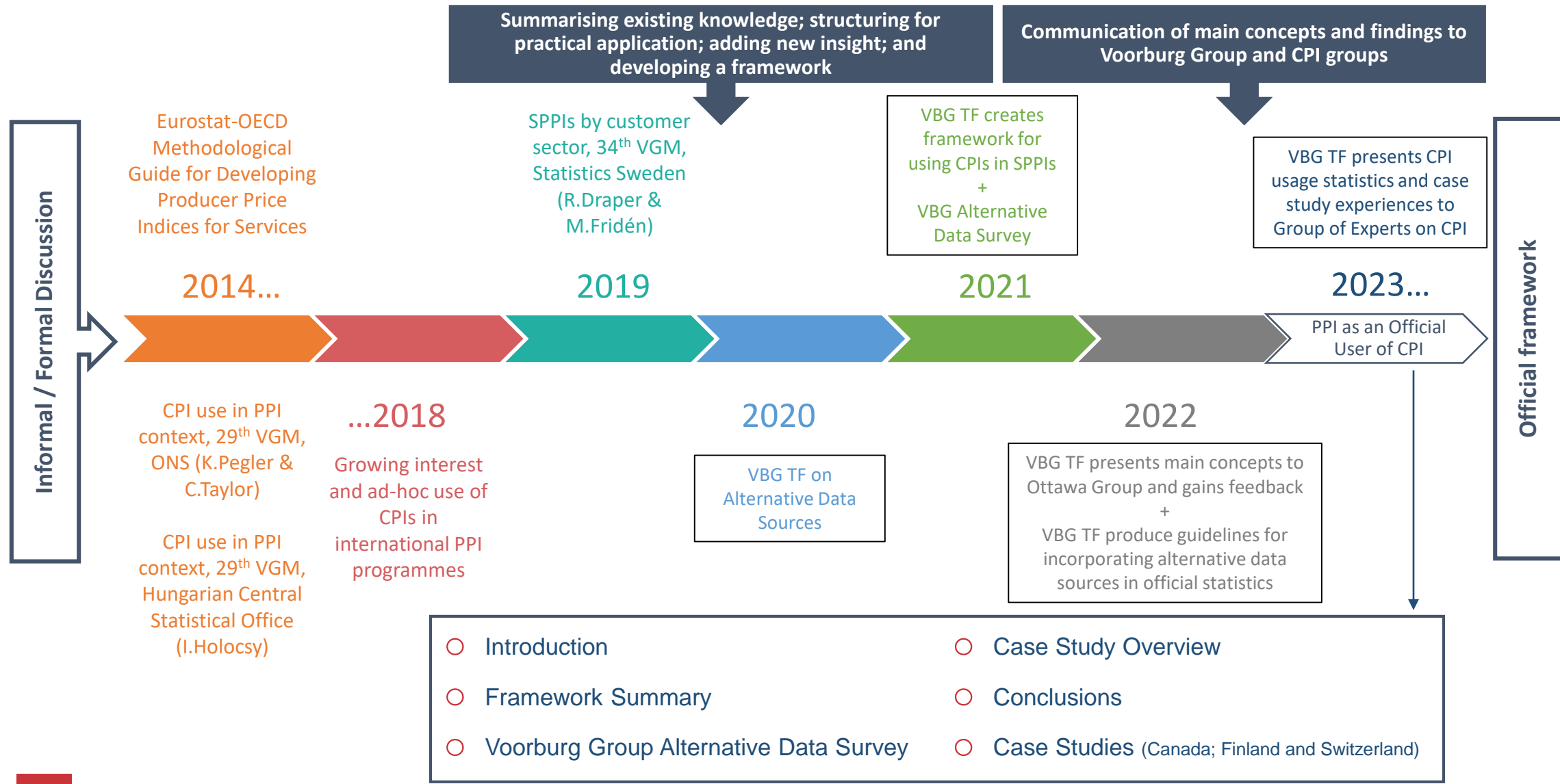
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Modernising CPI Production: PPI as an Official User Introduction



