

### Summary:

- A value-added tax like the HST is superior to a flat retail sales tax such as the PST according to economic analysis.
- The broader tax base with the HST increases the tax burden for consumers compared to the PST.
- A one-time jump in consumer prices occurs under the HST, but the same inflation rate as with the PST occurs after one year.
- Consumer spending is lower under the HST, particularly for consumer services and residential investment.
- Investment spending is notably higher under the HST than the PST with the province's capital stock larger by about \$2 billion in 2002 dollars.
- The manufacturing industry will see the largest investment spending increase reflecting its large export-orientation; investment in domestic industries also rises but by a lesser amount.
- Real GDP per capita is higher under the HST as is productivity due to the larger capital stock.
- More exports are generated under the HST from higher output in the manufacturing, mining, and other industries.
- Domestic industries such as construction are initially worse off under the HST but in the long term benefit from the increase in economic activity and investment; output in some domestic service industries remains lower.
- Provincial budget revenue per capita is higher under the HST owing to higher sales tax and resource royalties revenues.
- Reverting to the PST is costly leading to a larger budget deficit and higher debt load since the transition payments are returned, conversion costs are incurred, and less revenue flows to the government from a narrower tax base and less robust economy.
- The economic simulations show the negative economic impacts are largest in the early years and diminish over time while the positive impacts tend to grow over time.

### The panel's terms of reference:

1. The consumer impacts to individuals/families of each option;
2. The expected impact of each option to B.C. businesses and B.C.'s economic competitiveness;
3. The fiscal implications of each option to the provincial budget in both the short and long term;
4. Relevant information and analyses from other jurisdictions.

This report attempts to quantify the impacts on B.C.'s economy of the HST compared to the PST. It presents results from model simulations and should be viewed as indicative of the likely outcome rather than a prediction of the actual outcome. The views expressed in this submission are the author's and do not necessarily reflect the views of Central 1 Credit Union.

On July 1, 2010, provincial government in B.C. replaced the Provincial Sales Tax (PST) with a Harmonized Sales Tax (HST), using the Goods and Services Tax (GST) base coverage, with minor exceptions. The GST is a value-added tax applying to all commercial activities related to the sale of goods and services. Tax is paid on the supply of goods and services throughout the supply chain with the tax paid by business reimbursed through input tax credits. Sales and value-added taxes are consumption taxes.

The HST is a value-added tax and since the GST tax base is broader than the PST, more goods and services (mainly services) are subject to a sales tax than before.

The HST rate in B.C. is 12% (5% GST plus 7% PST). The HST is administered by the federal government which remits the PST portion to the provincial government.

A value-added tax (VAT) is superior to a flat retail sales tax such as the PST according to economic analysis since it has a less distortionary effect on investment and consumption. A VAT is collected at every stage in the production and distribution of a good or service and the amount a seller or business pays in sales tax is deducted or credited (input tax credit) from

the amount received. With a retail sales tax system, tax is also paid at each stage of the production and distribution process but there is no offset from any credits and results in a tax being levied on a tax or tax cascading. Under a VAT system, tax cascading (the embedded PST) is eliminated.

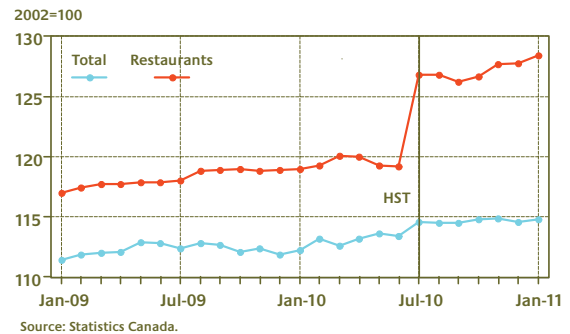
A VAT system results in a lower cost of business and investment and a lower cost to consumers than a PST system with an embedded sales tax. However, this presumes that all goods and services are equally taxed under both systems but in the real world, there are many exemptions for certain goods and services resulting in a mixed overlap of tax bases. Every situation is different and needs to be assessed individually.

