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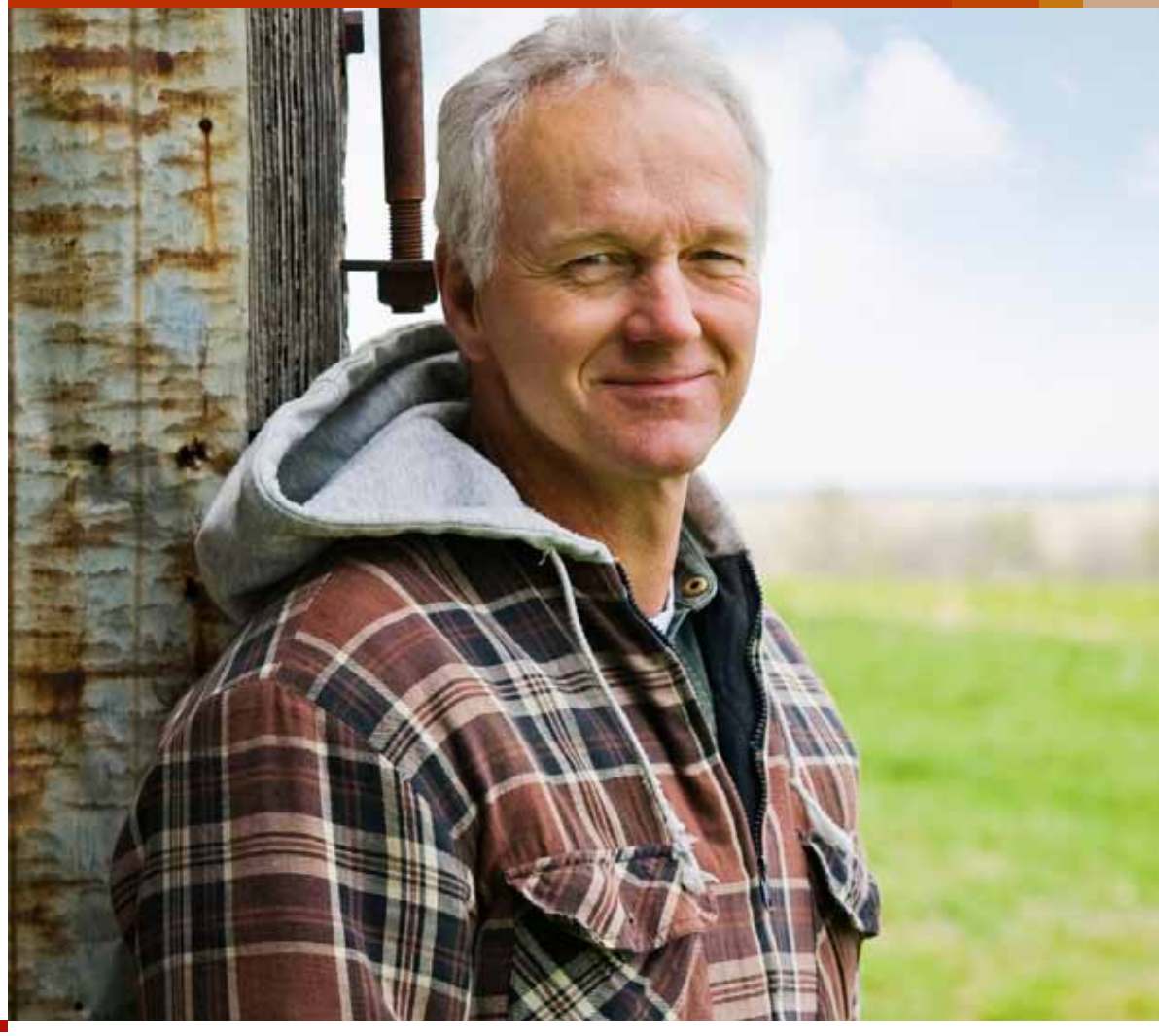
BC dairy, egg and poultry industries

Economic impact of British Columbia's dairy, chicken, turkey, hatching egg and table egg industries – 2009 results

November 2010



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Contents

1 Executive summary

In this report, we have examined the economic impacts of British Columbia's supply managed commodity industries and its associated value chain for 2009. Commodities include the dairy, chicken, turkey, hatching egg, and table egg commodities. Together supply managed industries are referred to as the BC Dairy, Egg, and Poultry Industries (BCDEPI). This report builds upon the results determined in an earlier study, the ***Socio-economic impact of British Columbia's Dairy, Chicken, Turkey, Hatching Egg and Table Egg industries****.*

Economic impact of the BCDEPI value chain

The BCDEPI value chain includes the flow of products from the farm gate to processing and further processing activities. The BCDEPI value chain impacts the BC economy through direct expenditures on goods and services, the employment of workers and the generation of tax revenues for local, provincial and federal governments. These impacts are presented in Table 1.1.

Total value added generated by the BCDEPI value chain in British Columbia is estimated to be $1.6 billion. It is estimated that the BCDEPI value chain generates employment of 26,843 FTEs with associated salaries and wages of $949.5 million, a 6.2% increase from 2007.

Table 1.1 BCDEPI economic impacts summary table ($ 000's)

Impact	Direct	Indirect	Induced	Total
Output	2,380,410	2,615,500	261,845	5,257,755
GDP (value-added)	531,370	892,769	142,825	1,566,964
Wages & salaries	303,355	556,762	89,392	949,509
Taxes	90,456	71,412	49,989	211,856
Impact	**Direct (FTE)**	**Indirect (FTE)**	**Induced (FTE)**	**Total (FTE)**
Employment	6,136	18,446	2,261	26,843

Table 1.2 BCDEPI total economic impacts summary table, % change from 2007–2009 ($ 000's)

Impact	2009	2007	% change
Output	5,257,755	5,000,792	5.1%
GDP (value-added)	1,566,964	1,561,638	0.3%
Wages & salaries	949,509	893,720	6.2%
Taxes	211,856	205,983	2.9%

Highlights from the economic analysis

- BCDEPI is a significant contributor to provincial GDP. Economic output supported by the BCDEPI value chain is estimated to be $1.6 billion in nominal GDP. BC Nominal GDP in 2009 was equal to approximately $195 billion therefore, the estimated magnitude of the supply managed sector's GDP impact remains unchanged from 2007 and amounts to about 0.8% of the BC economy.
- BCDEPI is a significant contributor to provincial employment. Economic activity generated by the BCDEPI value chain is estimated to support 26,843 jobs. With approximately 2.3 million people employed in BC at the end of 2009, the estimated employment impacts remains stable and represent 1.2% of total BC employment. Employment in the BCDEPI value chain was comparable to that of the mining and oil and gas sector at 24,200 employed.
- BCDEPI is a relatively stable industry. Although contributions to GDP from the BCDEPI value chain may not be as large as other sectors, in contrast, BCDEPI experiences less volatility in response to changing market conditions. Similarly, members of the BCDEPI value chain experience a relatively stable employment base year after year in contrast to the forestry and logging sector. In 2008, forestry employment declined to 17,400 and declined again in 2009 to 13,900 in response to volatility in global markets.
- Producer price increases are less than inflation. Producer prices received by farmers have increased less than the consumer price index. In British Columbia, CPI has increased on average 3.4% per year since 1980 while supply management producers have received increases ranging on average from 1.7% to 2.4% per year.
- Total output generated by BCDEPI in the BC economy has increased steadily. Total output directly generated by the BCDEPI value chain is estimated to equal $2.4 billion, a 1.7% increase from 2007. Direct output supports a further estimated $2.6 billion in indirect output in the BC economy (an 8.9% increase from 2007) and stimulates an additional $262 million in induced economic impacts (a 1.7% increase from 2007). Total output generated or supported by BCDEPI in the BC economy is therefore estimated at $5.3 billion this is a 5.1% increase from $5 billion in 2007.

2 Background and study purpose

2.1 Introduction

In Canada, the dairy, chicken, turkey, hatching egg and table egg industries operate under national supply management systems. These systems are administered by national bodies and by provincial commodity marketing boards that have been delegated powers by federal and provincial governments. Under the Canadian supply management systems, the overarching goal is to match total supply of a commodity available with its market demand, thereby providing Canadians an adequate supply of the commodity at a reasonable price while providing Canadian producers a fair return on their operations.

In British Columbia, the five supply-managed industries (BC Dairy Egg and Poultry Industries – DEPI) have formed a substantial part of the economic and social fabric for well over one hundred years, contributing to local communities throughout the province.

The purpose of this study is to measure the province-wide economic impacts and benefits produced by the industries as they stood in 2009 (the most recent year for which full data are available). This study updates the economic values provided in the previous PwC report, *Socio-economic Impact of British Columbia's Dairy, Chicken, Turkey, Hatching Egg and Table Egg Industries*.

Industry trends in specialty products

In 2003, the emerging trend and demand for organic and specialty agricultural commodities encouraged the BC Farm Industries Review Board (FIRB) to begin a review of the specialty products market. This review was subsequently suspended while the BC Ministry of Agriculture conducted its own analysis of the specialty markets. In 2005, the Ministry introduced a policy framework based on the report *Recommendations for Managing Specialty Agri-Food Products in B.C.'s Supply Managed System*. The policy framework emphasised the importance of BC's speciality and regional markets. Soon after the policy recommendations were released, FIRB re-engaged its review of specialty and new entrant programs among the five commodity sectors. As a result, FIRB introduced a set of policy principles for specialty production and marketing and directed the commodity boards to submit proposals to include specialty products as part of the quota allocation.

Each of the commodity boards have subsequently submitted plans and have begun the process of implementing expanded specialty production and marketing as part of each board's orders. Several of the boards have also established Specialty Market Advisory Committees (SMAC) which have the mandate to determine production and pricing for specialty products.

The only exception to the requirement to include specialty products as part of the quota allocation is the BC Hatching Egg Commission. Until there is demand in the BC market for certified specialty broiler chicks, the Commission will continue to oversee production of standard broiler chicks.

Under the supply management guidelines, specialty products include certified organic eggs, chicken, milk and turkey, and Asian specialty, SPCA, and pure bred heritage breeds of chicken. Although initially products such as free range and free run eggs were not considered specialty products, a request from the BC Egg Marketing Board has expanded the type of products included under the definition.

A brief summary of the specialty product market for each commodity type is provided as part of the industry profile.

2.2 Background and study purpose

BC Dairy, Egg and Poultry Industries (BCDEPI) is a partnership formed on behalf of British Columbia's five supply-managed industries: the dairy, chicken, turkey, hatching egg and table egg industries. BCDEPI identified the need to undertake an assessment of the 2009 economic contributions of British Columbia's supply management sector and engaged PwC to conduct the study. PwC's work on the study was led by its economics practice, which has conducted similar studies of other major BC industries.

The scope of the study included updating industry profiles and economic impacts and benefits of the supply managed industries.

- **Industry profiles** – A description of each of the industry characteristics, including: volume and farm receipts, number of producers, employment and wages, investment and purchases, and industry value chain.
- **Economic impacts and benefits** – Analysis of the economic impacts and benefits produced by the industries, and calculation of the economic impacts for three commodity value chains: dairy, poultry and table eggs. For purposes of the economic impact calculations, each value chain includes farm production, processing and further processing. The calculation of the value chain for the five industries on an aggregated basis was also carried out, that included the output, GDP, employment, wages and salaries, and taxes produced in total by the five industries.

2.3 Data collection, availability, and reliability

For this study, we have used 2009 as our base year for measuring the economic impacts of the various industries as all required data for that year have been reported.

Data required to prepare the industry profiles and economic impact modeling were generally available. Industry statistics were mainly sourced from Statistics Canada and the provincial and federal supply management marketing boards. Other industry data collected for the value chain analysis was obtained directly from the companies involved.

Additional material was collected through and review of publically-available reports. The list of industry multipliers and data sources used for the study is presented as Appendix A and B.

2.4 Economic impact methodology

This study uses input-output accounts to predict how an increase in demand for the products of one industry will impact other industries and therefore on the entire economy. The BC Input-Output accounts reflect the underlying industrial structure of the entire BC economy in terms of who makes what and who uses what. In principle, the model contains the recipes for every output of the economy.

