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26th Voorburg Group Meeting on Services Statistics

Newport, South Wales, U.K.
September 19-24, 2011

Using the CPI as a proxy for an SPPI for Repair and
Maintenance of Motor Vehicles

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1.0 INTRODUCTION

This paper summarizes the Canadian practice for the measurement of prices for *Motor Vehicle Repair and Maintenance Services*. The paper also explores the System of National Accounts (SNA) requirement for deflators for this service and describes the current practice in the Canadian System of National Accounts (CSNA).

The main sources of information used in this paper are published and internal documents of Statistics Canada and various manuals on sources and methods such as the *System of National Accounts 2008* and the *Eurostat Handbook on Price and Volume Measures in National Accounts*.

The paper is organized as follows. Section 2.0 discusses the classification of industry outputs, the definition of the service being priced, industry characteristics and current coverage of output measures at Statistics Canada. Section 3.0 discusses the use of the Consumer Price Index as a proxy for the Services Producer Price Index. Section 4.0 discusses the conceptual requirements of the SNA and the current practices in the CSNA. Finally Section 5.0 discusses other practical considerations and issues related to price measurement of *Motor Vehicle Repair and Maintenance Services* in Canada.

2.0 CLASSIFICATION OF INDUSTRY OUTPUT, DEFINITION OF SERVICE BEING PRICED AND COVERAGE OF OUTPUT

Classification

Industrial classification

The industrial classification used in Canada is the North American Industrial Classification System 2007 (NAICS). *Automotive Repair and Maintenance* is covered in the 8111 NAICS industry group. This industry group comprises establishments primarily engaged in repairing and maintaining motor vehicles, such as cars, trucks, vans and commercial trailers. The group is further divided into *Automotive Mechanical and Electrical Repair and Maintenance* (81111) and *Automotive Body, Paint, Interior and Glass Repair* (81112).

Table 1 below presents the concordance between NAICS-2007 (6 digit) and ISIC4 for the Repair and Maintenance Sector¹.

Table 1: NAICS 2007, ISIC4 Concordance

NAICS		ISIC4		Explanatory Notes
811111	General Automotive Repair	G4520*	Maintenance and repair of motor vehicles	General automotive repair
811112	Automotive Exhaust System Repair	G4520*	Maintenance and repair of motor vehicles	Automotive exhaust system repair
811119	Other Automotive Mechanical and Electrical Repair and Maintenance	G4520*	Maintenance and repair of motor vehicles	Specialized automotive repairs (e.g., brakes, air-conditioning,

¹ NAICS 2007 – ISIC4 Concordance, Statistics Canada Web site, <http://stds.statcan.gc.ca/concordance/naics-scian-2007-eng.asp>



				transmissions)
811121	Automotive Body, Paint and Interior Repair and Maintenance	C2920*	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	Custom fabrication of trailer bodies and custom conversion of vans in a shop, rather than a factory
811122		G4520*	Maintenance and repair of motor vehicles	Automotive body and upholstery shops
	Automotive Glass Replacement Shops	G4520*	Maintenance and repair of motor vehicles	Automotive glass replacement shops
811192	Car Washes	G4520*	Maintenance and repair of motor vehicles	Car washes
811199	All Other Automotive Repair and Maintenance	G4520*	Maintenance and repair of motor vehicles	Automotive repair and maintenance n.e.c. (e.g., lubricating service; undercoating)
		M7120*	Technical testing and analysis	Automobile emissions inspection services and safety inspection services

Note: An asterisk attached to the ISIC alpha-numeric code indicates that a NAICS class is equal to a portion of an ISIC class. The explanatory note provides a short description of the nature of the overlap between the NAICS and ISIC classes.

Product classification

From a product perspective, turnover measures of the automotive maintenance and repair services are collected and presented on the basis of the provisional North American Product Classification Canada Provisional Version 0.1 (NAPCS) in Table 2 below².

It should be noted that although the Consumer Price Index and the Survey of Household Spending collect product data on motor vehicle repair expenditures, this information are not classified according to NAPCS but rather on the basis of a historical set of products important to the CSNA and other users. Canada is presently investigating the introduction of the Classification of Individual Consumption by Purpose (COICOP) for the CPI.

