

Custom Taxi Cost Indexes for Five Regions of British Columbia

November 11, 2024



Custom Taxi Cost Indexes for Five Regions of British Columbia

Prepared for:

Passenger Transportation Board

By:

Hara Associates Incorporated

166 Glebe Avenue, Ottawa, Ontario, K1S 2C5
hara@haraassociates.com

Hara Associates Reference: 1598
November 11, 2024

TABLE OF CONTENTS

Executive Summary	i
1 Rate Regulation and Cost Indexes	2
1.1 POLICY OBJECTIVES AND THE LAW	2
1.2 THE TREND AWAY FROM COST INQUIRIES	3
1.3 SPECIFIC CHALLENGES FOR SETTING TAXI METER RATES	4
1.4 WHAT IS A COST INDEX?	4
1.5 CURRENT BOARD PRACTICE: CPI VS. TCI	6
2 Recent Changes in Individual Cost Items	7
3 Regional Cost Profiles	13
3.1 CONSULTATION WITH INDUSTRY STAKEHOLDERS.....	14
3.2 COST PROFILES COMPARED BY REGION	16
4 Customized BC Taxi Cost Indexes	20
4.1 PUBLIC DATA SERIES TO MONITOR COST CHANGES	20
4.2 INDEX CALCULATION	21
5 Index Results by Region	22
5.1 LOWER MAINLAND	22
5.2 REGIONS 2, 3, 4, AND 5	25
6 Conclusion: Customized TCIs as a Guide for Meter Rate Adjustment	29
6.1 USING THE TCI – REGULAR ANNUAL METER RATE REVIEWS	29
6.2 USING THE TCI: ADJUSTING TO SPIKES IN GAS PRICES	30
7 Broader Concerns Expressed by Industry.....	30

APPENDIX A: Industry Advisory Panel Participants

APPENDIX B: Taxi Cost Index Methodology

Executive Summary

Custom Taxi Cost Indexes for Five Regions of British Columbia

In March 2023, the Passenger Transportation Board (the Board) gave notice of potential changes to taxi and Transportation Network Services (TNS) rates and invited licensees to provide feedback on different items under consideration. One of those included the possibility of establishing a new Taxi Cost Index (TCI) to replace the current TLCI (Taxi & Limousine Cost Index) approach to cost-of-living reviews of meter rates.

In the feedback received from licensees, there were concerns that the current TLCI index (based on the general Consumer Price Index) does not fully capture the changes in fuel prices, insurance, and other factors experienced by the taxi sector. The goal in designing a new custom TCI would be to establish an index that better reflects the real changes in costs experienced by operators.

To ensure the new TCI accurately reflects real costs and market dynamics, the Board decided to retain the services of an external consultant with experience in transportation economics and the taxi industry. Following a competitive process administered through the Ministry of Transportation and Infrastructure, Hara Associates was selected.

This report provides customized Taxi Cost Indexes recommended for use in each of five regions of BC:

- **Region 1: Lower Mainland.** Includes Metro Vancouver, Whistler, Fraser Valley, and Squamish-Lillooet;
- **Region 2: Capital.** Includes Capital Regional District;
- **Region 3: Vancouver Island excluding Capital Regional District.** Includes Cowichan Valley, Nanaimo, Comox Valley, Alberni-Clayoquot, Strathcona, Mt. Waddington, and Qathet (Powell River);
- **Region 4: Okanagan-Kootenay-Boundary-Cariboo.** Includes Okanagan-Similkameen, Central Okanagan, North Okanagan, Kootenay Boundary, Shuswap Cariboo, Thompson-Nicola, and Columbia;
- **Region 5: BC North Central.** Includes Fraser-Fort George, Bulkley Nechako, Kitimat-Stikine, Peace River, Northern Rockies, North Coast, Island Trust, and Sunshine Coast.

Industry Advisory Panel

To ensure that BC industry conditions are represented for each region, individual taxi cost profiles were developed with the input of an advisory panel of experienced taxi industry representatives. Participants were drawn from each region with the kind assistance of the BC Taxi Association and the Vancouver Taxi Association.

To allow frank discussion, panelists were offered the freedom to discuss numerical examples confidentially. The resulting cost profiles provided to the Board in this report are expressed in terms of percentage shares of costs only. An advantage of this process is that there is little

conflict of interest for industry participants. Since costs must add to 100%, increasing one cost necessarily decreases another. On a percentage basis, it is in the interest of all participants to declare costs accurately so that the Taxi Cost Index responds correctly to future changes in costs.

The authors of this report thank the panel members for their input. Responsibility for the final results, including any errors or omissions, is Hara Associates'. The names of panel members are provided in Appendix A.

What is a Cost Index?

A cost index is similar to a consumer price index. A consumer price index measures the change in the cost of living for the average consumer by monitoring the price of a typical "basket" of consumer goods and services every month. A taxi cost index does the same for the goods and services that are required to operate a taxi. Change is expressed proportionately relative to a base period assigned a value of 100 points. When the index rises from 100 to 110, it means that there has been a 10% increase in cost.

The creation of a Taxi Cost Index can be illustrated using the Lower Mainland as an example.

Creating a Cost Profile

With input from the advisory panel, a profile of a typical taxi in each region was constructed. This included selecting the most typical vehicle type, and the number of shifts operated each week (e.g., one driver, or multiple shifts of drivers?). For that typical taxi, a profile of operating costs was constructed. Figure E-1 shows the result for the Lower Mainland.

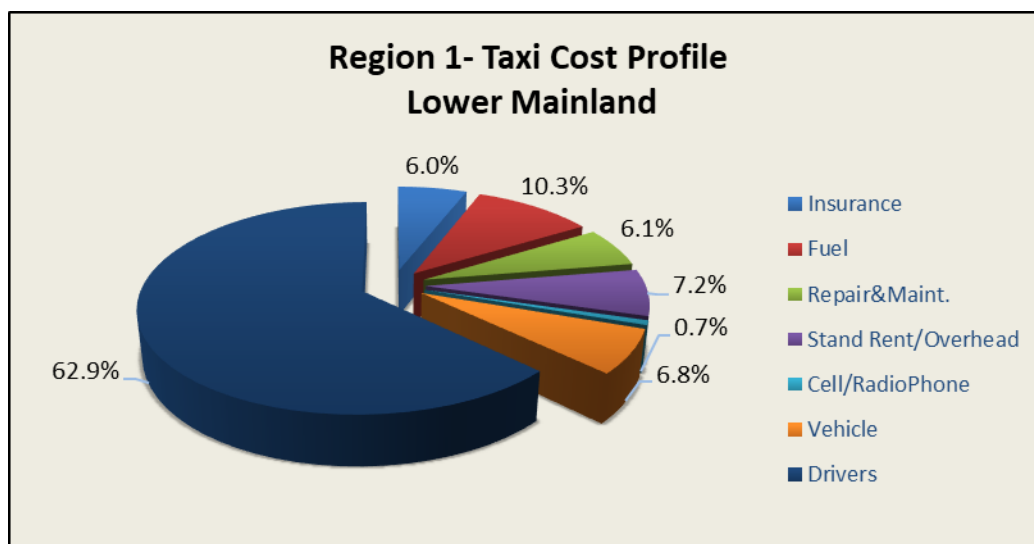


Figure E-1

Each of the cost elements was linked to a Statistics Canada data source that is published monthly (e.g., price of gasoline at self-service retail locations in Vancouver, Victoria, or BC as a whole.) These series are used to monitor changes in taxi costs over time. Once established, a cost profile can be used to quickly estimate changes in taxi operating costs by reference to how the Statistics Canada data sources have changed (e.g., how much have fuel prices increased).

This can be done quickly by downloading the latest data from the Statistics Canada website, without having to assume the burden of collecting data from the industry each time the meter rate is reviewed.

Indexes may be effective for up to ten years before revision is required to account for changes in industry operations and technology. The standard formula used for the TCI is provided in Appendix B, along with data sources.

The biggest cost to taxi operation is the share of revenue that goes the driver(s), whether paid as employees, or as independent operators collecting the residual income after expenses. If returns to drivers do not keep up with wages available in comparable occupations, then drivers will leave the industry. To monitor changes in the labour cost of drivers, wages in Transportation and Warehousing are used – also published monthly by Statistics Canada. Taxi drivers are part of this broader category of employment, so an increase in wages in this category suggests meter rates need to increase to continue to retain drivers.

The percent change in total costs of taxi operation are an average of the change in price of each cost element, weighted by the proportional importance of that kind of cost in the taxi cost profile. The resulting formula used is termed a *Laspeyres Index*. Appendix B provides the formula and data source for BC.

The resulting cost index measures the *relative* change in the cost of taxi operation, with a value of 100 assigned to an arbitrarily selected base period (in this case, April 2023). Figure E-2 shows the result for the Lower Mainland.

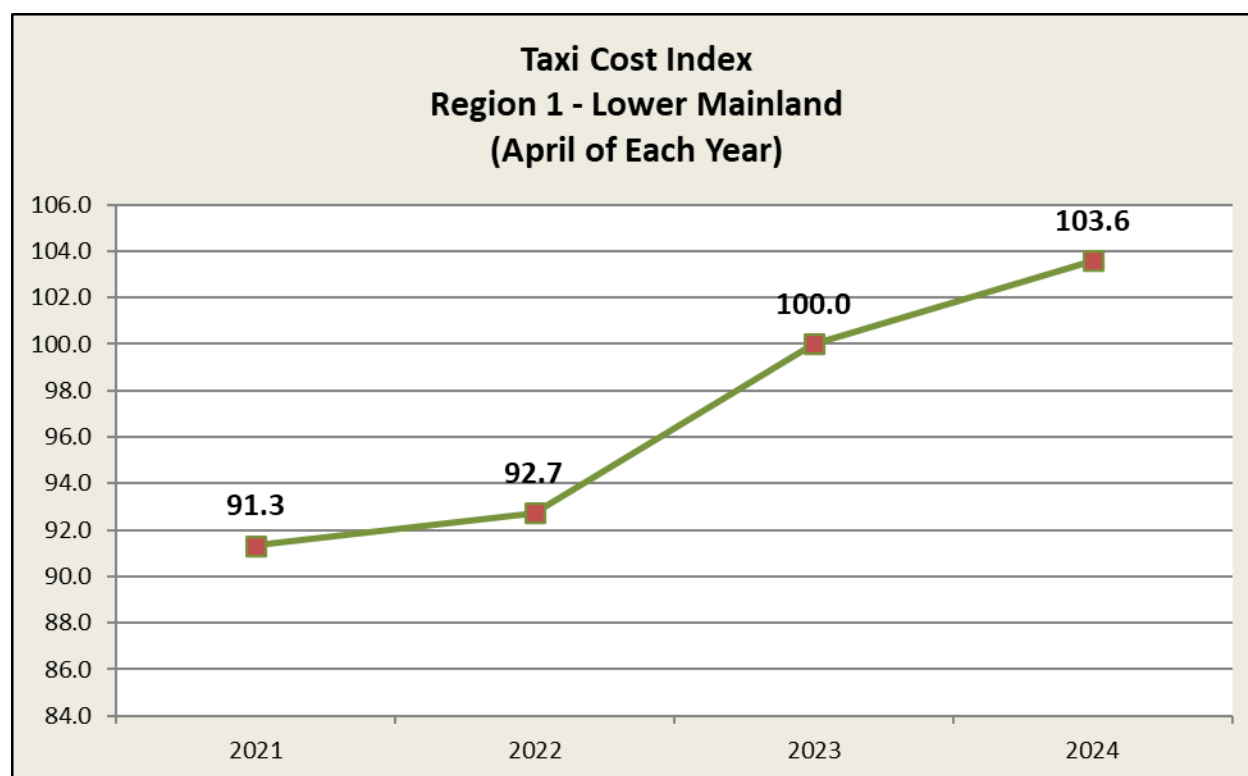


Figure E-2

Here, the index increases from 100 in April 2022 to 103.6 in April 2023, indicating the costs of taxi operation increased by 3.6% that year between 2022 and 2023. The same month each year

should be used in making comparisons in order to avoid complications from seasonal variation in some prices. For example, gas and wages both vary seasonally.

In the previous year (2022/23) shown in the figure, the cost of taxi operation increased more dramatically from 92.7 to 100.0 points, or 7.8%. This was during the economic recovery from the impacts of Covid-19 (Covid), where wages, fuel prices, and the cost of vehicle maintenance and repair all rose considerably.

For each region we have compared the changes in taxi operation cost, as measured by that region's TCI, to the changes in the Consumer Price Index (CPI) currently used as a guide by the Board. Figure E-3 shows this comparison for the Lower Mainland.

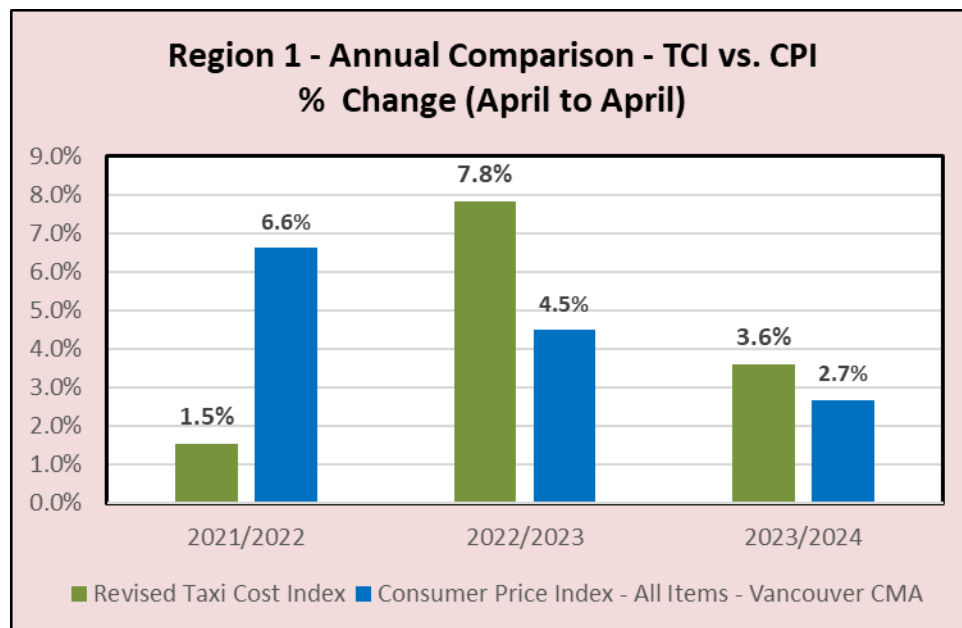


Figure E-3

The differences are significant. In 2021/2022, the CPI rose 6.6% led by the cost of groceries and shelter – neither of which is directly relevant to the cost of taxi operation. In comparison, the cost of taxi operation rose just 1.5%. In 2022/2023, taxi costs of operation rose 7.8% due to rising labour and fuel prices. The CPI rose only 4.5% that year as the price of gasoline and vehicle maintenance matters were proportionately more for a taxi than for the average consumer. In addition, the CPI does not include the changes in the cost of labour, as it is for consumers not businesses.

In the most recent year, 2023/24, a meter rate adjustment to cover increasing costs would be 3.6%, while the CPI increased only 2.7%

A TCI for Each Region

A cost profile and customized TCI was developed for each of the five regions. Figures E-4 to E-7 show the cost profiles for Region 2 to Region 5.