*VBG TF = Voorburg Group Task Force



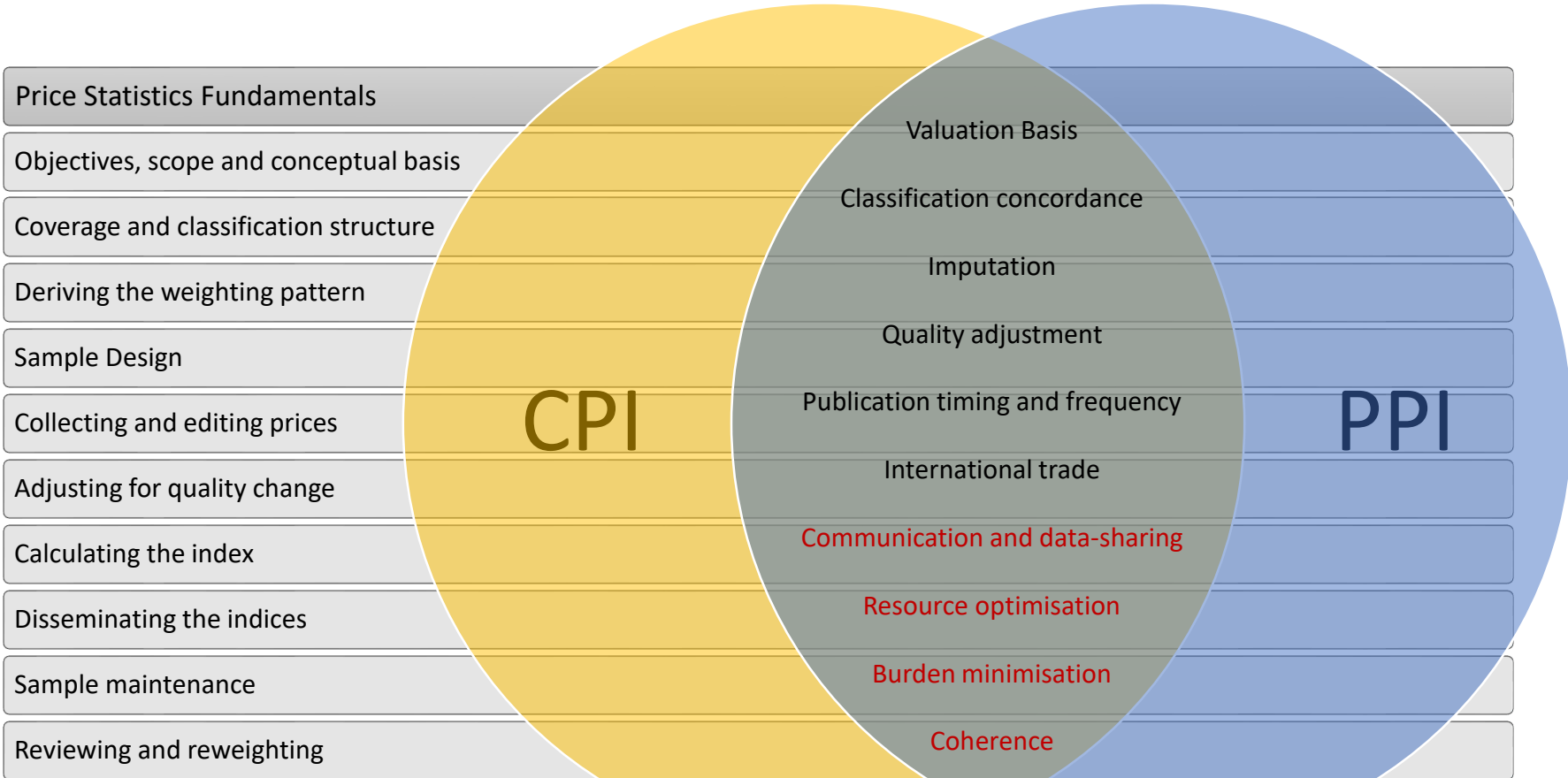
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Modernising CPI Production: PPI as an Official User

A Framework For Using CPIs in SPPI Calculation

Modernising CPI Production
"PPI as an Official User"
"PPI as a Collaborator" System of Price Statistics