Economic impacts are generally categorized at the direct, indirect, and induced levels. Direct impacts are changes that occur in "front-end" businesses that would initially receive expenditures and operating revenue as a direct consequence of the operations and activities of a facility. Indirect impacts arise from changes in activity for suppliers of the "front-end" businesses. Induced impacts arise from shifts in spending on goods and services as a consequence of changes to the payroll of the directly and indirectly affected businesses.

Estimating direct, indirect and induced economic impacts is generally done through the use of Input-Output multipliers. Each of these quantities is described below.

- **Output** is the total gross value of goods and services produced by a given company or industry measured by the price paid to the producer (versus the price paid by the consumer, which can include transportation and retail mark-ups). This is the broadest measure of economic activity.
- **Gross Domestic Product (GDP)**, or value-added refers to the additional value of a good or service over the cost of inputs used to produce it from the previous stage of production. Thus GDP is equal to net output, or the difference between revenues and expenses on intermediate inputs. It is the incremental value created through labour or mechanical processing.
- **Employment** is measured in terms of full-time equivalents (FTEs).
- **Labour income** is a measure of earnings by FTEs. Labour income includes direct wages and salaries, as well as supplementary labour income and mixed income.
- **Government Revenues** arise from personal income taxes, indirect taxes less subsidies (e.g. sales tax), corporate income taxes, and natural resource royalties.

Estimating the impact of the value chain

It is important to note that this study is estimating economic impacts across an industry value chain. Therefore, the supply management industries are themselves interrelated as the output or production of some industries represents an input for other industries. For example, broiler hatching eggs represent an input into hatchery production, which is in turn an input into chicken production, which is in turn an input into poultry processing. This creates a complication in measuring economic impacts because the direct impact of one industry is implicitly included in the indirect or multiplier effects of an industry to which it is a supplier.

We have therefore carefully traced impacts throughout the value chain to ensure there has been no double counting of estimated economic impacts. The economic impact estimates for each of the BCDEPI commodities is presented in Appendix D.

2.5 Organization of the report

The remaining sections of the report are organized as follows:

- Section 3 provides a profile of each of the supply management industries, together with a description of the economic impacts and benefits they produce
- Section 4 provides the summary results of the industry profiles and the aggregate results for the economic impact of the supply management value chain and other economic benefits

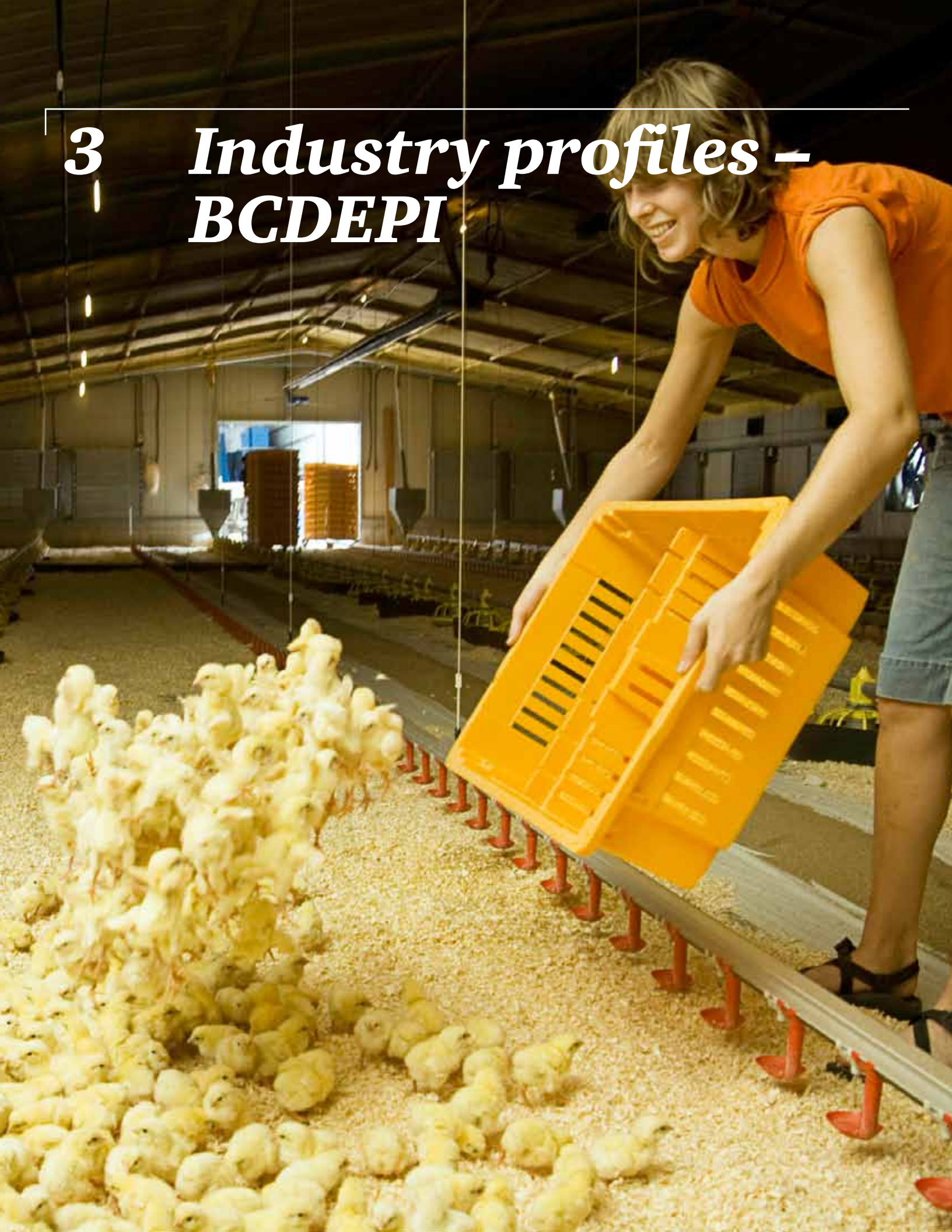
2.6 Report limitations

PwC has relied upon the completeness, accuracy and fair presentation of all the information, data, advice, opinion or representations obtained from public sources and the Client (collectively, the "Information"). The findings in the Report are conditional upon such completeness, accuracy and fair presentation of the Information. PwC has not verified independently the completeness, accuracy and fair presentation of the Information.

PwC reserves the right, at its discretion to withdraw or make revisions to the Report should PwC be made aware of facts existing at the date of the report which were not known to PwC when it prepared the Report. The conclusions and recommendations are given as of the date hereof and PwC is under no obligation to advise any person of any change or matter brought to its attention after such date, which would affect the findings and conclusions and PwC reserves the right to change or withdraw the Report.

PwC understands this report will be provided to the supply management industry, government representatives, the general public and made available on the respective industry association websites. We do not accept responsibility for any losses arising from unauthorized or improper use of this Report.

3 Industry profiles – BCDEPI



3.1 British Columbia dairy industry

Overview

- In 2009, there were 542 dairy farms in British Columbia producing about 658.5 million litres of milk and generating $493.8 million in farm cash receipts.
- Dairy producers account for about 20.4% of total farm cash receipts in British Columbia.
- In addition, dairy producers also receive about $98.7 million annually in dairy cattle sales to the beef industry.
- Dairy producers generated approximately $127.6 million towards provincial GDP employing an estimated 4,031 workers representing 11.8% of BC agriculture jobs.

Dairy industry value chain

- Approximately $2.2 billion is generated by the dairy industry value chain in economic output contributing an estimated $637 million to GDP.
- An estimated 5,600 jobs are supported directly by dairy producers (4,031) and processors (1,570), with a further 5,184 in related industries.
- About $88.4 million in municipal, provincial and federal taxes are generated directly and indirectly by the dairy industry value chain.

BC's supply management in the dairy industry

Supply management in the dairy industry is achieved by balancing milk production from provincial farms with local consumption of dairy products. Each province is responsible for the production of fluid milk, setting quota policies, pricing formulas, and other regulations, while the federal government has jurisdiction over the industrial milk market. Each province allocates its respective share of the Market Share Quota (MSQ) to its producers according to its own policies. British Columbia's raw milk production is sold as part of the Western Milk Pool with Alberta, Saskatchewan, and Manitoba. The price received by producer's for raw milk is based on the calculation of three components: consumer price index (30%), disposable income (30%), and an efficiency factor, the average cost of production of least-cost producers (40%).

In British Columbia, three organizations are responsible for the production, delivery, and marketing of milk under the supply management system: BC Milk Marketing Board (BCMMB), BC Milk Producers Association (BCMPA), and BC Dairy Foundation (BCDF).

The BC Milk Marketing Board is the regulatory agency responsible for regulating the province's milk production and marketing. BCMMB has the authority to promote, control, and regulate the province's milk production and marketing by allocating milk quotas to producers, administering the provincial share of the national industrial quota, and licensing all producers, processors, and transporters of milk, fluid milk and manufactured milk products within British Columbia.

The BC Milk Producers Association represents the dairy producers in the province and is responsible for policy development, crisis management, animal welfare, advocacy, environmental issues, trade policy and communications with industry members and affiliates. All dairy producers are members of BCMPA. The Association is a member and financial supporter of the Dairy Farmers of Canada (DFC).

The BC Dairy Foundation is responsible for developing and executing fluid milk marketing initiatives and promotion programs, delivering nutrition education programs to schools and the public, administering the school milk program, organizing public events and dairy programs at fairs and dealing with all dairy related public relations and media. BCDF is a member and financial contributor to the DFC.

Industry trends in specialty products

The BC Milk Marketing Board has recognized the increasing demand for specialty production of certified organic milk and has allocated a percentage of production for specialty producers. In 2009, the Milk Marketing Board directed its Specialty Production Advisory Committee (SPAC) to develop a specialty policy guide for the dairy industry. Based on growing demand for specialty products, the Milk Marketing Board is continuing to operate a specialty milk pool.

Since 2001, the number of organic milk producers in BC has increased from 2 producers producing 19,800 litres of certified organic milk to 15 producers producing 15.9 million litres in 2009. There are 4 organic processors.

Volume and farm receipts/revenues

In 2009, British Columbia dairy farms produced 658.5 million litres of milk valued at $493.8 million.[1] BC dairy production expanded 7% from 2001 to 2009 despite a decline of 23 % in the number of farms producing milk. Moreover, average milk production per farm in British Columbia increased from 859 thousand litres of milk in 2001 to 1,215 thousand litres of milk in 2009. This increase in absolute and average production suggests that BC dairy farms have become both larger and more efficient.

In 2009, the production value of BC dairy farms represented 9% of Canadian milk production, behind Ontario and Quebec. Ontario and Quebec have historically had a disproportionate share of industrial milk quota (MSQ) which is why the BC milk production share of Canadian production is less than the share of the population. Dairy production is BC's top agriculture industry accounting for 20.4% of all farm cash receipts in the province (Figure 3.1).

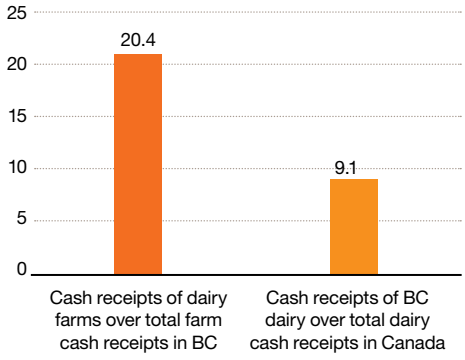
Dairy producers in British Columbia supply two main markets, fluid milk and industrial dairy products. The fluid milk market represents approximately 57% of milk production, while the remaining 43% is manufactured into dairy products. Between 2002 and 2009, dairy production (in litres) in British Columbia grew 1% per year, while total farm cash receipts grew 3.8% per year (Figure 3.2).

Although milk production in British Columbia has increased slightly, the per capita disappearance of fluid milk has decreased at a faster rate compared to the national average (Figure 3.3). This is likely due to two factors. Packaged milk products move from province to province and more flow into BC than flow out of BC. In addition, demographics influence milk consumption. The rapidly aging population of BC has an effect on fluid milk consumption as does the changing ethnic makeup of the province. In 2009, British Columbia per capita disappearance of fluid milk was 77 litres, an 8.3% decline since 1999 when per capita disappearance was 84 litres. Nationally, the rate of decline in consumption between 1999 and 2009 slowed to 7.4%.