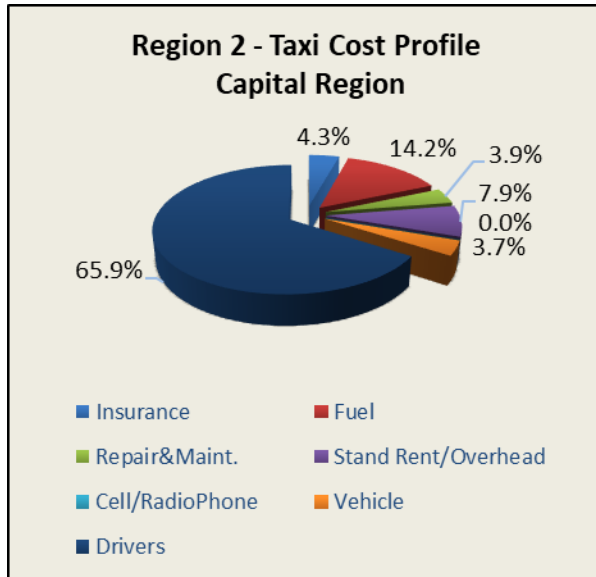


Figure E-4

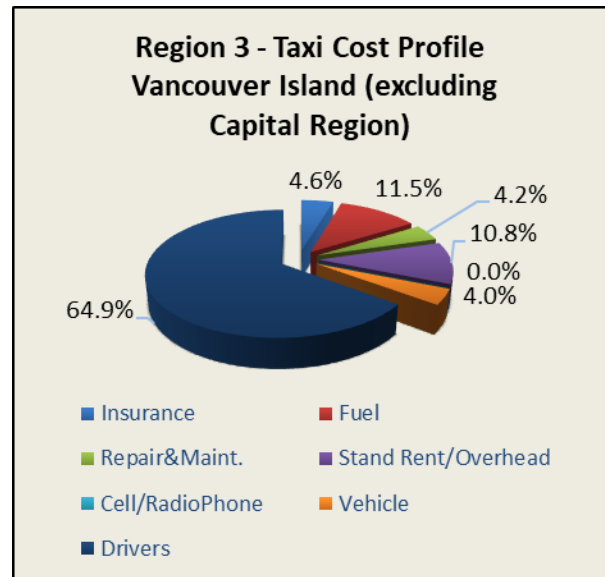


Figure E-5

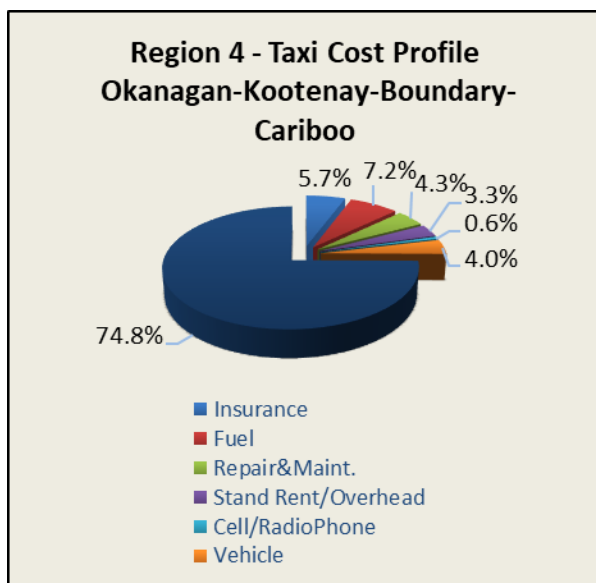


Figure E-6

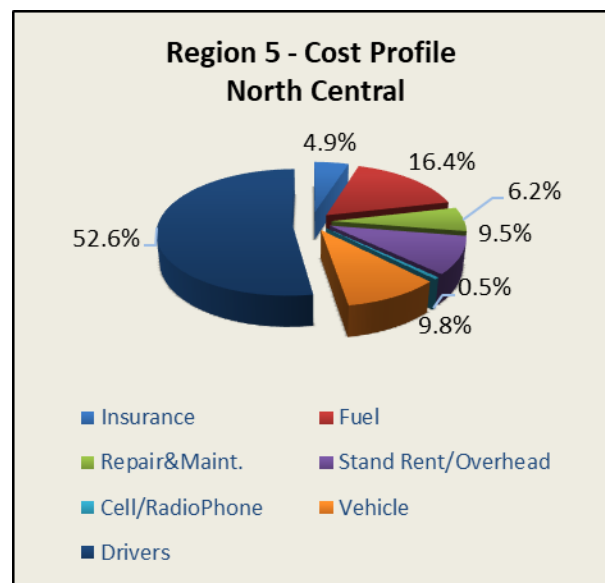


Figure E-7

Cost profiles vary significantly between regions, largely because of differences in the typical vehicle, and in the number of shifts a typical taxi is driven in a week. For example, the highest fuel consumption is 16.4% in Region 5 (North Central) due to their preference for non-hybrid vans, like the Dodge Caravan, to handle tour groups and work camp trips. The number of shifts per taxi also vary by region. For example, Capital (Region 2) typically operates multiple drivers on a vehicle to cover day and night shifts for most of the week. However, the Lower Mainland taxis' loss of business volume to TNS firms like Uber and Lyft mean that a single shift and principal driver is more typical for each taxi. Section 3 of the report details regional differences in cost profiles.

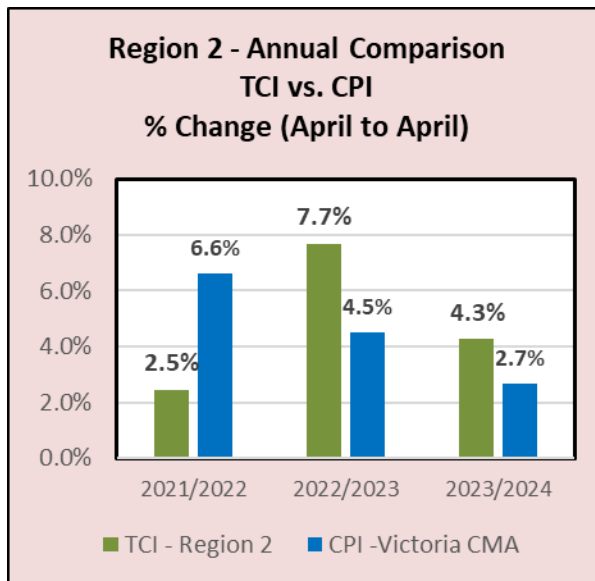


Figure E-8

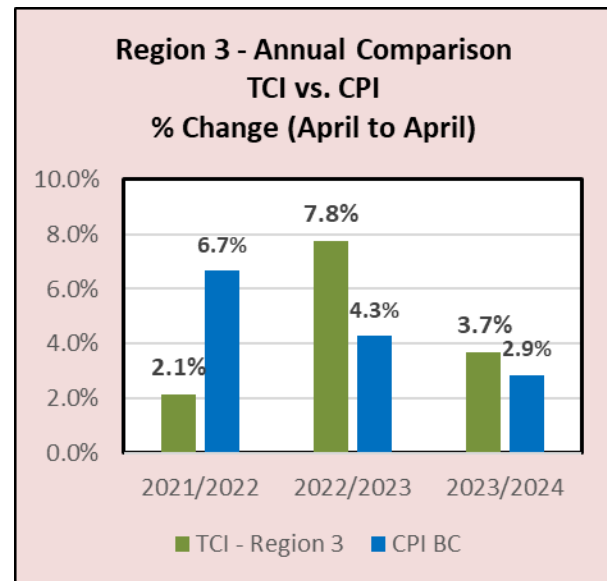


Figure E-9

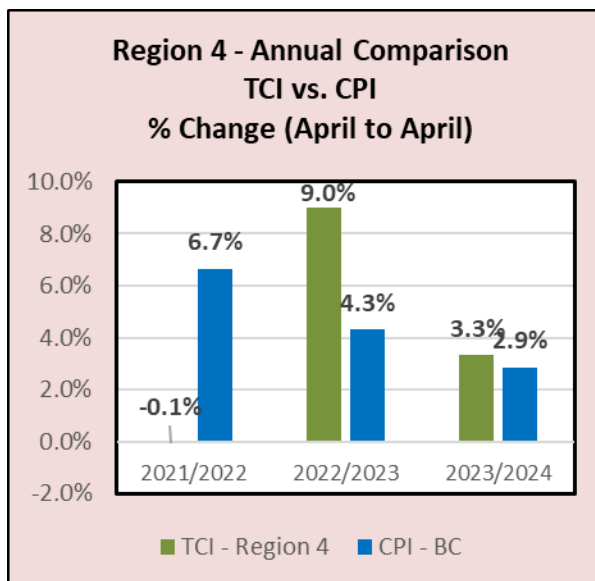


Figure E-10

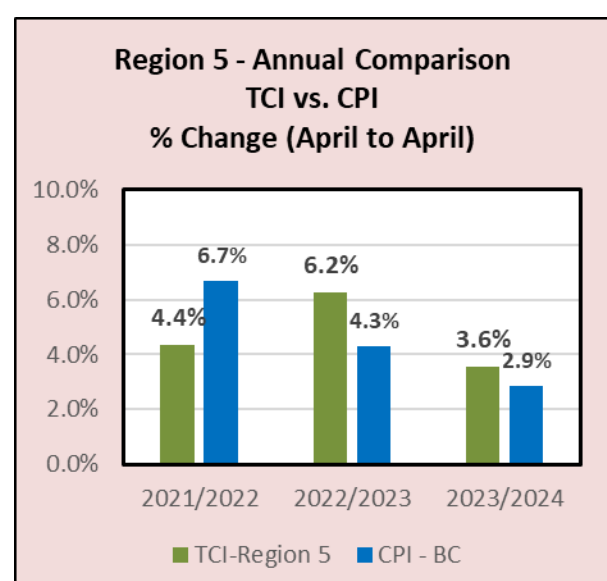


Figure E-11

The cost profiles were used to calculate a TCI for each region. Figures E-8 to E-11 compare the percentage adjustment in meter rates suggested by the change in each region's TCI to changes in the relevant Consumer Price Index (either the CPI for all of BC, or Vancouver CMA, or Victoria CMA). The CPI is the guide the Board currently uses.

While the general pattern is similar to Figure E-3 for the Lower Mainland, there are significant regional differences. For example, for 2022/23 costs of operation increased by 6.2% to 9.0% depending on the region. For the most recent full year 2023/24, the range was 3.6% to 4.3%. Regional differences are driven largely by the relative importance of fuel costs, and returns to taxi drivers.

Conclusion: Customized TCIs as a Guide for Meter Rate Adjustment

From the above it is apparent that the Taxi Cost Index, customized by region, provides a better guide to changes in the costs of taxi than the CPI and, as a result, is a better guide for regular meter adjustment. This is not a surprise given that CPI is only a general measure of inflation and is based on consumer consumption, not taxi operation.

Advantages of the TCI are:

- A lawful guide based on changes in industry operating costs that meets the regulator's duty to ensure the opportunity for *just and reasonable* rates of return earned by the industry.
- A guide that is a more accurate reflection of changes in industry costs than the general Consumer Price Index. In this case the accuracy is increased by providing a TCI customized for varying conditions in each of five regions of BC.
- A guide that potentially draws upon a more complete view of costs (through the cost profiles created with Industry Advisory Committee input) than is available from the financial records the Board can seek from licensees. Licensee records may be incomplete because
 - A portion of the taxi business is still in cash.
 - Licensees may delegate the operation of individual taxis through license-shares and other arrangements and thus lack records for some costs.

A disadvantage of TCIs is that they only provide a guide to *relative* changes in cost. They preserve the status quo of profitability in the first year of their application. They do not correct for meter rates being too high or too low in that base year. For this, separate corrective action may be needed.

Section 6 of the report describes application of the TCI for regular meter rate adjustment, and for special cases like fuel surcharges to address a spike in gasoline prices.

Broader Concerns Expressed by Industry

During consultation, industry panelists raised points on additional topics related to meter rates and the application of a TCI. These are reported without judgment or recommendation in Section 7, concluding the report. In general, participants expressed a desire that a TCI be treated as a guide and not a rigid automatic application of a formula. They wished to have input and choice when meter rates are revised. Other topics ranged from common rates and rate bands¹ with a floor and a ceiling, to regional considerations in funding accessible taxis, to restoring driver training standards, and taking other measures for taxis to better compete with TNS on a quality-of-service basis.

¹ A high and low meter rates within which taxi operators may choose their own rate.

Custom Taxi Cost Indexes for Five Regions of British Columbia

In March 2023 the Passenger Transportation Board (the Board) gave notice of potential changes to taxi and Transportation Network Service (TNS) rates and invited licensees to provide feedback on different items under consideration. One of which was the possibility of establishing a new Taxi Cost Index (TCI) to replace the current TLCI (Taxi & Limousine Cost Index) approach to cost-of-living reviews of meter rates.

In the feedback received from licensees, there were concerns that the current TLCI index (based on the general Consumer Price Index (CPI)) does not fully capture the changes in fuel prices, insurance, and other factors affecting the taxi sector. The goal in designing a new custom TCI would be to establish an index that better reflects the real changes in costs experienced by operators.

To ensure that the new TCI accurately reflects real costs and market dynamics, the Board decided to retain the services of an external consultant with experience in transportation economics and the taxi industry. Following a competitive process administered through the Ministry of Transportation and Infrastructure, Hara Associates was selected.

This report provides the recommended customized Taxi Cost Indexes for each of five regions of BC. The indexes are based on a cost profile of the typical taxi operating in each region. To ensure an accurate portrayal of BC industry conditions, cost profiles were developed with the input of an advisory panel of experienced taxi industry representatives. Panelists were drawn from each region with the kind assistance of the BC Taxi Association and the Vancouver Taxi Association.

Panel input was combined with Hara Associate's familiarity with taxi operating costs from the construction of Taxi Cost Indexes in other jurisdictions.¹ Every effort was made to respect the input of the industry, while ensuring that differences between regions told a consistent story, and that differences between panel member inputs were resolved.

The authors of this report thank the panel members for their input. Responsibility for the final versions of the cost profiles, including any errors or omissions, is Hara Associates'. The names of panel participants are provided in Appendix A.

Custom TCIs are provided for these five regions:

- **Region 1: Lower Mainland.** Includes Metro Vancouver, Whistler, Fraser Valley, and Squamish-Lillooet;
- **Region 2: Capital.** Includes Capital Regional District;

¹ Jurisdictions that have adopted Hara Associates' taxi cost index recommendations include Los Angeles, Calgary, and Ottawa. Hara Associates has also reviewed TCIs created by its regulator clients. The most recent review was of the TCI used by the City of Hamilton.

- **Region 3: Vancouver Island excluding Capital Regional District.** Includes Cowichan Valley, Nanaimo, Comox Valley, Alberni-Clayoquot, Strathcona, Mt. Waddington, and Qathet (Powell River);
- **Region 4: Okanagan-Kootenay-Boundary-Cariboo.** Includes Okanagan-Similkameen, Central Okanagan, North Okanagan, Kootenay Boundary, Shuswap Cariboo, Thompson-Nicola, and Columbia;
- **Region 5: BC North Central.** Includes Fraser-Fort George, Bulkley Nechako, Kitimat-Stikine, Peace River, Northern Rockies, North Coast, Island Trust, and Sunshine Coast.

Organization of the Report

Sections of the report are organized to reflect the logical steps in constructing a TCI:

- **Rate Regulation and Cost Indexes** reviews the nature of cost indexes and how they are used by regulators to maintain rates that allow the regulated industry the opportunity to earn *just and reasonable* rates of return.
- **Recent Changes in Individual Cost Items** reviews recent changes in cost items over time, from pre-Covid-19 (Covid) to July 2024 (the last month of data available when this report was drafted). Also identified are the publicly available data series provided by Statistics Canada to monitor these price and wage movements on an ongoing basis.
- **Regional Cost Profiles** provides the cost profiles developed for a typical taxi in each region. Profiles are reported as a percentage of revenue for major cost item (e.g., X% for gas, Y% for insurance, . . . etc.).
- **Customized Taxi Cost Indexes by Region** combines the cost profiles and cost history of individual items to provide a customized TCI for each region. Each TCI shows the proportionate change in operating costs over recent years.
- **Broader Concerns Expressed by Industry.** During consultation, advisory panel members expressed concerns about how a rate index should be used, rate setting, and other related issues. These are summarized and reported without judgement or recommendations.
- **Appendix A** provides a list of participating expert industry advisory panel members.
- **Appendix B** provides the mathematical formulae used to calculate and maintain the index in each region into the future. A computer spreadsheet with the formulas has also been provided for the convenience of Board staff.

1 Rate Regulation and Cost Indexes

1.1 Policy Objectives and the Law

Taxi meter rates are regulated around the world to protect consumers and ensure confidence that when they take a taxi, even in a city not known to them, they will be charged a fair and accurate rate based on distance and time.

Meters are inspected and sealed by regulatory authorities to ensure they are accurate. In the absence of regulation, passengers cannot assess a fair price given the variable nature of the service in terms of both distance and quality of vehicle and driver. Regulated rates on meters provide a convenient guide, and avoid situations of haggling or exploitation (such as a single passenger hailing a lone taxi on a street late at night).

Consumer confidence benefits the industry. Arguably the sealed meter with regulated rates is what defines the taxi industry and makes it possible to operate. During the 1970s, rate deregulation experiments in the United States largely led to industry collapse in jurisdictions that ceased to inspect and seal meters to regulated rates.² While this proposition remains to be resolved in the modern context of GPS and smartphones, meters and regulated rates remain the hallmark of taxi service.

Although rates are set for the benefit of the consumer, the needs of the industry also must be considered. The broader framework of common law places such a duty on governments when regulating the price of any product or service. Prices must be set high enough to allow firms in the industry the opportunity to make a *fair and reasonable* rate of return on their investment. To do this, the cost of operation must be considered. As a result, taxi regulators must change taxi meter rates in response to changes in industry costs.

1.2 The Trend Away from Cost Inquiries

The obligations and responsibilities of the regulator for setting taxi meter rates are the same as for setting rates for electrical power or telephones.

One approach to setting rates is to conduct a cost inquiry in which the industry's costs are fully disclosed and examined. Such inquiries can be expensive for both the regulator and the industry. Since the cost of regulation is part of the cost of doing business, the consumer usually ends up paying for this process in the form of higher rates.

One reason such inquiries are expensive is that finding a *just and reasonable* return is not easy. In practice, the focus is on the percentage return on capital. Determining the net capital invested in a firm can be a challenging accounting exercise. On top of this, the percentage return must reflect the riskiness of the business. Since risk varies by industry, and is assessed in a complex way³, a great deal of expert time may be involved in arguing the appropriate percentage return.