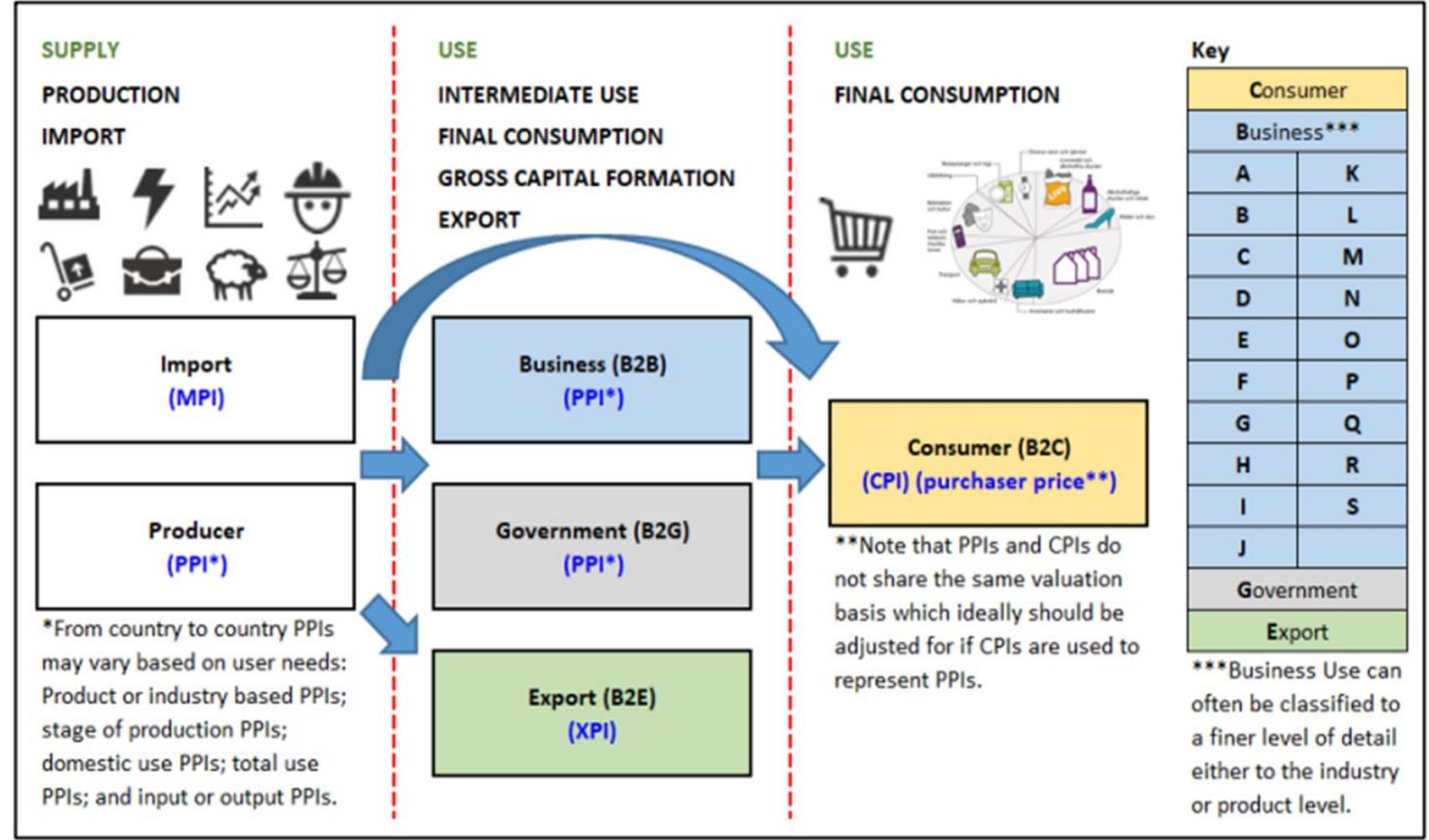
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Modernising CPI Production: PPI as an Official User

A Framework For Using CPIs in SPPI Calculation

- Valuation Basis
- Classification concordance
- Imputation
- Quality adjustment
- Publication timing and frequency
- International trade
- Communication and data-sharing
- Resource optimisation
- Burden minimisation
- Coherence





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Modernising CPI Production: PPI as an Official User Voorburg Group Alternative Data Survey