Milk consumption by consumers and milk used in industrial products directly affects the amount of milk BC dairy farmers produce each year. BC dairy producers adjust milk production volumes by producing enough fluid milk to satisfy demand. The differences that exist between the volume produced and final consumption can be explained by interprovincial trade, retail and merchandising strategies and the changing composition of the processing and retail companies.

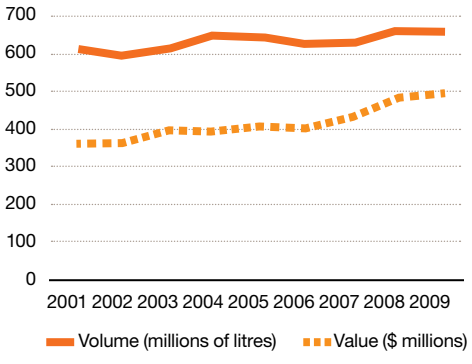
The demand for dairy products is influenced by consumer preferences and prices. Figure 3.4 illustrates the price received by dairy producers for milk production has increased 2.4% per year, while inflation over the same period increased 3.3% per year.[3] This implies that BC farmer's incomes related to milk production has not increased as fast as the province's cost of living. This also suggests that food price increases have mostly occurred further along the value chain, during processing, distribution and at retail.

Figure 3.1 Relative size of the dairy industry in BC and Canada, 2009 (%)



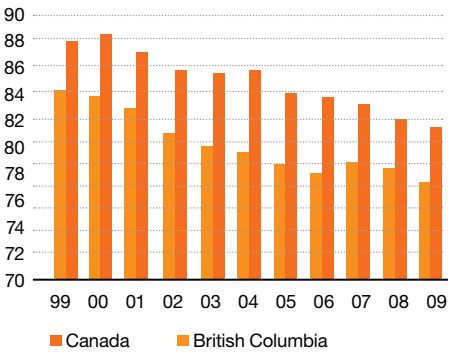
Source: Statistics Canada

Figure 3.2 Volume and value of dairy production in BC



Source: Statistics Canada

Figure 3.3 Per capita disappearance[2] of fluid milk (litres per capita)



Source: Canadian Dairy Information Centre

1. Sales at farm gate
2. Per capita disappearance is a proxy for per capita consumption as data for the interprovincial movements of final products is not available to make a definitive per capita consumption calculation.
3. Measured through CPI, which is the rate of price change for goods and services.

Employment and wages

In 2009, the dairy industry employed about 4,031 people and was responsible for an estimated $89.4 million in wages and salaries. Dairy farmers employ approximately 11.8% of BC's agricultural labour force.

Investment and purchases

Investment in machinery and equipment (M&E) is important as it can help to improve farm efficiency.[4] The average dairy farmer spent about 6% of operational revenue on machinery expenses (Figure 3.5).

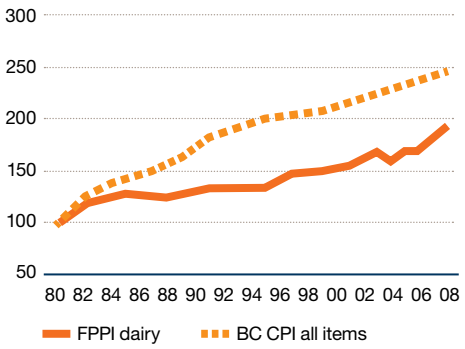
According to Statistics Canada, in 2008 BC dairy farms spent about $41.7 million on milk cows and other primary inputs, $175.2 million on feed, supplement, straw, and bedding, $22 million on veterinary and. breeding fees, and $44.7 million on machinery expenses.[5]

Economic impacts of the BC dairy industry value chain

The dairy industry value chain methodology follows the distinct stages of production in the material flow from production of raw milk on the farm to delivery to the final consumer. In this section we present the economic impact of the dairy value chain. Figure 3.6 illustrates the dairy industry value chain.

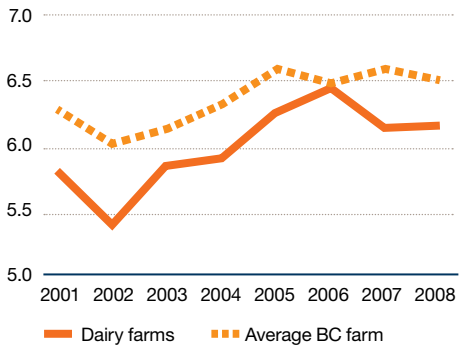
The value chain for the dairy industry is extensive and complicated going beyond milk producers and processing plants. Dairy farmers use the products and services from the machinery and equipment, animal medicine, and feed industries, while the transportation and packaging industries are also important for the processing and further processing plants. Dairy processing and further processing plants are located in the Fraser Valley, Okanagan and Vancouver Island. Because of transportation costs and distance to ship raw milk from northern

Figure 3.4 BC consumer price index (CPI) and farm product price index (FPPI) for dairy (Index 1980=100)



Source: Statistics Canada

Figure 3.5 Machinery expenses over operational revenue (%)



Source: Statistics Canada

4. Labour productivity is defined as real gross domestic product (GDP) per hour worked.
5. Machinery expenses include small tool expenses, net fuel expenses, machinery, truck, auto, repair, license, and insurance.

BC to a BC processor, some raw milk from the Peace River area is processed in Alberta. Three major dairy processors account for over 90% of the raw milk processed in the province.

Economic impact of the value chain for the dairy industry

In this section we present the economic impact of the dairy value chain from the producers to the processors. Wholesale and retail activities are excluded from this analysis).

The impacts summarized in this section reflect the entire value chain for each segment but it is important to note that because BCDEPI products are inputs into the final manufacturing process, their activity results in indirect, or downstream, impacts of final demand or output. To provide an understanding of how these downstream impacts are accounted for in our estimates, we have provided a detailed illustration of economic impacts, by value chain segment in Appendix C. Detailed economic impacts for each BCDEPI commodity is provided as Appendix D.

BC dairy value chain

The economic impact of the BC dairy industry is summarized in the table below. Overall, the BC dairy industry is contributing 42% of estimated BCDEPI aggregate output; 41% of estimated BCDEPI generated GDP; 40% of employment; 37% of salaries and 42% of tax revenue.

In total, the BC dairy industry generates approximately $2.2 billion in economic output, of which close to $637 million can be considered new, or value-added to the economy. The GDP total includes $192.8 million from dairy processing, $127.6 million from dairy producers, and $257.2 million from other related and induced economic activity.

Approximately 5,600 jobs are supported directly by dairy producers (4,031) and processors (1,570), with a further 5,184 in related industries.

Finally, approximately $88.4 million in municipal, provincial, and federal taxes are generated directly and indirectly by the dairy industry.

Figure 3.6 **BC dairy industry value chain**

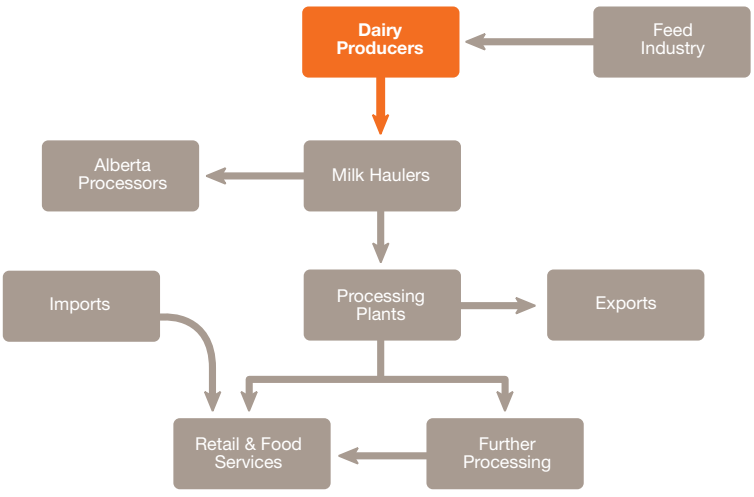


Table 3.1 **Economic impact of the BC dairy industry value chain**
($ '000s)

Impact	Direct	Indirect	Induced	Total
Output	993,510	1,089,376	109,286	2,192,172
GDP (value-added)	192,809	384,773	59,611	637,194
Wages & salaries	81,158	231,589	35,879	348,626
Taxes	37,753	29,805	20,864	88,422
Impact	**Direct (FTE)**	**Indirect (FTE)**	**Induced (FTE)**	**Total (FTE)**
Employment	1,570	8,270	944	10,784

3.2 British Columbia chicken industry

Overview

- In 2009, there were 327 chicken farms in British Columbia producing about 157 million kilograms of meat and generating $318 million in farm cash receipts.
- Chicken farms account for about 13.1% of total farm cash receipts in British Columbia.
- Chicken producers generated approximately $82 million towards provincial GDP and employ about 2,594 people representing 7.6% of BC agriculture jobs.
- Chicken producers contribute an estimated $34.3 million in municipal, provincial, and federal taxes.

Poultry industry value chain

- Including chicken and turkey producers, processors and allied industries, the BC poultry industry value chain generates approximately $2.4 billion in economic output contributing $733 million in GDP to BC's economy.
- About 6,900 jobs are supported directly by poultry processors, hatching egg producers, hatcheries, chicken producers, and turkey producers with a further 5,800 in related industries.
- Approximately $97.4 million in municipal, provincial, and federal taxes are generated directly and indirectly by the poultry industry.

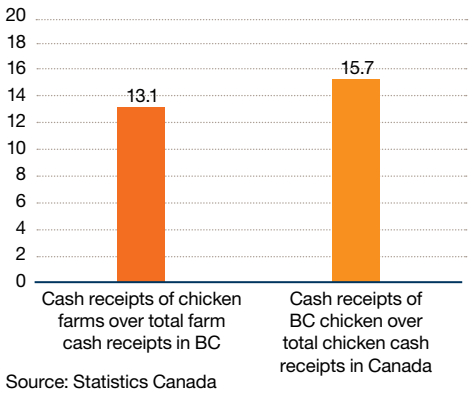
Supply management in the chicken industry

The BCCMB was created in 1961 with the mandate to monitor and regulate the production and marketing of chicken in British Columbia. Included are all activities from the time the chick hatches until the chicken is purchased at the retail level. The BCCMB also negotiates the producer selling price of chicken with processors.

Provincial

Chicken quota in Canada is shared by each province from a quota allocation that is set periodically every 8 weeks. Each province commits to produce a quantity corresponding to its periodic quota allocation without exceeding it. In British Columbia, the British Columbia Chicken Marketing Board (BCCMB) controls the supply of chicken to match the estimated demand in the province, given a calculated price paid to producers.

Figure 3.7 **Relative size of the chicken industry in BC and Canada, 2009** (%)



Source: Statistics Canada

Industry trends for specialty products

The BCCMB has allocated specialty chicken quota as a result of BCFIRB's review and ongoing consultation with the growers and public. In 2009, the domestic quota allocation availability for specialty quota was 806,751 kilograms of live weight or 3.0% of total provincial quota. Specialty chicken products include: certified organic, Asian specialty, SPCA, and pure bred heritage breeds of chicken. BCCMB's Specialty Market Advisory Committee (SMAC) has established live prices for specialty chicken and continues to work with specialty growers and producers on issues of interest and concern.

Volume and revenues

In 2009, British Columbia chicken farmers produced 157 million kilograms of chicken valued at $317.7 million. Chicken production is one of BC's top three agriculture industries, representing 13.1% of total farm cash receipts. The BC chicken industry accounts for about 16% of all Canadian chicken farm cash receipts (Figure 3.7).

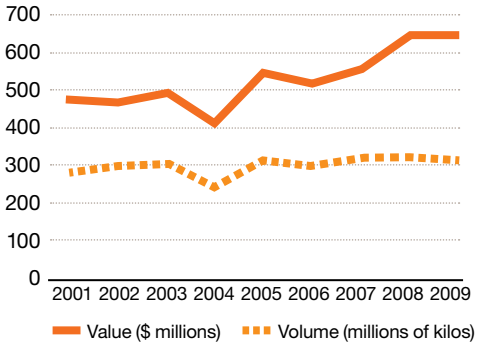
Between 2002 and 2009, chicken production (in kilograms) in British Columbia has been stable (excluding 2004) averaging about 152 million kilograms of chicken per year (Figure 3.8). In 2004, an outbreak of avian influenza (AI) in the Fraser Valley reduced chicken production by 18% from the previous year. Since then, the chicken industry has recovered and in 2009 BC chicken production was 3% higher than the year prior to the AI outbreak.