Table 2: NAPCS Products for Motor Vehicle Repair Services

Product	Description
811001.1.1.1	Maintenance and repair services for automobiles and light trucks, except cleaning and washing, and regulatory safety and emissions inspections
811001.1.1.2	Washing and cleaning services for automobiles and light trucks
811001.1.1.3	Regulatory safety and emissions inspection services for automobiles and light trucks
811001.1.2	Maintenance and repair services for motor homes, travel trailers and campers
811001.1.3.1	Maintenance and repair services for heavy trucks and buses, except cleaning and washing, and regulatory safety and emissions inspections

² NAPCS Canada Provisional Version 0.1, Statistics Canada Web site, <http://stds.statcan.gc.ca/napcs-scpn/pg-gp-eng.asp>

811001.1.3.2	Washing and cleaning services for heavy trucks and buses
811001.1.3.3	Regulatory safety and emissions inspection services for heavy trucks and buses

Typical repair and maintenance services included in NAPCS 811001.1.1.1 are repairs and installation to engines, exhaust systems, transmissions, brakes, radiators and air-conditioning. They also include oil changes, glass replacement, window tinting and other miscellaneous maintenance and repair services.

The services listed in Table 2 include repair and maintenance services whether paid by the owner of the good being repaired, or by a warranty. The services also include labour, and parts and supplies used in providing repair or maintenance services.

Pricing mechanisms

In the *Motor Vehicle Repair and Maintenance* industry there are typically two types of pricing mechanisms. The first is a “fixed fee for service” where a set price is fixed for a given service provided. This simple pricing mechanism is typically used to price standard maintenance, basic repairs or cleaning. Examples of these types of services include oil changes, tune-ups and car wash services.

The second pricing mechanism involves charging a fee based on the amount of labour used and the parts used in the repair service. This “charge out rate” method is typically used when the required repairs are more extensive and complicated. Examples include the replacement of a transmission or extensive body work to repair damages from an accident.

Coverage of output

Motor Vehicle Repair and Maintenance Services are covered by several Statistics Canada programs. A turnover survey collects financial and operating data by industry as well as product (commodity) information while programs in the CSNA provide GDP estimates. The sector is also covered by many other programs such as productivity estimates, income and employment surveys (Labour Force Survey, Survey of Employment and Payroll Hours) and the Consumer Price Index. The turnover, CPI and CSNA programs are discussed in greater detail in this paper.

Annual Survey of Service Industries – Repair and Maintenance Services

The target population of this survey consists of all statistical establishments (sometimes referred to as firms or units) classified as Repair and Maintenance (NAICS 811) according to the North American Industry Classification System 2007 (NAICS 2007). The Repair and Maintenance sector covers five NAICS 2007 industries:

- Automotive Mechanical and Electrical Repair and Maintenance (NAICS 81111),
- Automotive Body, Paint, Interior and Glass Repair (NAICS 81112),
- Other Automotive Repair and Maintenance (NAICS 81119),
- Electronic and Precision Equipment Repair and Maintenance (NAICS 81121),
- Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance (NAICS 81131).³

This annual sample survey collects the financial and operating data needed to produce economic statistics on the sector. The survey collects the following variables which are used to compile the CSNA estimates: Operating revenue, Operating

³ Service Bulletin: Repair and Maintenance Services 2009, (Services Industries Division, Statistics Canada, 2009), Catalogue no. 63-247-X, p 6.

expenses, Operating profit margin, Salaries, wages and benefits. The survey also collects detailed characteristics on the services provided by the firm classified according to the NAPCS. This data is used to estimate the product/service dimension of the supply-use tables, the Input Output Accounts (IO). Vehicle repairs provided by gasoline stations, retailers such as car dealers and retail chain stores are excluded from this survey.

Quarterly Industry Revenue Indices

NAICS 8111, *Automotive Repair and Maintenance* is also covered by Statistics Canada's Quarterly Industry Revenue Indices (QIRI). The QIRI provide sub-annual indicators of economic activity for selected business and consumer services. The program was developed to increase the scope of sub-annual economic statistics within the service sector by providing a timely indicator of change in industrial output. It combines administrative and survey data to measure changes in the quarterly operating revenues in current dollars⁴.

