

# **24<sup>th</sup> Voorburg Group Meeting**

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Sector Paper on:

## **ISIC 46 (rev 4) Wholesale trade and commission trade, except of motor vehicles and motorcycles**

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The views expressed in this paper are those of the authors alone and do not necessarily represent the position of Statistics Sweden, Statistics Canada or any other organization that the authors may be affiliated with.

## **Introduction**

Wholesalers, operating as both importers and exporters, provide a link between producers and buyers operating on global markets. Availability of high quality statistics on wholesale trade is important for in-depth analysis of globalization. In many countries, wholesalers' contribution to value-added and employment is growing.

The Voorburg Group first studied the Wholesale Trade sector at its 23<sup>rd</sup> meeting in 2008. In total, seven mini papers were presented in Mexico covering turnover and output, trade margins and SPPIs for wholesale trade by representatives from Central Bureau of Statistics (Israel); INSEE (France); Statistics Canada; Statistics Sweden; and United States Bureau of Labor Statistics. In the presentations and the discussion that followed, it was evident that further discussion and input would be necessary before a sector paper on the industry could be finalized. In particular, further discussion on margins and quality adjustments was needed as well as clarification of the level of product detail required by the National Accounts. Between the 2008 and 2009 meetings, authors of the mini-papers were asked to provide additional information on how well their current practices are working and whether or not the National Accounts are using the data collected through these practices.

A draft version of this sector paper was discussed at the September 2009 meeting in Oslo. The paper included questions to guide the discussion. Following the Oslo meeting, participants were asked to respond to the questions raised in the paper. Feedback from the meeting and subsequent details provided were used to complete this sector paper.

Given the complexities of the industry, there are still some areas of uncertainty and conceptual differences internationally. It is hoped that many of those issues will be resolved and reflected in a revisited sector paper in the not too distant future. In addition, as more countries gain experience in developing price indices covering wholesale margins, we may discover alternative methods and techniques.

## **1.0 Classification**

### **2.1 Industry classification**

ISIC Rev 4 defines wholesale as

“the resale (sale without transformation) of new and used goods to retailers, business-to-business trade, such as to industrial, commercial, institutional or professional users, or resale to other wholesalers, or involves acting as an agent or broker in buying goods for, or selling goods to, such persons or companies. The principal types of businesses included are merchant wholesalers, i.e. wholesalers who take title to the goods they sell, such as wholesale merchants or jobbers, industrial distributors, exporters, importers, and cooperative buying associations, sales branches and sales offices (but not retail stores) that are maintained by manufacturing or mining units apart from their plants or mines for the purpose of

marketing their products and that do not merely take orders to be filled by direct shipments from the plants or mines. Also included are merchandise brokers, commission merchants and agents and assemblers, buyers and cooperative associations engaged in the marketing of farm products.”

For the most part, there is general agreement in the various industrial classifications used internationally to recognize the wholesaling process as an intermediate step in the distribution of merchandise. Wholesalers are organized to sell or arrange the purchase or sale of:

- (a) goods for resale (e.g. goods sold to other wholesalers or retailers),
- (b) capital or durable non consumer goods, and
- (c) raw and intermediate materials and supplies used in production.

There are some significant differences between the various industrial classifications of this industry. While the International Standard Industrial Classification uses a class of customer definition, the North American Industrial Classification System is based on method of selling (process). Another key difference is that ISIC, Rev. 4 combines wholesale and retail trade of motor vehicles and motorcycles into one combined division while the North American Industrial Classification System (NAICS) and Japan Standard Industrial Classification (JSIC) (Rev. 12, November 2007) classify the wholesale of motor vehicles, parts and accessories in the wholesale trade division. While NAICS provides international comparability between the United States, Canada and Mexico at the 2-digit sector level of NAICS 41, each of the three countries has its own unique industrial classification below the 2-digit wholesale sector.

The statistical classification of economic activities in the European Community is NACE. Its use is mandatory by all 27 member states of the European Union (EU) within the European Statistical System. NACE Rev.2<sup>1</sup> – based on ISIC Rev. 4 - has been adopted and used since 2008 by the Member States, candidate Countries and EFTA Countries. Statistics produced on the basis of NACE are comparable at the European level. Each member state has its own national version of NACE. Main concepts, definitions, methodological and classification guidelines and rules are assumed to be followed by all member states. There are both basic classification rules and rules for specific activities, among them for wholesale<sup>2</sup>.

### *2.1.1 Manufacturing Sales Branches and Offices*

Given the vast array of activities done by wholesalers and structural changes in the economy in response to globalization, it can be difficult to distinguish the boundaries between wholesalers and other industries. This is especially true when classifying establishments of large, multi-industry enterprises. For example, the ISIC definition of a wholesaler includes “sales branches and sales offices (but not retail stores) that are maintained by manufacturing or mining units apart from their plants or mines for the

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<sup>1</sup> Statistical classification of economic activities NACE Rev. 2 was established as regulation (EC) no 1893/2006 of the European Parliament and of the Council since 20 December 2006.

<sup>2</sup>Eurostat, NACE Rev.2, Chapter 3, Classification rules for activities and units

purpose of marketing their products and that do not merely take orders to be filled by direct shipments from the plants or mines.”

Manufacturers’ sales branches take responsibility of the merchandise transferred to them from their own manufacturing operations; they incur responsibility for activities such as pricing, storage, inventory control, financing, and advertising. Manufacturers’ sales branches may also market goods purchased for resale (i.e., goods that usually compliment the products manufactured by the enterprise). In contrast, manufacturers’ sales offices take customer orders and may provide customer service in the field, but do not hold inventory or take title to goods. The sales office team may place orders with the sales branch or, in the absence of a sales branch, directly with the manufacturing operation.

The various international classifications distinguish wholesale merchants from wholesale on a fee or contract basis, but manufacturing sales branches and offices are essentially a third type of wholesale establishment that is not separately identified in existing industrial classifications. The United States and Japan produce turnover data for manufacturing sales branches and offices distinct from other wholesalers.

The US version of NAICS classifies the output of Manufacturer’s Sales Branches and Offices in Merchant Wholesaling. Even though the production function of some Manufacturer’s offices that receive commission payments is somewhat different than that of merchant wholesalers, detailed National Accounts data would have been lost had these activities not been included together in the same industry. Canada will be clarifying its NAICS definitions and implementation rules to align with the US practice of including manufacturing sales branches and offices in wholesale merchant industries.

Drawing a line between the manufacturer and this wholesale activity can be difficult and is wholly dependent on the way a firm keeps its books. Some firms keep their books by product line rather than production function, blending manufacturing and wholesale activities into one entity. This makes it difficult to collect all the essential pieces of information from an industry-specific establishment-based survey.

### *2.1.2 Outsourced manufacturing – Factoryless Goods Produced*

Another boundary challenge stems from outsourcing, an activity that has expanded through globalization. In April 2007, the Technical Subgroup of the Expert Group on International Economic and Social Classifications considered three options for criteria from which to classify outsourced activity:

- a) ownership of the physical input materials by the principal,
- b) ownership of the concept (i.e. intellectual property product) related to the production process or the final good of the principal, or
- c) ownership of **both** the physical input material **and** the concept.

In the end, the Technical Subgroup recommended that the criterion for classifying the principal should be based solely on the ownership of the physical input materials by the principal. This recommendation was reflected in ISIC (rev. 4):

- A principal who completely outsources the transformation process should be classified into manufacturing if and only if it owns the input materials to the production process—and therefore owns the final output.
- A principal who completely outsources the transformation process but does not own the input materials is in fact buying the completed good from the contractor with the intention to re-sell it. Such an activity is classified in section G (Wholesale and retail trade), specifically according to the type of sale and the specific type of good sold.<sup>3</sup>

The ISIC classification based on ownership of materials alone is consistent with the proposed procedures for classification of goods sent abroad for processing in the System of National Accounts (SNA) 2008. The SNA revision for 2008 specifies that goods sent abroad for processing should be measured as the import of a service.

Adoption of this concept is not universal. The NAICS 2007 classification does not clarify where such activity should be classified. In development of the NAICS 2012 classification, the United States and Mexico have decided to classify all Factoryless Goods Producers<sup>4</sup> in manufacturing. The basis for this decision is both conceptual and practical and is expected to provide a consistent and stable classification framework.

The Economic Classification Policy Committee (ECPC) of the United States provides a detailed explanation of their decision:

“From a conceptual standpoint, at the most aggregate level goods producers arrange for and bring together all of the factors of production necessary to produce a good. Goods producers accept the entrepreneurial risk of producing and bringing goods to market. When individual steps in the complete process are outsourced, an establishment should remain classified in the manufacturing sector. ...

“Classification of FGPs to wholesale trade would have resulted in the production process of wholesale trade being expanded beyond the buying and selling of goods. The output for FGPs would not appropriately be measured as a trade margin. If the output were considered a trade margin, the output would include the returns to intellectual property and entrepreneurial assumption of risk for the production of goods. ...

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<sup>3</sup> ISIC (Rev. 4) paragraph 144 and 145

<sup>4</sup> The factoryless goods producer (FGP) outsources all of the transformation steps that traditionally have been considered manufacturing, but undertakes all of the entrepreneurial steps and arranges for all required capital, labor, and material inputs required to make a good. Characteristics of FGPs include:

- Owns rights to the intellectual property or design (whether independently developed or otherwise acquired) of the final manufactured product;
- May or may not own the input materials;
- Does not own production facilities;
- Does not perform transformation activities;
- Owns the final product produced by manufacturing service provider partners; and
- Sells the final product.