A comparison of B.C.'s economic performance with the HST and with the PST was performed using a large econometric model of B.C. developed and maintained by the Centre for Spatial Economics. The comparison keeps all other factors constant while isolating changes in tax policy only. The direction of the economic impacts are clear and can be used with a high degree of confidence though the magnitude of those impacts is subject to more uncertainty and depends on how well the model's specifications mirrors reality. The simulation results presented are of a long term nature – the next 20 years.

The model is 'closed' in the sense that no additional investment was introduced because of the change in tax regime. The model generated more investment spending under the HST largely through the substitution of capital for labour under the same growth conditions. If additional capital comes to BC, it would increase investment, productivity, output, employment, and incomes by more than is stated in these model simulations and the reduction in consumer spending and residential investment would be less. A large enough capital inflow would offset those losses and result in a net economic expansion.

The extent to which new capital will come to B.C. because of the higher return to capital, or lower cost of investment, available under the HST than the PST is a critical point. The return on capital investment depends not only on the user cost of capital, which includes taxation along with the cost of financing, the depreciation rate, and capital cost allowances, but also on the demand for and price of the good or service produced by the investment. Businesses considering where to locate their new investments will focus on relative cost levels of land, labour, and

**B.C. Consumer Price Index, Total and Food Purchased from Restaurants**



transportation, the regulatory and political settings, expectations of income and demand growth, and the exchange rate if an international firm, along with the corporate taxation regime.

To bring this closer to home, to what extent would capital flow to Ontario with the HST and not to B.C. under a PST. Lower taxes under the HST will make capital investment more viable in B.C. but it is uncertain by how much. Research studies on investment or capital flows and their responsiveness to changes in the cost of capital are consistent on the direction of change but report diverse results on magnitude.

Information presented in this submission is from statistical agencies, mainly Statistics Canada, from BC Budget documents, selected research, and from the results of analysis conducted by Central 1 Economics. The simulation results are presented for various sectors of B.C.'s economy in two periods, 2011-2021 and 2021-2031.

### **Consumer impacts to individuals/families of each option**

Since more goods and services are taxed under the HST than the PST, consumers face an additional tax burden. Some of the goods and services taxable under the HST but not under the PST are, in no particular order, postal services, taxis, funerals, real estate commissions, haircuts, parking, and restaurant meals. Generally, relatively more services are subject to HST taxation than under the PST while the HST did not broaden the consumer goods tax base as much as the services tax base.

A detailed list of goods and services subject to the HST and previously not under the PST is available

elsewhere. B.C.'s HST provides for a number goods and services that are exempt or zero-rated along with point-of-sale rebates. These tend to be basic consumer goods and services such as groceries, prescription drugs, medical devices, residential rents, and transit.

On July 1, 2010, the HST came into effect and its impact on prices was immediate and evident in the Consumer Price Index (CPI). B.C.'s CPI increased 1.1% in July from June with a 6.4% jump in food purchased from restaurants the most notable. Monthly increases in total CPI are usually approximately 0.1% to 0.2% in the past few years.

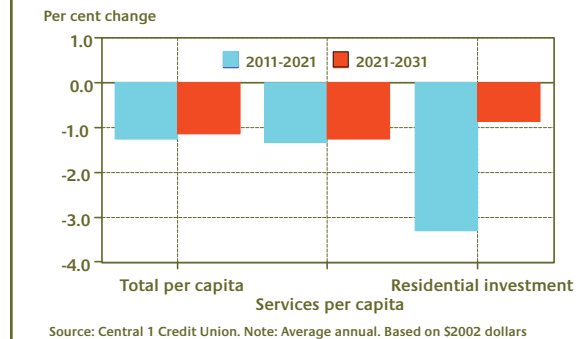
The HST induced price increase results in a one-time up-shift of about 0.7% in 2011. The year-over-year increase in the CPI in 2011 is predicted by the model at 2.1% with the HST and 1.5% without. Thereafter, the CPI inflation rate tracks a practically identical path between the two options.

Since the HST is a value-added tax, it allows the embedded PST to be removed leading to lower prices for some goods and services. The evidence on this aspect is not yet apparent from the available data, though conceptually, a pass-through of the embedded PST should occur under competitive market conditions. Poor financial circumstances of some firms may thwart pass-through as well as insufficient competition in a market. Another consideration is the temporary restriction on the ability of large businesses and financial institutions in B.C. to claim input tax credits for purchases of certain goods and services for the first five years and their phase in during the next three years. The full impact of pass-through will not be realized until 2018.