Industry characteristics

In Canada, there are approximately 34,000 firms (establishments) classified to the *Motor Vehicle Repair and Maintenance Services* industry. This count excludes establishments classified as auto dealers, retailers with auto repair services and gas stations with repair services.

In 2009, this industry earned \$13.1 B in operating revenues with a 6.4% operating profit margin. Firms classified to NAICS 81111 *Automotive Mechanical and Electrical Repair and Maintenance* earned 57.5% of the total industry operating revenue, followed by NAICS 81112 *Automotive Body, Paint, Interior and Glass Repair* (34.7%) and NAICS 81119 *Other Automotive Repair and Maintenance* (7.7%). The top 20 companies in the industry generated \$541M in operating revenues (13% of total operating revenues). In 2009, although operating revenues grew by 3.2%, operating expenses increased at a higher pace (3.7%) leading to a drop in the operating profit margin (-0.7%).⁵

Table 3: Summary Statistics for the Automotive Repair and Maintenance Services Industry

Summary statistics	2008	2009	% Change
		(\$000,000)	
Operating revenues	12,678.5	13,091.2	3.2
Salaries, wages and benefits	3562.8	3,560.9	-0.05
Operating expenses	11,775.4	12,214.4	3.7
Operating profit margin	7.1%	6.7 %	-5.6

In 2010, operating revenues for the *Automotive Repair and Maintenance Services* industry grew by 2.45% according to the annualized QIRI data.⁶

⁴ QIRI IMDB, <http://www.statcan.gc.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey&SDDS=5104&lang=en&db=imdb&adm=8&dis=2>

⁵ Service Bulletin: Repair and Maintenance Services 2009, (Services Industries Division, Statistics Canada, 2009), Catalogue no. 63-247-X, p 3.

⁶ Quarterly industry revenue indices for selected service industries, by North American Industry Classification System (NAICS), Automotive repair and maintenance [8111], CANSIM Table 362-0011 quarterly (index, 2007=100), Seasonally adjusted.

With respect to the client base for this industry, a breakdown of sales by type of client reveals that 58% of sales are to individuals and households while the remaining 42% of sales are generated by transactions with businesses, government and other clients outside Canada.

The industry's GDP and gross output were \$5.7B and \$8.8B respectively in 2007 contributing 0.53% to total industry GDP and 0.31% of total gross outputs.⁷

The industry statistics above represent only the activity of establishments classified to the *Automotive Repair and Maintenance Services* industry. A significant amount these services however are provided by establishments classified to the *Motor Vehicle and Parts Dealers* industry (NAICS 441). While the *Motor Vehicle and Parts Dealers* in NAICS 441 comprises establishments primarily engaged in retailing motor vehicles as well as motor vehicle parts and accessories, they also provide repair and maintenance services. There are over 20,000 establishments in Canada in this industry and according to Quarterly Retail Commodity Survey, labour receipts from automotive repairs, maintenance and services from NAICS 441 were respectively \$5.2 billion and \$5.1 billion in 2008 and 2009⁸.

3.0 CPI AS A PROXY FOR AN SPPI

In 2006-07, Statistics Canada began a significant expansion of its SPPI program targeting several new categories in the business services sector. The project has made significant progress and several new indexes were published in 2009-2010. Development activities continue on many other indexes.

The services sector can be broken down into three basic sub-sectors: business services, personal services and public services. In expanding its SPPI program Statistics Canada has targeted mainly the business services sector focusing on "business to business" (B2B) transactions for which deflators for CSNA programs were not available. One notable exception is the development of the Retail Service Price Index which is clearly not a B2B service. Personal services were deemed out of scope for the SPPI expansion as they were already covered by the CPI. Public sector services on the other hand were excluded largely due to the absence of meaningful market prices that could be observed and measured regularly.

Since they were already covered in the CPI and existing CPI-based deflators were deemed suitable for use in the CSNA for deflating industry outputs *Motor Vehicle Repair and Maintenance Services* were not deemed a priority for the SPPI expansion project and were initially excluded from development activities.