“A strict adherence to the international recommendation to classify FGPs based solely on ownership of materials was considered and rejected as impractical. If the definition of ownership required physical possession, the ability to substitute between input sources in different countries to obtain the lowest cost could change sector classification in NAICS if the inputs were sent directly from the producer in country B to a manufacturing service provider in country C. The establishment that arranged for the production in country A would never take physical possession of the materials. If the definition of ownership were based on separate transactions, problems would still arise. Contracts between FGPs and their manufacturing partners change with market conditions. Payment terms and the allocation of risk can shift based on variations in the availability of credit and the market power or capacity of the individual parties. Classification of an establishment should not change simply because they have the market power to shift the timing of payment for the inputs from the front of the process to the end of the process or because critical shortages of transformation capacity provide outsized negotiating power to a manufacturing service provider. By focusing on the entrepreneurial aspects of the process (and therefore ownership of the goods being produced) rather than ownership of materials, the ECPC eliminates the aforementioned ownership of materials issues.<sup>5</sup>

A third approach is followed by Japan. The JSIC (Rev. 12) classifies all factoryless goods production into wholesale trade in an activity called “manufacturing-wholesale trade.” The manual states, “Manufacturing-wholesale trade where the establishment does not manufacture, but furnishes a subcontracted factory or the like with materials that it owns, has the products manufactured by the factory and sells them in its own name is not deemed “Manufacturing”, but classified in the Division I – WHOLESAL AND RETAIL TRADE.”<sup>6</sup>

## 2.2 Product classification

Wholesalers act as one of the intermediaries between the manufacturer and the final customer; they act as marketing intermediaries that neither produce nor consume the finished product, but instead sell to retailers, other merchants, and/or to industrial, institutional, and commercial users or other institutions that use the product mostly for resale. There are some situations whereby the sale of an item is to the final consumer especially if the product is used for business purposes in the physical construction of another product. In addition, wholesalers:

- store goods that neither manufacturers nor retailers can store until consumers require them;
- provide businesses a nearby source of goods made by many different manufacturers;
- provide manufacturers with a manageable number of customers; and
- allow manufacturers, businesses, institutions, and governments to devote minimal time and resources to transactions by taking on some sales and marketing functions.

For more detailed breakdown of the wholesale function see Appendix A.

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<sup>5</sup> Economic Classification Policy Committee (ECPC) Recommendation for Classification of Outsourcing in North American Industry Classification System (NAICS) Revisions for 2012

<sup>6</sup> JSIC Rev.12, Division E – MANUFACTURING, Relationship between “Manufacturing” and other industries, Par. 3 c).

Wholesalers may also perform installation services, equipment repair work, and warranty repair work for the manufacturer. These services are generally not bundled with the wholesaling function and, while occasionally performed by a wholesaler, are not part of the primary output of these firms.

In general, international product classifications delineate wholesale trade services by type of good, splitting out wholesale on a fee or contract basis. The various wholesale functions such as transportation, warehousing, bulk breaking or product support are bundled in the trade of a product. Appendix C contains the product structures of wholesale trade and commission trade, except of motor vehicles and motorcycles for the Central Product Classification 2.0 and 2008 version of the Statistical Classification of Products by Activity in the European Economic Community. The North American Product Classification (NAPCS) is still under development for wholesale trade. Since NAPCS is a mixture between the product-based and industry-based approach, the classification will likely include secondary activities such as repair and maintenance and installation services.

## **2.0 Industry Output**

Turnover in this paper refers to “turnover, sales, shipments, receipts for services and other revenues” as defined in 4.108-113 of the United Nations’ International Recommendations on Distributive Trade Statistics (IRDTS 2008)<sup>7</sup>. This concept of turnover in wholesale trade is quite different from the output of the industry itself. Turnover corresponds to market sales of goods or services supplied in a given period while the output of the trade activity performed by a wholesaler is a trade margin. Both measures are important but for different purposes. The margin is critical for calculation of GDP while overall sales provide an indication of trade activity throughout the economy. Sales of certain goods sold by a wholesaler, such as machinery and equipment, are also important inputs to an income and expenditure-based calculation of GDP.

To illustrate the differences between the two concepts, consider a specific example from Sweden. Wholesale trade is by far the largest 2-digit-level industry in Sweden with over 1 100 billion SEK (2007), or almost one fifth of the total turnover. However, regarding production value, which within the wholesale trade can be seen as the trade margin, wholesale trade is "only" the third largest industry (NACE 45 and 74 is larger) with a share of approximately 6 percent of the total production value. There is no doubt, however, that all information that can be produced about wholesale trade is of major importance. Since the revision of the economic statistics in 2003 Statistics Sweden, and most importantly the National Accounts, now have annual statistics about turnover by product for the wholesale trade industry.

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<sup>7</sup> <http://unstats.un.org/unsd/trade/M89%20EnglishForWeb.pdf>

The IRDTS 2008 provides detailed guidelines on the collection of distributive trades data and definitions. This section does not intend to replace or to summarize those guidelines. Instead, it will provide an overview of what is required to measure the economic output of wholesale trade and will provide further clarity on some of the specific issues related to measuring that output.

From a national accounting perspective, the wholesale trade industry produces four main outputs.

Primary activities:

- net margins (of goods only)
- commissions (a provision of service)

Secondary activities

- goods production (at basic prices)
- services

The largest component of the output of the wholesale trade industry is defined in terms of margins on commodities traded (sales minus the cost of goods sold) and the commodities themselves are not considered as wholesaling output. In input–output tables, commodities are shown to flow from producers directly to consumers, leaving out such distributive channels as wholesale and retail trade, while users who purchase commodities are shown to buy trade margins separately. According to the European System of Accounts (ESA) 1995, “a trade margin is the difference between the actual or imputed price realized on a good purchased for resale and the price that would have to be paid by the distributor to replace the good at the time it is sold or otherwise disposed of.”

Statistics Sweden has conducted a survey regarding the trade margins in the respective parts of the trade industries, i.e. motor trade, wholesale trade and retail trade, as presented at the 2008 Voorburg Group meeting in Aguascalientes, Mexico. The results of this survey have been sent to the National Accounts for analysis. It is still doubtful whether the results can be implemented in the present system. A general revision of the National Accounts will be carried out in 2011 and this might be a good time to implement a new measure of trade margins so the work is still in progress.

For certain activities, the trader provides a resale operation on behalf of a third party; without becoming the owner of the merchandise, he simply earns a commission. This service is not assimilated into a trade margin but is treated as a provision of services.

In some cases, wholesalers may provide other secondary activities, such as installation services, equipment repair work, and warranty repair work for the manufacturer. That output is valued using the “basic price” which means excluding specific taxes charged after the manufacture of products (such as taxes on alcohol and tobacco) and includes subsidies on products received. These secondary activities are divided between goods production and services.

### **3.1 Indicators of trade activity**

In addition to the detailed structural financial data required to calculate annual GDP, there are compelling reasons to measure wholesale sales and inventory changes on a sub-annual basis. Wholesalers reflect the distribution of goods throughout the entire economy including imports, exports and manufacturing sales branches. Monthly or quarterly data measure the performance of the wholesale trade sector and provide an important indicator of the health of a nation's economy. In particular, sub-annual data are more timely indicators of economic turning points and can provide early measures of the economic impact of certain events such as border disruptions or strikes in railway or port services.

Below is a list of indicators in order of preference, according to the European System of Accounts (ESA):

1. The preferred indicator is an output indicator that measures deflated gross output (or turnover) for an activity. This requires an appropriate deflator to remove price alterations.
2. The use of volume indicators is also acceptable according to the ESA ordinance. This requires no deflation but will naturally miss changes in quality or changes in production. Volume measures are considered a B method because volume base margin calculations assume that margins remain constant and data have shown that not to be true.
3. Other kinds of indicators that measure input to an activity that is not approved except for certain industries where this is the only available short-term indicator. The most commonly used indicator of this type is employment.

### **3.2 Unit of observation**

In North America, a large portion of the wholesale trade industry is comprised of wholesale establishments that are part of large multi-industry enterprises where the enterprise is not typically classified to wholesale trade. To make extensive use of the data and to truly understand the activities and transactions of a wholesaler, the target unit of observation should be the establishment.

That being said, there are some difficult challenges in collecting wholesale trade data at an establishment level. Many firms operate manufacturing sales branches and offices as an extension of the manufacturing facility and not as a separate profit center. The entity may be able to report turnover but cost of goods sold can be a challenge. Transfer pricing is often an issue. Consider a company where the manufacturing plants are cost centres with sales flowing through a manufacturing sales branch or office. The goods are acquired from the manufacturing plant at cost and resold at market prices. The calculated margin would reflect the profit from the manufacturing activity plus a wholesale margin. The IRDTS (par. 4.101) recommends that,

“Transfers from other establishments of the same trade enterprise should be valued as though purchased. When this is not possible in practice, transfers might be valued at cost to the enterprise on delivery to the establishment, that is to say, original purchase price, delivery and similar charges, labour and material directly used and possibly overhead.”

Some countries, such as Canada and the United States, invest in collecting timely data covering merchant wholesalers with less frequent coverage of wholesale agents and brokers (wholesalers on a fee or contract basis). In many countries, the overall contribution of wholesale agents and brokers to wholesale trade turnover is very small. Size of firm and response burden are also factors to consider in allocating resources to measure the agent and broker population.

### **3.3 Inventories**

Withdrawals from inventories should be valued at the purchasers' prices at which the inventories can be replaced at the time they are withdrawn rather than at the purchasers' prices that may have been paid for them when they were acquired. Measurement of inventories provide challenges since valuation practices differ from one enterprise to the next. The common methods used by units in their business accounting practices for reporting withdrawals from stocks are:

1. FIFO (first-in-first-out): the cost of items sold or consumed during the reference period is calculated as though they were sold or consumed in the order of their acquisition;
2. LIFO (last-in-first-out): the cost of items sold or consumed during the reference period is deemed to be that of the most recent acquisitions or production. This implies that withdrawals are valued approximately at current prices;
3. Average cost: the cost of an item is determined by applying a weighted average of the cost of all similar items available for sale over a period of time;
4. Specific item cost: a method of tracking inventory when the actual cost of each item can be identified separately. This method is usually used for large, easily traceable items, such as vehicles or furniture.

The measure of inventories should include all inventories owned by the enterprise and held by or under the control of the establishment regardless of where the inventories are in the world (held overseas, in transit abroad, at the establishment's own premises or elsewhere). Inventories held at ancillary units, in bonded stores or warehouses, on consignment, in transit and materials being manufactured, processed or assembled on commission by others should be included.

### **3.4 Data sources**

Wholesale trade data are best gathered through surveys where data on products or on inventory valuation methods can be collected. Administrative data can be used to collect revenue, cost of goods sold and expense details for single industry enterprises. Many countries measure the industry at an enterprise level which then makes the use of administrative data a lower cost alternative to survey data. There are more challenges in using administrative data as a substitute for establishment surveys. Wholesale

establishments of multi-industry enterprises are generally not good candidates for administrative data since there is unlikely to be a one-to-one correspondence between the target establishment and the reporting legal entity.