One area where an embedded PST is significant is new home construction since builders pay PST on most construction materials, which is a large input to their output. The B.C. government estimated the embedded PST in a new home is equal to two percent of the final price. The New Housing Rebate is determined assuming a two per cent pass-through, which some industry sources consider is a high estimate, though no data is available to make an assessment.

The aggregate impact on consumer spending is negative according to the model's estimates with real consumer expenditures lower by about 1.2% per year with the HST compared to the PST option. Spending on consumer services is reduced by more since the HST applied to relatively more services than goods.

### Consumer Spending and Residential Investment differences under HST compared to PST



This is a one-time downshift in consumer spending not a cumulative 1.2% loss per year or 24% in 20 years. Spending is about \$1.2 billion in 2002 dollars lower each year over the next 20 years amounting about to \$24 billion in 2002 dollars. In per capita terms, overall consumer spending is lower about 0.5% while slightly higher at 0.6% for spending on consumer services.

Residential investment is more affected by the HST than overall consumer spending. Annual investment spending is lower by about \$525 million in 2002 dollars in the first 10 years of the HST and \$140 million in 2002 dollars in the following 10 years. Under the HST, the percentage decline is 3.3% and 0.8%, respectively, relative to residential investment spending under the PST.

Any consumption tax is inherently regressive on lower income consumers since those households spend all or most their income on current consumption and pay a larger portion of the sales tax. The provincial government introduced the HST Tax Credit for individuals with incomes up to \$20,000 and families with incomes up to \$25,000 combined with relief for basic groceries and rent. Other measures the government introduced along with the HST were a rebate on residential energy, a new housing rebate, and a personal income tax cut which raised the basic personal tax credit to \$11,000 from \$9,373 in 2009. Some households will be worse off with the HST than the PST while others may enjoy a net benefit depending on the amount and composition of its spending. This submission does not examine the HST and PST positions of households by income.

## Expected impact of each option to B.C. businesses and B.C.'s economic competitiveness

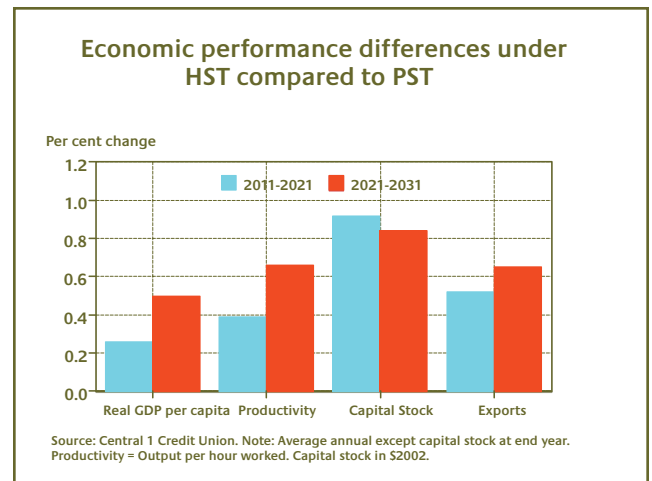
The key benefit of a VAT is the ability of businesses to deduct the sales tax paid on their inputs, which lowers their operating costs and avoids the tax-cascading impact for their customers. Lower costs help make businesses more competitive and leave more revenue for investment purposes thereby improving productivity. Since exports are zero-tax rated and businesses can claim back the sales tax paid on their supplies, export-oriented firms benefit more under the HST compared to firms serving the domestic market only and fully taxed. However, some domestic firms are better off under the HST than the PST while some are not.

Investment is unequivocally higher under the HST than the PST. Total non-residential investment spending is higher by about 1.7% or about \$480 million in 2002 dollars per year through to 2031. The impact is greater for machinery and equipment investment than for non-residential construction. Machinery and equipment investment spending is higher by 1.9% per year. The province's capital stock is higher by \$1.9 billion in 2002 dollars in the ten years ending 2021 and by \$2.0 billion in 2031 under the HST compared to the PST.

Export-oriented industries see larger investments than domestic-oriented. For example, B.C.'s manufacturing industry experiences 2.2% more investment spending per year or \$50 million in 2002 dollars annually in the next 20 years than under the PST. For a largely domestic-oriented industry such as retail and wholesale trade, investment spending rises by a lesser 1.6%.