Consumer Price Index

Given that most readers will be familiar with the Consumer Price Index (CPI) and the fact that CPI methodology is widely available, the CPI will not be discussed in great

⁷ Provincial gross output at basic prices in current dollars, System of National Accounts (SNA) benchmark values, by sector and North American Industry Classification System (NAICS), annual (dollars), CANSIM Table 381-0016. Provincial gross domestic product (GDP) at basic prices in current dollars, System of National Accounts (SNA) benchmark values, by sector and North American Industry Classification System (NAICS), annual (dollars), CANSIM Table 381-0015.

⁸ Quarterly Retail Commodity Survey, CANSIM Table 080-0022, Retail commodity survey based on the North American Industry Classification System (NAICS), quarterly(dollars)

detail here. Instead, this section will focus more specifically on the portion of the CPI that covers *Repair and Maintenance of Motor Vehicles*.

The products collected in the CPI are regrouped with other items either because they have a common end-use or because they are considered substitutes for each other. These families of products are joined together at different levels in the classification system to form a hierarchy. The lowest level is called a basic class while the highest level before the "All-items", is known as a major component. The goods and services in the CPI basket are grouped into 170 basic classes. *Motor Vehicles Repair and Maintenance* is included in the Transportation major component of the CPI but only covers passenger vehicles. The category further breaks down according to the structure articulated in Table 4. *Passenger vehicle parts, maintenance and repairs* which represent 1.83% of the All-Items CPI, can further be broken down into a "parts" and a "service" component (See highlighted section in Table 4).

Table 4: CPI Aggregation Structure for the Transportation Major Group

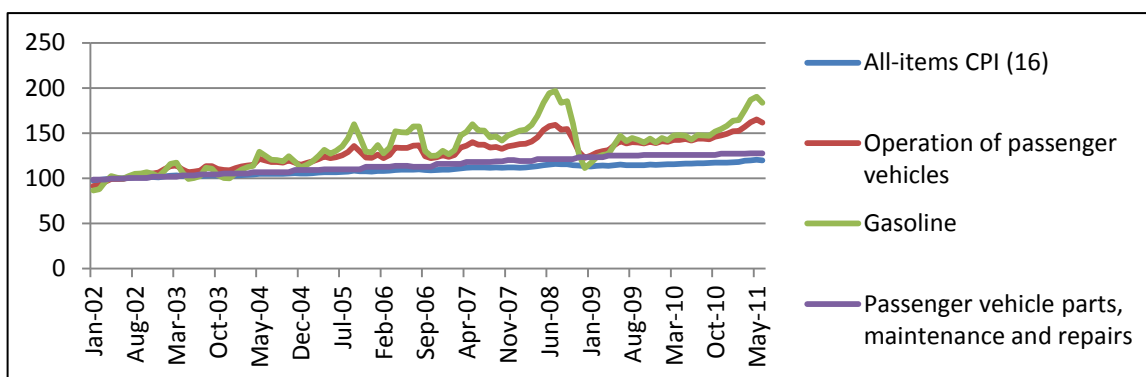
CPI Category	Weight	Weight
	All Item CPI = 100	Transportation = 100
All Items CPI	100	-
Transportation	19.25	100
Private transportation	17.37	90.23
Purchase, leasing and rental of passenger vehicles	7.75	40.26
Purchase and leasing of passenger vehicles	7.65	39.74
Purchase of passenger vehicles	6.57	34.13
Leasing of passenger vehicles	1.08	5.61
Rental of passenger vehicles	0.10	0.52
Operation of passenger vehicles	9.61	49.92
Gasoline	4.42	22.96
Passenger vehicle parts, maintenance and repairs	1.82	9.45
Passenger vehicle parts, accessories and supplies	0.70	3.64
Passenger vehicle maintenance and repair services	1.12	5.82
Other passenger vehicle operating expenses	3.37	17.51
Passenger vehicle insurance premiums	2.74	14.23
Passenger vehicle registration fees	0.25	1.30
Drivers' licenses	0.10	0.52
Parking fees	0.15	0.78
All other passenger vehicle operating expenses	0.13	0.68
Public transportation	1.89	9.82
Local and commuter transportation	0.62	3.22
City bus and subway transportation	0.45	2.34

Taxi and other local and commuter transportation	0.16	0.83
Inter-city transportation	1.16	6.03
Air transportation	1.04	5.40
Rail, highway bus and other inter-city transportation	0.13	0.68
Other public transportation	0.10	0.52

Note: Figures may not add due to rounding

The basic class "Passenger vehicle parts, maintenance and repairs" represents only 18.9% of the sub-group "Operation of passenger vehicles". As witnessed in Chart 1 (below), growth of this class has been smaller and more stable (annualized growth of 2.9%) than its parent group "Operation of passenger vehicles" which has grown at a faster pace (annualized growth of 7.7%). The sub-group is dominated by Gasoline (45.9%) and exhibits more volatility than "parts and repairs" because of gasoline prices.