Mixed methods can bring both efficiencies and quality by providing a census of data from administrative records for many of the standard financial variables while relying on a survey for other detail not available on administrative records. For example, since 1997 Statistics Sweden uses administrative data from the Swedish Tax Authority. In this way, Statistics Sweden gets information from all the enterprises in Sweden regarding main economical variables such as turnover, cost of trade goods and raw material, cost of personnel, financial incomes and costs, assets and debts etc. In order to get more detailed data, such as turnover by product, Statistics Sweden conducts an annual survey. In this survey, including about 2,000 wholesale trade enterprises, the total turnover is pre-printed and the respondents divide this turnover into different products.

Value-Added Tax (VAT) data can be a reliable source of turnover (sales) information from pure wholesalers but are not a good substitute for survey data from establishments of multi-industry enterprises. Inventory data must be collected via a survey vehicle.

### **3.5 Trade flows**

In some countries, regional transfers and trade must be measured. For example, Canada produces I-O tables for each of its provinces and relies on inter-provincial trade flow data in the calculation of provincial equalization payments and for the provincial allocation of a blended VAT. In addition, international trade data indicate the port of entry of goods but not the intended destination which may be in another province. Naturally, the wholesaler is an appropriate source of this information. Canada collects origin and destination data by product from wholesalers. Reporting these data represent a large burden to respondents and are difficult to report. To balance out the burden, Canada has reduced its demand for commodity detail. It has also found that respondents had difficulty reporting under a standard commodity classification. Through testing, Canada found respondents were more willing and able to respond to their own customized commodity definitions. Statistics Canada then converts these responses into a standard commodity code. This change in approach yielded a vast quality improvement in the data and response rates. Frequency of collection is another method to reduce the burden; however, due to the complexity of the data requested, Canada has found the quality of data reported by respondents improved over time with annual collection versus less frequent collection.

It should be noted that there are some important differences between international trade and wholesale trade data. Most importantly, change in ownership and thus recognition of a sale often does not occur on the same day that the good crosses an international border. In addition, some domestic manufacturers export directly from the factory while other manufacturers have their exports flow through a wholesale operation.

## Options for Developing Turn-over Statistics

Category	Data source and method of collection	Level of detail collected	Frequency	Advantages and disadvantages
Best practice	One or many surveys with different frequencies (may include Economic Census)  <b>Methods:</b> Census  Survey	Industry Detail  and  Detailed <u>revenue</u> and <u>margin</u> data by product (CPC, NAPCS, CPA)	Annual and Sub-annual	<b>Advantages:</b> - Detailed timely (monthly or quarterly and annual data) - Provides data for benchmarking and for current economic analysis - Allows the construction of I-O tables (commodities by industries)  <b>Disadvantages:</b> - Most expensive - High complexity of the survey to calculate trade margins by commodity - Extremely high response burden - Potential respondent concerns over sensitivity of margin data by product - Response rates are normally lower for this kind of survey
Better practice	One or many surveys with different frequencies  <b>Methods:</b> Census  Survey  Combination of survey and administrative data	Industry detail including trade margin (at industry level)  and  Detailed <u>revenue</u> data by product (CPC, NAPCS, CPA)	Annual and Sub-annual	<b>Advantages:</b> - Detailed timely (monthly or quarterly and annual data) - Provides data for benchmarking and for current economic analysis - Allows the construction of I-O tables (commodities by industries)  <b>Disadvantages:</b> - SNA has to rely on trade margin by industry rather than by commodity but would have sales by commodity to help allocate the margin - Expensive - Complexity of the survey to collect detailed sales by commodity - High response burden - Response rates are normally lower for this kind of survey
Good practice	One or many surveys with different frequencies  <b>Methods:</b> Survey	Industry detail including trade margin	Annual and Sub-annual	<b>Advantages:</b> - Detailed timely (monthly or quarterly and annual data) - Provides data for benchmarking and for current economic analysis - Provides a trade margin by industry to the SNA  <b>Disadvantages:</b>

	Combination of survey and administrative data			- SNA has to trade margin by industry but no detail on commodity breakdown of goods sold in the industry - Response burden
Minimum required	Administrative or mix model	Industry detail including trade margin	Annual	<b>Advantages:</b> Least expensive Little or no response burden Large coverage <b>Disadvantages:</b> Data coverage and definition can be imprecise Least timely

### 3.0 Service Producer Price Index

#### 4.1 Deflation by the SNA

There are differences in how trade margins are incorporated into the various Systems of National Accounts across the world. The number of products that is required to make a good wholesale margin estimation is of course arbitrary. There is a huge range in the number of products in each country's System of National Accounts. Participants at the 2009 meeting in Oslo reported ranges from 40 products to as many as 4 000. In addition, some countries, such as France, have a global trade margin combining the wholesale and retail trade margins and thus do not require separate price indices for wholesale and retail margins. Not all countries produce detailed input-output tables and instead stop at supply-use tables. Of those that do have input-output tables, the size and shape (square or rectangular) are different from one country to the next. All of this variation means that the requirements for deflators will vary considerably from one country to the next in terms of both industry and product detail required. Appendix D contains some specific examples of how various countries deflate their wholesale margins in their respective Systems of National Accounts, particularly in the absence of direct pricing data on margins.

The appropriateness of the price index used to deflate wholesale margins is an important consideration. In the absence of a specific wholesale producer price index, some countries will use a combination of Industrial Product Price Indexes (IPPI) or Import Price Indexes as deflators of specific commodities. The IPPIs provide a price at the factory gate and do not include other acquisition costs incurred by the wholesaler such as transportation costs. This assumes that other acquisition costs move in tandem with prices at the factory gate which is unlikely to be the case. For example, a change in gas prices would likely affect transportation costs but may not affect the price at the factory gate. The wholesaler's cost to purchase imports may not be represented by an Import Price Index due to specific strategies used by wholesalers to insulate themselves from changes in exchange rates. For example, some wholesalers will hedge against the currency while others may negotiate contracts in the wholesaler's home currency. Finally, selling prices by the wholesaler may move differently than acquisition prices. For example, a

wholesaler may set prices for a fixed period of time; similarly, customers may have contracts with a fixed price.

Ideally, countries should develop specific SPPI indices for wholesale trade. Such an approach must consider the two principal outputs of a wholesaler: a trade margin and a commission on sales. Margin prices are the most prevalent type of price for merchant wholesalers. Since most wholesale trade is dominated by merchant wholesalers, the dominant price for wholesale trade is a margin price. Gross margin is defined in the National Accounts as the selling price of a good less the cost of replacing the good sold. In addition, the margin price should reflect all rebates and allowances.

In those cases where the wholesaler does not take title to the goods, monetary value of commissions per unit received for a particular product or product line is the price for the services provided. The dollar value of commissions, based on a percent of sales, is the most prevalent type of price for wholesale agents and brokers.

Countries need to understand the data needs of their System of National Accounts in determining trade-offs among cost, detail, response burden and quality. For example, the Canadian Wholesale PPI, unlike that of the U.S., does not include a price index for commissions. Wholesale agents and brokers represent a small share of overall turnover in wholesale trade in Canada. Conversely, the Canadian index provides more industry detail than that of the US.

#### **4.2 Margin prices (Merchant wholesalers)**

Given that the output of trade industries cannot be directly observed and quantified, a wholesale PPI measures the output of the services using margin prices. Margin prices are calculated from both the price paid by the trade entity for a good (or set of goods) and the price the entity charges its customers for the same good (or goods); they are, in effect, a residual calculation and may be considered value-added indexes.

The type of price collected in merchant wholesale is typically an unlagged average margin price. The gross margin is the difference between two different prices:

- a) Acquisition price from the supplier (replacement cost)
- b) Selling price to the next level buyer

The acquisition price represents the direct cost of the wholesaled goods and should exclude freight whenever possible. The price should include point-of-sale incentives (taken as discounts) that may be applied to the merchandise whenever possible.

It is recommended that wholesale PPI surveys collect margin prices in the following order of priority:

1. Average gross margin per unit for a comparable customer class and/or supplier class for all sales within a comparable product line.
2. Average gross margin per unit for all customers and/or suppliers for a comparable product line.

3. Average gross margin per unit for a particular customer class and/or supplier class for all sales of a particular product.
4. Average gross margin per unit for all customers and/or suppliers for all sales of a particular product.
5. Gross margin for a single specific product transaction.

### **4.3 Commission prices (wholesale on a fee or contract basis)**

Wholesale agents and brokers and some manufacturer's sales and branch offices receive a commission fee for their service. The commission is the amount of money that the sales office (not an individual agent) receives for performing the service. In the United States, five percent of the per unit sales price is a typical sales office commission percentage, although this can vary. Since revenue figures are typically recorded in terms of sales for this industry, the total value of commissions is a result of multiplying total sales by the average commission percentage.

It is recommended that wholesale PPI surveys collect value of commission prices in the following order of priority:

1. Average value of commission per unit for a comparable customer class for all sales within a comparable product line.
2. Average value of commission per unit for all customers for a comparable product line.
3. Average value of commission per unit for a particular customer class for all sales of a particular product.
4. Average value of commission per unit for all customers for all sales of a particular product.
5. Value of commission for a single specific product transaction.

Merchant wholesalers do not typically price their services based on a flat fee commission price. However, in the event that they do, a flat fee for a single specific transaction should be collected.

### **4.4 Measurement issues**

The unit of measure may vary within the Wholesale Trade industries. Although transactions are often based on large volumes, the most common unit of measure is on a per unit basis. The behavior of the long-term price relative can be a source of major concern when pricing wholesale trade, and this can occur for many reasons. One cause can be the setting of the base price – it is essential to avoid using a sale price (i.e. discounted price) as the base price when establishing a new series, rebasing an item that had been delinquent, or taking a non-comparable substitution. This subsection looks at measurement issues related to: clearance prices; lags between the purchase and sale of a good; irregular transactions of particular goods; and the identification and eventual

replacement of comparable products. Quality adjustments are covered in the next subsection.