The HST decreases the marginal cost of investment and increases the marginal return to capital relative to the PST. This is a one-time change affecting spending every year it is in effect. The simulation reveals a widening differential in investment spending over time with higher spending in the last ten years than in the first ten years. To some extent, investment spending is lower in the first ten years due to the temporary input credit restrictions placed on large businesses and financial institutions.

More spending on investment should translate into higher economic growth and a better productivity performance. Since consumer and residential invest-

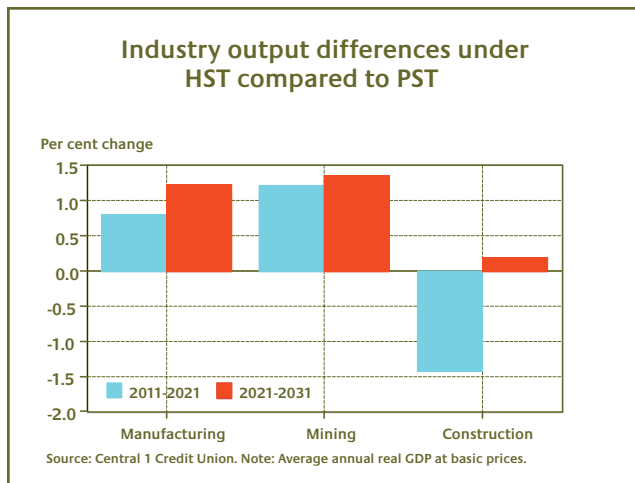


ment spending is lower in the HST case and those sectors account for more than 70% of the economy, the increase from investment spending and exports needs to be sizable in order to offset those losses and push up total GDP.

Based on the simulation, total real GDP is lower by 0.4% on average in the first 10 years narrowing to -0.1% in the following 10 years. The impact on the annual growth rate of real GDP is negligible when averaged over the next 20 years. However, on a per capita basis, economic output is higher by 0.4% under the HST than the PST. Real GDP per capita is a better metric for gauging performance than total real GDP.

The HST encourages the substitution of capital for labour resulting in a higher productivity level or restated, new investment is more capital-intensive under the HST than the PST. Hourly labour productivity, defined as real value-added output per hour worked, is higher throughout the forecast period under the HST to an average 0.3% in the last 10 years. Employment is lower by 0.8% or about 21,000 persons, in a labour force base approaching 3 million persons, causing a less than 0.1 percentage point increase in the unemployment rate under the HST.

Since manufacturing receives the strongest boost to investment, its output is also likely to gain the most. Indeed, the simulation generates a notable increase of about 1% or \$170 million in 2002 dollars annually in the longer term. Mining industry output benefits more than manufacturing in a relative sense with an increase of 1.3%. Other industries with better performances under the HST but not listed in the table are in order of magnitude, agriculture, professional, technical, business, and information services.

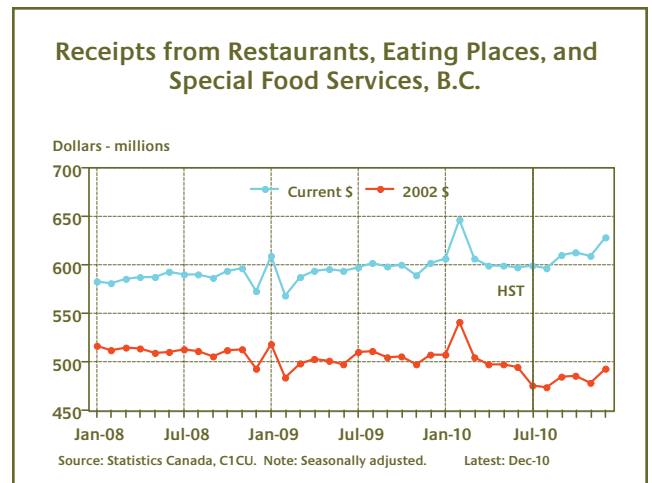


Exports increase under the HST due to increased investment and productivity as typified by manufacturing’s improved performance. Other industries also contribute to exports expanding about 0.6% or \$530 million in 2002 dollars annually during the next 20 years than with the PST.