Chart 1: CPI, Passenger vehicle parts, maintenance and repairs



Source: Consumer Price Index (CPI), 2009 basket, monthly (2002=100), Cansim Table 326-0020

Product weighting and sampled products

The aggregation weights for the basic classes are derived mainly from the Survey of Household Spending and are updated periodically to ensure that changes in spending patterns reflect changes in such factors as the composition and distribution of the population, the quality and availability of goods and services, personal incomes, wealth, and consumer taste.⁹ Since the release of the May 2011 CPI, the CPI weighting pattern reflects the 2009 consumer expenditures.

The CPI is currently based on a judgmental sample. The selection of products takes into account the following criteria:

- The price movement of the product should represent the price movement of a given basic class; and
- Selected products should be available in the market for a reasonable length of time.

In practice, popular products are usually selected.¹⁰

⁹ Your Guide to the Consumer Price Index, (Statistics Canada, 1996), Catalogue no. 62-557-XIB, p 5.

¹⁰ The Consumer Price Index Reference Paper, (Statistics Canada, 1995), Catalogue no. 62-553, p. 42.

The selection of outlets is also judgmental. It is based on information from various sources, including market intelligence obtained from the Statistics Canada Regional Offices.

Price specifications

Price collection for the *Passenger Vehicle Maintenance and Repair Services* category occurs at the point of sale and is based on a representative sample of establishments located in cities across Canada. The prices are collected for several products including oil changes, engine tune-ups, muffler replacement, brake replacement and suspension replacement, radiator flush, wheel alignment and other miscellaneous repair services.

The frequency of price collection depends on the nature of the commodity. Goods and services that are subject to frequent price changes are collected monthly whereas goods and services characterized by less frequent price changes may be collected at intervals longer than one month. Prices for *Passenger Vehicle Maintenance and Repair Services* are in the latter category and are collected at varying frequencies during the year.¹¹

Quality adjustment

As with other price indexes, the objective of the CPI is to measure pure price change and the need to deal with changes in quality is essential. As such, the quantity and quality of goods and services collected must be held constant.

Several approaches are used to manage quality change in the CPI: explicit adjustments, the splicing or linking in of new products, or hedonic methods. With respect to *Passenger Vehicle Maintenance and Repair Services*, the most common approach is to make explicit quality adjustments to recorded prices by assessing the difference in worth between the new and replaced items. A second method, referred to as splicing, involves the collection of prices for both an initial item and its replacement at a particular point in time, using the ratio of these prices as a factor for adjusting quality. This technique sometimes is based on the implicit assumption that the difference in market prices between the two items as observed at a specific point in time is entirely attributable to qualitative differences between these items.¹² Hedonic methods for quality adjustment are not currently used for the *Passenger Vehicle Maintenance and Repair Services*.

CPI enhancement

Statistics Canada recently launched a large scale initiative to improve the quality of the CPI. The initiative focuses on three basic themes: increasing the size and improving the design of the CPI sample, increasing the frequency and timeliness of basket updates and improving quality adjustment methods.

With respect to *Passenger Vehicle Maintenance and Repair Services*, the sampling methodology is currently being reviewed. Options being considered are selecting the sample units based on Statistics Canada's business register and using the results from the Quarterly Retail Commodity Survey and other external sources to further refine the weights of the targeted products within the sampled establishment. Quality adjustment methods such as hedonic models and group imputation are also being explored.

¹¹ The Consumer Price Index Reference Paper, (Statistics Canada, 1995), Catalogue no. 62-553, p. 45.