Figure 3.10 illustrates that inflation in British Columbia has increased 3.3% per year since 1980.[8] Over the same period, the price received by poultry producers for their production has increased 1.7% per year. This implies that producer's incomes from poultry production have not increased as fast as the province's cost of living. It also suggests that food price increases have mostly occurred further along the value chain, during processing, distribution and at retail.

Employment and wages

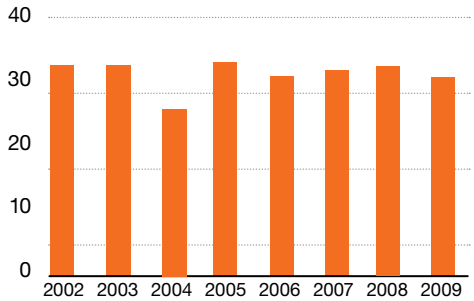
The chicken industry employs about 2,594 people and is responsible for approximately $57.5 million in wages and salaries. Chicken producers employ 7.6% of the BC labour force in agriculture.

Figure 3.8 **Volume and value of chicken production in BC**[6]



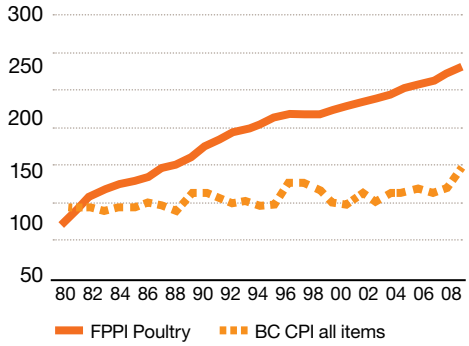
Source: Statistics Canada and Chicken Farmers of Canada

Figure 3.9 **Per capita disappearance of BC produced chicken** (thousands of kilos per capita)[7]



Source: Statistics Canada and Chicken Farmers of Canada

Figure 3.10 **BC consumer price index (CPI) and farm product price Index (FPPI) for poultry** (Index 1980=100)



6. Chicken meat production is measured in eviscerated weight
7. Per capita disappearance provides a proxy measure for total per capita consumption as data for the interprovincial movement of final products is not available.
8. Measured through CPI, which is the rate of price change for goods and services.

Investment and purchases

Investment in machinery and equipment (M&E) is important as it can help to improve farm efficiency. Before 2004, the average BC poultry farm[9] spent about 2% of its operational revenue in machinery expenses (Figure 3.11). After the AI outbreak, poultry farms appear to have increased their investment in M&E indicating these farms likely made investments to comply with new biosecurity standards.

In 2008, BC chicken producers spent about $66.3 million on chicks and other primary inputs, $111.9 million on feed, supplement, and bedding, $2.3 million on veterinary and breeding fees, and $6.8 million on machinery expenses.[10]

BC chicken industry value chain

The BC chicken industry value chain methodology follows the distinct stages of production in the material flow from chicken producers to primary and further processors (Wholesale and retail sales to final consumers have been excluded from this analysis).

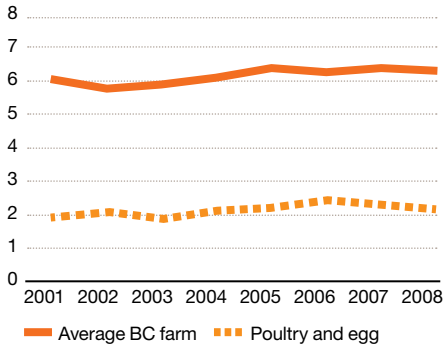
The chicken industry is comprised of several industries cooperating to produce chicken and processed chicken products for consumers, such as hatcheries, broiler chicken producers, processors, further processors, wholesalers and retailers.[11] In 2009, there were 11 hatcheries, 15 primary processing plants, and 33 further processing plants in BC. Also, the feed and animal medicine industries, transportation and packaging industries, and equipment suppliers are important industries that support the chicken industry. Figure 3.12 presents the chicken industry value chain.

Economic impact of value chain for poultry (chicken, turkey and hatching egg)

In this section we present the economic impact of the poultry, (chicken, turkey and hatching egg) value chain.

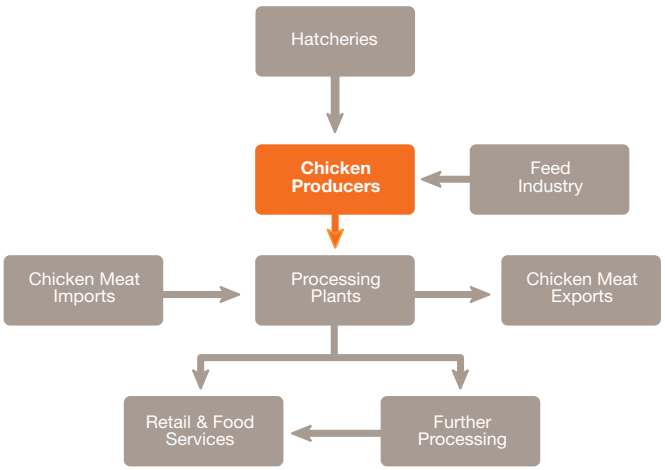
The impacts summarized in this section reflect the entire value chain for poultry but it is important to note that because BCDEPI products are inputs into the final manufacturing process, their activity results in indirect, or downstream, impacts of final demand or output. To provide an

Figure 3.11 **Machinery expenses over operational revenue** (%)



Source: Statistics Canada

Figure 3.12 **BC chicken industry value chain**



9. The definition of poultry farms includes the chicken, turkey, hatching egg, and table egg industries.
10. Statistics Canada poultry and eggs data was disaggregated by using the share of farm cash receipts from chicken, turkey, hatching egg, and table egg industries.
11. Primary processing plants slaughter the birds and prepare the meat for the retail and food service markets, while further processing plants produce consumer-ready products such as chicken nuggets and pot pies.

understanding of how these downstream impacts are accounted for in our estimates, we have provided a detailed illustration of economic impacts, by value chain segment, in Appendix C.

Detailed economic impacts for each BCDEPI commodity is provided as Appendix D.

BC poultry value chain

The economic impact of the BC poultry industry is summarized in Table 3.2 below. Overall, the BC poultry industry accounts for 46% of estimated BCDEPI aggregate output; 47% of estimated BCDEPI generated GDP; 47% of employment, 50% of salaries and wages; and 46% of tax revenue.

In total, the BC poultry industry generates approximately $2.4 billion in economic output, including $733 million in GDP. The GDP total includes $254 million from poultry processors, $11 million from hatching egg producers, $16 million from hatcheries, $82 million from chicken producers, $11 million from turkey producers, and $294 million from other related and induced economic activity.

Approximately 6,900 jobs are supported directly by poultry processors, hatching egg producers, hatcheries, chicken producers, and turkey producers, with a further 5,800 in related industries.

Finally, approximately $97.4 million in taxes are generated directly and indirectly by the poultry industry.

Table 3.1 **Economic impact of the BC poultry industry** ($ '000s)

Impact	Direct	Indirect	Induced	Total
Output	1,094,040	1,203,866	120,344	2,418,250
GDP (value-added)	253,631	414,165	65,642	733,439
Wages & Salaries	175,277	256,509	40,655	472,441
Taxes	41,574	32,821	22,975	97,370
Impact	**Direct (FTE)**	**Indirect (FTE)**	**Induced (FTE)**	**Total (FTE)**
Employment	3,435	8,193	1,039	12,668

3.3 British Columbia turkey industry

Overview

- In 2009, there were 63 turkey farms in British Columbia producing about 20.1 million kilograms of meat and generating $43.7 million in farm cash receipts.
- Turkey farms account for about 1.8% of total farm cash receipts in British Columbia.
- BC's turkey producers generate approximately $89.8 million in economic output in direct, indirect, and induced impacts, of which close to $31.8 million can be considered contribution towards GDP.
- Wages and salaries in the turkey producing industry were approximately $18.5 million for about 740 people employed with 357 workers or 1.0% of BC agriculture jobs directly employed in turkey production.
- Approximately $4.7 million in municipal, provincial, and federal taxes are generated directly and indirectly by turkey production.

Supply management in the turkey industry

Provincial

The British Columbia Turkey Marketing Board (BCTMB) was established in 1966. It has the authority to regulate the production of all turkey grown for either meat or eggs in British Columbia. The BCTMB allocates the production of turkey to individual producers and ensures production happens within their allocation. It also licenses producers and processors, promotes turkey products, and sets the producer price in negotiations with processors.

Industry trends for specialty products

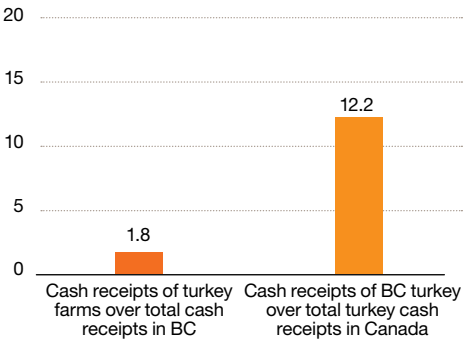
The BCTMB has allocated certified organic turkey quota as a result of BCFIRB's review and ongoing consultation with the growers and public. Further developments in the specialty product category occurred in 2008 when the BCTMB implemented minimum pricing for certified organic turkey and issued its first certified organic pricing regulation. At present, certified organic turkey is the only type of specialty turkey recognized by the BCTMB. An annual quota for certified organic turkey production is approximately 1% of the total allocated quota.

Volume and revenues

In 2009, British Columbia produced 20.1 million kilograms of turkey valued at $43.7 million, which represents 1.8% of total farm cash receipts in the province. BC turkey production ranks third among Canadian provinces accounting for 12.2% of all Canadian turkey farm cash receipts (Figure 3.13).

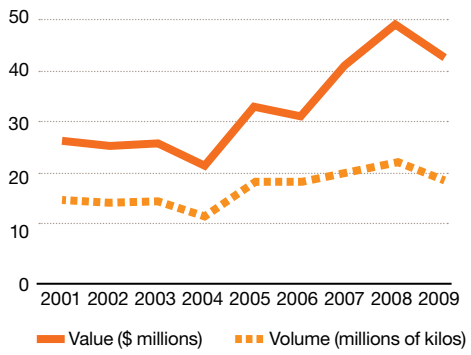
Between 2002 and 2009, turkey production (in kilograms) in British Columbia has changed significantly (Figure 3.14). In 2004, the province experienced an AI outbreak in the Fraser Valley, which reduced turkey production by 19% from the previous year.

Figure 3.13 **Relative size of the turkey industry in BC and Canada, 2009** (%)



Source: Statistics Canada

Figure 3.14 **Volume and value of turkey production in BC**



Source: Statistics Canada

However, the industry has been able to recover from the consequences of the outbreak. In 2005, BC turkey farmers were already producing 24% more turkey meat than the year prior to the outbreak. The per capita disappearance of turkey meat in British Columbia has also increased since 2004 (Figure 3.15).

The increase in per capita disappearance of turkey in British Columbia can be attributed to consumer preference for leaner types of protein products[13]. Consumer demand for turkey meat products is also influenced by comparative prices of alternative products.

Figure 3.16 illustrates that inflation in British Columbia has increased 3.3% per year since 1980.[14] Over the same period, the price poultry producers received for production has increased 1.7% per year. This implies that BC farmer's incomes related to poultry production have not increased as fast as the provincial cost of living. This also suggests that food price increases have mostly occurred further along the value chain, during processing, distribution and at retail.

Employment and wages

Turkey producers employ about 357 people and are responsible for about $7.9 million in wages and salaries. Turkey farm employees make up 1.0% of BC's agricultural labour force.

Investment and purchases

Investment in machinery and equipment (M&E) is important as it can help to improve farm efficiency. Before 2004, the average BC poultry farm spent about 2% of its operational revenue in machinery expenses (Figure 3.11).[15] After the AI outbreak, poultry farms appear to have increased their investment in M&E indicating these farms likely made investments to comply with new biosecurity standards.