Source	Type	Origin	Code	Description	
TRADITIONAL	STRUCTURED	Questionnaire (paper, phone and/or electronic)	QNR	The traditional way of collection price information by asking firms for the information via telephone, paper or electronic questionnaires. This is the default and not an alternative data source.	
		Web Prices (manual)	WPR	The price collection data is derived from websites manually. The data source itself is considered an unstructured data source not designed for statistical purposes.	
EXTERNAL	UNSTRUCTURED	Webscraping (automated)	WSC	The price collection data is derived from websites automatic systems. The data source itself is considered an unstructured data source not designed for statistical purposes.	
		Administrative Data Source	ADM	Data which are derived from the operation of administrative systems by public agencies (e.g. data collected by government agencies for the purposes of registration, transaction, regulation and record keeping). Data is often structured for administrative purposes and is highly transferable for statistical purposes.	
	Corporate Datasets	COR	Survey respondent provided datasets obtained directly from corporate headquarters in lieu of data collectors collecting data in respondent stores or on their websites. Data pertains to the particular company that is providing said data is often structured for organisational purposes and is highly transferable for statistical purposes.		
	Trade Associations	TAD	Industry based surveys that the target industry is producing for themselves.		
	STRUCTURED	Data Vendors (commercially available structured data)	DVS	Data acquired from companies that actively collect and sell data as a business activity. Often such companies provide data on a contractual basis with defined terms and conditions.	
		Consultancies (mandated specific task) (transformed data)	CON	Consulting company and/or specialist company is contracted to collect and/or compile data for a specific purpose (mandated or otherwise). Often such companies are utilised on a contractual basis with defined terms and conditions.	
		Credit card and bank data	CCD	Financial information collected at the moment of a transfer of funds between a card holder's account and a business account. Data is graded based on the level of metadata available about the transaction. This source is considered a structured data source.	
		Other alternative data sources n.e.c.	OTH	Other types of alternative data sources not elsewhere classified. For example, transaction-level data from email receipts (like UBER email receipt data). Other special data delivery from third party data collectors not elsewhere classified.	
	INTERNAL	STRUCTURED	Consumer Price Index	CPI	Data is sourced directly from the Consumer Price Index
			Producer Price Index	PPI	Data is sourced directly from the Producer Price Index
Structural Business Statistics			SBS	Surveys utilised for benchmarking purposes	
National Accounts			NA	Price indices derived from volume and value data (implicit price indices)	



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Modernising CPI Production: PPI as an Official User Voorburg Group Alternative Data Survey

CPI frequency as an alternative data source for a particular 4-digit classification.		
Class	Name	Frequency
H	Transportation and storage	
4911	Passenger rail transport, interurban	8
4921	Urban and suburban passenger land transport	9
4922	Other passenger land transport	7
4923	Freight transport by road	2
5011	Sea and coastal passenger water transport	6
5110	Passenger air transport	6
5221	Service activities incidental to land transportation	4
5310	Postal activities	3
5320	Courier activities	2
I	Accommodation and food service activities	
5510	Short term accommodation activities	7
5520	Camping grounds, recreational vehicle parks and trailer parks	4
5590	Other accommodation	2
5610	Restaurants and mobile food service activities	11
5629	Other food service activities	4
5630	Beverage serving activities	5
J	Information and communication	
5811	Book publishing	4
5813	Publishing of newspapers, journals and periodicals	5
5911	Motion picture, video and television programme production activities	2
5914	Motion picture projection activities	4
6020	Television programming and broadcasting activities	2
6110	Wired telecommunications activities	5
6120	Wireless telecommunications activities	3

This table shows the frequency of CPI usage per 4-digit class as per industry classification. The survey was based on a sample of 15 countries: Australia, Canada, China, Denmark, Ireland, Japan, Latvia, México, Poland, Republic of Korea, Spain, Sweden, Switzerland, United Kingdom and United States.

K	Financial and insurance activities	
6419	Other monetary intermediation	3
L	Real estate activities	
6810	Real estate activities with own or leased property	3
6820	Real estate activities on a fee or contract basis	4
M	Professional, scientific and technical activities	
6910	Legal activities	3
7120	Technical testing and analysis	2
7420	Photographic activities	2
N	Administrative and support service activities	
7729	Renting and leasing of other personal and household goods	2
7912	Tour operator activities	3
P	Education	
8510	Pre-primary and primary education	2
8521	General secondary education	2
8522	Technical and vocational secondary education	3
R	Arts, entertainment and recreation	
9311	Operation of sports facilities	4
9312	Activities of sports clubs	2
S	Other service activities	
9601	Washing and (dry-) cleaning of textile and fur products	3
9602	Hairdressing and other beauty treatment	5
9603	Funeral and related activities	4
9609	Other personal service activities n.e.c.	2

Predominant alternative data source is the use of CPI and the predominant industries are: Transport and storage; Accommodation and food service activities; and Information and communication. The increasing usage of CPIs within PPI programmes pushed the agenda forward for the Voorburg Group to produce the more official framework documentation.