¹² The Consumer Price Index Reference Paper, (Statistics Canada, 1995), Catalogue no. 62-553, p95.

4.0 CONCEPTUAL REQUIREMENTS OF THE NATIONAL ACCOUNTS AND PRACTICES IN THE CSNA

Conceptual requirements of the SNA

For *Motor Vehicle Repair and Maintenance Services*, the *Handbook on Price and Volume Measures in National Accounts* recommends as an A-method the use of producer price indexes (PPIs) for deflating outputs. In the absence of PPIs, the use of CPIs is deemed appropriate for deflating repair and maintenance services provided that they are corrected for taxes, subsidies and other trade margins. This approach however, is considered a B-method as it might not sufficiently cover business expenditures¹³ and consideration should be given to the fact that business expenditures and exports may differ significantly from household consumption in both product mix and price changes. The appropriateness of using the CPI therefore depends on the disposition of use for the service or product in question.¹⁴

The disposition of use of *Motor Vehicle Repair and Maintenance Services* is outlined below in Table 5. Given that expenditures on the service largely come from the household sector, the appropriateness of using the CPI for deflating outputs rests on the assumption that prices faced by households and business move similarly.

Table 5 Disposition of use of Motor Vehicle Repair and Maintenance services

Source of demand	%
Personal expenditure	60%
Intermediate use by industry	39%
Exports	1%

Source: 2007 Input Output Accounts

Note: Figures differ slightly from those of the Annual Survey of Service Industries – Repair and Maintenance Services due the Input Output balancing and reconciliation process.

CSNA programs

Several statistical products in the CSNA publish data on the *Motor Vehicle Repair and Maintenance* industry: the Annual Current and Constant Price Input Output (IO) Accounts, the Monthly Industry GDP program and the Provincial Industry GDP program. Repair expenditures are also appear in the Personal Expenditure section of the Quarterly Income and Expenditure Accounts. The IO Accounts and the Monthly Industry GDP programs discussed further below.

Current and Constant Price IO Accounts

The IO Accounts (in current and constant prices) contain 2 repair industries:

- Automotive Repair and Maintenance
- Repair and Maintenance (except automotive),

and their associated outputs (products):

- Motor Vehicle Repair and Maintenance Services
- Other Repair and Maintenance Services

¹³ Handbook on Price and Volume Measures in National Accounts, (Eurostat, European Communities, Luxemburg, 2001), p. 81.

¹⁴ Handbook on Price and Volume Measures in National Accounts, (Eurostat, European Communities, Luxemburg, 2001), p. 28.

Current price IO estimates for *Automotive Repair and Maintenance* are derived directly from the revenue and expense data available from Statistics Canada turnover surveys covering the sector (described Section 2). The turnover survey provides a separate breakdown for parts and labour comprised in the final service. As such, the output of the service as defined in the IO tables excludes parts used in the provision of the services and represents the only the pure service component. A mark-up on the parts is computed and recorded as retailing margin.

The methodology for deflating this output is consistent with the methodology proposed in the *Handbook on Price and Volume Measures in National Accounts*.¹⁵ The CPI which is expressed in purchasers' prices is converted to a basic price valuation by removing the taxes, subsidies and other trade margins. This deflator is then used to deflate the output of the service directly.

Despite these adjustments, there are some issues that arise with using a CPI based deflator for deflating *Motor Vehicle Repair Services*. First, the CPI definition and IO output definition are slightly different. The CPI includes parts within its product definition for *Passenger Vehicle Maintenance and Repair Services* whereas the IO output does not. Although this may appear initially as an important difference, the price of many basic repair services mainly moves with price of labour and the CPI measure is considered a good proxy for the output price movement despite these conceptual differences.

A larger issue is the coverage of the service in question. The CPI covers only maintenance and repair services for passenger vehicles. The IO output on the other hand, includes all motor vehicle repairs and maintenance (heavy trucks, buses and other motor vehicles). Maintenance and repairs to these types of vehicles are excluded from the CPI product definition as these are not typically final consumer expenditures but rather expenditures by business. Nevertheless, the CPI based deflators are used under the assumption that consumers and businesses face similar price movements. The development costs of an SPPI for *Motor Vehicle Repair and Maintenance* also play an important role in the current choice of deflator.