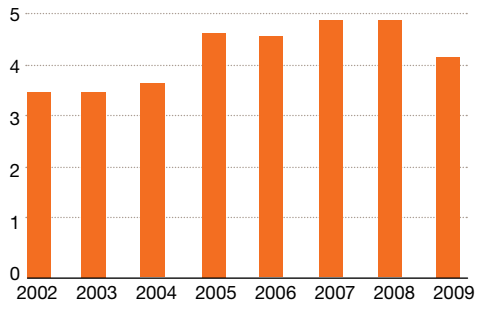
In 2008, BC turkey farms spent about $7.9 million on turkey poults and other primary inputs, $13.3 million on feed, supplement, bedding, $0.3 million on veterinary and breeding fees, and $0.8 million on machinery expenses.[16]

Bc turkey industry value chain

The BC turkey industry value chain methodology follows the distinct stages of production in the material flow from turkey producers to primary and further processors (Wholesale and retail sales to final consumers have been excluded from this analysis).

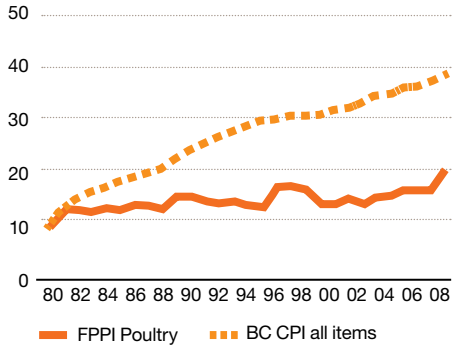
BC's turkey industry is comprised of several industries cooperating to produce turkey and processed turkey products for consumers, such as breeders and breeder growers, hatching egg producers, hatcheries, turkey producers, processors, further processors, wholesalers and retailers. In addition to the 63 registered turkey producers, BC is also home to 4 processing plants, and 1 hatchery. Also, the feed and animal medicine industries, transportation and packaging industries, and equipment suppliers are important allied industries that support the turkey industry.

Figure 3.15 Per capita disappearance of turkey in BC [12] (thousands of kilos per capita)



Source: Statistics Canada, Turkey Farmers of Canada

Figure 3.16 BC consumer price index (CPI) and farm product price index (FPPI) for poultry (Index 1980=100)



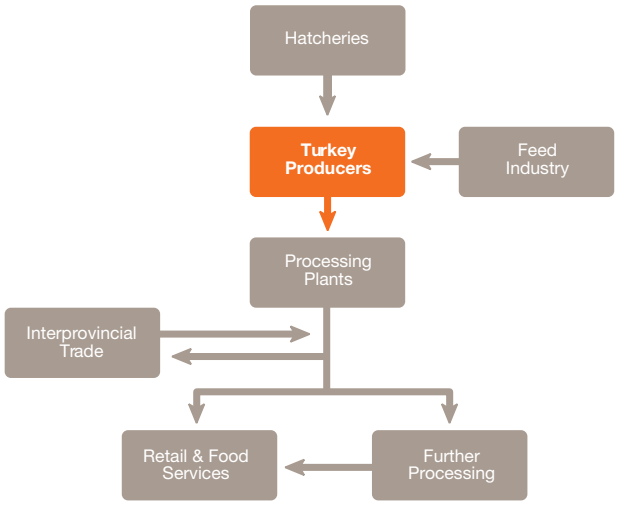
Source: Statistics Canada

12. Per capita disappearance provides a proxy measure for total per capita consumption as data for the interprovincial movement of final products is not available.
13. Turkey contains less saturated fat and cholesterol than red meat, chicken, and most fish and shellfish.
14. Measured through CPI, which is the rate of price change for goods and services.
15. The definition of poultry farms includes the chicken, turkey, hatching egg, and table egg industries.
16. Statistics Canada poultry and eggs data was disaggregated by using the share of farm cash receipts from chicken, turkey, hatching egg, and table egg industries.

Hatcheries are important in the turkey supply chain as they link turkey hatching egg producers and turkey producers. Primary processing plants receive the birds from the producers and then prepare the meat for the retail and food service markets. Further processing plants produce consumer-ready products such as deli meats, pot pies and sausages.

Figure 3.17 illustrates the turkey industry value chain.

Figure 3.17 **BC Turkey Industry Value Chain**



3.4 British Columbia broiler hatching egg industry

Overview

- In 2009, there were 58 hatching egg farms in British Columbia producing about 8.9 million dozen eggs and generating $41.6 million in farm cash receipts.
- Hatching egg farms account for about 1.7% of total farm cash receipts in British Columbia.
- BC's hatching egg producers generate approximately $85.4 million in economic output in direct, indirect, and induced impacts, of which close to $30.3 million can be considered contribution towards GDP.
- Wages and salaries in the hatching egg producing industry were approximately $17.6 million for about 704 people employed with 340 workers or 1.0% of BC agriculture jobs directly employed in hatching egg production.
- Approximately $6.1 million in municipal, provincial, and federal taxes are generated directly and indirectly by hatching egg production.

Supply management in the broiler hatching egg industry

Provincial

The British Columbia Broiler Hatching Egg Commission (BCBHEC) was created in 1988. It oversees the production activities of BC broiler hatching egg producers, regulates the marketing of their product, and acts as a leader for the BC broiler hatching egg producers in dealings with other participants of the chicken meat industry.

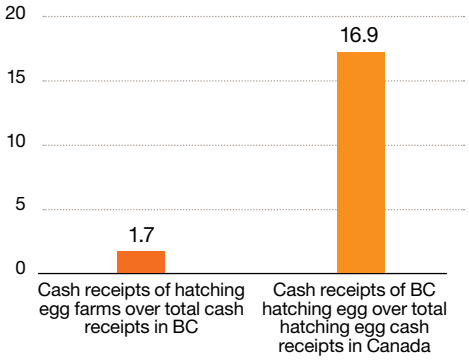
Industry trends in specialty products

In BCHEC's 2005 submission to FIRB on specialty products, the Commission indicated there was no demand for a specialty product plan. This was based on the rationale that the producers of specialty chicken did not require certified specialty chicks for specialty chicken production. However, the Commission has indicated that it would consider the need if demand in BC for specialty chicks arose.[17]

Volume and revenues

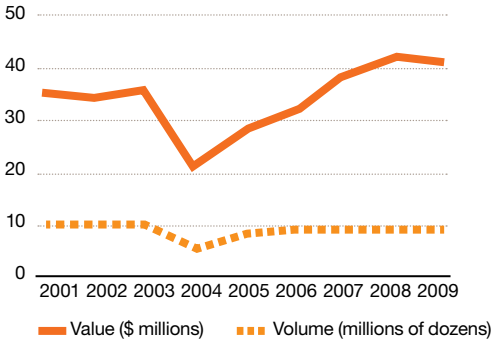
In 2009, British Columbia produced 8.9 million dozen hatching eggs valued at $41.6 million, which represents 1.7% of the total farm cash receipts in the province. The BC broiler hatching egg industry is small relative to other supply management industries in the province, but is significantly large when compared to the Canadian broiler hatching egg industry. The BC hatching egg industry represents 16.9% of all Canadian hatching egg farm cash receipts (Figure 3.18).

Figure 3.18 **Relative size of the hatching egg industry in BC and Canada, 2009** (%)



Source: Statistics Canada

Figure 3.19 **Volume and value, hatching egg production in BC**



Source: Statistics Canada

17. Specialty Market and New Entrant Submissions, Policy, Analysis, Principles and Directions, British Columbia Farm Industry Review board, September 1, 2005.

Production of hatching eggs (number of eggs) in British Columbia declined 40% from 2003 to 2004 due to the outbreak of avian influenza in the Fraser Valley. Since 2004, the hatching egg industry has grown 10% per year, although production has not fully recovered to previous volumes. In 2009, production was 8% lower than the year prior to the outbreak (Figure 3.19).

Excluding 2004 and 2005 due to the AI outbreak, BC hatching egg producers have consistently supplied between 80 and 85% of the provincial demand. Based on supply patterns pre-NAFTA, a bilateral agreement was negotiated through the WTO that allows 20% of BC hatching eggs to be imported from the United States. (Figure 3.20).

Employment and wages

The industry employs about 340 people and is responsible for about $7.5 million in wages and salaries. Hatching egg farmers employ 1.0% of BC's agricultural labour force.

Investment and purchases

Investment in machinery and equipment (M&E) is important as it can help to improve farm efficiency. Before 2004, the average BC poultry farm spent about 2% of its operational revenue on machinery expenses (Figure 3.11).[18] After the AI outbreak, poultry farms appear to have increased their investment in M&E indicating these farms likely made investments to comply with new biosecurity standards.

In 2008, the BC broiler hatching egg producers spent about $10 million on laying birds and other primary inputs, $17 million on feed, supplement, and bedding, $0.4 million on veterinary and breeding fees, and $1 million on machinery expenses.[19]

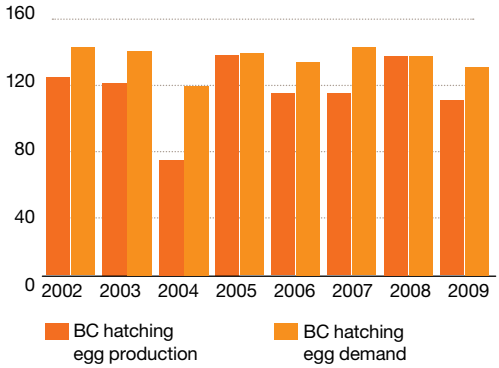
BC hatching egg industry value chain

The value chain methodology for hatching eggs follows the distinct stages of production in the material flow from hatching egg producers to broiler chicken producers.

The hatching egg industry output is the main input for the chicken industry, which makes the dependency of these two industries on each other unique. The hatching industry involves breeders and breeder growers, hatching egg producers, hatcheries, and broiler chicken growers. There are 5 hatchery facilities in BC, 4 are located in the Fraser Valley and 1 in the Okanagan. The feed and animal medicine industries, transportation and packaging industries, and equipment suppliers are important allied industries for the hatching egg industry operations.

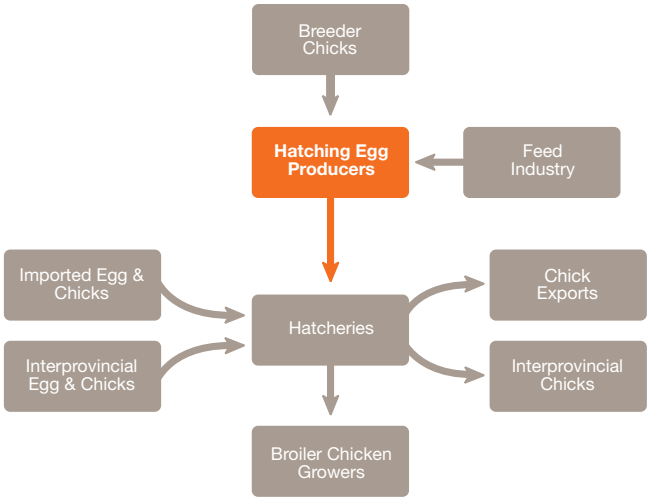
Figure 3.21 illustrates BC's hatching egg industry value chain.

Figure 3.20 Demand and production hatching eggs, BC (millions of eggs)



Source: Statistics Canada and Canadian Hatching Egg Producers

Figure 3.21 BC hatching egg industry value chain



18. The definition of poultry farms includes the chicken, turkey, hatching egg, and table egg industries.
19. Statistics Canada poultry and eggs data was disaggregated by using the share of farm cash receipts from chicken, turkey, hatching egg, and table egg industries.

3.5 British Columbia table egg industry

Overview

- In 2009, there were 130 table egg farms in British Columbia producing about 64.6 million dozen eggs and generating $102.9 million in farm cash receipts.
- Table egg producers accounted for approximately 4.3% of total farm cash receipts in British Columbia.
- Table egg producers generated approximately $26.6 million towards provincial GDP employing an estimated 840 workers representing 2.4% of BC agriculture jobs.
- Approximately $11.1 million in municipal, provincial, and federal taxes are generated directly and indirectly by table egg producers.