Using the margin price of an individual product when a product is sold for less than it is purchased is problematic. Unlike Retail Trade, loss leaders are not very common in Wholesale Trade industries, but negative prices occur, albeit very rarely when products are sold at clearance. Clearance prices can be equal to or even less than the original cost of the product, thereby creating a negative price. This often happens when a new model of a product comes out after a certain amount of time, and the old model must be sold. For example, a computer may be discontinued after six to twelve months, as new models tend to be much more advanced in terms of technology and efficiency. Since it is difficult for respondents to value products on a replacement cost basis that are no longer manufactured and sold to them, clearance priced items sold by wholesalers have no economic consequence and are not collected in the U.S. PPI. Record-keeping practices indicate that these products do not account for a large amount of company revenue and are often not carried forward in the accounting books of companies.

Even short-term sale prices can cause huge fluctuations in the period that the sale price is first encountered and again in the month that the price reverts to normal. Ideally, if the price is verified as accurate, then the item is deleted from index calculation that month and not used until the price reverts to a positive value.

Lags between the time a wholesaler purchases a good and the time he sells the good can cause further challenges in pricing wholesale margins. Selling prices should correspond to buying prices in order to reflect the actual gross margin. But in practice, selling can be delayed; companies can hold stocks, buy products and sell them after some time. Sometimes they can make a profit just from holding stocks. That is especially true for agricultural raw materials where the prices of goods rise over long periods of time (for example: wheat, corn, etc.). Sometimes wholesalers have long-term agreements in constant prices, when selling to institutional customers, manufacturers or chain stores. In these cases they buy big quantities of the product at the time of order, and supply them during the period of agreement at constant prices.

Another measurement challenge in pricing wholesale is that some goods may not be transacted on a regular basis. This situation often occurs with fashion or seasonal apparel merchandise such as swimming-suits. Wholesalers sell whatever is currently popular but may not repeat the transaction for a significant amount of time. When producing a monthly or even quarterly price index, products and/or services must have been wholesaled in the reference period, or have close substitutes in order to be considered an acceptable item to be used in the index. Establishments that sell high fashion and seasonal apparel items generally sell products that are “comparable” over time. Referring back to the output definition for wholesale trade, it is important to note that it is the service performed (i.e. the efficient transfer of goods to another party), that the margin price measures and not a specific product. Similar products are considered comparable if marketed to the same target demographics, under the same set of conditions.

In some cases, it is difficult to define a specific comparable product line. The respondent must view a comparable product line as a grouping of goods, each of which could be substituted for another while, at the same time, being sold on the same per unit basis. Comparable product lines contain homogeneous groupings of products that, in the view of the respondent, are marketed under the same set of conditions to the same (target) demographic market. For example, the sale of a computer printer is not comparable to the sale of a computer monitor, nor is the sale of all computers a homogenous grouping. However, the sale of all “high” end computers could be considered a homogeneous grouping of products. When it is not possible to collect the average gross margin for a product line, individual item product margin may be collected as a fallback.

Further challenges occur when the product being priced is replaced. If the new product serves the same niche market – for example, a newer version of the same computer – then it is a comparable substitution and the price change is accepted. If it does not – for example, replacing a low-end portable T.V. with a large screen plasma High Definition T.V. (HDTV), then it is a non-comparable substitution. The new T.V. no longer services the same niche market with the same basic functionality. If possible, the quality difference in the two items would be used for quality adjusting the margin price difference; otherwise the item would be linked in with no change.

#### **4.5 Quality adjustment**

Quality adjustment in wholesale trade is difficult because products are used to determine the margin price for the service. Quality adjustment is based on the service provided, not the products that are being measured. It is important to define the additional services that are given by the wholesale trade company, such as marketing and sales promotion, packaging and labeling, warehousing and others. Those services affect the selling price and the gross margin. It may be important to make a distinction between resale of imported goods and resale of domestic goods; in many countries there are more services required for imported goods, because of the distance from the customers.

There is a value associated with the output of trade services that are a result of these services provided to the consumer. However, it is inherently difficult to observe and directly measure this value. Therefore, it is difficult to define what would constitute a unit of output for this bundle of services other than in terms linked to the units of the physical commodities sold.

Theoretically, quality adjustments should be performed when marketing characteristics are changed. A change in marketing characteristics, such as the area of the selling space, or the distance from the nearest competition, may affect the margin prices of the products sold. However, unless a hedonic model is developed, it is difficult to quantify the amount of price change due to the changes in marketing. Alternatively, unless an analyst received information from the respondent that a price change was a direct result of the change in marketing, no quality adjustment for changes in marketing can be made.

An advantage of using average margin prices on a per unit basis is that discounting is readily captured in these prices and the need for respondent contact as the result of product substitution is diminished. Minor changes in product generally result in a direct comparison of margin prices for the product as long as the service provided for the product has not significantly changed. However, a lack of quality control is also introduced as a result of such a methodology for pricing. This creates an unknown degree of error in maintaining constant quality for transactions occurring in the Wholesale Trade industries. However, the advantages of the average pricing are believed to far outweigh the disadvantages, given the perceived degree of error associated with maintaining constant quality for transactions.

Price change is not shown for substitute products which have significant changes or those which are completely discontinued.

Marketing services most likely to change are installation, invoicing, computer services, conducting educational seminars and “missionary” work, whereby employees are sent on missions to prospective or existing customers to increase business. Some of these fees are charged for separately, and can therefore be given a separate chance of selection, and do not affect the sale of a product. If there are no separate fees for these services it becomes difficult to quantify changes when they occur.

#### **4.6 Response issues**

A wholesale PPI should not have any special or additional classifications that differ from a country’s turnover program. In Canada and Israel, the wholesale PPI sample is a sub-sample of the survey sample measuring wholesale turnover. This results in increased efficiency in sample review activities while also ensuring that industry level estimates of price change and turnover will be directly comparable. In this way, the price index is based on trade activity by firms classified to wholesale trade while excluding wholesale trade activity by establishments classified to other industries.

In the United States, most companies within Wholesale Trade industries maintain pricing records and make pricing decisions at a headquarters location. Therefore, information was collected at these locations rather than from an individual establishment location. Some problems collecting prices did occur in the case of manufacturers’ sales and branch offices, depending on whether records were separable for the manufacturing arm of the company versus the wholesaling arm. In many cases, respondents considered the manufacturers’ sales and branch offices merely an extension of the manufacturing facility and not a separate Profit Maximizing Center.

In many countries, the contribution of agents and brokers to the wholesale industry may be small while the population itself may consist of a large number of small businesses. Countries may opt to measure prices of merchant wholesalers only for reasons of cost and response burden since the value added of agents and brokers may be very small.

In United States PPI for wholesale attempts to price the service the wholesaler provides to the purchaser of the goods. The output of this wholesaling service is measured most accurately by the average gross margin per unit for a comparable product line. This average gross margin is defined as the difference between the price that a wholesaler pays for a product line and the price that would have to be paid by the wholesaler to replace that same product line at the time it is sold. Most respondents were able to provide this information.

When it was not possible to collect the average gross margin for a product line, individual item product margin was collected as a fallback.

The average price approach has been well received by respondents as they often have information in this format and also believe that this information is more likely indicative of the pricing of their firms. It is a particularly attractive approach in industries where product change is rapid or where there is seasonal change. These industries include wholesale distribution of apparel products and electronic products.

The Central Bureau of Statistics in Israel has also found that companies usually have data on revenues and quantities of specific types of products, or product groups, for a particular customer or customer group. There are some cases where acquisition prices are less available than selling prices, but measuring only selling prices requires making the assumption that selling and buying prices have a similar behavior.

A cautionary note is made regarding average prices for homogeneous groupings of products. Anecdotal evidence suggests that the average price approach is a more accurate measure of output in trade industries as compared to pricing a single item in a single transaction. However, while it is tempting to expand such an approach to larger product groupings, thus accounting for larger amounts of output, this approach needs to be tempered by the unknown degree of error introduced due to lack of homogeneity.

## **5.0 Summary and next steps**

While there is general agreement among the various international industrial classifications on the wholesale process as an intermediate step in the distribution of merchandise, there are some important boundary issues and ambiguities in the application of those classifications. These issues are amplified by structural changes in the economy in response to globalization.

Specifically, future work on industry classification should include a review of the following issues:

- Assess the validity and necessity of continuing to combine wholesale and retail trade of motor vehicles and motorcycles into a separate division.
- Consider whether the existing classification system provides consistent and appropriate guidance in the classification of establishments that are manufacturing sales branches and offices

- Review the concept and application of the current guidelines for classification of Factoryless Goods Producers.

Product classifications delineate wholesale trade services by type of good and distinguish between merchants and wholesalers on a fee or contract basis. The specific functions of a wholesaler that are included in the trade of a good such as transportation, warehousing, bulk breaking, product support and marketing are not broken out; these functions are a challenge to those calculating margin price indexes who have to account for quality adjustments, as wholesalers add or remove these functions from their trade activities.

The primary output of the wholesale trade industry is margins on commodities traded. In addition, commissions received for wholesale activities done on behalf of a third party is a primary activity but accounts for a much smaller proportion of wholesale trade than the margins received by merchants.

In the absence of a wholesale PPI, some countries deflate wholesale trade margins using a combination of Industrial Producer Price Indexes and Import Price Indexes. Others may estimate output using volume indicators although the latter approach is not recommended.

Direct measurement of changes in wholesale trade margins through a wholesale PPI is the preferred method of deflation of the output of this industry. As a minimum, countries should try to deflate margins. Ideally, price indexes should also be calculated to deflate commissions.



## **Appendix A**

### **Definitions**

#### **Types of wholesale trade firms**

- 1) Merchant wholesalers, purchase goods in large quantities, take title to the goods, store them, and then sell them to retailers, manufacturers, other wholesalers, or other customers.
- 2) Sales branches and offices of manufacturing operations are local offices of manufacturers. They market their own products and coordinate distribution directly from the producer to the buyer.
- 3) Wholesale agents or brokers, coordinate the sale of goods from one party to another—usually from manufacturers without taking title to or handling goods in the process. Included in this category are auction companies and commission merchants.