Monthly Industry GDP Estimates

The current and constant price estimates of GDP by industry estimated from the IO Accounts are derived annually with a 2.5 year lag from the reference period. For the years following the most recent IO Accounts, real monthly GDP by industry can only be obtained by projecting the relationship between real gross output and real value added, which holds over short periods of time. That is, the volume of value added generated from a given volume of output for a specific industry is generally constant over short periods of time, as major technological changes are required to change significantly this relationship. To estimate on a monthly basis the real value added of an industry, indicators of real output, employment, or real inputs are used to project the relationship between these characteristics and value added, as determined from the deflated IO Accounts.¹⁶

The monthly industry GDP program covers the repair and maintenance industry at the 3 digit level, *Repair and Maintenance* (NAICS 811). Although this subsector comprises establishments primarily engaged in repairing and maintaining motor vehicles, it also includes establishments engaged in machinery, equipment and other products.

¹⁵ Handbook on Price and Volume Measures in National Accounts, (Eurostat, European Communities, Luxembourg, 2001), p. 29.

¹⁶ Gross Domestic Product by Industry – National (Monthly), Definitions, data sources and methods, <http://www.statcan.gc.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey&SDDS=1301&lang=en&db=imdb&adm=8&dis=2>

Constant price GDP estimates for the industry are based on changes in labour input which are used as indicators of the growth rates in constant price value added. The movement in labour input is assumed to be represented by the month-to-month growth rates in the number of employees which is available from the *Survey of Employment, Payroll and Hours (SEPH) – Employment, Earnings and Hours, Catalogue no 72-002*.¹⁷

5.0 OTHER PRACTICAL CONSIDERATIONS AND ISSUES

The main issues of using a CPI-based deflator for estimating constant price outputs of *Motor Vehicle Repair and Maintenance Services* have already been discussed above. These issues, arising from differences in concepts and coverage are minor and do not impede the usefulness of the CPI as a proxy for a producer price index for *Motor Vehicle Repair and Maintenance Services*.

In addition to these concerns, other issues should be noted:

- From a product/service perspective, the exclusion of establishments primarily engaged in retailing motor vehicles, parts and accessories and providing repair services (NAICS 441, *Motor Vehicle and Parts Dealers*) and retailing motor fuels and providing motor vehicle repair services (NAICS 4471, *Gasoline Stations*) is problematic as a significant amount of total repair services (almost half) is produced by these entities. Although some of these entities are in sample for the CPI, a representative producer price index for *Motor Vehicle Repair and Maintenance* would also need to cover the establishments found in the retail NAICS industries.
- In “Measuring Quality Change in Producer Price Surveys for Rental and Leasing Services” (Loranger, Gallais, 2010)¹⁸ it was suggested that defining rental services under the “gross approach” as a bundle that includes the rental service and the good being rented is conceptually consistent with the SNA requirements. The paper also recommended that both the service and asset portion of the bundle be adjusted for quality. This concept can and should be applied in the case of *Repair and Maintenance Services* where the service can be considered a bundle that includes parts and labour. It follows that both elements should be adjusted for quality.

6.0 CONCLUSION

In Canada, the development of an SPPI for *Motor Vehicle Repair and Maintenance Services* was not considered a priority given the availability of CPI-based deflators for the SNA. Although the use of an SPPI based deflator that measures the output of the service, takes into account changes in quality and is valued at basic prices would be an A-method, the current CPI-based approach is an acceptable B-method for deflating SNA output measures.

Although this paper noted some issues with respect to coverage and concepts, in the general these problems are acceptable given the costly alternative of developing an SPPI for the service. Furthermore, as Statistics Canada continues to improve the

¹⁷ Gross Domestic Product by Industry (Statistics Canada, 2006), Catalogue no. 15-548-XIE, p. 378.

¹⁸ Alain Gallais, André Loranger, Measuring Quality Change in Producer Price Surveys for Rental and Leasing Services, (Statistics Canada, INSEE, 2010), p.5.



overall CPI measure, the quality of the CPI-based deflator for *Passenger Vehicle Repair and Maintenance Services* will likely improve as well.

Although Statistics Canada has no current plans to develop an SPPI for this sector, this option may be revisited in the future



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