Table Egg Industry Value Chain

- BC's table egg industry value chain generated approximately $647.3 million in economic output contributing an estimated $196.3 million in GDP to BC's economy.
- About 2,000 jobs are supported directly by table egg producers and processors, with a further 1,400 in related industries.
- Approximately $26.1 million in municipal, provincial, and federal taxes are generated directly and indirectly by the table egg industry.

Supply management in the table egg industry

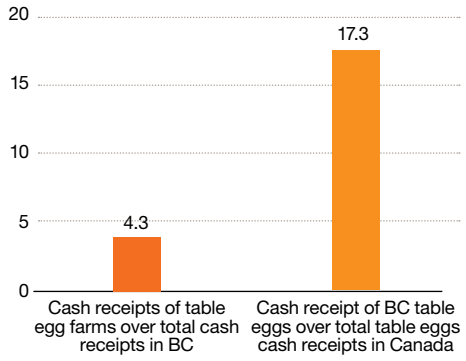
Provincial

The British Columbia Egg Marketing Board (BCEMB) was created in 1967 and is the provincial body authorized to promote, control, and regulate the production and movement of all eggs in the province. It is also responsible for setting prices for producers within its jurisdiction, using the Egg Farmers of Canada's cost-of-production formula. The cost of production formula is calculated based on what it would cost an efficient farmer to produce eggs. Table eggs are sold to grading stations and producers receive the price set by the BCEMB. Graders then sell these eggs to wholesalers, retailers, hotels, restaurants and breaking plants (further processors).

Industry trends in specialty products

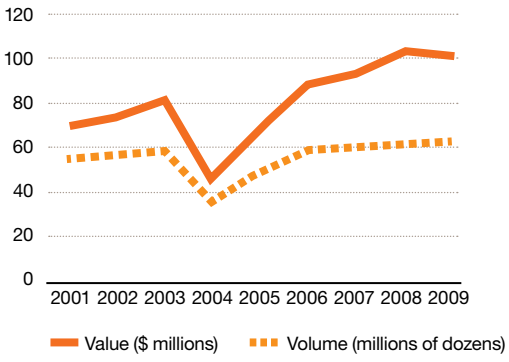
As a result of BCFIRB's review and ongoing consultation with the growers and public, the BC Egg Marketing Board commissioned a market analysis of Canadian egg sales in an attempt to determine the extent of consumer demand for specialty eggs. Specialty eggs are considered to be table eggs that are free run, free range, or organic eggs. The study found that specialty eggs

Figure 3.22 **Relative size of the table egg industry in BC and Canada, 2009** (%)



Source: Statistics Canada

Figure 3.23 **Volume and value of table egg production in BC**



Source: Statistics Canada

constitute 11.5% of BC's total regulated egg production volume and that British Columbia sells more specialty eggs per capita than all other provinces, including Ontario whose population is four times greater than that of BC. Metro Vancouver demand for specialty eggs is strongest compared to the rest of the province. Of the three types of specialty eggs produced, free run eggs have the largest sales (36.3%) followed by free range (34.2%) and then organic (29.6%).

In response to the demand for specialty products in BC, the BC table egg quota allocation is currently under review.

Volume and revenues

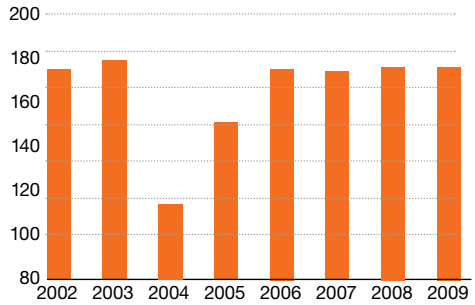
In 2009, British Columbia produced 64.6 million dozens of table eggs valued at $102.9 million, which represents 4.3% of total farm cash receipts in BC and 17.3% of all Canadian table egg farm cash receipts (Figure 3.22).

Between 2002 and 2009, the production of table eggs in British Columbia has changed dramatically (Figure 3.23). In 2004, an outbreak of avian influenza occurred in the Fraser Valley. Following measures to contain and eliminate the outbreak, egg production dropped 37% from the previous year. Since 2004, the BC table egg industry has been recovering from the outbreak and in 2009, egg production was 6.4% higher than 2003 levels.

As a result of the AI outbreak consumer demand for table eggs experienced a significant decline. Since 2005, demand has increased although not to the same volume as before the AI outbreak (Figure 3.24). Overall, the national consumer trend for egg consumption has seen the sale of table eggs decline over time. However, intake of eggs remained above the five-year average of 12.5 dozen per person per year from 2004 to 2008.[20]

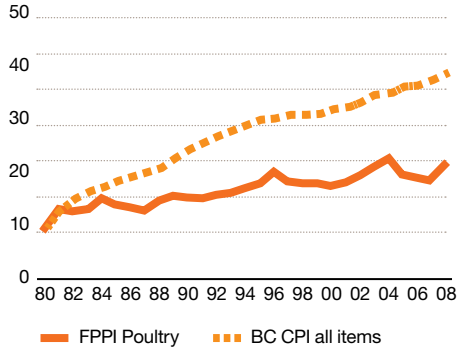
Figure 3.25 illustrates that inflation[21] in British Columbia has increased 3.3% per year since 1980. Over the same period, the price egg producers received for production increased 1.9% per year. This implies that BC farmer's incomes related to egg production has not increased as fast as the province's cost of living. This also suggests that food price increases have mostly occurred further along the value chain, during processing, distribution and at retail.

Figure 3.24 Per capita demand for table eggs in BC (number of eggs per capita)



Source: Statistics Canada and Egg Farmers of Canada

Figure 3.25 BC consumer price index (CPI) and farm product price index (FPPI) for table eggs (Index 1980=100)



Source: Statistics Canada

20. Food Statistics, Statistics Catalogue no. 21-020-2009.
21. Measured tgrough CPI, which is the rate of price change for goods and services.

Employment & wages

The industry employs about 840 people and is responsible for about $18.6 million in wages and salaries. Egg farmers employ 2.4% of the BC's agricultural labour force.

Investment and purchases

Investment in machinery and equipment (M&E) is important as it can help to improve farm efficiency. Before 2004, the average BC poultry farm[22] spent about 2% of its operational revenue on machinery expenses. After the AI outbreak, poultry farms appear to have increased their investment in M&E indicating these farms likely made investments to comply with new biosecurity standards.

In 2008, table egg producers in BC spent about $20.3 million on laying birds and other primary inputs, $34.3 million on feed, supplement, and bedding, $0.7 million on veterinary and breeding fees, and $2.1 million on machinery expenses.[23]

BC table egg industry value chain

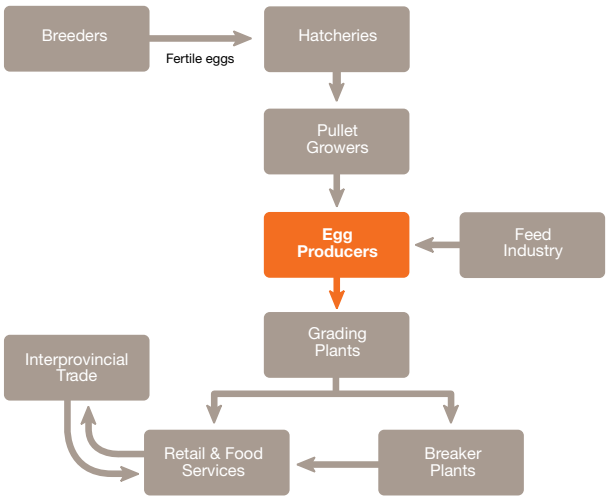
The value chain methodology for the table egg industry follows the distinct stages of production in the material flow from egg producers to processors (wholesale and retail are excluded from this analysis).

The extended table egg industry is comprised of different industries cooperating to produce table eggs and processed egg products to consumers, such as breeders and breeder growers, pullet growers, table egg producers, graders, breaker plants, wholesales and retailers.

In the table egg industry value chain, grading plants are responsible for picking up the eggs from the farm, washing, grading the eggs, and packing them for the retail or food service industries. Breaking plants receive approximately 18% of all egg production in British Columbia that goes towards the production of liquid, frozen, or dried egg products. Egg graders are located on Vancouver Island and the Fraser Valley.

Figure 3.26 illustrates the table egg industry value chain.

Figure 3.26 **BC table egg industry value chain**



22. The definition of poultry farms includes the chicken, turkey, hatching egg, and table egg industries.
23. Statistics Canada poultry and eggs data was disaggregated by using the share of farm cash receipts from chicken, turkey, hatching egg, and table egg industries.

Economic impact of BC's table egg value chain

The impacts summarized in this section reflect the entire value chain for table eggs but it is important to note that because BCDEPI products are inputs into the final manufacturing process, their activity results in indirect, or downstream, impacts of final demand or output. To provide an understanding of how these downstream impacts are accounted for in our estimates, we have provided a detailed illustration of economic impacts, by value chain segment, in Appendix C. Detailed economic impacts for each BCDEPI commodity is provided as Appendix D.

BC table egg value chain

The economic impact of the BC table egg industry is summarized in Table 3.27 below. The BC table egg industry accounts for a relatively small portion of the overall aggregate impacts at 12% of estimated BCDEPI aggregate output; 13% of estimated BCDEPI generated GDP; 13% of employment; 14% of salaries and wages; and 12% of tax revenue.

In total, the BC table egg industry generates approximately $647 million in economic output, including $196 million in GDP. The GDP total includes $85 million from egg graders and breakers, $27 million from table egg producers, and $84 million from other related and induced economic activity.

Approximately 2,000 jobs are supported directly by table egg producers and processors, with a further 1,400 in related industries. Finally, approximately $23 million in taxes are generated directly and indirectly by the table egg industry.

Table 3.27 **Economic impacts of the BC table egg industry** ($'000s 2009)

Impact	Direct	Indirect	Induced	Total
Output	292,860	322,259	32,215	$647,333
GDP (value-added)	84,929	93,831	17,572	$196,332
Wages & salaries	46,919	68,664	12,859	$128,442
Taxes	11,129	8,786	6,150	$26,065
Impact	**Direct (FTE)**	**Indirect (FTE)**	**Induced (FTE)**	**Total (FTE)**
Employment	1,130	1,982	278	3,391

4 Summary tables and charts

4.1 Summary of industry profiles

There are 1,120 producers in British Columbia under the supply management system (Table 4.1). The dairy industry corresponds to over half of all BCDEPI producers, followed by the chicken, table egg, turkey and hatching egg industries, respectively. Chicken production is the most labour intensive of the BCDEPI industries employing, on average, seven employees per producer, while table egg production is the least labour intensive employing, on average, six workers per producer.

Table 4.2 illustrates the importance of the supply managed industries relative to the British Columbia agriculture sector. The combined BCDEPI industries account for over one-third of all BC farm cash receipts and one-quarter of all BC agriculture workers.

Table 4.3 illustrates the farm cash receipts and expenditures associated with each supply-managed commodity. It shows that BC supply management industries allocate, on average, 35% of their revenues to feed, 18% to general expenses, 15% to input purchases, 18% to wages and salaries, and 6% to purchases of machinery and equipment.

4.2 Estimated economic impacts of the total value chain

BCDEPI Value Chain Aggregate Impact

The BCDEPI value chain impacts the BC economy through direct expenditures on goods and services, employing workers and generating tax revenues for local, provincial and federal governments. Aggregate impacts for the BCDEPI value chain are detailed in Table 4.4.

Table 4.5 provides a comparison of the economic impacts between 2007 and 2009.

The following sections provide further detail for the economic impact estimates provided in Tables 4.4 and 4.5.