#### **Wholesale Function**

The output of the industry can be a mixture of the following:

1. Creation of utility (or efficiency)
  - a) Time and place utility  
make products available when and where customers are likely to find them
  - b) possession utility  
allow their customers to take ownership of products as needed
  - c) information utility  
provide details about the products that they sell
2. Channeling functions:
  - a) Selling and promoting  
the wholesaler has more contacts and is more often trusted by the buyer than the distant manufacturer.
  - b) Buying and assortment building  
wholesalers can select items and build assortments needed by their customers, thereby providing a “one stop shop” for a buyer.
  - c) Bulk breaking  
wholesalers save their customers money by making large volume purchases and breaking these large lots into smaller quantities.
  - d) Warehousing  
wholesalers hold inventory, thereby reducing the inventory costs and risks of suppliers and customers.
  - e) Transportation  
wholesalers typically provide quicker delivery to buyers because they are closer to the buyers than the manufacturer.
  - f) Risk bearing  
wholesalers absorb risk by taking title and bearing the cost of theft, damage, spoilage, and obsolescence.
  - g) Market Information

wholesalers give information to suppliers and customers about competition, new products, and price developments.

h) Management services and advice

wholesalers often help customers train their sales clerks, improve store layouts, and displays, and set up accounting and inventory control systems.

3. Secondary output

Wholesalers also may perform installation services, equipment repair work, as well as warranty repair work for the manufacturer. These services are generally not bundled with the wholesaling function.

## **Appendix B**

### **Industry classification**

#### **ISIC Rev.4 code 46**

#### **G - Wholesale and retail trade; repair of motor vehicles and motorcycles**

#### **45 - Wholesale and retail trade and repair of motor vehicles and motorcycles**

##### **451 - Sale of motor vehicles**

4510 - Sale of motor vehicles

##### **452 - Maintenance and repair of motor vehicles**

4520 - Maintenance and repair of motor vehicles

##### **453 - Sale of motor vehicle parts and accessories**

4530 - Sale of motor vehicle parts and accessories

##### **454 - Sale, maintenance and repair of motorcycles and related parts and accessories**

4540 - Sale, maintenance and repair of motorcycles and related parts and accessories

#### **46 - Wholesale trade, except of motor vehicles and motorcycles**

##### **461 - Wholesale on a fee or contract basis**

4610 - Wholesale on a fee or contract basis

##### **462 - Wholesale of agricultural raw materials and live animals**

4620 - Wholesale of agricultural raw materials and live animals

##### **463 - Wholesale of food, beverages and tobacco**

4630 - Wholesale of food, beverages and tobacco

##### **464 - Wholesale of household goods**

4641 - Wholesale of textiles, clothing and footwear

4649 - Wholesale of other household goods

##### **465 - Wholesale of machinery, equipment and supplies**

4651 - Wholesale of computers, computer peripheral equipment and software

4652 - Wholesale of electronic and telecommunications equipment and parts

4653 - Wholesale of agricultural machinery, equipment and supplies

4659 - Wholesale of other machinery and equipment

##### **466 - Other specialized wholesale**

4661 - Wholesale of solid, liquid and gaseous fuels and related products

4662 - Wholesale of metals and metal ores

4663 - Wholesale of construction materials, hardware, plumbing and heating equipment and supplies

4669 - Wholesale of waste and scrap and other products n.e.c.

**469 - Non-specialized wholesale trade**

4690 - Non-specialized wholesale trade

## **Appendix C**

### **Product classifications**

#### **CPC 2.0 Product Structure**

##### **61 - Wholesale trade services**

##### **611 - Wholesale trade services, except on a fee or contract basis**

##### **6111 - Wholesale trade services, except on a fee or contract basis, of agricultural raw materials and live animals**

- 61111 - Wholesale trade services, except on a fee or contract basis, of grains and oilseeds and oleaginous fruits, seeds and animal feed
- 61112 - Wholesale trade services, except on a fee or contract basis, of flowers and plants
- 61113 - Wholesale trade services, except on a fee or contract basis, of unmanufactured tobacco
- 61114 - Wholesale trade services, except on a fee or contract basis, of live animals, including pet animals
- 61115 - Wholesale trade services, except on a fee or contract basis, of hides, skins and leather
- 61119 - Wholesale trade services, except on a fee or contract basis, of agricultural raw materials n.e.c.

##### **6112 - Wholesale trade services, except on a fee or contract basis, of food, beverages and tobacco**

- 61121 - Wholesale trade services, except on a fee or contract basis, of fruit and vegetables
- 61122 - Wholesale trade services, except on a fee or contract basis, of dairy products, eggs and edible oils and fats
- 61123 - Wholesale trade services, except on a fee or contract basis, of meat, poultry and game
- 61124 - Wholesale trade services, except on a fee or contract basis, of fish and other seafood
- 61125 - Wholesale trade services, except on a fee or contract basis, of sugar confectionery and bakery products
- 61126 - Wholesale trade services, except on a fee or contract basis, of beverages
- 61127 - Wholesale trade services, except on a fee or contract basis, of coffee, tea and spices
- 61128 - Wholesale trade services, except on a fee or contract basis, of tobacco products
- 61129 - Wholesale trade services, except on a fee or contract basis, of food products n.e.c.

##### **6113 - Wholesale trade services, except on a fee or contract basis, of textiles, clothing and footwear**

- 61131 - Wholesale trade services, except on a fee or contract basis, of yarn and fabrics
- 61132 - Wholesale trade services, except on a fee or contract basis, of household linens, curtains, net curtains and diverse household articles of textile materials
- 61133 - Wholesale trade services, except on a fee or contract basis, of articles of clothing, articles of fur and clothing accessories
- 61134 - Wholesale trade services, except on a fee or contract basis, of footwear

**6114 - Wholesale trade services, except on a fee or contract basis, of household appliances, articles and equipment**

- 61141 - Wholesale trade services, except on a fee or contract basis, of household furniture
- 61142 - Wholesale trade services, except on a fee or contract basis, of radio and television equipment and recorded audio and video disks and tapes
- 61143 - Wholesale trade services, except on a fee or contract basis, of articles for lighting
- 61144 - Wholesale trade services, except on a fee or contract basis, of household appliances
- 61145 - Wholesale trade services, except on a fee or contract basis, of miscellaneous household utensils, cutlery, crockery, glassware, china and pottery
- 61146 - Wholesale trade services, except on a fee or contract basis, of wickerwork, cork goods, cooper's ware and other wooden ware

**6115 - Wholesale trade services, except on a fee or contract basis, of miscellaneous consumer goods**

- 61151 - Wholesale trade services, except on a fee or contract basis, of books, newspapers, magazines and stationery
- 61152 - Wholesale trade services, except on a fee or contract basis, of photographic, optical and precision equipment
- 61153 - Wholesale trade services, except on a fee or contract basis, of games and toys
- 61154 - Wholesale trade services, except on a fee or contract basis, of watches, clocks and jewellery
- 61155 - Wholesale trade services, except on a fee or contract basis, of sports goods (incl. bicycles)
- 61156 - Wholesale trade services, except on a fee or contract basis, of leather goods and travel accessories
- 61159 - Wholesale trade services, except on a fee or contract basis, of miscellaneous consumer goods n.e.c.

**6116 - Wholesale trade services, except on a fee or contract basis, of construction materials and hardware**

- 61161 - Wholesale trade services, except on a fee or contract basis, of construction materials and flat glass
- 61162 - Wholesale trade services, except on a fee or contract basis, of fittings, fixtures and ceramic sanitary fixtures

- 61163 - Wholesale trade services, except on a fee or contract basis, of wallpaper and floor coverings
- 61164 - Wholesale trade services, except on a fee or contract basis, of paints, varnishes and lacquers
- 61165 - Wholesale trade services, except on a fee or contract basis, of hardware and hand tools

**6117 - Wholesale trade services, except on a fee or contract basis, of chemical and pharmaceutical products**

- 61171 - Wholesale trade services, except on a fee or contract basis, of basic industrial chemicals and synthetic resins
- 61172 - Wholesale trade services, except on a fee or contract basis, of fertilizers and agrochemical products
- 61173 - Wholesale trade services, except on a fee or contract basis, of pharmaceutical products
- 61174 - Wholesale trade services, except on a fee or contract basis, of medical and orthopaedic goods
- 61175 - Wholesale trade services, except on a fee or contract basis, of perfumery articles, cosmetic articles and toilet soaps
- 61176 - Wholesale trade services, except on a fee or contract basis, of cleaning materials

**6118 - Wholesale trade services, except on a fee or contract basis, of machinery, equipment and supplies**

- 61181 - Wholesale trade services, except on a fee or contract basis, of motor vehicles, motorcycles, snowmobiles and related parts and accessories
- 61182 - Wholesale trade services, except on a fee or contract basis, of other transport equipment, except bicycles
- 61183 - Wholesale trade services, except on a fee or contract basis, of office machinery and equipment including office furniture
- 61184 - Wholesale trade services, except on a fee or contract basis, of computers and packaged software
- 61185 - Wholesale trade services, except on a fee or contract basis, of electronic and telecommunications equipment and parts
- 61186 - Wholesale trade services, except on a fee or contract basis, of agricultural lawn and garden machinery and equipment, including tractors
- 61187 - Wholesale trade services, except on a fee or contract basis, of mining, construction and civil engineering machinery and equipment
- 61188 - Wholesale trade services, except on a fee or contract basis, of other industry-specific machinery and equipment and related operating supplies
- 61189 - Wholesale trade services, except on a fee or contract basis, of other machinery and equipment n.e.c.

**6119 - Wholesale trade services, except on a fee or contract basis, of other products**

- 61191 - Wholesale trade services, except on a fee or contract basis, of solid, liquid and gaseous fuels and related products

- 61192 - Wholesale trade services, except on a fee or contract basis, of metal ores and metal in primary forms
- 61193 - Wholesale trade services, except on a fee or contract basis, of wood in the rough
- 61194 - Wholesale trade services, except on a fee or contract basis, of paper and paperboard
- 61195 - Wholesale trade services, except on a fee or contract basis, of waste and scrap and materials for recycling
- 61197 - Wholesale trade services, except on a fee or contract basis, of electricity
- 61198 - Wholesale trade services, except on a fee or contract basis, of water
- 61199 - Wholesale trade services, except on a fee or contract basis, of non-metallic minerals and other products n.e.c.