Other disadvantages of cost inquiries are:

- They tend to rely on the regulated industry itself for cost data.

² See Roger Teal & Mary Berglund, The Impacts of Taxicab Deregulation in the USA, *Journal of Transportation Economics and Policy*, Jan 1987. for a report on experience of seven jurisdictions. There is a large subsequent literature analysing the experience reported. (e.g., Paul Stephen Dempsey, Taxi industry Regulation, Deregulation, and Reregulation, the Paradox of Market Failure, *Transportation Law Journal* Vol.24:73 (1996))

³ As an example of the issues involved: Risk is assessed not by the variation in returns, but by the *covariance* of returns with general market returns. This is similar to the "beta coefficient" listed in the summary statistics of stock market shares.

- There is a body of literature indicating that such regulation can lead to perverse outcomes, such as overinvestment in capacity by the industry.

As a result, regulators have sought alternative methods of rate setting that are cheaper, and provide an independent check on industry arguments as to how their costs have changed.

1.3 Specific Challenges for Setting Taxi Meter Rates

The taxi meter is located in the taxi. This means that it is the *taxi* whose price is being regulated, not the taxi company. In the case of BC, an individual taxi operator may not be a direct licensee of the Board. Often, individual taxi operators hold a lease for a *licence share* from the taxi company to whom the Board has issued a licence for multiple taxis. The individual operator may pay a fixed fee per month for dispatch and other services, sometimes termed *stand rent*. Such operators usually share the same colors as taxis directly operated by the company.

Because the individual taxi is the object of regulation, taxi regulators also face problems not faced by most other rate regulators:

- **Many small firms.** Each taxi operator may be a separate entity, entitled to make their own arguments about profitability.
- **Cash business.** Some taxi business is still done using cash and may be poorly recorded. Even taxi companies may not know the costs and revenues of individual taxis, although experienced taxi companies usually have a good idea.

Where taxi drivers are employees of companies, the company still may not have full records as employees may be responsible for their own fuel or vehicle expenses, as well as receiving cash fares and tips.

1.4 What is a Cost Index?

A cost index is similar to a consumer price index. A consumer price index measures the change in the cost of living for the average consumer by checking the cost of a typical “basket” of consumer goods and services every month. A taxi cost index does the same for the goods and services that are required to operate a taxi. Change is expressed proportionately relative to a base period assigned a value of 100 points. When the index rises from 100 to 110, it means that there has been a 10% increase in cost.

To construct an index, each cost component receives a weight proportional to its share in total costs of operation. For example, if fuel costs were half of total costs⁴, then a 10% increase in fuel would result in a 5% increase in the cost index. A cost index is applied in three steps:

1. **Develop a Cost Profile.** An operating cost profile of a typical taxi is developed. The result is a percentage of cost assigned to each type of cost (fuel, vehicle, insurance, etc.), adding up to 100%.

⁴ The proportion of “half” is chosen to keep the mathematics simple – it is not a real example.

2. **Monitor Changes in Cost.** Changes in cost for each element are monitored using publicly available information. For example, the cost of fuel in BC is monitored monthly by Statistics Canada for Vancouver, Victoria, and BC as whole.
3. **Calculate percentage change year-by-year.** The overall percentage change in costs is calculated each year, relative to the base year when the index was started. The calculation can be automated with a computer spreadsheet. Anyone doing the calculation should obtain the same a result; this provides a transparent process that can be verified. If needed, the percentage change in costs can be done in any month using the previous month's published data from Statistics Canada.

The advantages of a cost index are:

- **Industry participation is easier.** The industry can participate in setting the initial cost-profile, without revealing actual cost information. Stakeholders contribute their ideas in the form of percentage share of costs (e.g., what percentage of a single taxi's gross revenue goes to fuel?).
- **Specific to each region.** The costs of taxi operation vary from region to region. Vehicle models vary, fuel costs vary, distances per fare vary, time spent waiting for a fare varies, etc. The cost index can be based on taxi operation typical of the selected region.
- **Easy to update.** Once the cost profile for the initial year is established, the index can be recalculated whenever desired using published data from Statistics Canada or other reliable public agencies. Usually this is done annually.
- **Easy to apply.** If the cost index rises 5%, then rates can be adjusted upward by 5%. Most jurisdictions use the index as a guide, leaving open the possibility that the industry might decline the rate increase (as sometimes happens), and giving the regulator the final decision. Outside observers tend to feel comfortable and well served when an objective index is used. Annual rate revisions can become routine.
- **More regular rate adjustments.** Ease of application allows regular small adjustments to fares, rather than large adjustments after a few years. The index should be reviewed and rebased at least every ten years to capture any changes in technology and industry methods of operation.
- **Standardized methods.** The principles of cost indexes are well known and applied in many fields. Calculation can be embodied in a computer spreadsheet that can be reviewed and crosschecked against public sources by anyone.

The disadvantages of a taxi cost index are:

- **Only preserves the status quo.** A taxi cost index is used to keep the profitability of the industry at the same level as in the base year that is chosen. It says nothing about whether the profitability in the base year was too high or too low.
- **Requires updates when vehicle technology changes.** The cost index assumes that the physical requirements for operating in the industry remain unchanged. In reality, fuel efficiency of vehicles may improve, reducing the importance of fuel. Other changes also occur, including longer lasting vehicles, potential shifts to fully electric vehicles when battery technology is sufficient, or changes in industry structure leading to less intensive

use of vehicles (e.g., shift from two-shifted vehicles to single-shifted vehicles). When technology changes, the cost index will no longer give the correct weight to each factor. *Cost indexes should be updated at least once every ten years to take into account technological and other changes.*

1.5 Current Board Practice: CPI vs. TCI

In the absence of a better measure, the Passenger Transportation Board has based its current Taxi and Limousine Cost Index (TCLI) on the Consumer Price Index (CPI) published by Statistics Canada. While responsive to general levels of inflation, the CPI is not intended to be representative of the costs of taxi operation. For example, in 2023, the cost of gasoline was 4.09% of the typical household basket used for the CPI. In comparison, cost of gasoline for a BC taxi is an estimated 7.2% to 16.4% of operating costs, depending on the region, vehicle type, and other factors. The impact of gasoline prices on taxi operation is proportionately much larger than on the average consumer budget.

The largest factor governing taxi costs is the cost of labour. Whether paid as employees, or collecting revenues and tips after expenses, driver returns average between 62.9% to 74.8% of the cost of operations according to the estimates in this report. Returns to drivers must keep pace with available wages in alternative occupations, or drivers will leave the industry. A shortage of taxi drivers is among the current problems reported by the industry. Thus, if no other costs change, but wages in alternative occupations rise, then the meter rate needs to be increased to continue to retain drivers.

At present the Board has two related initiatives to update its data on taxi operating costs:

- Moving to a customized Taxi Cost Index, based on operating costs in each region as reflected in this report.
- Surveying licensees (companies and, where relevant, individual licence holders) on their costs.

These two efforts are independent and serve different purposes. The customized TCI measures *relative* changes in taxi operating costs, and may be updated annually for a number of years without requiring more data collection from the industry.

The survey of licensees on their costs potentially measures costs of operation on an *absolute* basis, but may not be able to address relative changes from year to year without repeating the effort of the current survey.

The adoption of customized TCIs allows the Board the option of reducing the frequency and cost of collecting detailed data from licensees.

Much of the interesting detail expected from the survey of licensees is related to taxi *company* operations – the costs to support call answering, dispatch, payment systems, etc. Both call answering and dispatch are a small portion of the total cost of operating a taxi *vehicle*, an estimated 3.3% to 10.8% of the total cost of operation of the typical taxi, depending on the region. One reason the amount varies by region is that the fixed overhead for dispatch, call-

taking, and offices is spread over fewer vehicles in the less urbanized areas of BC. (See later section comparing regional costs).

2 Recent Changes in Individual Cost Items

The requirements to operate a taxi are well known. Their prices are more volatile than the average level of inflation for the economy as a whole.

This variability of the principal costs to taxi operation in BC is shown below, along with a comparison to general inflation as measured by the CPI.

Fuel

Fuel prices are particularly volatile, although taxi dependence has lessened with the adoption of hybrid vehicles like the Toyota Prius.

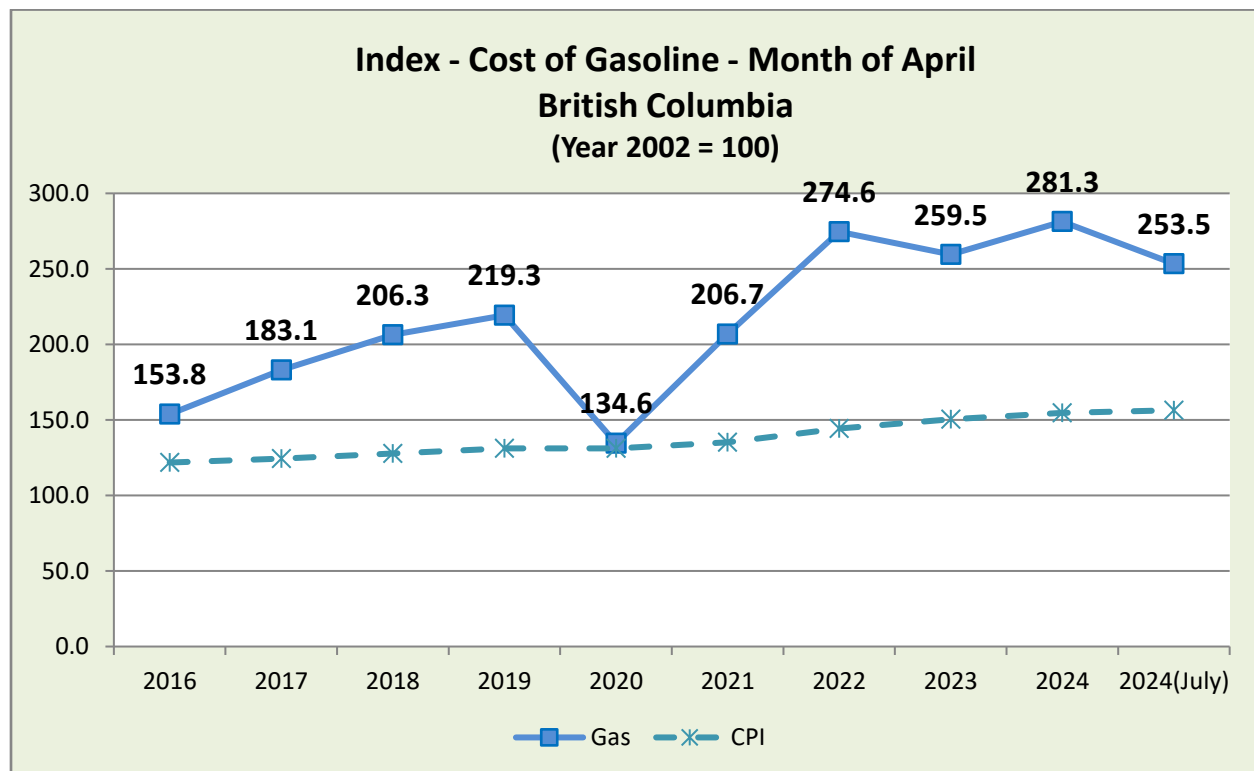


Figure 2-1

Figure 2-1 shows the relative movement of unleaded gasoline prices in BC, expressed as an index relative to the base year of 2002.⁵ The figure shows an index of average unleaded gasoline at service stations for April of each year. An exception is the last data point for July 2024 (the most recent data at time of writing).

⁵ Source data: Statistics Canada Consumer Price index; Price of Unleaded Gasoline; Table 18-10-0001-01.

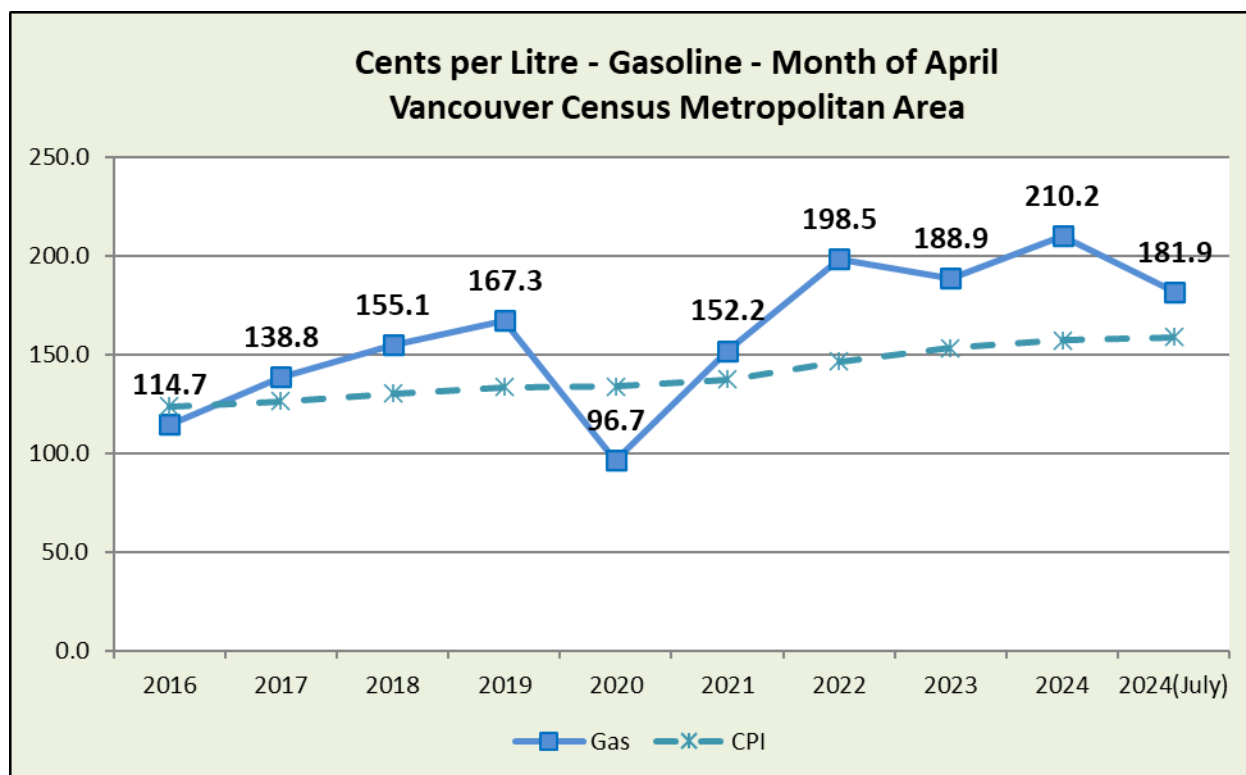


Figure 2-2

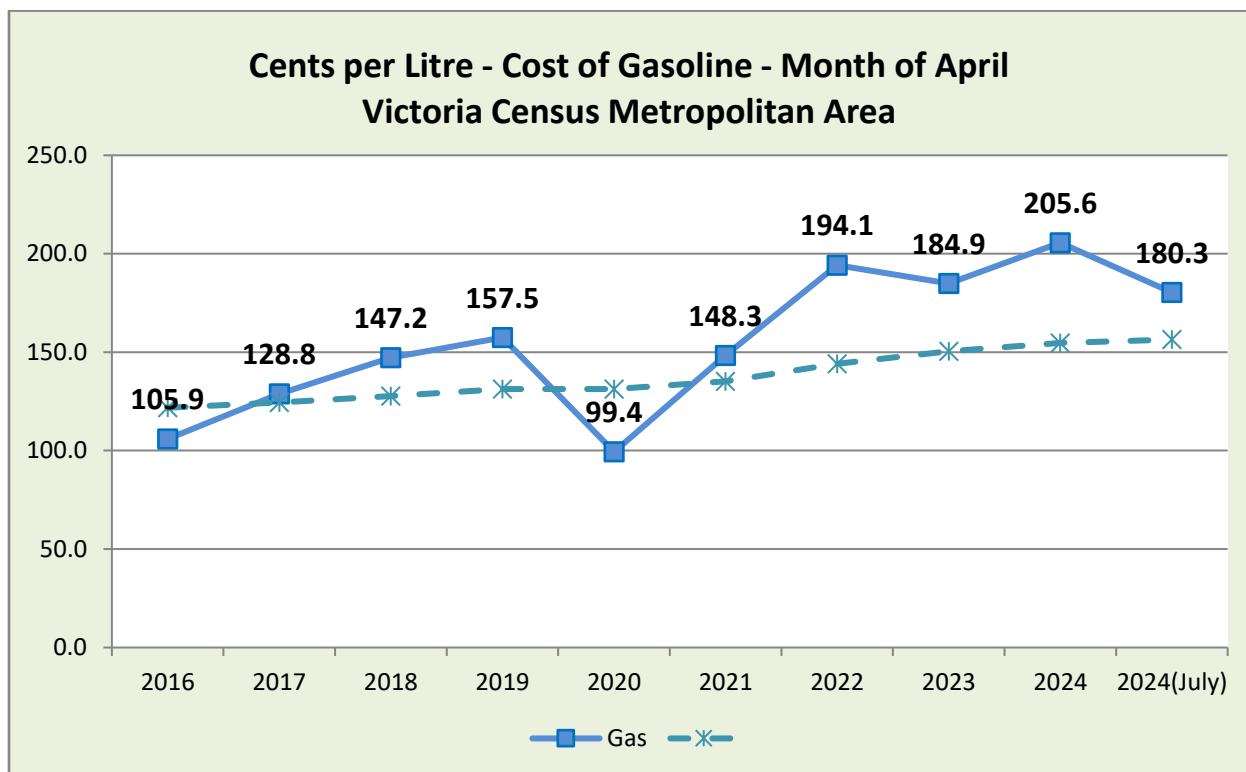


Figure 2-3

With the advent of Covid, economic activity and vehicle travel fell dramatically, causing a substantial drop in gasoline prices from an index value of 219.3 in 2019, to 134.6 in 2020 (a 39% drop). This lowered taxi operating costs for that year, softening the blow of other rising costs

and declining business conditions. As the economy recovered from the impact of Covid, gasoline consumption rose and gas prices along with it, to above their previous peak of 157.5 in 2019 to 274.6 in 2022. Since 2022, gasoline prices have moved up and down within a more limited range.