Table 4.1 **Number of producers and workers** (2009)

	Number of producers	Employment	Average employee	Production volume (million)
Dairy	542	4,031	7	658.5 litres
Chicken	327	2,594	8	157.0 kilos
Table egg	130	840	6	64.6 dozen eggs
Turkey	63	357	6	20.1 kilos
Hatching egg	58	340	6	8.9 dozen eggs
BCDEPI	1,120	8,162	7	

Table 4.2 **Share of supply management farms of BC agriculture sector** (2009)

	Farm receipts ($ million)	Share on total BC cash receipts	Employment	Share on BC agriculture jobs
Dairy	$493.8	20.4%	4,031	11.8%
Chicken	$317.7	13.1%	2,594	7.6%
Turkey	$43.7	1.8%	357	1.0%
Hatching egg	$41.6	1.7%	340	1.0%
Table egg	$102.9	4.3%	840	2.4%
BCDEPI	$999.7	41.1%	8,162	23.8%

Table 4.3 **Farm cash receipts and expenditures** ($ million, 2008)*

	Farm receipts	Cattle, poultry or egg purchases	General expenses	Machinery	Wages & salaries	Feed	Veterinary and breeding fees
Dairy	482.3	41.7	117.6	44.7	89.4	175.2	22.0
Chicken	319.4	66.3	35.1	6.8	57.5	111.9	2.3
Table egg	105.4	20.3	15.4	2.1	18.6	34.3	0.7
Turkey	49.8	7.9	2.4	0.8	7.9	13.3	0.3
Broiler hatching egg	42.1	10	6.0	1.0	7.5	17.0	0.4
BCDEPI	999	146.2	176.5	55.4	180.9	351.7	25.7

*most recent data available is 2008

Table 4.4 **BCDEPI economic impacts summary table** ($ 000's 2009)

Impact	Direct	Indirect	Induced	Total
Output	2,380,410	2,615,500	261,845	5,257,755
GDP	531,370	892,769	142,825	1,566,964
Wages & salaries	303,355	556,762	89,392	949,509
Taxes	90,456	71,412	49,989	211,856
Impact	Direct (FTE)	Indirect (FTE)	Induced (FTE)	Total (FTE)
Employment	6,136	18,446	2,261	26,843

Output

Total output directly generated by the BCDEPI value chain is estimated to equal $2.4 billion, a 1.7% increase from 2007. Direct output supports a further estimated $2.6 billion in indirect output in the BC economy (an 8.9% increase from 2007) and stimulates an additional $262 million in induced economic impacts (a 1.7% increase from 2007). Total output generated or supported by BCDEPI in the BC economy is therefore estimated at $5.3 billion, a 5.1% increase from $5 billion in 2007.

GDP

Economic output supported by the BCDEPI value chain is estimated to be $1.6 billion in nominal GDP. BC Nominal GDP in 2009 was equal to approximately $195 billion therefore, the estimated magnitude of the supply managed sector's GDP impact remains unchanged from 2007 and amounts to about 0.8% of the BC economy. Recognizing that contributions to GDP from the BCDEPI value chain are not as large as from other sectors of BC's economy, in contrast, BCDEPI experiences less volatility in response to changing market conditions.

Employment and wages & salaries

Economic activity generated by the BCDEPI value chain is estimated to support 26,843 jobs with $949.5 million in associated wages and salaries, a 6.2% increase from 2007. With approximately 2.3 million people employed in BC at the end of 2009, the estimated employment impacts remains stable and represent 1.2% of total BC employment.

Table 4.6 compares the employment contributions of the BCDEPI value chain against other BC industry sectors. The comparison indicates that in 2009, the

Table 4.5 **BCDEPI total economic impacts summary table, % change from 2007–2009** ($ millions)

Impact	2009 Total ($ 000's)	2007 Total ($ 000's)	% change
Output	5,257,755	5,000,792	5.1%
GDP	1,566,964	1,561,638	0.3%
Wages & salaries	949,509	893,720	6.2%
Taxes	211,856	205,983	2.9%
Impact	**Direct (FTE)**	**Indirect (FTE)**	**Induced (FTE)**
Employment	26,843	28,375	(5.4%)

Table 4.6 **Employment comparison of major BC industries (2009)**

	Employment '000s	Share of Provincial Total %
Total BCDEPI value chain	26.8	1.2%
Tourism*	120.4	5.5%
Forestry and logging (plus support services)	13.9	0.6%
Mining, oil and gas extraction (plus support services)	24.2	1.1%
British Columbia	2,259	100%

*Tourism data refers to 2006
Source: Statistics Canada, BC Stats, and PwC

BCDEPI value chain generated more jobs than both the forestry and logging sector, and the mining and oil and gas extraction sector.

Additional analysis indicates that between 2002 and 2009, the forestry and logging sector experienced a negative 5.8% average annual change in employment. Of greater significance though is the more recent change in employment that occurred from 2007 to 2008 when the annual change in employment declined by 28.4%, although this improved slightly from 2008 to 2009 when the annual change in employment declined by 20.1%.

In contrast, components of the BCDEPI value chain experience relatively stable employment even during times of economic instability.

Tax revenue

Aggregate taxes generated by the BCDEPI value chain are estimated to be close to $186 million. Approximately $114 million is estimated to accrue to the Federal government; a further $79 million is estimated to flow to the Provincial government with the remaining $19 million going to municipal governments.

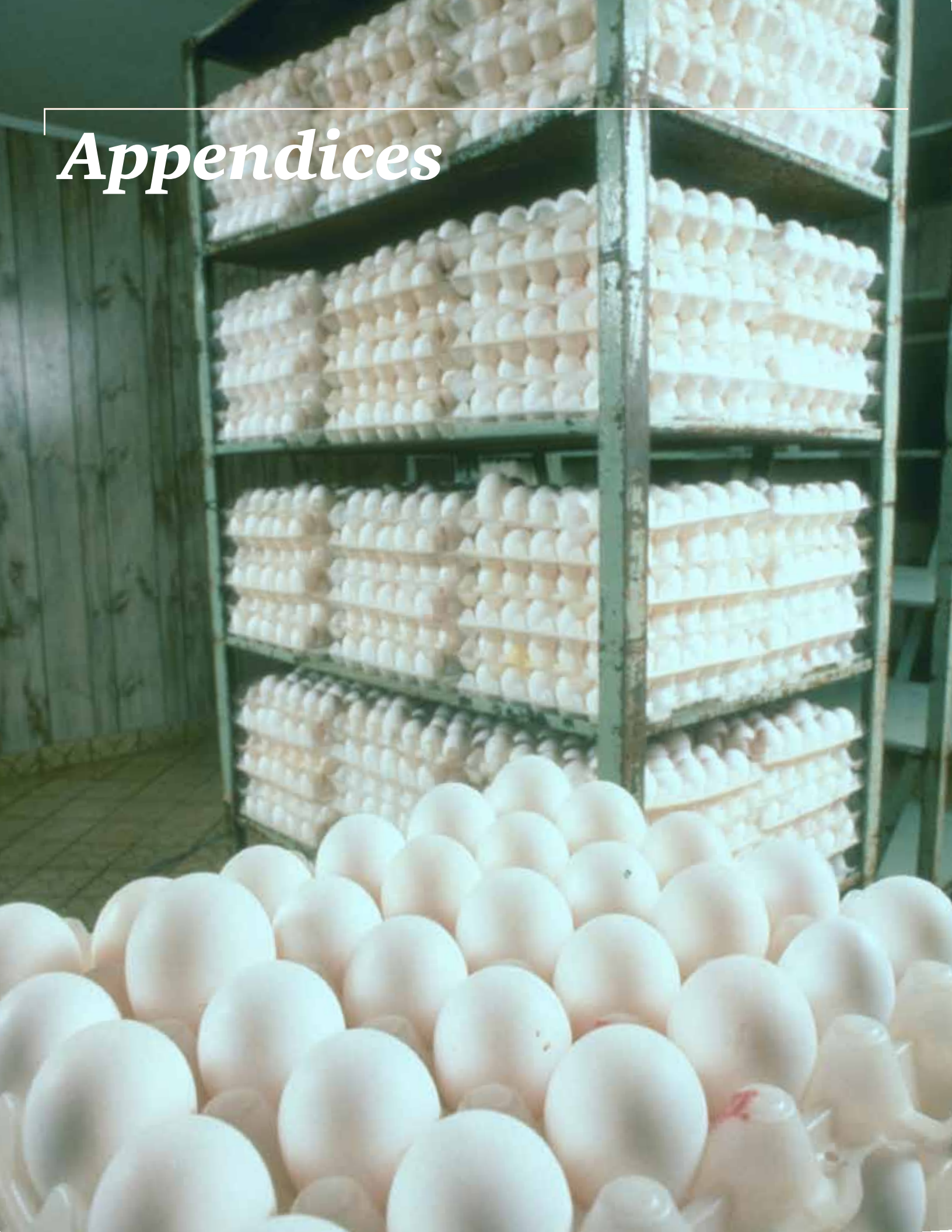
4.3 Supply management produces significant economic impacts for British Columbia

Economic impacts across the entire BCDEPI value chain are estimated to be $1.6 billion in value-added, based on total value chain output of $5.3 billion. The value-added produced by the BCDEPI value chain in British Columbia corresponds with approximately 0.8% of BC's GDP. The economic activities of the BCDEPI value chain were also responsible for the employment of approximately 26,843 individuals, providing $949.5 million in annual salaries and wages.

The analysis presented in this study has shown that the supply managed commodities produce significant economic and social benefits for the British Columbian economy.

In addition, the dairy, egg and poultry industries experience less volatility in response to changing market conditions. Unlike other industries that experienced dramatic downturns during the recent economic slowdown, BCDEPI production volumes and employment levels were generally consistent throughout this period.

Appendices



Appendix A
List of Sources

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Production and Disposition of Eggs, CANSIM Table 003-0020, Statistics Canada

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Specialty market and New Entrant Submissions: Policy, Analysis, Principles and Directions, BC Farm Industry Review Board (FIRB), September 2005

Supply Management Systems Fact Sheet, Ontario Ministry of Agriculture, Food and Rural Affairs, 2008

Statistics of the Canadian Dairy Industry, Agriculture and Agri-Food Canada, 2009 Strategic Plan, 2008/09 – 2010/11, British Columbia Farm Industry Review Board (BCFIRB)

Appendix B
Economic impact data sources

Provincial industry multipliers were obtained from both Statistics Canada and BC Stats. While the data sets are based on common underlying data, Statistics Canada data contains a higher disaggregation of industries than BC Stats (285 versus 66). However, BC Stats includes induced effects and government revenues for all three levels of government, which are not included in the Statistics Canada data. For this reason, both sets of multipliers were employed in this study in an effort to produce a wider range of economic impact estimates.

Additional data was obtained from CANSIM, which publishes values based on farm cash receipts for producers, or value of shipments for processors.

The list of data sources used for the study is presented below.

Multipliers

When using the Statistics Canada data, multipliers for the following industry aggregations were used:

NAICS 112A00: Animal Production (except Animal Aquaculture)

This subsector comprises establishments, such as ranches, farms and feedlots, primarily engaged in raising animals, producing animal products and fattening animals.

NAICS 311500: Dairy Product Manufacturing

This industry group comprises establishments primarily engaged in manufacturing dairy products.

NAICS 311615: Poultry Processing

This industry comprises establishments primarily engaged in slaughtering poultry and small game or preparing processed poultry and small game meat and meat by-products.

NAICS 3119A0: Other Miscellaneous Food Manufacturing

This industry comprises establishments, not classified to any other industry, primarily engaged in manufacturing food, including egg processing.

When using the BC Stats data, multipliers for the following industry aggregations were used:

NAICS 111 and 112: Crop and Animal Production

This subsector is the combination of both crop and animal production. It is comprised of establishments, such as farms, orchards, groves, greenhouses and nurseries, primarily engaged in growing crops, plants, vines, trees and their seeds (excluding those engaged in forestry operations), or establishments, such as ranches, farms and feedlots, primarily engaged in raising animals, producing animal products and fattening animals.

NAICS 311: Food Manufacturing

This subsector comprises establishments primarily engaged in producing food for human or animal consumption.

Output

Output data was obtained from CANSIM, which publishes output values based on farm cash receipts for producers, or value of shipments for processors. The specific CANSIM table is listed for each industry below.