## **612 - Wholesale trade services on a fee or contract basis**

### **6121 - Wholesale trade services on a fee or contract basis, of agricultural raw materials and live animals**

- 61211 - Wholesale trade services on a fee or contract basis, of grains and oilseeds and oleaginous fruits, seeds and animal feed
- 61212 - Wholesale trade services on a fee or contract basis, of flowers and plants
- 61213 - Wholesale trade services on a fee or contract basis, of unmanufactured tobacco
- 61214 - Wholesale trade services on a fee or contract basis, of live animals, including pet animals
- 61215 - Wholesale trade services on a fee or contract basis, of hides, skins and leather
- 61219 - Wholesale trade services on a fee or contract basis, of agricultural raw materials n.e.c.

### **6122 - Wholesale trade services on a fee or contract basis, of food, beverages and tobacco**

- 61221 - Wholesale trade services on a fee or contract basis, of fruit and vegetables
- 61222 - Wholesale trade services on a fee or contract basis, of dairy products, eggs and edible oils and fats
- 61223 - Wholesale trade services on a fee or contract basis, of meat, poultry and game
- 61224 - Wholesale trade services on a fee or contract basis, of fish and other seafood
- 61225 - Wholesale trade services on a fee or contract basis, of sugar confectionery and bakery products
- 61226 - Wholesale trade services on a fee or contract basis, of beverages
- 61227 - Wholesale trade services on a fee or contract basis, of coffee, tea and spices
- 61228 - Wholesale trade services on a fee or contract basis, of tobacco products
- 61229 - Wholesale trade services on a fee or contract basis, of food products n.e.c.

### **6123 - Wholesale trade services on a fee or contract basis, of textiles, clothing and footwear**

- 61231 - Wholesale trade services on a fee or contract basis, of yarn and fabrics
- 61232 - Wholesale trade services on a fee or contract basis, of household linens, curtains, net curtains and diverse household articles
- 61233 - Wholesale trade services on a fee or contract basis, of articles of clothing, articles of fur and clothing accessories
- 61234 - Wholesale trade services on a fee or contract basis, of footwear

**6124 - Wholesale trade services on a fee or contract basis, of household appliances, articles and equipment**

- 61241 - Wholesale trade services on a fee or contract basis, of household furniture
- 61242 - Wholesale trade services on a fee or contract basis, of radio and television equipment and recorded audio and video disks and tapes
- 61243 - Wholesale trade services on a fee or contract basis, of articles for lighting
- 61244 - Wholesale trade services on a fee or contract basis, of household appliances
- 61245 - Wholesale trade services on a fee or contract basis, of miscellaneous household utensils, cutlery, crockery, glassware, china and pottery
- 61246 - Wholesale trade services on a fee or contract basis, of wickerwork, cork goods, cooper's ware and other wooden ware

**6125 - Wholesale trade services on a fee or contract basis, of miscellaneous consumer goods**

- 61251 - Wholesale trade services on a fee or contract basis, of books, newspapers, magazines and stationery
- 61252 - Wholesale trade services on a fee or contract basis, of photographic, optical and precision equipment
- 61253 - Wholesale trade services on a fee or contract basis, of games and toys
- 61254 - Wholesale trade services on a fee or contract basis, of watches, clocks and jewellery
- 61255 - Wholesale trade services on a fee or contract basis, of sports goods (incl. bicycles)
- 61256 - Wholesale trade services on a fee or contract basis, of leather goods and travel accessories
- 61259 - Wholesale trade services on a fee or contract basis, of miscellaneous consumer goods n.e.c.

**6126 - Wholesale trade services on a fee or contract basis, of construction materials and hardware**

- 61261 - Wholesale trade services on a fee or contract basis, of construction materials and flat glass
- 61262 - Wholesale trade services on a fee or contract basis, of fittings, fixtures and ceramic sanitary fixtures
- 61263 - Wholesale trade services on a fee or contract basis, of wallpaper and floor coverings
- 61264 - Wholesale trade services on a fee or contract basis, of paints, varnishes and lacquers
- 61265 - Wholesale trade services on a fee or contract basis, of hardware and hand tools

**6127 - Wholesale trade services on a fee or contract basis, of chemical and pharmaceutical products**

- 61271 - Wholesale trade services on a fee or contract basis, of basic industrial chemicals and synthetic resins
- 61272 - Wholesale trade services on a fee or contract basis, of fertilizers and agrochemical products
- 61273 - Wholesale trade services on a fee or contract basis, of pharmaceutical products
- 61274 - Wholesale trade services on a fee or contract basis, of medical and orthopaedic goods
- 61275 - Wholesale trade services on a fee or contract basis, of perfumery articles, cosmetic articles and toilet soaps
- 61276 - Wholesale trade services on a fee or contract basis, of cleaning materials

**6128 - Wholesale trade services on a fee or contract basis, of machinery, equipment and supplies**

- 61281 - Wholesale trade services on a fee or contract basis, of motor vehicles, motorcycles, snowmobiles and related parts and accessories
- 61282 - Wholesale trade services on a fee or contract basis, of other transport equipment, except bicycles
- 61283 - Wholesale trade services on a fee or contract basis, of office machinery and equipment including office furniture
- 61284 - Wholesale trade services on a fee or contract basis, of computers and packaged software
- 61285 - Wholesale trade services on a fee or contract basis, of electronic and telecommunications equipment and parts
- 61286 - Wholesale trade services on a fee or contract basis, of agricultural, lawn and garden machinery and equipment, including tractors
- 61287 - Wholesale trade services on a fee or contract basis, of mining, construction and civil engineering machinery and equipment
- 61288 - Wholesale trade services on a fee or contract basis, of other industry-specific machinery and equipment and related operating supplies
- 61289 - Wholesale trade services on a fee or contract basis, of other machinery and equipment n.e.c.

**6129 - Wholesale trade services on a fee or contract basis, of other products**

- 61291 - Wholesale trade services on a fee or contract basis, of solid, liquid and gaseous fuels and related products
- 61292 - Wholesale trade services on a fee or contract basis, of metal ores and metal in primary forms
- 61293 - Wholesale trade services on a fee or contract basis, of wood in the rough
- 61294 - Wholesale trade services on a fee or contract basis, of paper and paperboard

- 61295 - Wholesale trade services on a fee or contract basis, of waste and scrap and materials for recycling
- 61297 - Wholesale trade services on a fee or contract basis, of electricity
- 61298 - Wholesale trade services on a fee or contract basis, of water
- 61299 - Wholesale trade services on a fee or contract basis, of non-metallic minerals and other products n.e.c.



## **Classification of Products by Activity (CPA2008)**

### **46 - Wholesale trade services, except of motor vehicles and motorcycles**

#### **46.1 - Wholesale trade services on a fee or contract basis**

##### **46.11 - Wholesale trade services on a fee or contract basis of agricultural raw materials, live animals, textile raw materials and semi-finished goods**

- 46.11.1 - Wholesale trade services on a fee or contract basis of agricultural raw materials, live animals, textile raw materials and semi-finished goods
- 46.11.11 - Wholesale trade services on a fee or contract basis of live animals
- 46.11.12 - Wholesale trade services on a fee or contract basis of flowers and plants
- 46.11.19 - Wholesale trade services on a fee or contract basis of other agricultural raw materials, textile raw materials and semi-finished goods

##### **46.12 - Wholesale trade services on a fee or contract basis of fuels, ores, metals and industrial chemicals**

- 46.12.1 - Wholesale trade services on a fee or contract basis of fuels, ores, metals and industrial chemicals
- 46.12.11 - Wholesale trade services on a fee or contract basis of solid, liquid and gaseous fuels and related products
- 46.12.12 - Wholesale trade services on a fee or contract basis of metal ores and metal in primary forms
- 46.12.13 - Wholesale trade services on a fee or contract basis of industrial chemicals, fertilisers and agrochemical products

##### **46.13 - Wholesale trade services on a fee or contract basis of timber and building materials**

- 46.13.1 - Wholesale trade services on a fee or contract basis of timber and building materials
- 46.13.11 - Wholesale trade services on a fee or contract basis of timber and products of timber
- 46.13.12 - Wholesale trade services on a fee or contract basis of building materials

##### **46.14 - Wholesale trade services on a fee or contract basis of machinery, industrial equipment, ships and aircraft**

- 46.14.1 - Wholesale trade services on a fee or contract basis of machinery, industrial equipment, ships and aircraft
- 46.14.11 - Wholesale trade services on a fee or contract basis of computers, software, electronic and telecommunications equipment and other office equipment
- 46.14.12 - Wholesale trade services on a fee or contract basis of ships, aircraft and other transport equipment n.e.c.
- 46.14.19 - Wholesale trade services on a fee or contract basis of other machinery and industrial equipment n.e.c.

**46.15 - Wholesale trade services on a fee or contract basis of furniture, household goods, hardware and ironmongery**

- 46.15.1 - Wholesale trade services on a fee or contract basis of furniture, household goods, hardware and ironmongery
- 46.15.11 - Wholesale trade services on a fee or contract basis of furniture
- 46.15.12 - Wholesale trade services on a fee or contract basis of radio, television and video equipment
- 46.15.13 - Wholesale trade services on a fee or contract basis of hardware and hand tools
- 46.15.19 - Wholesale trade services on a fee or contract basis of cutlery and household goods n.e.c.

**46.16 - Wholesale trade services on a fee or contract basis of textiles, clothing, fur, footwear and leather goods**

- 46.16.1 - Wholesale trade services on a fee or contract basis of textiles, clothing, fur, footwear and leather goods
- 46.16.11 - Wholesale trade services on a fee or contract basis of textiles
- 46.16.12 - Wholesale trade services on a fee or contract basis of clothing, fur and footwear
- 46.16.13 - Wholesale trade services on a fee or contract basis of leather goods and travel accessories

**46.17 - Wholesale trade services on a fee or contract basis of food, beverages and tobacco**

- 46.17.1 - Wholesale trade services on a fee or contract basis of food, beverages and tobacco
- 46.17.11 - Wholesale trade services on a fee or contract basis of food
- 46.17.12 - Wholesale trade services on a fee or contract basis of beverages
- 46.17.13 - Wholesale trade services on a fee or contract basis of tobacco

**46.18 - Wholesale trade services on a fee or contract basis of other particular products**

- 46.18.1 - Wholesale trade services on a fee or contract basis of other particular products
- 46.18.11 - Wholesale trade services on a fee or contract basis of pharmaceutical and medical goods, perfumery and toilet articles and cleaning materials
- 46.18.12 - Wholesale trade services on a fee or contract basis of games and toys, sports goods, bicycles, books, newspapers, magazines and stationary, musical instruments, watches, clocks and jewellery, photographic and optical equipment
- 46.18.19 - Wholesale trade services on a fee or contract basis of other particular products n.e.c.