Domestic-oriented industries tend to perform worse under the HST. The construction industry is the best example of this since the HST applies to a significant portion of its inputs. Construction undergoes a relative shift to non-residential activity away from residential in the longer term. For the industry as a whole in the long term, this shift and economic growth completely offsets the negative impact of the HST.

The other services industry is a collection of several service industries ranging from repair, laundry, household, arts, recreation, gaming, and others. Unlike construction, there is only a small performance improvement in the long term under the HST. Its output is lower throughout the simulation period. Accommodation and food services also generates less output under the HST than the PST.

One sector where the HST has an obvious negative impact is restaurants. Using monthly data on dollar receipts in food service places compiled by Statistics Canada, receipts from restaurants, eating places, and special food services fell 3.9% in 2002\$ dollars, seasonally adjusted, during July 2010 compared to the previous month. After six months, receipts in 2002 dollars remain below pre-HST levels though are higher in current dollars. Other factors, such as the new drinking driving laws, influence this performance and are not held constant as in the simulations.



Other economic considerations are lower administrative and compliance costs for businesses under the HST compared to the PST. Businesses in retail sales tax provinces must comply with two consumption tax systems and are required to file both a federal VAT and provincial PST return. In general, the cost of doing business under the HST is lower than with the PST and helps their bottom-line. No attempt was made to estimate these costs.

**The fiscal implications of each option to the provincial budget in both the short and long term**

The sales tax is a major policy instrument for the provincial government and has substantial consequences for individuals, businesses, the economy, and government revenue. Sales tax revenue currently represents about 18% of total revenue on a gross basis and 14% on a net basis after rebates.

The provincial budget under the HST option is essentially as presented in Budget 2011 in the short term while in the long term it relates to economic performance and revenue capability. In the long term, total revenue per capita is higher under the HST than the PST, which should lead to an improved fiscal performance. There are two main sources behind this gain with the most obvious being sales tax revenue. Per capita sales tax revenue is up more than 7% in the long term under the HST. The government takes in more resource royalties with a more active export-driven resources economy and while not particularly large, it highlights a revenue gain with the HST. Personal income tax revenue per capita is slightly lower in the HST outcome mainly due to slightly lower labour income and employment.

Government expenditures were not the focus of this submission and hence no results on the 'net position' of the government's finances are presented.

The far more complicated option is returning to the PST since it involves rescinding the Comprehensive Integrated Tax Coordination Agreement (CITCA) with the federal government, reversing the transition payments, canceling the various HST rebates and credits, re-establishing PST collection and administration resources, and re-casting the provincial budget.

The PST scenario is complicated by how the transitional funding repayment will be made and over what period. The actual transition payments so far are \$1.019b with the remaining \$0.58b due on July 1, 2011. However, the HST referendum could be held on June 24, 2011 instead of the original Sept. 24, 2011 date, and if the early referendum revokes the PST, the last transition payment would not be received.

There is a forecast allowance and a contingency fund expensed in Budget 2011 amounting to \$0.95b in 2011/12, which covers almost all the transition payments made to date, and another \$0.8b in 2012/13. These buffers are meant to cover unbudgeted spending or revenue losses. Using the buffer for transition funds repayment leaves a smaller amount to cover other unforeseen events.

Government may decide to pursue other avenues to handle the transition repayments such as spending cuts or tax increases or a combination of both. Costs related to the PST reversion will be incurred and add to the government's overall operating expenses. In any case, the budget deficit will be larger with a reversion to the PST regardless of the avenues used.

### **Relevant information and analyses from other jurisdictions**

The information listed here pertains to the responsiveness of investment to changes in the cost of capital and the return on investment. Since this is one of the more contentious and debatable aspects of this tax policy, it is useful to consult evidence generated by economic research. These studies conclude that tax changes influence investment but consensus on the magnitude or responsiveness of investment to tax changes remains elusive. Summaries of each study are verbatim from the reports.