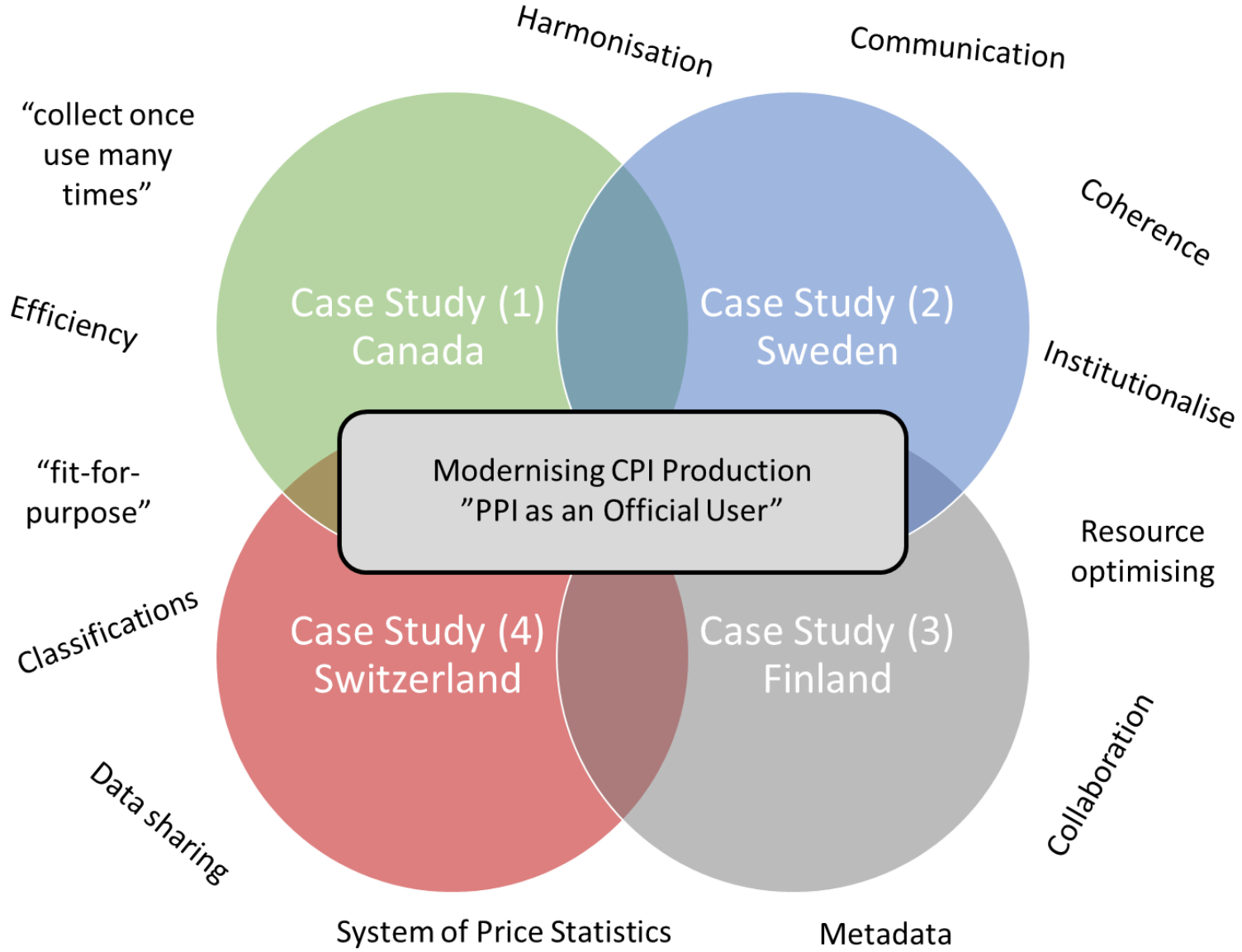
The results show that the use of CPI to fulfil coverage in PPI has become an accepted practise. Implementation has naturally begun in those activities that are predominantly sold to households with the expectation that dialogue amongst stakeholders will lead to further use.