The CPI for BC is shown as the blue dashed line. It is apparent that the CPI moved much more steadily from year to year and did not fully capture the volatility of gas prices.

Statistics Canada also publishes individual gas prices for the Census Metropolitan Areas (CMAs) of Vancouver and Victoria. These are shown in Figures 2-2 and 2-3. The pattern over time is similar to the province as a whole, although the BC series is expressed as index, while Vancouver and Victoria are reported in cents per litre.

Vehicle Repair and Maintenance

Figure 2-4 illustrates changes in the cost of passenger vehicle repair and maintenance, as estimated by Statistics Canada.⁶ This cost rose approximately in line with inflation until 2021, after which it rose at a slightly faster rate, but appears to have stabilized in the final available months of 2024.

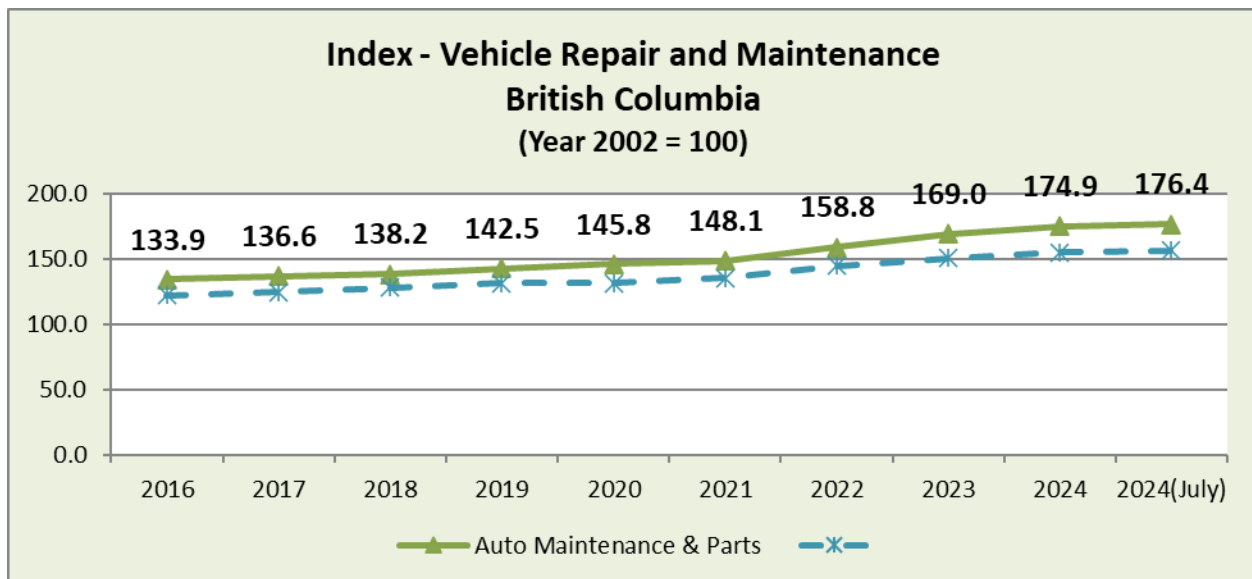


Figure 2-4

Insurance

The cost of insurance varies substantially between regions, as well as by company and individual driver/taxi based on safety records. Variation in average taxi insurance between regions also varies according to the choice of coverage taken. For example, in regions where the typical taxi is older (e.g., used Dodge Caravans) it may be preferable to take higher deductibles on damage to the vehicle, since insurance returns on claims for their loss may not be worth the trouble.

⁶ Source Data: Statistics Canada, BC Passenger vehicle parts, maintenance and repair, Table 18-10-0004-01

While the cost of individual policies can vary, the relative changes in cost tend to move in tandem over time. Statistics Canada publishes monthly estimates of the changes in BC passenger vehicle insurance premiums, as illustrated in Figure 2-5.⁷

For the period from 2020 to 2022, average passenger vehicle insurance premiums actually fell. They resumed their increase after 2022, and have begun to increase more rapidly in recent months. The latter increase is evident in the United States and other countries as vehicle electronics become more expensive to repair or replace (a phenomenon related to chip shortages), and as auto theft rates increase.⁸

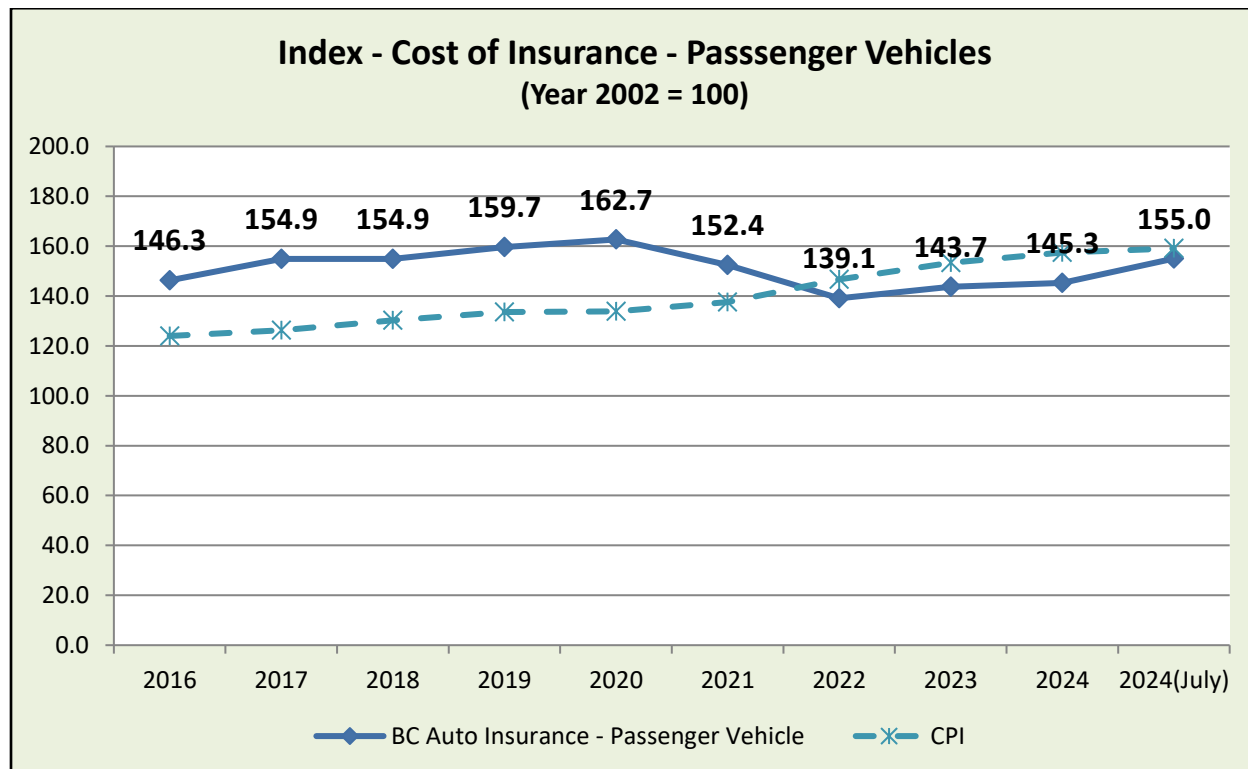


Figure 2-5

Ideally, there would be a public data source for BC insurance rates specific to taxis. There is a single provider, the Insurance Corporation of British Columbia (ICBC), however the data is not public. ICBC follows the insurance industry practice of keeping rate quotations confidential and includes a non-disclosure requirement with its taxi policies.

The movement of overall BC insurance rates does, however, reflect the lower insurance costs reported by taxi industry stakeholders in previous reports, attributed in part to the switch to a kilometre driven based formula compatible with insuring TNS vehicles.

⁷ Data Source: Statistics Canada, BC Passenger Vehicle Insurance Premiums, Table 18-10-0004-01.

⁸ E.g., <https://www.cbc.ca/news/canada/toronto/car-premiums-rise-2024-1.7103029> and <https://www.cnbc.com/select/average-cost-of-full-car-insurance-went-up-in-2024/>

Were an ongoing series of taxi-specific insurance costs desired, such as the average premium per taxi by region, the Board may have the statutory power to require such data from the Registrar under the Section 7(1)a of the *Passenger Transportation Act*, and the Registrar in turn may have the power to require such information under Section (3) of the Act from ICBC.^{9 10}

Purchase Price of Passenger Vehicles

The purchase price of passenger vehicles began to rise at an increasing rate during the economy's recovery from Covid. Supply chain difficulties continued, as did shortages of chips for electronic auto parts. Figure 2-5 illustrates part of this story in the Statistics Canada series for BC. For example, the index rose from 111.4 to 119.7 in 2022, an increase of 7.5%. More recently the price of similarly equipped vehicles has stabilized and, in 2024, even eased off as supply chain issues and shortages have begun to be resolved.

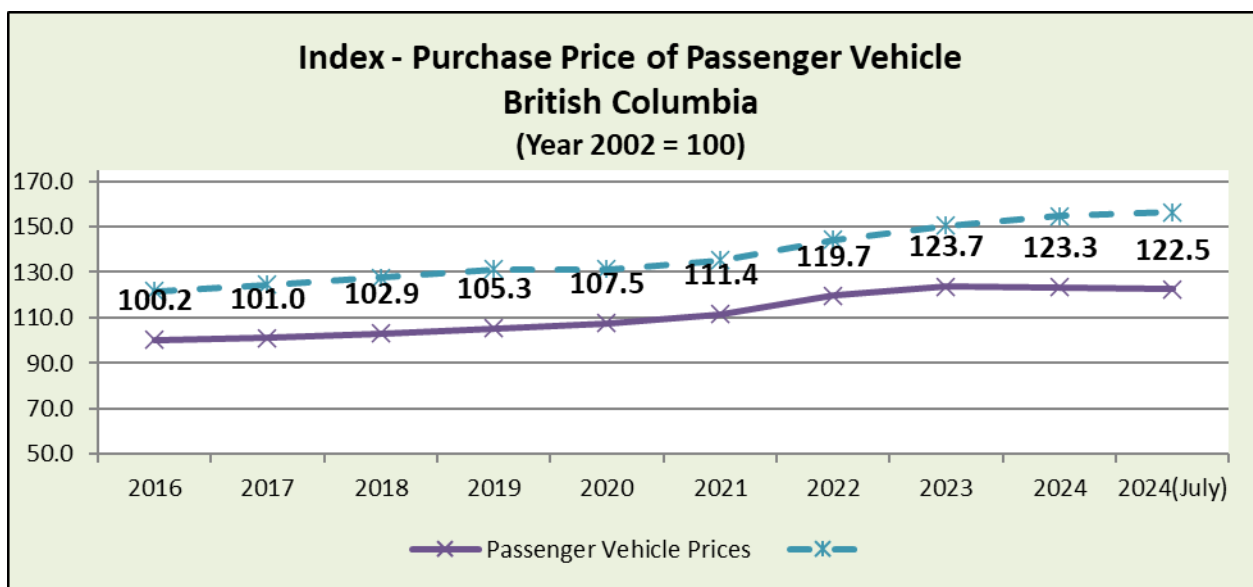


Figure 2-6

Unfortunately, the publicly available Statistics Canada series may understate the full impact of vehicle shortages during the recovery period. Much of the impact was non-price. Order and delivery times also took longer, and purchasers were often driven to pay more for fully optioned vehicles in order to get their order filled sooner. A consequence of this was that used car prices rose dramatically – to a degree not covered by Statistics Canada's methodology at that time. Some of what the taxi industry experienced as a result is reported in *2023 Update: Economic Effects of Covid-19 on the BC Passenger Transportation Industry*.¹¹

⁹ Section 7(1): Without limiting section 6(4), the board may do any or all of the following: (a) direct the Registrar to provide information or records, or to undertake any audits or investigations, **the board considers necessary to discharge its duties or exercise its authority** . . . (Bold added)

¹⁰ Section 3: The Insurance Company of British Columbia must provide the registrar with access to every driver record and motor vehicle records, **including records of insurance**, kept by the Insurance Corporation of British Columbia under the Commercial Transport Act, the Motor Vehicle Act, the Insurance (Motor Vehicle) Act, the Insurance (Vehicle) Act, or the Insurance Corporation Act, that the registrar requires for the purpose of carrying out the registrar's powers, functions, and duties under this Act. (Bold added)

¹¹ Hara Associates (2023) for the BC Passenger Transportation Board.

The good news is that Statistics Canada has improved its methodology to better account for divergence between new and used car prices, and the data series is expected to be more reliable in the future.¹²

Cell Phone Service

Cell phones are a common part of taxicab operation. They traditionally have been used by taxi drivers to develop their own private clientele. As smartphone capabilities have grown, they have also been used as supplementary devices for taxis, sometimes even replacing taxi meters where regulators permit (in technological parallel with Uber's and Lyft's methods of operation).

Cell phones have also become ubiquitous in private life, so taxi companies may or may not provide individual drivers with access to a data plan – sometimes leaving it to drivers to use their own devices and data plans.

The cost of cellular service in Canada has declined substantially over the years – by more than half in just the last eight years. This is illustrated in Figure 2-7. Cell phone service prices have been falling even as the general price level (the CPI) has been rising.

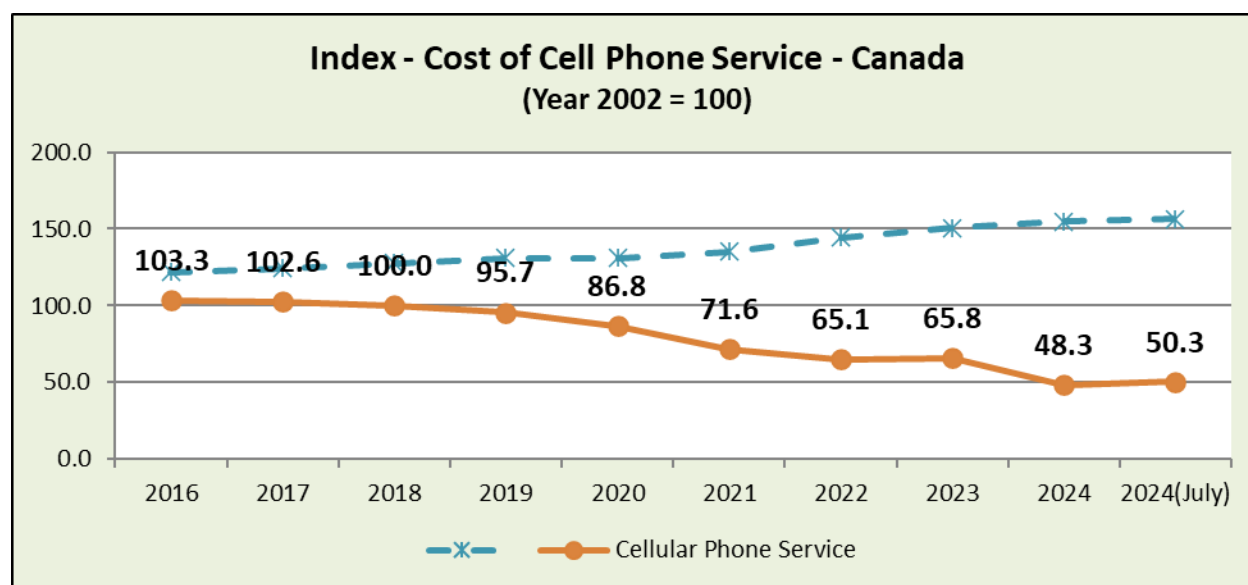


Figure 2-7

Wages

As noted earlier, labour comprises the largest portion of the cost of taxi operation. Whether employed on commission with a minimum wage floor, or as an independent operator/driver, revenue from a taxi must return enough to drivers to keep them behind the wheel rather than moving to available alternative employment.