**OECD (2008), Tax Effects on Foreign Direct Investment – Recent Evidence and Policy Analysis**, OECD Tax Policy Studies No. 17, ISBN 978-92-64-03837-0,

#### **Executive Summary**

The project underlying this publication on policy considerations in the taxation of foreign direct investment (FDI) has three main objectives. The first is to provide a review of empirical studies of the effects of taxation on FDI flows, aimed at better understanding what factors explain variations in estimates of the sensitivity of FDI to taxation. This review is supplemented with an overview of various economic models used by policy makers to analyse possible tax effects on FDI decisions

A literature review carried out for the current project by Mooij and Ederveen (2005) finds most studies reporting a negative relationship between taxation and FDI, but with a wide range of estimates of the tax elasticity of FDI. The variability in elasticity estimates may not be surprising, given the degree of heterogeneity in the data employed. In other words, one might expect *a priori* that the sensitivity of FDI to taxation would vary and depend on host country conditions and policies (including the level of corporate tax rates), types of industries/business activities covered, the time period examined, and other factors. Indeed, the literature review suggests that the influence of tax on FDI is complex and depends on a number of difficult to measure factors, with additional empirical work required to better understand the role of taxation amongst key factors influencing FDI location decisions.

The literature review finds an average semi-elasticity value of  $-3.72$  (measuring the percentage change in FDI in response to a 1 percentage point change in the tax rate). Distribution analysis finds a majority of semi-elasticities in the range of  $-5$  and  $0$ .

**Explaining the variation in empirical estimates of tax elasticities of foreign direct investment**, Ruud A. de Mooij Erasmus University Rotterdam, Tinbergen Institute, CPB, CESifo and Sjef Ederveen CPB Netherlands Bureau for Economic Policy Analysis, TI 2005-108/3

#### **ABSTRACT**

This study aims to explain the variation in empirical estimates in the literature on the elasticity of foreign

direct investment with respect to company tax levels. To that end, we extend the meta analysis of De Mooij and Ederveen (2003) by considering an alternative classification of the literature, including new studies that have recently become available, and by paying more systematic attention to various control variables in primary studies. We find that the type of capital data and tax data exert a systematic impact on reported elasticities. Also controlling for openness and agglomeration tendencies appears to significantly affect the elasticity values.

### **The Effect of Corporate Taxes on Canadian Investment:**

**An Empirical Investigation** by Mark Parsons (Price-waterhouseCoopers) \* Working Paper 2008/01 May 2008 Department of Finance

#### **Summary**

This study examines the sensitivity of industry-level investment in Canada to a reduction in the corporate tax burden over the 2001 to 2004 period. The analysis exploits the fact that the seven-point reduction in the federal corporate income tax rate did not apply to manufacturing industries. The selective nature of the tax reductions provides “treatment” and “control” groups, making it easier to identify the effect of lower taxes on business investment.

Employing a neoclassical model of investment and a difference-in-differences approach, the impact of the tax component of the user cost on investment in 43 manufacturing and service industries is estimated. Both approaches suggest that the corporate tax reductions led to higher investment. A 10 per cent reduction in the tax component of the user cost of capital is associated with an increase in the capital stock in the 3 to 7 per cent range, with the latter being the preferred estimate, since it is obtained using a more robust methodology.

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Comparison of HST and PST Impact on Consumer Spending and Residential Investment		
B.C. sector	2011 - 2021	2021 – 2031
Consumer Spending per capita, \$2002 millions, HST	29.2	33.17
Consumer Spending per capita, \$2002 millions, PST	29.37	33.33
Difference, \$2002 millions	-0.17	-0.16
% Difference	-0.57	-0.49
Consumer Services per capita, \$2002 millions, HST	17.19	19.5
Consumer Services per capita, \$2002 millions, PST	17.3	19.62
Difference, \$2002 millions	-0.11	-0.12
% Difference	-0.64	-0.63
Residential Investment, \$2002 millions, HST	15,426	16,420
Residential Investment, \$2002 millions, PST	15,952	16,561
Difference, \$2002 millions	-525	-140
% Difference	-3.29	-0.85

Source: Central 1 Credit Union. Note: Average annual for period indicated.