**46.19 - Wholesale trade services on a fee or contract basis of a variety of goods**  
46.19.1 - Wholesale trade services on a fee or contract basis of a variety of goods

**46.2 - Wholesale trade services of agricultural raw materials and live animals**

**46.21 - Wholesale trade services of grain, unmanufactured tobacco, seeds and animal feeds**

- 46.21.1 - Wholesale trade services of grain, seeds and animal feeds
- 46.21.11 - Wholesale trade services of grain
- 46.21.12 - Wholesale trade services of seeds (other than oil seeds)
- 46.21.13 - Wholesale trade services of oil seeds and oleaginous fruits
- 46.21.14 - Wholesale trade services of animal feeds
- 46.21.19 - Wholesale trade services of other agricultural raw materials n.e.c.
- 46.21.2 - Wholesale trade services of unmanufactured tobacco

**46.22 - Wholesale trade services of flowers and plants**

**46.23 - Wholesale trade services of live animals**

**46.24 - Wholesale trade services of hides, skins and leather**

**46.3 - Wholesale trade services of food, beverages and tobacco**

**46.31 - Wholesale trade services of fruit and vegetables**

- 46.31.1 - Wholesale trade services of fruits and vegetables
- 46.31.11 - Wholesale trade services of fresh fruit and vegetables
- 46.31.12 - Wholesale trade services of processed fruit and vegetables

**46.32 - Wholesale trade services of meat and meat products**

- 46.32.1 - Wholesale trade services of meat and meat products
- 46.32.11 - Wholesale trade services of meat (including poultry)
- 46.32.12 - Wholesale trade services of meat products (including poultry products)

**46.33 - Wholesale trade services of dairy products, eggs and edible oils and fats**

- 46.33.1 - Wholesale trade services of dairy products, eggs and edible oils and fats
- 46.33.11 - Wholesale trade services of dairy products
- 46.33.12 - Wholesale trade services of eggs
- 46.33.13 - Wholesale trade services of edible oils and fats

**46.34 - Wholesale trade services of beverages**

- 46.34.1 - Wholesale trade services of beverages
- 46.34.11 - Wholesale trade services of juices, mineral waters, soft drinks and other non-alcoholic beverages
- 46.34.12 - Wholesale trade services of alcoholic beverages

**46.35 - Wholesale trade services of tobacco products**

**46.36 - Wholesale trade services of sugar and chocolate and sugar confectionery**

- 46.36.1 - Wholesale trade services of sugar, chocolate and sugar confectionery
- 46.36.11 - Wholesale trade services of sugar
- 46.36.12 - Wholesale trade services of bakery products
- 46.36.13 - Wholesale trade services of chocolate and sugar confectionery

**46.37 - Wholesale trade services of coffee, tea, cocoa and spices**

**46.38 - Wholesale trade services of other food, including fish, crustaceans and molluscs**

- 46.38.1 - Wholesale trade services of fish, crustaceans and molluscs
- 46.38.2 - Wholesale trade services of other food products
- 46.38.21 - Wholesale trade services of homogenised food preparations and dietetic food
- 46.38.29 - Wholesale trade services of other food products n.e.c.

**46.39 - Non-specialised wholesale trade services of food, beverages and tobacco**

- 46.39.1 - Wholesale trade services of food, beverages and tobacco, non-specialised
- 46.39.11 - Wholesale trade services of frozen food, non-specialised
- 46.39.12 - Wholesale trade services of food, not frozen, beverages and tobacco, non-specialised

**46.4 - Wholesale trade services of household goods**

- 46.41 - Wholesale trade services of textiles
- 46.41.1 - Wholesale trade services of textiles
- 46.41.11 - Wholesale trade services of yarn
- 46.41.12 - Wholesale trade services of fabrics
- 46.41.13 - Wholesale trade services of household linens, curtains and diverse household articles of textile materials
- 46.41.14 - Wholesale trade services of haberdashery

**46.42 - Wholesale trade services of clothing and footwear**

- 46.42.1 - Wholesale trade services of clothing and footwear
- 46.42.11 - Wholesale trade services of clothing
- 46.42.12 - Wholesale trade services of footwear

**46.43 - Wholesale trade services of electrical household appliances**

- 46.43.1 - Wholesale trade services of electrical household appliances
- 46.43.11 - Wholesale trade services of electrical household appliances, except radio, television and photographic goods
- 46.43.12 - Wholesale trade services of radio, television, video and DVD equipment
- 46.43.13 - Wholesale trade services of records, audio and video tapes, CDs and DVDs (except blank tapes)
- 46.43.14 - Wholesale trade services of photographic and optical goods

**46.44 - Wholesale trade services of china and glassware and cleaning materials**

- 46.44.1 - Wholesale trade services of china and glassware and cleaning materials
- 46.44.11 - Wholesale trade services of glassware, china and pottery
- 46.44.12 - Wholesale trade services of cleaning materials

**46.45 - Wholesale trade services of perfume and cosmetics**

**46.46 - Wholesale trade services of pharmaceutical goods**

- 46.46.1 - Wholesale trade services of pharmaceutical goods
- 46.46.11 - Wholesale trade services of basic pharmaceutical products and pharmaceutical preparations
- 46.46.12 - Wholesale trade services of surgical, medical and orthopaedic instruments and devices

**46.47 - Wholesale trade services of furniture, carpets and lighting equipment**

- 46.47.1 - Wholesale trade services of furniture, carpets and lighting equipment
- 46.47.11 - Wholesale trade services of household furniture
- 46.47.12 - Wholesale trade services of lighting equipment
- 46.47.13 - Wholesale trade services of carpets and rugs

**46.48 - Wholesale trade services of watches and jewellery**

**46.49 - Wholesale trade services of other household goods**

- 46.49.1 - Wholesale trade services of cutlery and domestic metal ware, wickerwork, cork goods and other household articles n.e.c.
- 46.49.11 - Wholesale trade services of cutlery and domestic metal ware
- 46.49.12 - Wholesale trade services of wickerwork, cork goods, cooper's ware and other wooden ware
- 46.49.19 - Wholesale trade services of household articles and equipment n.e.c.

**46.49.2 - Wholesale trade services of books, magazines and stationery**

- 46.49.21 - Wholesale trade services of books
- 46.49.22 - Wholesale trade services of magazines and newspapers
- 46.49.23 - Wholesale trade services of stationery

**46.49.3 - Wholesale trade services of other consumer goods**

- 46.49.31 - Wholesale trade services of musical instruments
- 46.49.32 - Wholesale trade services of games and toys
- 46.49.33 - Wholesale trade services of sports goods (incl. bicycles)
- 46.49.34 - Wholesale trade services of leather goods and travel accessories
- 46.49.35 - Wholesale trade services of stamps and coins
- 46.49.36 - Wholesale trade services of souvenirs and arts
- 46.49.39 - Wholesale trade services of other consumer goods n.e.c.

**46.5 - Wholesale trade services of information and communication equipment**

- 46.51 - Wholesale trade services of computers, computer peripheral equipment and software

**46.52 - Wholesale trade services of electronic and telecommunications equipment and parts**

- 46.52.1 - Wholesale trade services of electronic and telecommunications equipment and parts
- 46.52.11 - Wholesale trade services of telecommunications equipment and parts
- 46.52.12 - Wholesale trade services of electronic equipment and parts
- 46.52.13 - Wholesale trade services of blank audio and video tapes and diskettes, magnetic and optical disks CDs and DVDs

**46.6 - Wholesale trade services of other machinery, equipment and supplies**

- 46.61 - Wholesale trade services of agricultural machinery, equipment and supplies
- 46.61.1 - Wholesale trade services of agricultural machinery, equipment and supplies
- 46.61.11 - Wholesale trade services of agricultural and forestry machinery, equipment and supplies, including tractors
- 46.61.12 - Wholesale trade services of lawn and garden machinery, equipment and supplies

**46.62 - Wholesale trade services of machine tools**

- 46.62.1 - Wholesale trade services of machine tools
- 46.62.11 - Wholesale trade services of machine tools for working wood
- 46.62.12 - Wholesale trade services of machine tools for working metal
- 46.62.19 - Wholesale trade services of machine tools for working other materials

**46.63 - Wholesale trade services of mining, construction and civil engineering machinery**

**46.64 - Wholesale trade services of machinery for the textile industry and of sewing and knitting machines**

**46.65 - Wholesale trade services of office furniture**

**46.66 - Wholesale trade services of other office machinery and equipment**

**46.69 - Wholesale trade services of other machinery and equipment**

- 46.69.1 - Wholesale trade services of other machinery and equipment
- 46.69.11 - Wholesale trade services of transport equipment other than motor vehicles, motorcycles and bicycles
- 46.69.12 - Wholesale trade services of machinery and equipment related supplies
- 46.69.13 - Wholesale trade services of lifting and handling equipment
- 46.69.14 - Wholesale trade services of machinery for the food, beverages and tobacco industry
- 46.69.15 - Wholesale trade services of professional electrical machinery, apparatus and materials
- 46.69.16 - Wholesale trade services of weapons and ammunitions
- 46.69.19 - Wholesale trade services of other general and special-purpose machinery, apparatus and equipment

**46.7 - Other specialized wholesale trade services**

- 46.71 - Wholesale trade services of solid, liquid and gaseous fuels and related products
- 46.71.1 - Wholesale trade services of solid, liquid and gaseous fuels and related products
- 46.71.11 - Wholesale trade services of solid fuels
- 46.71.12 - Wholesale trade services of motor spirit, including aviation spirit
- 46.71.13 - Wholesale trade services of other liquid and gaseous fuels and related products