Taxi driver is an occupational group within the North American Industry Classification System (NAICS). It is part of the broader Transportation and Warehousing group. Statistics Canada

¹² E.g. <https://www150.statcan.gc.ca/n1/pub/62f0014m/62f0014m2022008-eng.htm> and <https://www.ctvnews.ca/canada/statistics-canada-begins-tracking-used-car-inflation-as-prices-rise-1.5988245>

publishes the hourly wage rates of NAICS occupations on a monthly basis. The relative change in wages in occupations comparable to taxi driver can be tracked by looking at the change in average wages in the Transportation and Warehousing occupations.

Figure 2-8 shows how wages in this group have changed in BC over recent years.

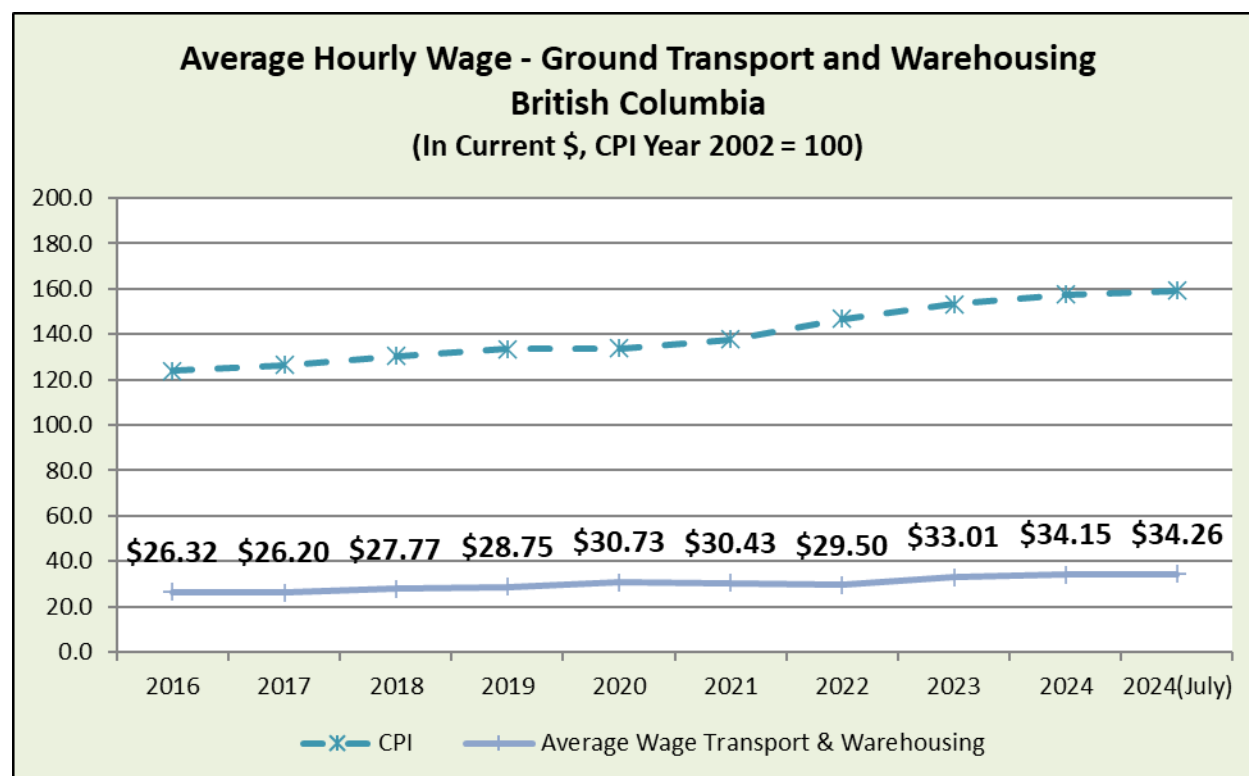


Figure 2-8

The advent of Covid had a depressing effect on wages which declined from an average of \$30.73 per hour in 2020 to \$29.50 per hour in 2022. At that point, wages began to recover, reaching \$34.26 as of July 2024 (an increase of 16.1% over 27 months). Recent rising wages in comparable occupations is consistent with the driver shortage pressure noted by advisory panel members in this report, and in *2023 Update: Economic Effects of Covid-19 on the BC Passenger Transportation Industry*.¹³

3 Regional Cost Profiles

The first step in constructing a cost index for taxis is to develop a cost profile for taxi operation. To do that a different cost profile for each of the five regions is required, since the costs of operation vary. Fuel costs can be a larger or smaller proportion depending on the road network and population density, and whether a typical taxi is driven two shifts a day or one.

¹³ Hara Associates (2023) for the BC Passenger Transportation Board.

3.1 Consultation with Industry Stakeholders

Ideally, industry stakeholders should contribute to constructing the cost profile so that local conditions in each region are accurately captured.

A major obstacle to consultation is the industry's desire to keep its financial data confidential. To facilitate industry cooperation, it was agreed that industry members could speak frankly with Hara Associates on estimated dollar amounts, but that only the percentage breakdown of costs would be shared with the Board and placed in the public report. Better quality information is obtained when industry members feel comfortable and can speak freely.

One of the advantages of this process is that there is little conflict of interest for industry participants. Since costs must add to 100%, increasing one cost necessarily decreases another. On a percentage basis, it is in the interest of all participants to declare costs accurately so that the Taxi Cost Index responds accurately to future cost changes.

Another advantage is that the knowledge of experienced industry stakeholders may exceed what is shown in records the Board might choose to request of licensees. There are several factors that complicate basing decisions solely on financial records. One is that the taxi business remains partly in cash. A second is that the licensee may not be the de facto operator – a licensee with a single taxi license may lease to a driver or drivers at a fixed rate, leaving the drivers responsible for expenses, and companies licensed for many taxis may also follow this practice. In addition, where the company is structured to pay drivers as employees, the cash portion of the business (e.g., tips) may be missing from records. and expenses paid directly by employees (e.g., fuel, vehicle etc.) also may not be on record.

Expert Industry Advisory Panel

An industry advisory panel was formed to provide input on the confidential terms described above. The panel was selected from all regions with the kind assistance of the British Columbia Taxi Association (BCTA) and the Vancouver Taxi Association (VTA). Panel participants were not required to be members of either the VTA or BCTA, but were required to be active in the industry and able to speak to current costs experienced by taxis in their region. A number of panel participants were both active drivers and members of their company's executive. In some cases, the original nominated participant put forward another member from their company who was currently active and better able to speak to the costs of operation.

Panel participants were interviewed on the operating costs of a "typical" taxi in their respective regions. The role of participants was advisory only. Hara Associates took responsibility for reconciling input from participants and ensuring that the net results added to 100% and told a consistent story between regions. The names of panel participants are provided in Appendix A. Consultation with panelists followed these steps:

- **Information Package.** Panelists were sent an information package about the process that included an example blank cost profile, and a supporting letter from the Executive Director of the Board explaining the context for developing the new customized Taxi Cost Index.

- **Interviews.** Each panelist was interviewed. Panelists were first asked to identify the vehicle model most typically used as a taxi in their region, and how many shifts a week it normally was operated. With this taxi in mind, panelists were asked to discuss operational costs during a typical “shoulder season” month. A shoulder season month is neither the peak busy period or the lowest business month. Discussion included returns to the driver(s) of the vehicle. Interviewees were asked what the typical driver could expect to take home, including tips, after paying whatever expenses fell to the drivers (e.g., fuel, airport fees, etc.).

In addition, where relevant, panelists were asked to assume that the principal driver of the taxi held their own license from the Board, or the rights to a licence-share via the taxi company. This avoids issues around plate-lease fees – fees that are additional payments by the vehicle operator over and above payment purely for dispatch and related services. Plate lease fees are paid by operators to Board license holders for the use of the Board licence itself, and are not something the Board guarantees or protects in its meter rate adjustments.¹⁴

Under the terms of confidentiality panelists were free to speak using dollar examples or percentage of costs, whichever they preferred.

- **Calculation and Reconciliation.** Varying estimates from panelists within a region were compared. Hara Associates undertook to produce a single profile for each region that:
 - Incorporated the input of panelists.
 - Reconciled to 100% of taxi *revenue*. All revenue received by a taxi is paid out to costs or as return to drivers or the company. Under this definition, total costs are the same as total revenue. The taxi itself does not keep any money. All the money in is paid out for something or to someone.

Reconciliation also ensured that the implied earnings per hour of drivers did not fall below BC’s minimum wage. While that occasionally may happen to inexperienced drivers, it cannot be typical or drivers would leave for other jobs. This is especially true in the relatively low unemployment rates in BC’s economy at this time.

Where companies pay drivers as employees with a percentage of the meter revenue (and a floor of the minimum wage¹⁵), the net return to drivers in the profile was checked for consistency with the terms of payment.

- **Sharing Draft Results.** Draft cost profiles in percentage terms were shared with panelists in each region for comment. Where possible, panelists for a region met as a group to comment by video conference call. When such a meeting was not feasible, individual panelists were telephoned and asked for their comments.

¹⁴ Because the plate lease is not always explicitly charged, it is best to work with the simplest case of a vehicle for which the principal driver holds the rights to a Board issued licence, either directly or through a license share.

¹⁵ Minimum wage in BC at time of writing was \$17.40/hour, raised from the previous \$16.75 on June 1, 2024.

- **Final Cost Profiles.** Final cost profiles were adjusted, where possible, to account for panelist comments. For example, in one region, after having time to consider, panelists felt that the replacement vehicles they now were buying were more typically new models, given the shortage of used hybrids available for purchase. This affected the annualized share of cost going to vehicles.

Exclusion of GST from Index

The Goods and Services Tax (GST) is included in taxi meter rate. For the purposes of the taxi cost profile and the index, the GST has not been included. Should the GST rate change, it would be necessary to consider a one-time adjustment to meter rates independent of the cost indexes provided in this report. In the event of a harmonization of GST and provincial sales tax, as has occurred in other provinces, the calculations would need to account for changes in the cost of other taxi costs, such as fuel, from the elimination of the provincial sales tax.

3.2 Cost Profiles Compared by Region

The resulting cost profiles by region are summarized in Table 3-1. Differences are discussed below.

Insurance

Taxi insurance is provided by the Insurance Company of British Columbia (ICBC). Cost differs between companies and regions. Factors affecting the cost of insurance include kilometers driven (with or without passengers), safety record of the operator, claims incidence in the region, type and age of vehicle covered, and the coverage options typically chosen by the operators in the region (e.g., deductibles).

For the typical taxi in the region, panelists were asked about a vehicle and driver with a good driving record, and typical insurance coverage choices for that area.

Lower Mainland insurance costs are estimated at 6.0% of revenue, while Capital Region is estimated at 4.3%. The difference is driven principally by the volume of revenue per taxi, not the cost of insurance. The Lower Mainland and Capital Region are both heavily urbanized, but Lower Mainland revenue per taxi has fallen after some years of competition from TNS companies like Uber and Lyft. According to trip data reported to the Ministry of Transportation and Infrastructure, taxi passenger volume has fallen by approximately half from its pre-Covid and pre-TNS levels.¹⁶

As a result, panelists report that the typical Lower Mainland taxi is usually driven by one driver, often the holder of the license-share. In comparison, Capital Region taxis are still run two shifts most days, with higher resulting revenue. This means that the fixed part of insurance costs is spread over more revenue in Capital Region, resulting in a lower percent cost share. The same is true of other types of costs that have fixed portions.

¹⁶ *Economic Effects of Covid-19 – 2023 Update*. Hara Associates 2023 for the BC Passenger Transportation Board.

This summer, Uber began operating in Capital Region through acquisition of a BC company with a relatively inactive TNS license. It remains to be seen whether continued competition from Uber changes the cost profile of Capital Region taxis to be more similar to Lower Mainland taxis.

Table 3-1 - Cost Profiles of Typical Taxi by Region					
Cost Category	Region 1 Lower Mainland	Region 2 Capital	Region 3 Vancouver Island (excl. Capital Region)	Region 4 Okanagan- Kootenay- Boundary- Cariboo	Region 5 North Central
Insurance	6.0%	4.3%	4.6%	5.7%	4.9%
Fuel	10.3%	14.2%	11.5%	7.2%	16.4%
Repairs & Maintenance	6.1%	3.9%	4.2%	4.3%	6.2%
Stand Rent/Company Overhead	7.2%	7.9%	10.8%	3.3%	9.5%
Cell Phone/Radio Phone	0.7%	0.0%	0.0%	0.6%	0.5%
Annualized Cost of Vehicle	6.8%	3.7%	4.0%	4.0%	9.8%
Return to driver(s) with tips, net of expenses and fees paid by driver	62.9%	65.9%	64.9%	74.8%	52.6%
TOTAL*	100.0%	100.0%	100.0%	100.0%	100.0%

*May not add to 100% due to rounding

Variation in the number of shifts driven also contributes to differences in cost profiles in regions. However, the type of vehicle and coverage choices also have an impact. For example, the typical taxi in North Central Region's fleet was reported to be a Dodge Caravan. The larger vehicles are able to accommodate tours and group fares to and from camps. Given that these vans are purchased used, and run for a number of years, it is common to select a high deductible for collision coverage of the vehicle. This is because the amount paid by insurance on claims for vans of this age and usage is often negligible anyways. The cost share of insurance is lower than it would be otherwise because of these choices.

Fuel

The difference between lower mainland fuel consumption (10.3%) and Capital Region (14.2%) is consistent with the intensity of vehicle use discussed for insurance above. With the Lower Mainland running single shifts, and Capital Region running two shifts, there is more fuel consumption for a given taxi in Capital Region. The highest consumption is reported in Region 5 North Central, where older Dodge Caravans are typical. This model vehicle is not available as a hybrid, and has noticeably lower mileage than even a non-hybrid sedan.

Repairs and Maintenance

This expense includes regular maintenance (e.g., tires, brakes) and larger infrequent repairs such as replacing the transmission or a hybrid battery. Panelists were interviewed about both kinds of costs, including the incidence of larger repair events.

While a portion of this cost varies with kilometres, there is also an invariant portion. When this fixed portion is supported by less revenue, the percentage of cost will be higher. As with insurance, the lower volume of revenue in the Lower Mainland results in a higher percentage of that revenue going to repairs and maintenance (6.1%) compared to Capital Region (3.9%). Both regions typically use the Toyota Prius, so the dollar value of maintenance and repair expenses in absolute dollar terms is comparable. It is the differences in revenues that lead to a difference in the percentage attributed to this cost item.

Differences in vehicle type also account for regional differences in repairs and maintenance. North Central, with its use of Dodge Caravans, has the highest percentage share at 6.2%

Stand Rent/Overhead

Taxis that operate independently of their companies typically pay a fixed fee per month to cover dispatch, call-taking, access to taxi stands held by the company (e.g., at hotels), and other shared services. This sometimes is termed *stand rent*. Panelists were asked for this information.

Where a taxi company was structured with drivers as employees, panelists were asked about an equivalent overhead cost of company operations on a per taxi basis.

Note that stand rent paid by a typical taxi whose driver owns a license share may also include charges or benefits stemming from historical equity in the company. For example, a taxi company that has a downtown location that includes valuable land held mortgage free will tend to charge a lower stand rent to its licence-share holders than a company that has just purchased a similar downtown location and must finance its mortgage. This variation was considered when drafting the profile for the region. If a stand rent of one company was significantly different from other companies in the region, the *median* value was used rather than the average.¹⁷

Since stand rent represents the overhead costs of the taxi company, the share for each taxi is affected by the number of taxis in the fleet. Thus, differences in fleet size can offset other regional differences allowing the stand rent percentage to be comparable in the Lower Mainland and Capital Region. This includes the Lower Mainland's greater use of the Board's provision for Single Shift Paired Vehicles (SSPV), where the use of a license may be split between two vehicles operating separate shifts.

In less urbanized regions, differences in overhead also reflect variation in the size of the fleet supporting a given overhead for operations. Some companies try to provide a full service to passengers and taxis, supporting a classic system with local call-takers, garage, etc. Other

¹⁷ The median is the middle value, and is less sensitive to outliers than an average of all the values.

companies substitute more technology for leaner systems, as well as involving drivers more in dispatch.

Smaller fleet sizes appear to contribute to the higher percent of costs going to stand rent, especially in Region 3. Region 4 has lower stand rents than other regions, possibly a result of more up-to-date use of technology combined with more intensive use of taxis – double shift is more typical in Region 4.

Cell Phone/Radio Phone

This is the smallest cost item included in the cost profile. In years past it was a bigger part of the cost of any taxi operation. It was included in the interview questions for panelists for that reason, and carried forward into the index as a result. Its role as a percentage of taxi costs is now negligible. Regional variation is largely a product of local choice, since the alternative is to rely on drivers using their own phones.

Annualized Cost of Vehicle

This is based on the cost of replacement vehicles. The model of the typical replacement vehicle being chosen or anticipated, is not necessarily the same as the currently dominant vehicle. For example, the popular models of the Toyota Prius used for taxis have been discontinued by Toyota. Attention has shifted to Toyota's RAV4 hybrid as a replacement vehicle. Similarly, production of the Dodge Caravan has been discontinued.