Comparison of HST and PST Impact on Investment Spending		
B.C. sector	2011 - 2021	2021 – 2031
Non-residential Investment, \$2002 millions, HST	26,366	30,218
Non-residential Investment, \$2002 millions, PST	25,975	29,651
Difference, \$2002 millions	392	567
% Difference	1.51	1.91
Machinery & Equipment, \$2002 millions, HST	14,855	17,030
Machinery & Equipment, \$2002 millions, PST	14,608	16,665
Difference, \$2002 millions	248	364
% Difference	1.69	2.19
Capital Stock*, \$2002 millions, HST	205,719	247,424
Capital Stock*, \$2002 millions, PST	203,841	245,368
Difference, \$2002 millions	1,878	2,056
% Difference	0.92	0.84
Industry Investment Spending, \$2002 millions		
Manufacturing, HST	2,177	2,567
Manufacturing, PST	2,138	2,504
Difference, \$2002 millions	39	63
% Difference	1.81	2.51
Retail & Wholesale Trade, HST	2,128	2,654
Retail & Wholesale Trade, PST	2,101	2,605
Difference, \$2002 millions	27	50
% Difference	1.29	1.9

Source: Central 1 Credit Union. Note: Average annual except capital stock at end year.

## Comparison of HST and PST Impacts on Output and Productivity

B.C. sector	2011 - 2021	2021 – 2031
Total Real GDP, \$2002 millions, HST	197,182	245,655
Total Real GDP, \$2002 millions, PST	197,977	245,957
Difference, \$2002 millions	-794	-302
% Difference	-0.4	-0.12
Real GDP per capita, \$2002 millions, HST	39.77	44.05
Real GDP per capita, \$2002 millions, PST	39.67	43.83
Difference, \$2002 millions	0.1	0.22
% Difference	0.26	0.5
Hourly Labour Productivity, \$2002, HST	42.36	49.14
Hourly Labour Productivity, \$2002, PST	42.19	48.81
Difference, \$2002 millions	0.17	0.32
% Difference	0.39	0.66
Total Employment, 000s, HST	2,562	2,767
Total Employment, 000s, PST	2,582	2,788
Difference, 000s	-20	-21
% Difference	-0.77	-0.75
Manufacturing GDP, \$2002 millions, HST	14,948	18,605
Manufacturing GDP, \$2002 millions, PST	14,830	18,379
Difference, \$2002 millions	118	227
% Difference	0.8	1.23
Mining GDP, \$2002 millions, HST	896	1,278
Mining GDP, \$2002 millions, PST	885	1,261
Difference, \$2002 millions	11	17
% Difference	1.22	1.36
Exports, \$2002 millions, HST	80,257	99,686
Exports, \$2002 millions, PST	79,842	99,044
Difference, \$2002 millions	416	642
% Difference	0.52	0.65
Selected Domestic Industries		
Construction GDP, \$2002 millions, HST	11,789	13,304
Construction GDP, \$2002 millions, PST	11,959	13,278
Difference, \$2002 millions	-170	26
% Difference	-1.42	0.19
Other Services GDP, \$2002 millions, HST	7,574	9,629
Other Services GDP, \$2002 millions, PST	7,632	9,681
Difference, \$2002 millions	-58	-52
% Difference	-0.76	-0.54
Accommodation-Food GDP, \$2002 millions, HST	5,382	6,975
Accommodation-Food GDP, \$2002 millions, PST	5,405	6,986
Difference, \$2002 millions	-23	-11
% Difference	-0.43	-0.16

Source: Central 1 Credit Union. Note: Average annual for period indicated.

### Comparison of HST and PST Impact on Provincial Government Revenue

B.C. sector	2011 - 2021	2021 – 2031
Total Revenue per capita, \$ thousands, HST	9.245	12.682
Total Revenue per capita, \$ thousands, PST	9.229	12.621
Difference, \$ thousands	0.016	0.061
% Difference	0.17	0.48
Sales Tax Revenue per capita, \$ thousands, HST	1.607	2.144
Sales Tax Revenue per capita, \$ thousands, PST	1.521	1.996
Difference, \$ thousands	0.086	0.148
% Difference	5.65	7.39
Royalties Revenue, \$ millions, HST	3,473	6,520
Royalties Revenue, \$ millions, PST	3,460	6,492
Difference, \$ millions	14	28
% Difference	0.39	0.43
Personal Tax Revenue per capita, \$ thousands, HST	1.552	2.191
Personal Tax Revenue per capita, \$ thousands, PST	1.623	2.292
Difference, \$ thousands	-0.071	-0.102
% Difference	-4.36	-4.43

Source: Central 1 Credit Union. Note: Average annual for period indicated.