Dairy production: CANSIM Table #003-0008 – Cash receipts from milk and cream sold off farms

Chicken and turkey production: CANSIM Table #003-0018 – Production, disposition and farm value of poultry meat

Hatching and table egg production: CANSIM Table # 003-0020 – Production and disposition of eggs

Dairy processing: CANSIM Table #381-0016 – Provincial gross output, by sector and NAICS; British Columbia; Dairy product manufacturing [NAICS 311500]

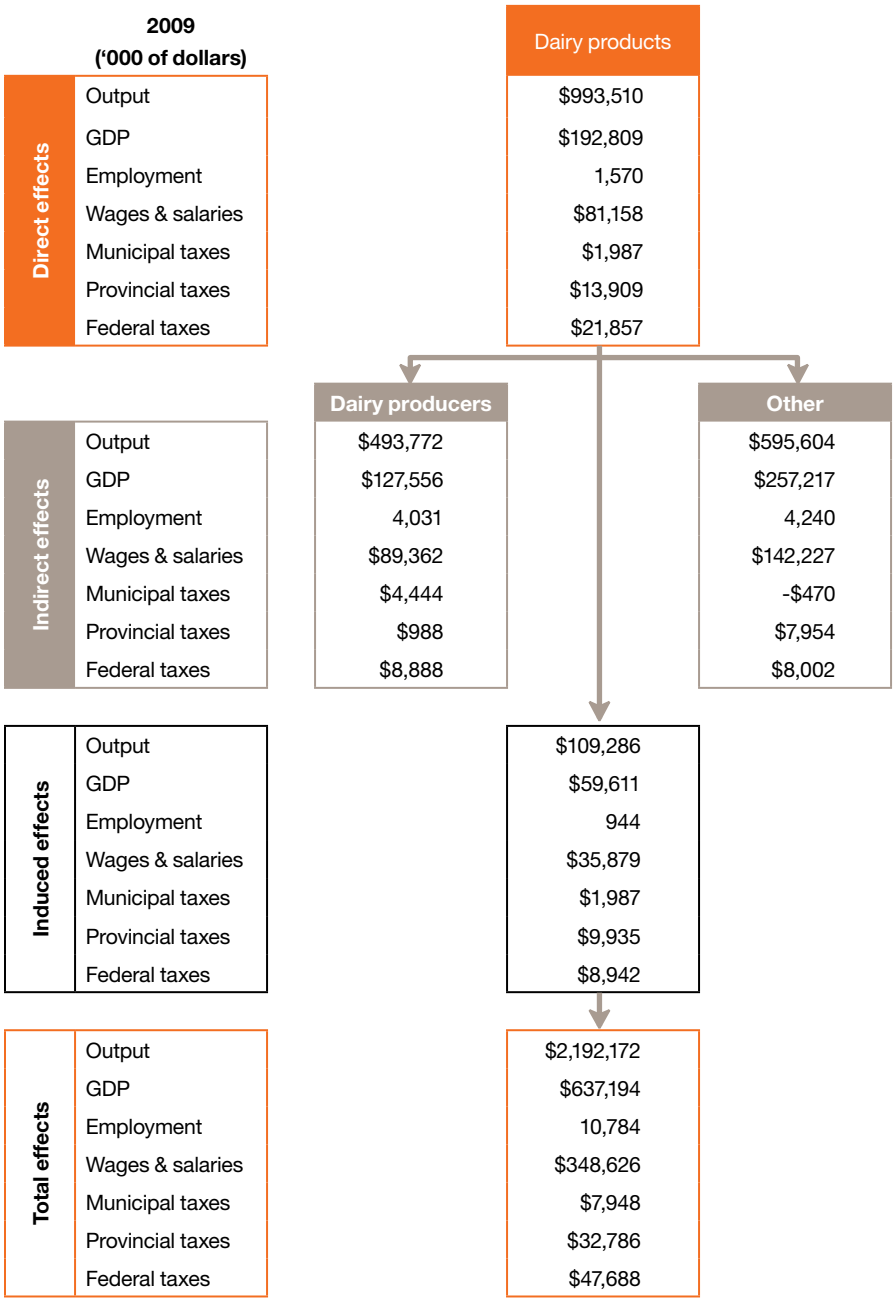
Poultry processing: CANSIM Table #381-0016 – Provincial gross output, by sector and NAICS; British Columbia; Poultry processing [NAICS 311615]

Eggs processing: As egg processing is captured under NAICS 3119A0: Other Miscellaneous Food Manufacturing and aggregated along with several other unrelated activities, output data was obtained directly from BC's breaking and grading plants.

Output values were then applied to the appropriate industry multipliers to estimate direct, indirect, and induced output, value-added (GDP), exports, employment, labour income, and government revenues.

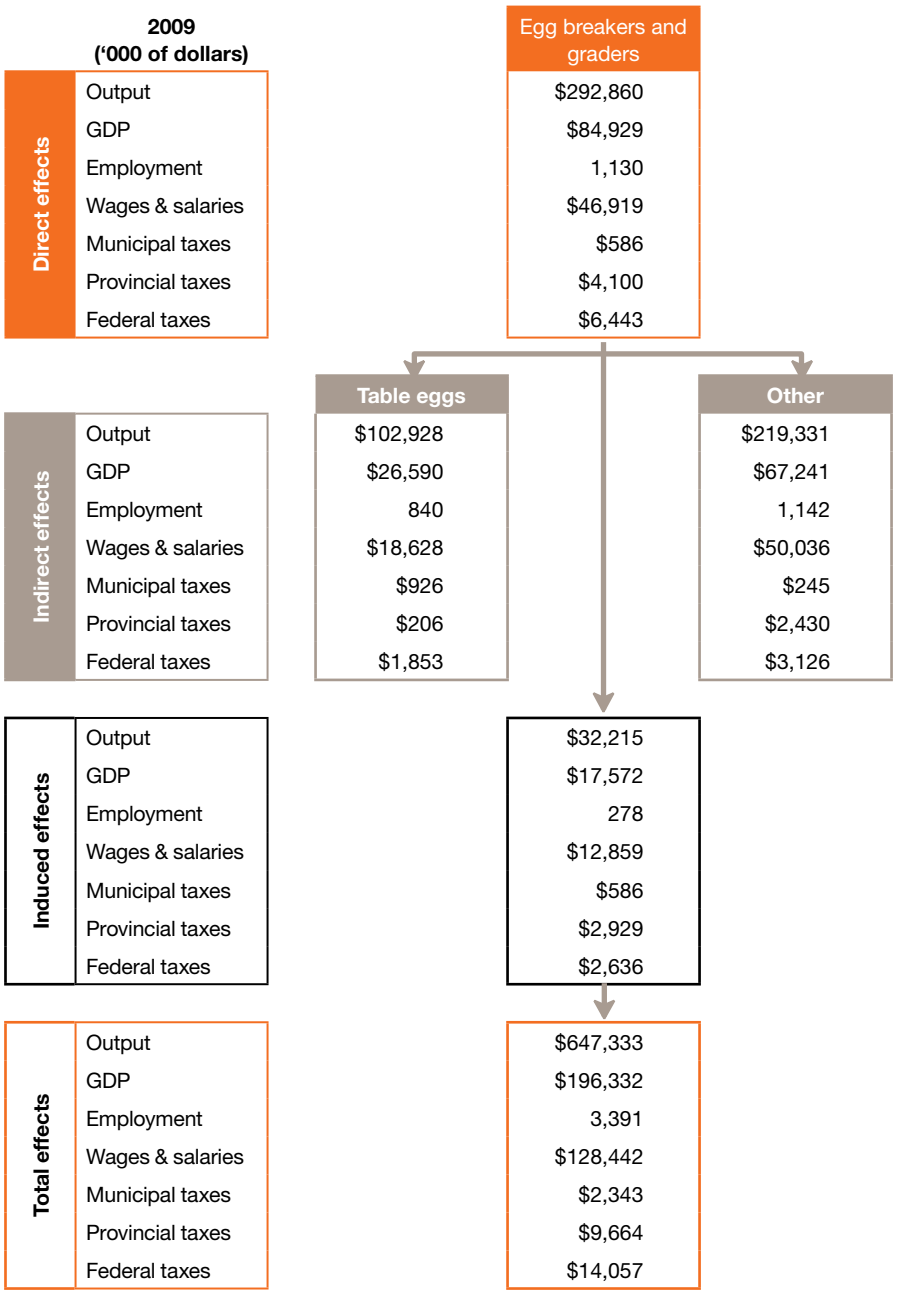
Appendix C
Economic impacts of the BCDEPI value chain

Dairy value chain



Appendix C Economic impacts of the BCDEPI value chain

Table egg value chain



Poultry processing

2009 ('000 of dollars)		Poultry processing
Direct effects	Output	$1,094,040
	GDP	$253,631
	Employment	3,435
	Wages & salaries	$175,277
	Municipal taxes	$2,188
	Provincial taxes	$15,317
	Federal taxes	$24,069

		Hatching egg	Hatcheries	Chicken	Turkey	Other
Indirect effects	Output	$41,593	$68,557	$317,730	$43,723	$732,263
	GDP	$10,745	$15,893	$82,079	$11,295	$294,152
	Employment	340	140	2,594	357	4,763
	Wages & salaries	$7,527	$10,984	$57,502	$7,913	$172,583
	Municipal taxes	$374	$137	$2,860	$394	$612
	Provincial taxes	$83	$960	$635	$87	$8,080
	Federal taxes	$749	$1,508	$5,719	$787	$9,836

Induced effects	Output	$120,344
	GDP	$65,642
	Employment	1,039
	Wages & salaries	$40,655
	Municipal taxes	$2,188
	Provincial taxes	$10,940
	Federal taxes	$9,846

Total effects	Output	$2,418,250
	GDP	$733,439
	Employment	12,668
	Wages & salaries	$472,441
	Municipal taxes	$8,752
	Provincial taxes	$36,103
	Federal taxes	$52,514

Appendix D
Economic impacts of BCDEPI commodities

BCDEPI	Dairy	Chicken	Turkey	Hatching egg	Table egg
2009 Farm cash receipts ('000 of dollars)	$493,772	$317,730	$43,723	$41,593	$102,928
Direct effects					
Output	$493,772	$317,730	$43,723	$41,593	$102,928
GDP	$127,556	$82,079	$11,295	$10,745	$26,590
Employment	4,031	2,594	357	340	840
Wages & Salaries	$89,362	$57,502	$7,913	$7,527	$18,628
Municipal Taxes	$4,444	$2,860	$394	$374	$926
Provincial Taxes	$988	$635	$87	$83	$206
Federal Taxes	$8,888	$5,719	$787	$749	$1,853
Indirect effects					
Output	$431,216	$277,477	$38,184	$36,324	$89,888
GDP	$182,202	$117,243	$16,134	$15,348	$37,981
Employment	3,583	2,305	317	302	747
Wages & Salaries	$93,663	$60,270	$8,294	$7,890	$19,524
Municipal Taxes	$494	$318	$44	$42	$103
Provincial Taxes	$9,382	$6,037	$831	$790	$1,956
Federal Taxes	$12,344	$7,943	$1,093	$1,040	$2,573
Total direct and indirect effects					
Output	$924,988	$595,207	$81,907	$77,917	$192,816
GDP	$309,759	$199,322	$27,429	$26,093	$64,570
Employment	7,613	4,899	674	641	1,587
Wages & Salaries	$183,025	$117,772	$16,207	$15,417	$38,152
Municipal Taxes	$4,938	$3,177	$437	$416	$1,029
Provincial Taxes	$10,369	$6,672	$918	$873	$2,161
Federal Taxes	$21,232	$13,662	$1,880	$1,788	$4,426
Induced effects					
Output	$88,879	$57,191	$7,870	$7,487	$18,527
GDP	$49,377	$31,773	$4,372	$4,159	$10,293
Employment	746	480	66	63	155
Wages & Salaries	$25,383	$16,333	$2,248	$2,138	$5,291
Municipal Taxes	$1,481	$953	$131	$125	$309
Provincial Taxes	$7,900	$5,084	$700	$665	$1,647
Federal Taxes	$7,407	$4,766	$656	$624	$1,544
Total effects					
Output	$1,013,867	$652,398	$89,777	$85,403	$211,344
GDP	$359,136	$231,095	$31,801	$30,252	$74,863
Employment	8,359	5,379	740	704	1,742
Wages & salaries	$208,408	$134,105	$18,454	$17,555	$43,443
Municipal taxes	$6,419	$4,130	$568	$541	$1,338
Provincial taxes	$18,270	$11,756	$1,618	$1,539	$3,808
Federal taxes	$28,639	$18,428	$2,536	$2,412	$5,970