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Modernising CPI Production: PPI as an Official User Case Studies





Use of CPIs in PPI

Statistics Canada Case Study



Statistics
Canada

Statistique
Canada

Delivering insight through data for a better Canada

Canada

CPI and PPI Overview

	<u>PPI</u>	<u>CPI</u>
Main sources of data collection	<ul style="list-style-type: none">• Electronic Questionnaire• Administrative Data• Web Scraping	<ul style="list-style-type: none">• Manual data collection• Administrative Data• Web Scraping
Calculation System	<ul style="list-style-type: none">• CYGNUS (Statistics Canada Corporate Tool)• R based pipeline<ul style="list-style-type: none">• GitLab -> transparent, versioning and collaboration• Automated processes	<ul style="list-style-type: none">• CYGNUS (Statistics Canada Corporate Tool)





Use CPIs in PPI

- Four uses
 - Data Sharing: Using microdata to calculate a price index fit for PPI use
 - Proxies: Use of CPIs as proxies to deflate GDP before official PPI numbers are available
 - Modelling: Use of CPIs to model PPIs
 - Total Replacement: Use of CPI as a total replacement in PPI





Collaboration of CPI, PPI and National Accounts

- To establish needs of National Accounts
 - Improvement on existing price indices
 - Future needs
- To establish methodology coherence on price concepts
- Sharing of administrative data sources



An aerial photograph of a park area. The park features a large green lawn, numerous trees of various shades of green, and a network of paved paths. To the right, there are multi-story residential buildings with balconies. A road with cars and crosswalks is visible at the top and right edges. The text "The use of CPIs in PPI" is overlaid in white, sans-serif font in the upper left quadrant.

The use of CPIs in PPI

Statistics Sweden Case Study

Micro data usage

- Where taxes (other than VAT) affects the individual price observations
- Electricity e.g.
- Removing taxes also affects the weights between companies

Direct use of CPI indices

- Make sure changes in taxes or VAT do not affect the index
- Indices are at a national product group level, below COICOP sub-class
- Indices are typically used at the 6-digit CPA level in PPI

B2C or B2All

- Supply-Use tables from National Accounts are used to identify the share of B2C
- If B2C is dominating, or the prices are assumed to develop similarly, the CPI will represent B2All
- If B2B is large enough, a separate SPPI for B2B is produced, and CPI represents only B2C

Where B2C represents B2All

- 49.32 Taxi operation services
- 52.21.24 Parking lot services
- 58.13.10 Printed newspapers
- 59.14 Motion picture projection services

Where B2C represents only B2C

- 61.10.1 Data and message transmitting services
- 68.20.11 Rental and operating services of own or leased residential real estate
- 68.31.1 Real estate agency services on a fee or contract basis
- 79.12.11 Tour operator services for arranging and assembling tours

CPI and SPPI's partnership at Statistics Finland

A case study

SPPI utilizes CPI data in three ways

1

Customized data collection

CPI team collects both consumer and producer price observations from the same enterprise at once

2

Joint data collection and calculation

CPI collects both consumer and producer price observations from the same enterprise at once, calculates price changes and handles methodological updates

3

Direct use of CPI indices

Published CPI indices are either processed as a part of SPPI's price observations or used alone as a direct replacement of SPPI





CPI also benefits from PPI data

- Producer price team handles EU-regulated survey on electricity prices
- Includes average prices and volume (MWh) for business and household consumers grouped by consumption
- Price and volume data for households is suitable for CPI's use

The Deflator Group



Facilitates cooperation

Creates a common forum for national accounts and business, price and volume statistics since 2016



Targets at coherent deflator use

Main goal is consistent use of deflators across statistics; a product is always deflated with the same price index



Enables information sharing

Regular meetings create a channel for sharing current news and developments between the statistics



Maintains deflators in one application

All methods, structures and product-price links of deflators are maintained in a common production system *Deflaattori*





Other success factors

- One team to collect and process price data
- One production system for price statistics called HITS



CPI and SPPI's partnership at Swiss Federal Statistical Office

Case Study



SPPI utilizes CPI data in two ways



Direct use of CPI indices

At Index level.