Replacement vehicles used in the proposed Cost Index are:

1. **Lower Mainland.** A hybrid Toyota Prius is the typical current vehicle in the fleet. According to advice from panelists, the most likely replacement is a new Toyota RAV4 hybrid, that will serve for a decade. A new RAV4 was thought to be more realistic given the difficulty of finding used RAV4 hybrids. The newer RAV4s have also grown considerably in size since their introduction some years ago, and are more suitable for a taxi. The choice of new may also be influenced by the greater number of taxis being driven by the license-share holder. Owner-drivers tend to buy better vehicles for themselves, especially when they are the sole users of the vehicle.
2. **Capital Region.** A hybrid Prius is the most common vehicle, although there is a good number of Camrys. For replacement vehicles, the RAV4 hybrid was deemed most likely. For Capital Region this would be a used RAV4, likely five model years old and run as a taxi for six years.
3. **Vancouver Island (excl. Capital Region).** A hybrid Prius is the most common vehicle at present. The likely replacement is a new RAV4, although this decision has not yet been faced by many.
4. **Okanagan-Kootenay-Boundary- Cariboo.** The most typical vehicle is a hybrid Prius, supplemented by Toyota Corollas. The most likely replacement is a new RAV4 serving for a decade.
5. **North Central.** The most typical vehicle is a Dodge Caravan, purchased used. The likely future replacement is a Toyota Sienna, three model years old with an anticipated five-

year life as a taxi. This replacement decision has not yet been faced by most, but there are limited options for vans to serve as taxis as the supply of used Caravans ages out. Siennas have a good reputation with taxi operators for long life and low maintenance. The chief alternative to the Sienna is the Chrysler Pacifica, but it is significantly more expensive.

Returns to Drivers

The percentage of total revenue going to drivers is more consistent by region. The highest share of revenue appears to be in Region 4. The lower stand rents noted for Region 4 may contribute to this, along with the typical taxi being busy enough to support two shifts most days, resulting in a higher combined return to drivers on a per vehicle basis.

The lowest share of revenue going to drivers appears to be Region 5 (North Central). It is notable that this region was where driver shortages were most emphasized in panel discussions and where one panelist felt that meter rates were in an odd situation in that customers would be happy to be charged more if they could get faster service. It was proposed that higher rates would attract more drivers and reduce the long wait times resulting from a shortage of drivers. (See final section of this report summarizing broader industry rate concerns expressed during consultation).

4 Customized BC Taxi Cost Indexes

4.1 Public Data Series to Monitor Cost Changes

Constructing a cost profile is the first step toward building a taxi cost index. The next step is to find public data series that closely track how costs change over time. Fortunately, most of the relevant cost items are tracked by Statistics Canada as part of its CPI survey, or in other surveys. Results for BC are published monthly. For some items, results are published at the more detailed level of Census Metropolitan Area (CMA). This includes retail gasoline prices in the Victoria and Vancouver CMAs.

Table 4-1 shows the relevant Statistics Canada series for tracking each cost item. Note that one cost item is tracked by the general CPI, rather than specific series related to the item. That is Stand Rent/Overhead. Even if Stand Rent/Overhead were known directly for a region, including changes in such fees would automatically pass any increase in taxi company fees directly to consumers, bypassing the due diligence of the Board. In addition, there is a mathematical problem of circularity. An increase in taxi company fees would lead to a meter rate increase, which in turn would create room for another increase in taxi company fees. For both these reasons, a general measure of inflation, the total CPI, is used to keep pace with increased cost of dispatch and related services.

Table 4-1: BC Taxi Cost Index Data Sources			
Item	Region	Public Data Source Used to Independently Track Changes in Costs	
		Statistics Canada Table	Full Series Name
Fuel	1	Table 18-10-0004-01	Average retail prices for gasoline and fuel oil, by urban centre; Vancouver CMA , BC; Regular unleaded gasoline at self service filling stations (cents per litre)
	2	Table 18-10-0004-01	Average retail prices for gasoline and fuel oil, by urban centre; Victoria CMA , BC; Regular unleaded gasoline at self service filling stations (cents per litre)
	3,4,5	Table 18-10-0001-01	CPI, BC ; Gasoline (2002=100)
Maintenance and Repair	All	Table 18-10-0004-01	CPI, BC; Passenger vehicle parts, maintenance and repairs (2002=100)
Insurance	All	Table 18-10-0004-01	CPI, BC Passenger vehicle insurance premiums (2002=100)
Annualized Cost of Vehicle	All	Table 18-10-0004-01	CPI; Purchase of Passenger Vehicle (2002=100)
Stand Rent /Overhead	1	Table 18-10-0004-01	CPI, Vancouver CMA ; All-items CPI (2002=100)
	2	Table 18-10-0004-01	CPI, Victoria CMA ; All-items CPI (2002=100)
	3,4,5	Table 18-10-0004-01	CPI, BC ; All-items CPI (2002=100)
Cell/Radio phone	All	Table 18-10-0004-01	CPI - Cellular Services - Canada (C2017=100)
Return to Drivers	All	Table 14-10-0205-01	Average Hourly Earnings for employees paid by the hour, without over-time, Transportation and Warehousing, BC seasonally unadjusted

4.2 Index Calculation

The index is calculated as the average of the relative change in the cost of each item, weighted by the percentage share in the cost profile (and multiplied by 100 to produce an index number). The formula for calculation is provided in Appendix B. The term for this formula is a *Laspeyres* index.¹⁸

The result is an index with a preset value of 100 in a base period (in this case chosen to be April, 2023). Subsequent values of the index can be compared to the base. For example, a value of 110 in April 2024 implies taxi operating costs increased 10% between April 2023 and April 2024.

¹⁸ There are other index formulae, such as *Paasche* indexes, however *Laspeyres* is commonly used for its simplicity of calculation. The Consumer Price Index is a form of *Laspeyres* index.

The index can be calculated for any month where data is available. However, it is recommended that the same month be used for comparison between years. This avoids complications from seasonal variation in prices, such as for gasoline and wages.

Index results reported in next section compare April to April from 2021 to 2024. An exception is the final point of the graphs, where July of 2024 (the latest data available at the time of writing) is also provided for interest. Care should be taken in comparing moves from April to July 2024, as some of the changes may be just seasonal in nature.

5 Index Results by Region

The results of the customized TCIs are reported below. For each region:

- The cost profile of taxi operation is illustrated as a pie chart.
- The change in in costs of taxi operation are reported and analyzed for the period 2021 to 2024.
- The percent change in meter rates suggested by the customized TCI is compared to the CPI, which the Board uses as a guide at present.

The stories for each region are similar, but are not identical.

The figures and tables below have been updated using the latest data available from Statistics Canada at the time of writing. *Data points for 2024 may differ from drafts shared with stakeholders in earlier consultations.*

Some analytic text is repeated in each section below, but with slightly different numbers. This accommodates readers of the report who wish to focus only on one region.

5.1 Lower Mainland

Figure 5-1 illustrates the taxi cost profile for the Lower Mainland discussed in Section 3 above.

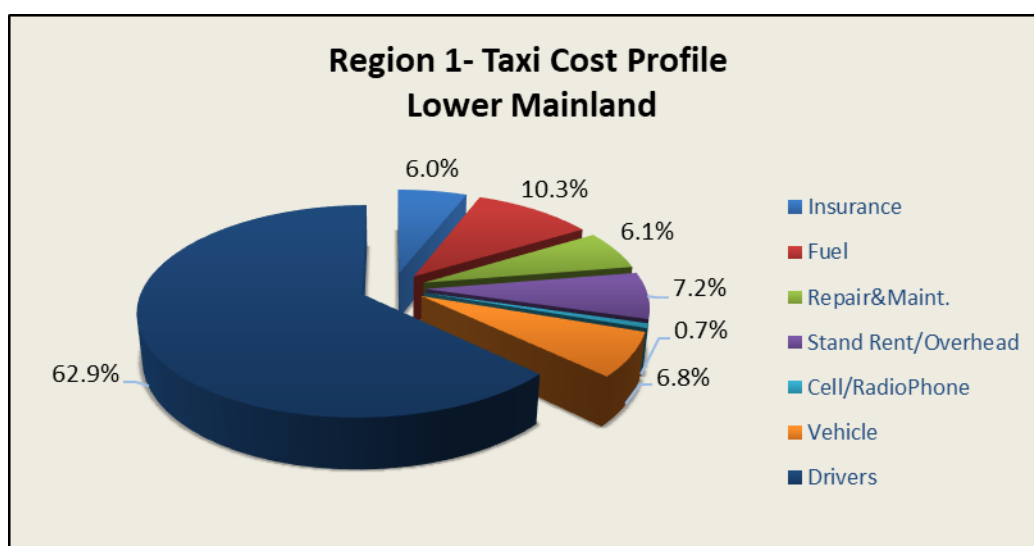


Figure 5-1

Figure 5-2 shows the change in taxi operating costs in the Lower Mainland. April 2023 has been set as our reference year, with 100 points. The other years have index values higher or lower depending on changes in costs relative to 2023. For example, between April 2023 and April 2024, the index rose from 100 to 103.6 indicating a 3.6% increase in taxi operating costs over those 12 months.

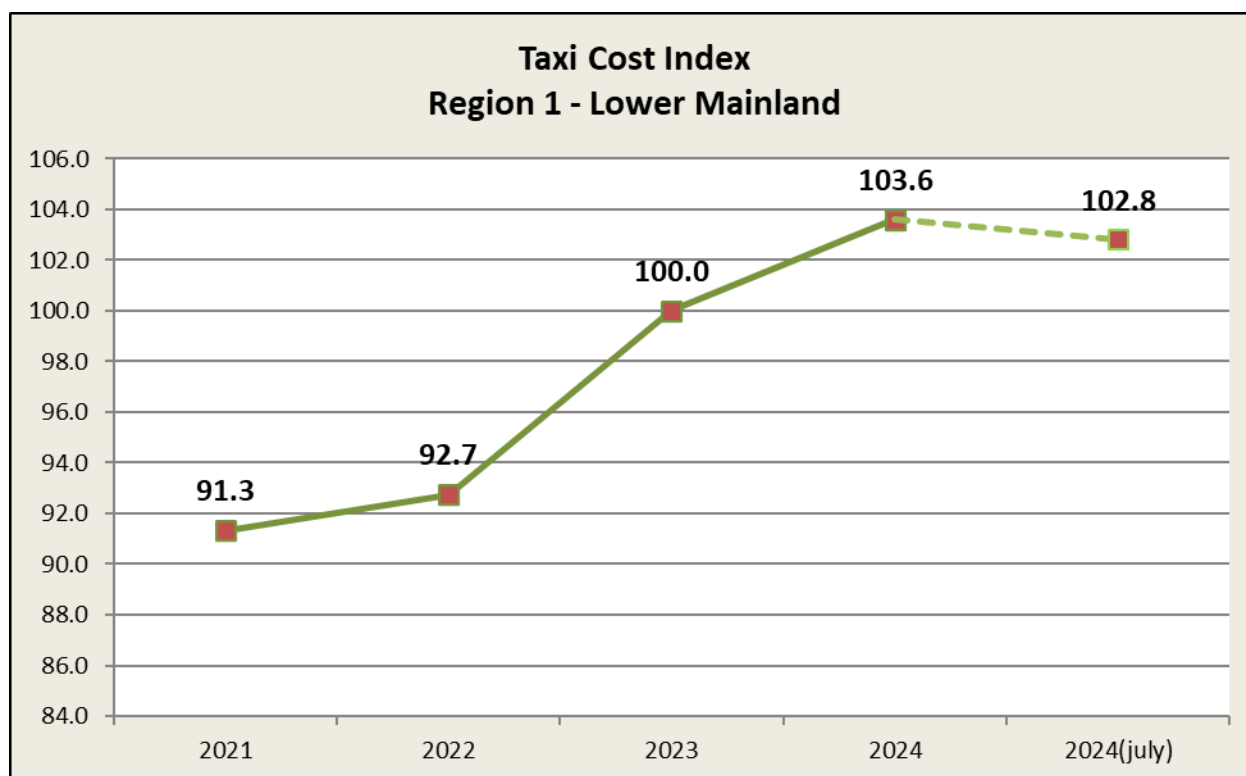


Figure 5-2

In the previous year (2022/2023), the costs of operation had risen sharply from 92.7 to 100, an increase of 7.8%. The increase was due largely to:

- A significant increase in the cost of labour in comparable occupations as the BC economy recovered from Covid. Taxi driving is part of the broader category of Transportation and Warehousing (see Section 2). Average wages in these occupations in BC rose 11.9% in those 12 months, more than recovering from the Covid driven decline in previous years. The rise in wages in alternative occupations is consistent with the difficulty of finding taxi drivers that year as reported by the industry in *2023 Update: Economic Effects of Covid-19 on the BC Passenger Transportation Industry*.¹⁹
- A 30.4% increase in the price of gas in the Lower Mainland as gasoline prices also recovered from their depressed state following the advent of Covid.
- An increase in the cost of repairs and maintenance (up 6.4%).

For the final three months of available data (April 2024 to July 2024), the figure also shows a dashed line and a slight decline in the index. The July reading is provided for those wishing to

¹⁹ Hara Associates (2023) for the BC Passenger Transportation Board.

see the most recent data at of the writing of this report. *While interesting, the line is dashed because it does not compare April to April.* Comparing different months, such as July to April is subject to seasonal variation, as well to the volatility of some costs over the short run. In this case, the wages in the broader sector of transportation and warehousing tend to be stable between April and July, with new contracts negotiated once the summer is over. As a result, an April to July comparison may understate wage and taxi cost trends for the entire year. In addition, gasoline prices are volatile. World crude oil prices fell between April and July 2024, lowering the price of gasoline in BC for that period.

Comparing the Lower Mainland TCI to the Consumer Price Index

The purpose of the TCI is to provide a guide to meter rate adjustments based on taxi operating costs, rather than using the general CPI which currently underlies the Board’s Taxi and Limousine Index (TLCI).

Figure 5-3 compares the percentage adjustment in meter rates suggested by the change in in the Lower Mainland’s TCI to the percentage changes suggested by the Consumer Price Index (in this case the CPI published for Vancouver CMA).

The year-by-year differences are significant. In 2021/2022, the CPI rose 6.6% led by the cost of groceries and shelter – neither of which is directly relevant to the cost of taxi operation. In comparison, the cost of taxi operation rose just 1.5%. In 2022/2023, taxi operating costs rose 7.8% due to rising labour and fuel prices. The CPI rose only 4.5% as the price of gasoline and vehicle maintenance matters less for a consumer than it does for a taxi, and the CPI does not directly include the cost of labour.

In the most recent period (2023/24) a meter adjustment to cover increasing costs would be 3.6%, while the CPI increased only 2.7%

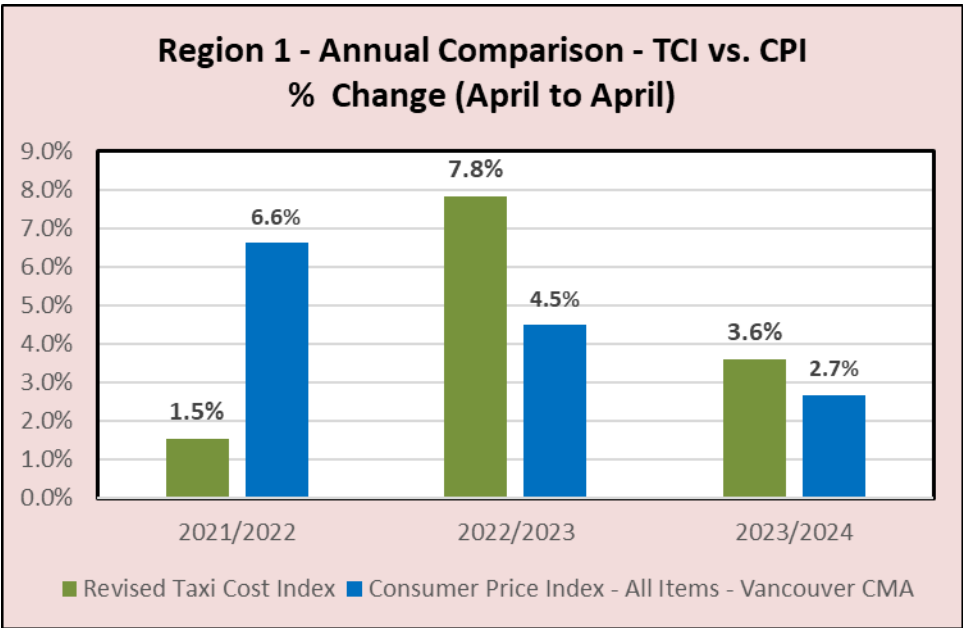


Figure 5-3

5.2 Regions 2, 3, 4, and 5

The story for the other regions is similar to that for the Lower Mainland, but with differences driven by the difference in cost profiles among regions.

Figures 5-4 to 5-7 illustrate the cost profile for each region as a pie chart. The figures also can be compared to Figure 5-1 for the Lower Mainland. Variations in the percentage of taxi costs going to fuel, for example, are the red section in each diagram. Section 3 of this report discussed regional differences in more detail.