**46.72 - Wholesale trade services of metals and metal ores**

- 46.72.1 - Wholesale trade services of metals and metal ores
- 46.72.11 - Wholesale trade services of iron ores
- 46.72.12 - Wholesale trade services of non-iron ores
- 46.72.13 - Wholesale trade services of iron and steel in primary forms
- 46.72.14 - Wholesale trade services of non-iron metals in primary forms

**46.73 - Wholesale trade services of wood, construction materials and sanitary equipment**

- 46.73.1 - Wholesale trade services of wood, construction materials and sanitary equipment
- 46.73.11 - Wholesale trade services of wood in the rough
- 46.73.12 - Wholesale trade services of products of primary processing of wood
- 46.73.13 - Wholesale trade services of sanitary equipment
- 46.73.14 - Wholesale trade services of paints, varnishes and lacquers
- 46.73.15 - Wholesale trade services of flat glass
- 46.73.16 - Wholesale trade services of other construction materials
- 46.73.17 - Wholesale trade services of wallpaper
- 46.73.18 - Wholesale trade services of floor coverings (except carpets)

**46.74 - Wholesale trade services of hardware, plumbing and heating equipment and supplies**

- 46.74.1 - Wholesale trade services of hardware, plumbing and heating equipment and supplies
- 46.74.11 - Wholesale trade services of hardware
- 46.74.12 - Wholesale trade services of plumbing and heating equipment and supplies
- 46.74.13 - Wholesale trade services of hand tools

**46.75 - Wholesale trade services of chemical products**

- 46.75.1 - Wholesale trade services of chemical products
- 46.75.11 - Wholesale trade services of fertilizers and agro-chemical products
- 46.75.12 - Wholesale trade services of industrial chemicals

**46.76 - Wholesale trade services of other intermediate products**

46.76.1 - Wholesale trade services of other intermediate products

46.76.11 - Wholesale trade services of paper and paperboard

46.76.12 - Wholesale trade services of textile fibers

46.76.13 - Wholesale trade services of plastics and rubber in primary forms

46.76.19 - Wholesale trade services of intermediate products, other than agricultural,  
n.e.c.

**46.77 - Wholesale trade services of waste and scrap**

**46.9 - Non-specialized wholesale trade services**

## **Appendix D**

### **Country-specific examples of deflation methods used by the SNA**

#### **Canada:**

To calculate annual GDP estimates for the Input-Output accounts, the commodity output is deflated using a double deflation method. The real GDP is derived by taking the difference between the industry gross output and the industry intermediate inputs at constant prices.

Canada has recently developed and released an SPPI for Wholesale Trade. Studies are now underway to assess the quality and impact of the new measure for future use in the Canadian System of National Accounts. The current method that has been in place in the absence of the Wholesale SPPI is detailed below:

In the absence of a direct price index, the price movement can be measured indirectly via a derived implicit price index. The implicit price index is calculated by taking the sum of the current dollar wholesale margins divided by the sum of the constant dollar wholesale margins.

The implicit price index (IPI) is calculated as the product of dividing the current dollar sum of input and final demand wholesale margins by the sum of their constant dollar wholesale margins. The deflated wholesale margin for input and final demand is calculated by applying current dollar average margin ratio to the constant dollar producer value of input and final demand. The Canadian methodology of compiling the wholesale margin IPI or the deflator is illustrated below:

#### **Wholesale margins commodity output deflator**

##### **1) Intermediate Demand**

Wholesale margin rate for input commodity in year (t) =  
 **$\$C \text{ wholesale margin} / \$C \text{ producer value of input commodity}$**

Wholesale margin rate for input commodity in year (t+1) =  
 **$\$C \text{ wholesale margin} / \$C \text{ producer value of input commodity}$**

The average wholesale margin ratio =  **$(\text{Rate in year (t)} + \text{Rate in year (t+1)}) / 2$**

**$\$K \text{ Wholesale margin for input commodity} =$**   
 **$\text{The average wholesale margin ratio} * \$K \text{ producer value input commodity}$**

##### **2) Final Demand**

Wholesale margin rate for final demand commodity in year (t) =  
 **$\$C \text{ wholesale margin} / \$C \text{ producer value of final demand commodity}$**

Wholesale margin rate for final demand commodity in year (t+1) =  
**\$C wholesale margin / \$C producer value of final demand commodity**

The average wholesale margin ratio = **(Rate in year (t) + Rate in year (t+1)) / 2**

\$K Wholesale margin for final demand commodity =  
**The average wholesale margin ratio \* \$K producer value final demand**

### **3) Wholesale margins commodity output deflator**

Wholesale margin commodity (IPI) =  
**\$C sum of wholesale margins for inputs + final demand**  
**\$K sum of wholesale margins for inputs + final demand**

#### **Sweden:**

The System of National Accounts in Sweden uses the following procedure for the calculation of trade margins and Gross Value Added:

In the annual accounts calculations of trade margins for the product accounts are carried out in the Supply- and Use tables. There is a percentage margin for each product group. The margins are totaled in the system. Trade margins generated in branches other than NACE G are subtracted from the total and the residual is the output value for trade margins within the NACE G.

The percentage for the base year is used for extrapolating the value in constant prices for each product group. This means that the trade margin for each product is extrapolated in line with the purchasers' price. Assuming the same trade margin implies that the quality of the goods or related services has not changed from one year to another.

If checks on the Supply- and Use tables reveal substantial discrepancies between the current and constant prices, this may indicate that something has changed from one year to another. The discrepancy may result from an increase or reduction in the trade margin because of competition or a change in the service offered. If there has been a change in the service offered there will be a change in the margin in constant prices too.

On a quarterly basis, estimates of Gross Value Added are based on turnover statistics for current prices and the Service production index for constant prices. The Service production index is derived through deflating the Turnover statistics on a detailed level for 57 industries. For NACE 45, weighted indices for products according to CPI and SPPI are used. For NACE 46 weighted PPI for domestic supply are used and for NACE 47 weighted indices for products according to CPI are used.

The method used by Swedish NA for the deflation of trade margins is classified as a B-method by Eurostat.

The appropriate SPPI for trade margins are lacking in most countries in the world including Sweden. During 2007 the Prices unit of Statistics Sweden studied the subject in a pre-study; but due to the lack of resources the realization of the development was postponed for a few years.

### **The Netherlands:**

To deflate wholesale margins in the Dutch system of National Accounts volume indices are used instead of prices indices. This system is known as the commodity flow method. It combines two data sources, the wholesale survey which measures the production value of the wholesale margins (annual data) and the surveys in which total supply of goods is measured (import and domestic production). The assumption is made that the volume index of supplied goods corresponds with the volume index of the margins on that goods. The price index is derived by dividing the value index with the volume index.

In the Dutch system of National Accounts (supply & use tables) wholesale margins and commissions are not separated. There are separate wholesale margins on domestic used goods and wholesale margins on exported goods.

### **Spain:**

Spain does not compile producer price indices for wholesale activity in order to deflate. The deflation is carried out following the European handbook of recommendations for constant prices when there is not information of producer prices.

In order to obtain the output at constant prices from the margin matrixes of current prices is taken into account:

- the evolution of the volume of those products
- the different destinations of those products
- the type of way of marketing

The margin rates of the previous year are applied to the values of the products at constant prices for every type of destination in order to obtain the value of the output at constant prices.

Currently, there is only one product to collect the wholesale services, Division 51 of CNPA 96 in Tables I-O. However, the destination tables are carried out and disseminated both at basic price and at purchasing price. This lets to identify the commercial margins and the commissions in a separate way.

The tables are compiled with a breakdown of 118 products, from them 55 are goods which can be afflicted with commercial margins. The products have been chosen taking into account the minimum requirements of Eurostat descending (in the breakdown) at level when the products were significantly different and there was information about them. In some cases, they correspond Divisions of CPA, but in other cases they correspond at three digit level categories or they are sums of products at three digit level. In order to compile the

tables origin and destination the margins have been obtained at the same breakdown of the products.

**Poland:**

In the SNA the all items of gross, product apart from trade margin, in wholesale trade is deflated by output prices for manufacturing of food and beverages while the trade margin is deflated by the CPI (consumer price index). The intermediate consumption is deflated by means of indices calculated individually for the given activity on the basis of prices for intermediation consumption.

## **Appendix E**

### **Bibliography**

- Åhman, J. (2008): Trade Margins – An example from the Wholesale Trade Industry in Sweden. Paper for the Voorburg Group meeting 2008. Statistics Sweden.
- Barzyk, F. (2008): SPPI for Wholesale Services in Canada. Paper for the Voorburg Group meeting 2008. Statistics Canada.
- Becker, Ralf and Havinga1, Ivo (2007): Treatment of Outsourcing in the International Standard Industrial Classification (ISIC), Rev. 4. Note prepared for the OECD Structural Business Statistics Expert Meeting – Paris, 10-11 May 2007.
- Camus, B. (2008): Mini Presentation on Turnover/Output in France - Session on Wholesale Trade. Paper for the Voorburg Group meeting 2008. INSEE, France.
- European Communities (2001): Handbook on price and volume measures in national accounts. ISBN 92-894-2000-6. Cat. No. KS-41-01-543-EN-N.
- Eurostat (2008): NACE Rev. 2, Statistical Classification of Economic Activites in the European Community, ISBN 978-92-79-04741-1. Cat. No. KS-RA-07-015-EN-N.
- Färnstrand, J. (2008): Turnover in the Wholesale Trade Industry in Sweden. Paper for the Voorburg Group meeting 2008. Statistics Sweden.
- Garneau, M.B. (2008): Mini Presentation on Turnover/Output - Wholesale Trade in Canada. Paper for the Voorburg Group meeting 2008. Statistics Canada.
- Gorko, J.J. (2008): Producer Price Indexes for the U.S. Wholesale Trade Industries NAICS Sector 42. Paper for the Voorburg Group meeting 2008. US Bureau of Labor Statistics.
- Lennartsson, D. (2008): Index of Service Production (ISP) – An extract. Paper for the Voorburg Group meeting 2008. Statistics Sweden.
- United Nations Statistics Division (2009): International Recommendations for Distributive Trade Statistics 2008. Statistical papers Series M No. 89.
- Vizner, R. (2008): Developing SPPI for Wholesale Trade in Israel. Paper for the Voorburg Group meeting 2008. Central Bureau of Statistics, Israel.