The CPI **index** is used for the B2C segment of the B2All aggregate.



Direct use of CPI prices

At prices level

The CPI **prices** are used to calculate the B2C segment of the B2All aggregate.



Areas of cooperation

Source	Branch	Index usage	Sharing
CPI	Gas	PPI	Index
CPI	Electricity	PPI	Index
CPI	Postal services	SPPI	Prices
SPPI	Lawyer services	CPI	Index
CPI	Facility Management	SPPI	Index
SPPI	Transport of passengers with boat	CPI	Index
SPPI	Recreational Boats	CPI	Index
SPPI	Cleaning of common areas	CPI	Index
SPPI	Vehicle's expertise	CPI	Prices data
SPPI	Chimney sweeper	CPI	Index
SPPI	Medicaments	CPI	Prices data, & methodology
SPPI	Rent of private transport	CPI	Index
SPPI	Telecommunications	CPI	Index
CPI	Accommodation	SPPI	Index
CPI	Flights	SPPI	Index
CPI	Water supply	SPPI	Index
CPI	Sewage	SPPI	Index



Other areas of cooperation

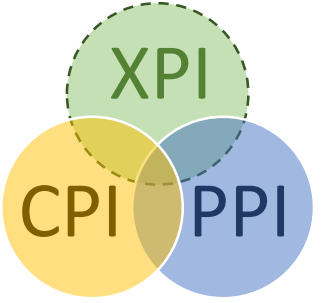
Index production by	Topic	Sharing
CPI, PPI	Hedonic Models for Personal computers, Laptops; Servers.	Methodology
Price indices	Imputation methodology	Methodology
Price indices	Webscraping	Methodology
Price indices	Index utilization	Methodology
Price indices	Multilateral indices	Methodology



Modernising CPI Production: PPI as an Official User Conclusion

Establishing common ground for sustainable collaboration

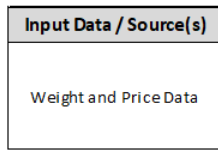
- Price Statistics Fundamentals
- Objectives, scope and conceptual basis
- Coverage and classification structure
- Deriving the weighting pattern
- Sample Design
- Collecting and editing prices
- Adjusting for quality change
- Calculating the index
- Disseminating the indices
- Sample maintenance
- Reviewing and reweighting



- Technical Framework**
- Valuation Basis
 - Classification concordance
 - Imputation
 - Quality adjustment
 - Publication timing and frequency
 - International trade

- Practical Considerations**
- Communication and data-sharing
 - Resource optimisation
 - Burden minimisation
 - Transparency
 - Coherence

Planned and managed data transactions



Domain (1) - Price Statistics

Consumer Price Index	
Classification	Frequency
Population	Statistical Unit
Reference Period	Etc.

Producer Price Index	
Classification	Frequency
Population	Statistical Unit
Reference Period	Etc.

Planned and managed resource transactions

Domain (2) - International Trade Statistics

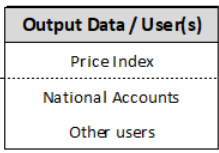
Import and Export Price Indices	
Classification	Frequency
Population	Statistical Unit
Reference Period	Etc.

Domain (3) - System of Wage Statistics

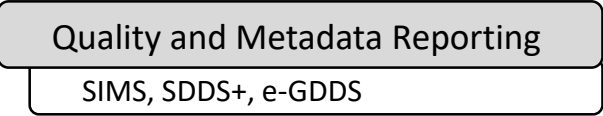
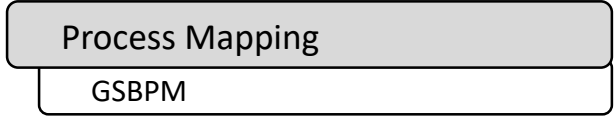
Wage Price Index	
Classification	Frequency
Population	Statistical Unit
Reference Period	Etc.

House Price Index	
Classification	Frequency
Population	Statistical Unit
Reference Period	Etc.

Coherency within and across domains



For example:
 $P \times Q = V$
 $GDP(P;I;E)$



Theory



Practice