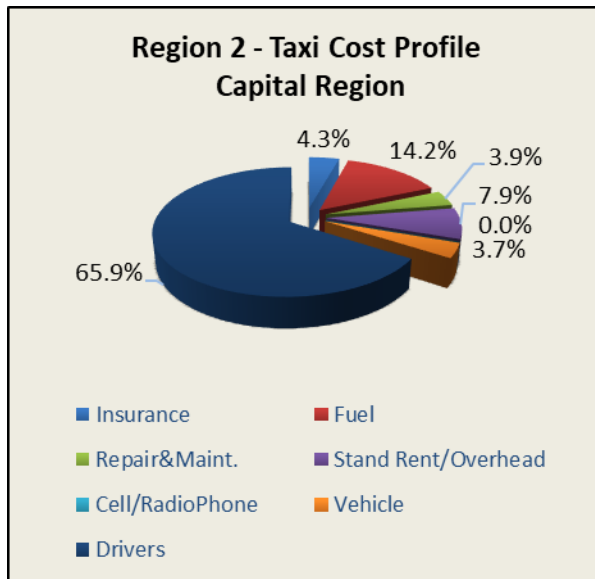


Figure 5-4

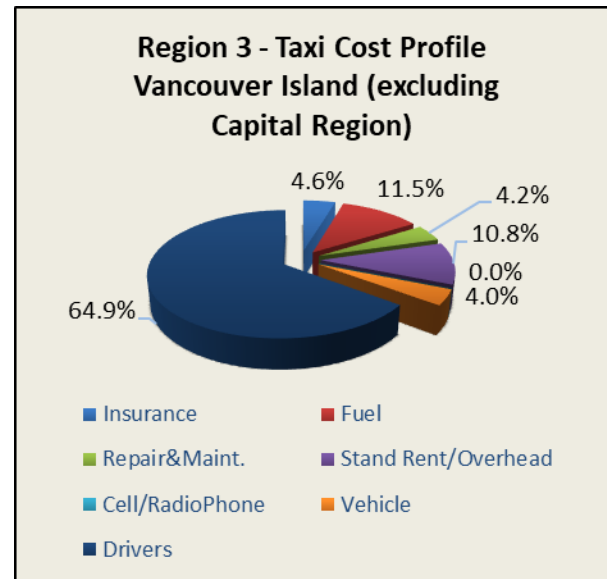


Figure 5-5

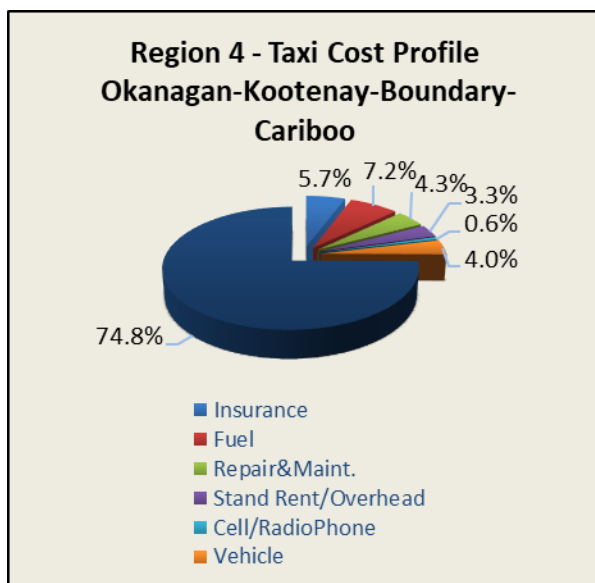


Figure 5-6

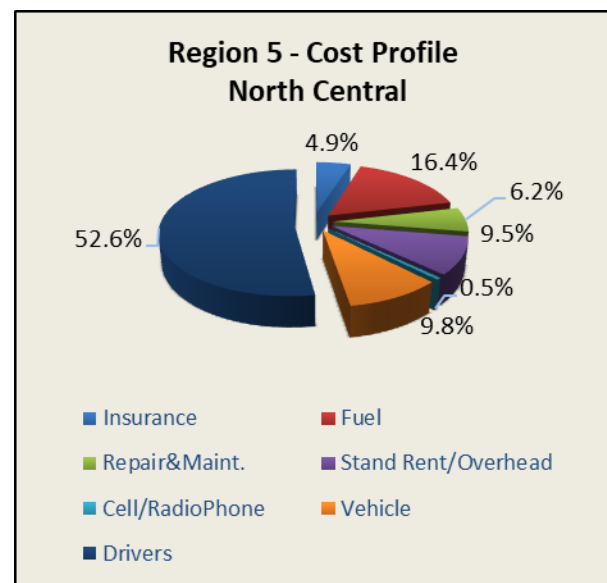


Figure 5-7

Customized TCI for Each Region

As with the Lower Mainland, a separate cost index was constructed for each region using the corresponding cost profiles, data series, and index calculation as documented in Appendix B.

Figures 5-8 to 5-11 compare the resulting customized TCI for regions two to five. A similar figure for the Lower Mainland was provided previously in Figure 5-2.

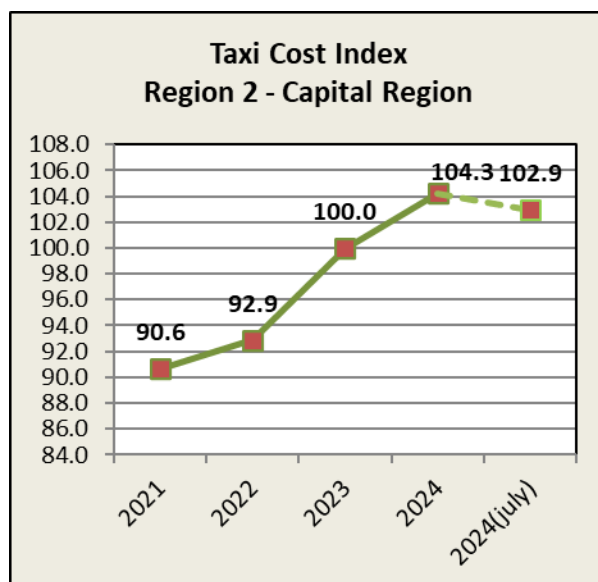


Figure 5-8

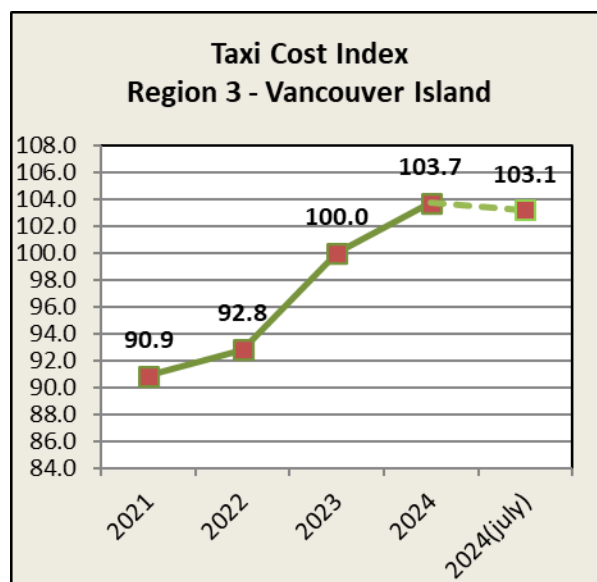


Figure 5-9

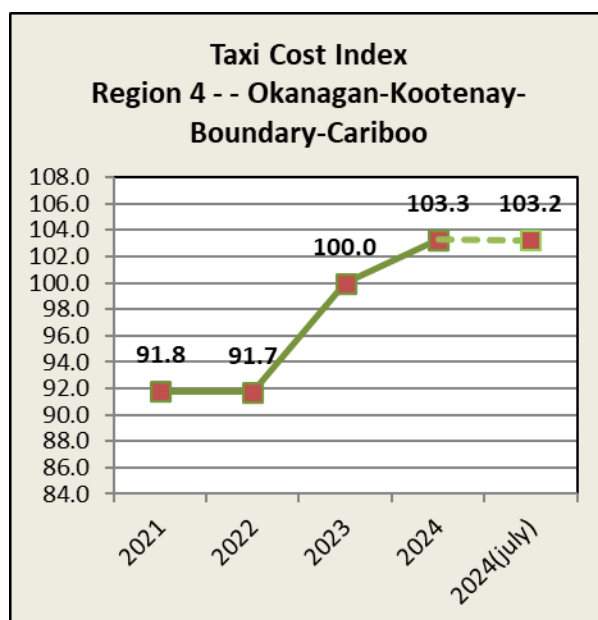


Figure 5-10

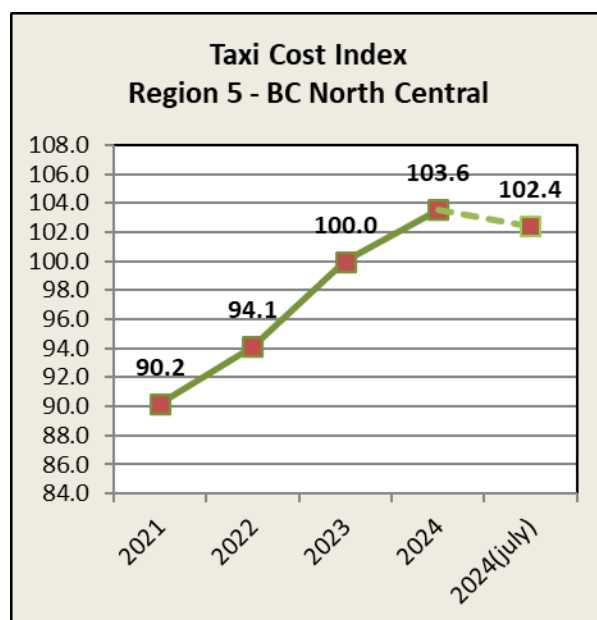


Figure 5-11

As for all indexes, a point value of 100 is applied to the base reference period (April 2023). The index for other years is higher or lower reflecting changes in operating costs relative to April 2023.

The general pattern in the indexes is the same as seen for the Lower Mainland. There was a sharp increase in taxi operating costs between 2022 and 2023 in all regions, driven by a large increase in gasoline prices, comparable labour costs, and the price of repairs and maintenance, as all recovered from their depressed Covid levels. Rates of increase varied between regions from 6.2% to 9.0% (also illustrated in Figures 5-12 to 5-15 further below).

The rate of increase fell back to more normal levels between 2023 and 2024. Index values from 103.3 to 104.3 indicate taxi operating costs increased between 3.3% or 4.3%, depending on the region, over the year from April 2023 to April 2024. As per the discussion of the Lower Mainland – the final three months of data of April 2024 to July 2024 is provided for interest, but understates the trend in rising taxi operational costs because labour costs tend to hold steady over the summer months in BC, and because there was a drop in gas prices which are always volatile for non-seasonal reasons.

Regional differences are driven by differences in regional cost profiles. As discussed in Section 3, Region Five spends the greatest amount proportionately on fuel because of its use of non-hybrid vans. Thus it is most affected by changes in the cost of gasoline. One of the reasons the Region 5 index starts at the lowest level of 90.2 in 2021 is because it benefited the most from depressed gasoline prices during the advent of Covid. Operating costs also increased the most as gasoline prices recovered in the subsequent period to 2023.

Region 4 has the lowest proportion of costs spent on gasoline, but the highest proportion going to labour costs. Thus from 2021 to 2022, operating costs were relatively flat, with the index falling very slightly (from 91.8 to 91.7), which is quite different from the positive increases in other regions. The stability from 2021 to 2022 is because rising gas prices during this period had a lower impact in Region 4. In addition, the rising gas prices were offset by a decline in comparable wages during that 12 month period – having a greater offset than in other regions because a greater proportion of Region 4 operating costs go to driver earnings.

Comparing the regional TCI's to the Consumer Price Index

The purpose of the TCIs is to provide a guide to meter rate adjustments based on taxi operating costs, rather than using the general CPI currently underlying the Board's Taxi and Limousine Index (TLCI).

Figures 5-12 to 5-15 compare the percentage adjustment in meter rates suggested by the change in each region's TCI to the percentage changes suggested by relevant data from the Consumer Price Index (either CPI for All BC, or Vancouver CMA, or Victoria CMA). The figures are for Regions two to five. Again, comparison may also be made to the earlier Figure 5-3 for Region 1, the Lower Mainland.

The year-by-year differences are significant. In 2021/2022, the CPI rose 6.7% in Victoria and a similar 6.6% for BC as a whole. The increase in the CPI was led by the cost of groceries and shelter – neither of which is directly relevant to the cost of taxi operation. In comparison, the cost of taxi operation rose far less. As discussed above, the increase was close to nil (minus one tenth of one percent) for Region 4 that year, to a high of 4.4% in Region 5.

In the next year, 2022/2023, taxi operating costs rose sharply, ranging from 6.2% to 9.0% depending on the region due to rising labour and fuel prices. In comparison the CPI for BC rose just 4.3% (4.5% for Victoria alone).

Figures 5-12 to 5-15 compare the percentage adjustment in meter rates suggested by the change in each region's TCI to changes in the relevant Consumer Price Index (either CPI for All BC, or Vancouver CMA, or Victoria CMA). Again, comparison also can be made to the earlier Figure 5-3 for the Lower Mainland.

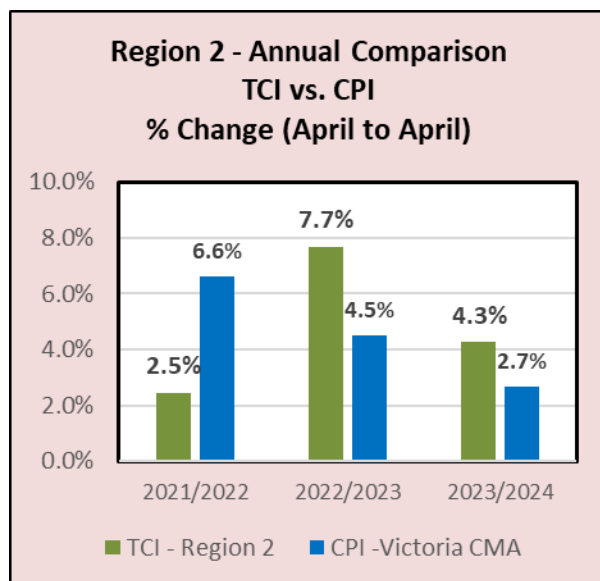


Figure 5-12

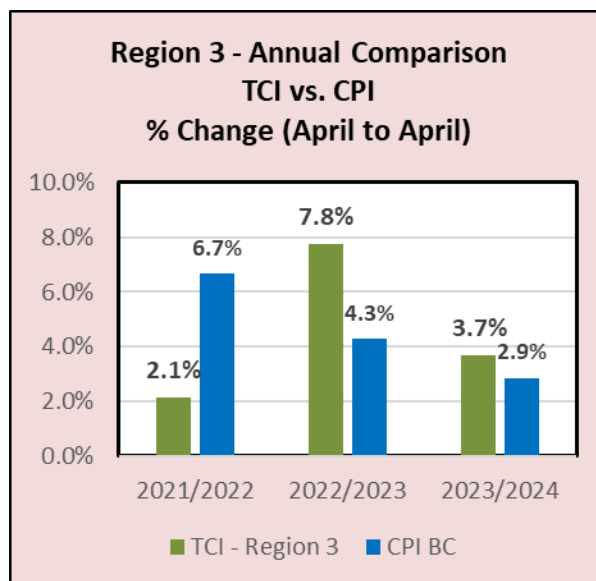


Figure 5-13

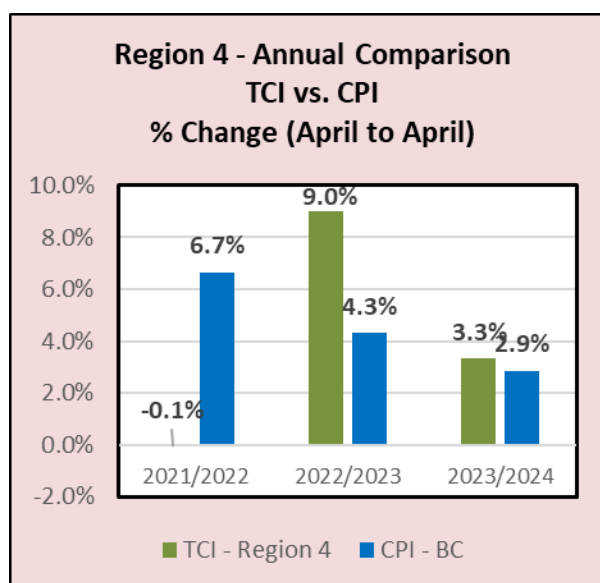


Figure 5-14

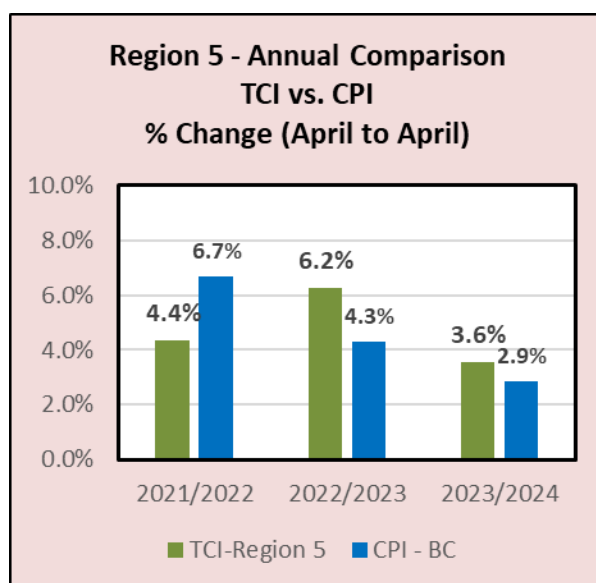


Figure 5-15

6 Conclusion: Customized TCIs as a Guide for Meter Rate Adjustment

From the above it is apparent that the Taxi Cost Index, customized by region, provides a better account of changes in the costs of taxi operation than the CPI and, as a result, is a better guide for regular meter adjustment. This is not a surprise given that CPI is only a general measure of inflation and is based on consumer consumption, not taxi operation.

Advantages of a TCI are:

- A lawful guide based on changes in industry operating costs in order to meet the regulator's duty to ensure the opportunity for *just and reasonable* rates of return earned by the industry.
- A guide that is a more accurate reflection of changes in industry costs than the general Consumer Price Index. In this case the accuracy is increased by providing a TCI customized for varying conditions in each of five regions of BC.
- A guide that potentially draws on a more complete view of costs (through the cost profiles created with Industry Advisory Committee input) than is available from the financial records the Board can seek from licensees. Licensee records may be incomplete because:
 - A portion of the taxi business is still in cash.
 - Licensees may delegate the operation of individual taxis through license-shares and other arrangements and thus lack records for some costs.

A disadvantage of TCIs is that they provide only a guide to *relative* changes in cost. They preserve the status quo of profitability in the base year of their application. They do not correct for meter rates being too high or too low in that base year. For this, separate corrective action may be needed.

6.1 Using the TCI – regular annual Meter Rate Reviews

The most common use for a Taxi Cost index is to provide a guide for regular annual meter rate adjustment. For this purpose, a month is chosen that is operationally suited for licensees to plan for adjusting their meter rates. In this report, April has been used to illustrate results. April data would support a spring review of meter rates by the Board and for the Board to issue its guidance for any change to meter rates prior to the busy summer season. However, any month may be chosen. The formula and data sources provided in Appendix B can be used for any month.

To apply the TCI, a Board analyst would calculate the value of the index in a given region for the current month, and compare it to the value of the TCI when it was last applied (usually 12 months previously). For example, if in April 2027, a region's TCI was calculated to be 138.6, and in the previous April that TCI was 132.0, then the implied guide for meter rate adjustment in 2027 would be $(138.6/132.0 - 1 = 5.0\%)$. Calculating this value would take less than a day of an

analyst's time, once data for April had been released by Statistics Canada.²⁰ Statistics Canada data is usually released with a month's delay.

6.2 Using the TCI: Adjusting to Spikes in Gas Prices

From time to time there can be a sudden large change in taxi operating costs such that the regulator feels that meter rates should be adjusted immediately. A typical example is a spike in gasoline prices, perhaps because of the loss of a pipeline, an embargo, or conflict in oil producing regions.

In such a case, one option is to introduce a surcharge on the meter to cover the higher cost of gasoline. However, gas surcharges pose some challenges for regulators:

- How much should the gas surcharge be?
- When and how to remove the surcharge? There can be resistance to removal after gasoline prices return to normal²¹, especially because what is "normal" changes as regular inflationary forces continue over time.

The TCI offers a potential way of addressing these concerns because it can:

- **Provide a reasonable guide for the amount of the surcharge.** Because the TCI is based on the proportion of expenses going to fuel for the typical taxi in a region, an appropriate dollar amount can be calculated for a meter rate adjustment (characterizing the change as separate fuel surcharge is optional). The TCI can be calculated for any month. If the one month delay in Statistics Canada retail gasoline data is deemed too long, the Board analyst may temporarily insert a value into the formula from a more current source for gas prices.
- **Incorporate whatever part of the fuel surcharge is still needed in the next regular annual meter rate review.** When the next regular month for annual review comes up, the value of the TCI at that time can be calculated and applied as usual. To the degree that gas prices remain high, that will be incorporated in the calculation automatically in the update.

7 Broader Concerns Expressed by Industry

During consultation, various advisory panel members raised points on additional topics related to meter rates and the potential application of the TCI. These are summarized below without judgement or recommendation:

- **Not forcing rate increases on the industry without options or consultation.** Industry participants are wary of a formula that would apply rate increases automatically. They want to retain some control in order to consider the impact of rate changes on customers and customer demand. Lower mainland participants were particularly

²⁰ Actual time is less than an hour with the aid of internet downloads and a pre-configured spreadsheet, however more time is suggested for care and attention to avoid clerical error.

²¹ For example, see <https://www.cbc.ca/news/canada/toronto/gas-prices-drop-but-toronto-taxi-fuel-surcharge-stays-1.706249>

concerned about the potential loss of customers to Uber and Lyft if meter rates are raised excessively. Participants in other regions also expressed this concern.

- **Not wanting to compete with each other on price; common meter rates, and bands with a minimum and maximum rate.** Lower mainland participants felt that their main competition is from TNS companies. They would like to maintain a common rate. Region 4 participants were also concerned that a rate-band with too low a floor might trigger a “race to the bottom”. They feel that taxi companies that struggle to provide better service that costs more in overhead would be forced to curtail this effort. They believe that some companies might be tempted to curtail operating hours to scoop the more attractive busy periods at lower rates, leaving others to cover less profitable or unprofitable times, while losing market share in good hours to the lower rate companies.
- **Desire for Common Rates Not Universal.** Support for common rates was not universal. For example, Region 5 participants noted their region included a number of communities that may have different rate needs. A rate band, correctly set, might accommodate the different needs of different communities.
- **Could actually charge a higher meter rate and get *more* customers.** As an example of varying needs within the community, one advisory panel member reported that for their community, camps and tour groups frequently complain that that service arrives too slowly. The member felt that this was an outcome of the shortage of drivers and that it would be preferable to have more vehicles on the road to answer requests more quickly. The situation is significant enough that it they believe that people would happily pay more if it meant more drivers and the ability to respond to calls for groups on a timelier basis.
- **Keeping pace with wage increases.** There is a shortage of skilled drivers and not enough room under the meter rate to retain them. When minimum wages rise – the meter rate does not rise, and we have to ensure the driver gets more. (Note that the recommended Taxi Cost Index introduces an explicit wage component)
- **Rates should allow a higher return to drivers in order to compete with other local industries.** Participants in Regions 4 and 5 felt consideration should be given to looking at comparative wage rates with other local industries in their area, so that returns to drivers can be high enough to retain drivers.

As an extension of not wanting to compete on price, some industry panelists were looking for regulator and government action to improve common standards of for the *quality* of taxi service to better compete with TNS service and to attract more passengers. Points raised by individual panelists included:

- **Restore driving training standards, and explore other items presented to the Special Committee on Passenger Directed Vehicles by taxi operators.** Re-establishing taxi driver training standards would ensure a good common standard of taxi service to better compete with Uber and Lyft. (The former Taxi Host Program requirement shared by lower mainland municipalities was effectively ended by 2018 revisions to the Passenger Transportation Act.)

- **Improve the level of support and the effectiveness of funding formulas for wheelchair accessible service calls** to address the additional cost to drivers and operators for providing this service (e.g., loading time, tie-down time, longer distances to travel to customer, etc.).
- **Accessible van subsidy program should give greater consideration to regional costs.** While accessible van vehicle prices have risen generally, one panelist felt the cost has risen even higher in Regions 4 and 5, since vans normally are acquired and imported from Vancouver. The subsidy was felt to be especially important for less populous regions, since these vans may have as little as one accessible request per day.

Finally, a point was raised concerning taxi driver maximum hours:

- **Level playing the field on driver maximum operating hours.** (This question was raised by the BCTA and is being discussed separately in meetings with the Board). It was suggested that TNS operating guidelines to meet Transportation Safety Board guidelines on maximum hours put taxi drivers at a relative disadvantage. The understanding was that TNS drivers count only the cumulative hours spent driving with a passenger while taxi drivers must count all hours on dispatch, with or without a passenger.

Appendix A

Industry Advisory Panel Participants

Appendix A

Industry Advisory Panel Participants

We thank the following participants in the Industry Expert Advisory Panel for their input in developing the Cost Profiles of typical taxis operating in each region of BC. Responsibility for the final product, including any errors or omissions, belongs to Hara Associates.

Emon Bari, General Manager, Bonny's Taxi. Burnaby.

Ravi Chahal, AC Taxi. Nanaimo.

Paul Dhanota, President, Blue Bird Cabs. Victoria.

Tag Gill, Principal, Teco & FSJ Taxi. Fort St. John.

Mohan Kang, President, BC Taxi Association.

Gurpreet Manj, Principal, Star Taxi. Cranbrook.

Clair Molcan, United Cabs. Port Alberni.

Inderpal Nann, General Manager, Bel-Air Taxi. Coquitlam.

Jasbir Nijjar, President, Black Top & Checker Cabs. City of Vancouver.

Gurvinder Randhawa, President, Skeena Taxi. Prince Rupert.

Gurdip Sahota, General Manager, Surdell-Kennedy Taxi. Surrey.

Kulwant Sahota, President, Yellow Cab. City of Vancouver.

Gursimran Singh, Principal, Mount 7 Taxi. Golden.

Simar Vijay Singh, General Manager, Kami Cabs. Kamloops.

Michael Westeroth, General Manager, Bluebird Cabs. Victoria.

Ted Wiltshire, President, Checkmate Taxi. Kelowna.

Appendix B

Taxi Cost Index Methodology

Appendix B – Taxi Cost Index Methodology

This appendix complements the main report, Custom Taxi Cost Indexes for Five Regions of British Columbia. The methodology, source data, and formula are provided to allow replication of the index and its extension to new months and years as time passes. Separately, a computer spreadsheet has been delivered to the Board to facilitate staff updating the TCIs, should that be desired.

What is a Cost Index?

A cost index consists of three parts:

- a. A list of the principal commodities and services the industry must purchase to operate.
- b. Price indicators to monitor changes in the cost of each commodity or service over time for each of these items.
- c. The proportion of total operating cost accounted for by each commodity or service in the base period (the cost profile). Since the cost index measures *relative* change in costs, the choice of base period is based on convenience. April 2023 is used in this report.

The index tracks costs by tracking the changes in the cost of the individual items, and weighting them according to their importance to total cost in the base period. If the price of an item that accounts for 10% of industry costs rises 20%, then industry costs have risen 2%.

The TCI is relatively easy to maintain. It involves downloading a set of standard data for the new period from Statistics Canada using an internet browser (e.g., Google Chrome, Microsoft Edge). At the time of writing, downloading this data from Statistics Canada is free of charge. The data may be found by searching “Statistics Canada” along with the table number cited in the data table provided further below. A link to that table then appears. The table webpage has dropdown menus to select the desired data. A toll-free number is provided by Statistics Canada if help is needed navigating the table.

The Data

Table B-1 provides the source data used to calculate the TCIs in this report. Where different regions use different series for their TCI, it is indicated. For example, local fuel prices are available and used for Victoria and Vancouver Census Metropolitan Areas. For the other Regions the fuel price index for BC as a whole is used. Data in the table is provided for the month of April each year, however the data sources shown in the table carry a full series for all months.

Table B-1: Public Data Sources to Monitor Price Changes for Each Type of Taxi Cost											
Full Name of Series	Average retail prices for gasoline and fuel oil, by urban centre; Vancouver, BC; Regular unleaded gasoline at self service filling stations (cents per litre)	Average retail prices for gasoline and fuel oil, by urban centre; Victoria, BC; Regular unleaded gasoline at self service filling stations (cents per litre)	CPI, BC; Passenger vehicle parts, maintenance and repairs (2002=100)	CPI, BC Passenger vehicle insurance premiums (2002=100)	CPI, BC; Purchase of Passenger Vehicle (2002=100)	CPI, BC; All-items CPI (2002=100)	CPI, Vancouver; All-items CPI (2002=100)	CPI, Victoria; All-items CPI (2002=100)	CPI, Cellular Services - Canada (C2017=100)	Average Hourly Earnings for employees paid by the hour, without over-time, Transportation and Warehousing, BC seasonally unadjusted	
	Table 18-10-0001-01			Table 18-10-0004-01			Table 18-10-0004-01			Table 14-10-0205-01	
	Fuel		Maintenance and Repair	Insurance	Vehicle	Stand Rent / Overhead			Cell/Radio Phone	Driver	
Short Name for Formula Reference:	FUEL		MAINTENANCE	INSURANCE	VEHICLE	STANDRENT			CELL	WAGE	
Applied to Region(s):	3,4,5	1	2	All	All	All	3,4,5	1	2	All	
Year (April)											
2016	153.8	114.7	105.3	133.9	146.3	100.2	121.8	124	121.8	103.3	26.32
2017	183.1	138.8	107.5	136.6	154.9	101.0	124.4	126.3	124.4	102.6	26.2
2018	206.3	155.1	111.4	138.2	154.9	102.9	127.7	130.3	127.7	100	27.77
2019	219.3	167.3	119.7	142.5	159.7	105.3	131.2	133.6	131.2	95.7	28.75
2020	134.6	96.7	123.7	145.8	162.7	107.5	131.2	133.8	131.2	86.8	30.73
2021	206.7	152.2	123.3	148.1	152.4	111.4	135.2	137.6	135.2	71.6	30.43
2022	274.6	198.5	122.5	158.8	139.1	119.7	144.2	146.7	144.2	65.1	29.5
2023	259.5	188.9	0.0	169.0	143.7	123.7	150.4	153.3	150.4	65.8	33.01
2024	281.3	210.2	0.1	174.9	145.3	123.3	154.7	157.4	154.7	48.3	34.15
2024(Jul)	253.5	181.9	0.0	176.4	155	122.5	156.4	159.1	156.4	50.3	34.26

The Index Formula

The formula for the index for each region is provided below using the short names (e.g., FUEL) from Table B-1 and a subscript “t” for time period. For example:

- FUEL_t = The gas price series in a given month (and year) “t”, for the region in question. Table B-2 defines which series is used for a given region’s index.
- FUEL₂₀₂₃ = The gas price series value for April 2023 – the base time period to which costs in other time periods are compared.

The cost profile for each region provided in Section 3 of the main report provides the percentage weights for each cost element. For example:

- W_{Fuel} = The percentage of taxi revenue going to fuel in that region, expressed as a decimal.

The customized TCI for any region in time t can be expressed as:

$$\begin{aligned} \text{TCI}_t = & W_{\text{FUEL}} \times \text{FUEL}_t \div \text{FUEL}_{2023} + \\ & W_{\text{MAINTENANCE}} \times \text{MAINTENANCE}_t \div \text{MAINTENANCE}_{2023} + \\ & W_{\text{INSURANCE}} \times \text{INSURANCE}_t \div \text{INSURANCE}_{2023} + \\ & W_{\text{VEHICLE}} \times \text{VEHICLE}_t \div \text{VEHICLE}_{2023} + \\ & W_{\text{CELL}} \times \text{CELL}_t \div \text{CELL}_{2023} + \\ & W_{\text{STANDRENT}} \times \text{STANDRENT}_t \div \text{STANDRENT}_{2023} + \\ & W_{\text{WAGE}} \times \text{WAGE}_t \div \text{WAGE}_{2023} \end{aligned}$$

The index in each region is calculated separately, based on the weights of the regional cost profile, and the data series for each column element and region as per Table B-2.

Using the TCI Annually

As outlined in the main volume of this report, the most common use for a Taxi Cost index is as a guide for regular annual adjustment of meter rates. For this purpose, a month is chosen that is operationally suited for licensees to plan for adjusting their meter rates. In this report, April has been used to illustrate results.

To apply the TCI, a Board analyst would calculate the value of the index in a given region for the current month, and compare it the value of the TCI when it was last applied (usually 12 months previously). For example, in April 2027, a region’s TCI was calculated to be 138.6, and in the previous April that TCI was 132.0, then the implied guide for meter rate adjustment in 2027 would be $(138.6/132.0 - 1 = 5.0\%)$. Calculating this value would take less than a day of an analyst’s time, once data for April has been released by Statistics Canada.²³ Statistics Canada data is usually released with a month’s delay.

²³ Actual time is less than an hour with the aid of internet downloads and a preconfigured spreadsheet, however more time is suggested for care and attention to avoid clerical error.

A Microsoft Excel spreadsheet has been provided under separate cover to simplify this process, and to keep a record over multiple years.

Using the TCI to Adjust for a Spike in Gas Prices

From time to time there can be a sudden large change in taxi operating costs such that the regulator feels that meter rates should be adjusted immediately. A typical example is a spike in gasoline prices, perhaps because of the loss of a pipeline, an embargo, or conflict in oil producing regions.