Research Report

BC Journal of Ecosystem and Management

Economic overview of the Robson Valley Forest District

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Abstract

The principal objectives of this study were to chronicle the hybrid approach to data collection adopted to formulate a regional economic overview of the Robson Valley Forest District (RVFD), and to summarize a suite of baseline economic indicators relevant to the forestry, visitor, public, and agriculture sectors in the RVFD region. Secondary data collection was augmented with primary data collected through formal and informal survey techniques. Data were collected for traditional economic indicators, such as gross revenue, employment, and income.

The forestry sector is the largest contributor to the regional economy. It provides the highest estimates of average annual wage (ranging from $46 975 to $64 007), number of employment positions (574 jobs including full-time and part-time or seasonal positions), and total revenue ($74.1 million). The visitor sector, the second largest contributor, generates $18.1 million in revenues and 514 employment positions; however, the estimated average annual wage ($20 956) is the second lowest. The average annual wage in the public sector is the second highest at $25 669, with 350 employment positions existing in this sector. The agriculture sector is the smallest contributor, providing the lowest average annual wage ($19 145, or $17 420 inflated to 2001 dollars) and total revenue ($4.6 million). Despite the relatively lower contribution to the economy, the total number of farms has remained relatively stable.

A comprehensive understanding of the mechanics of an economy facilitates decision making. This report provides a methodology for small region data collection and the resulting baseline information necessary for future assessment of responses within the economy to internal and external changes.

KEYWORDS: *economics, forestry, tourism, economic indicators, Robson Valley Forest District.*

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Introduction

Located in east-central British Columbia, the Robson Valley Forest District (RVFD) covered[1] approximately 1.4 million hectares including Mount Robson Provincial Park. The study region comprises three Statistics Canada Census Subdivisions including McBride, Valemount, and Fraser–Fort George Subdivision B.[2] Lying within the Rocky Mountain Trench, the RVFD contains unique communities highly dependent on the natural features of the region. The region is surrounded by mountains and consists of a primarily forested land base. As a result, forestry is one of the dominant industries in the region. The unique features of the region also offer diverse recreational opportunities, including hiking, hunting, snowmobiling, heliskiing, and other recreational pursuits. Agriculture, tourism, and the public sectors also make a substantial contribution to the economy of the area. However, industrial and recreational interests have the potential to overlap on a fixed land base and co-operation is required to ensure that the optimal use of limited resources is achieved.

In April of 1999, the British Columbia Cabinet approved the Robson Valley Land and Resource Management Plan (LRMP) (B.C. Ministry of Sustainable Resource Management 1999). The purpose of the LRMP is to use consensus-building objectives and shared decision-making processes to provide representatives from community, government, industry, and Aboriginal groups at the sub-regional level the opportunity to create a plan for the management and use of the Crown land in the Timber Supply Area (TSA). While considering the various land and resource interests and applying the Provincial Land Use Strategy, members of interest work to achieve goals in the areas of the economy, environment, biodiversity, cultural heritage, recreation, sustainability, and visual quality. Each of the 23 resource management zones in the RVFD are assigned to one of the five categories displayed in Table 1 (B.C. Ministry of Sustainable Resource Management 1999).

Human demands on the landscape are increasing the need to examine complex trade-offs from a regional planning perspective. In addition to environmental concerns, sustainable development requires examination of economic and social concerns (e.g., community sustainability). Policies designed to reduce user conflicts and promote sustainable development require a detailed description of the current level of economic activity on the land base and the current state of the communities located within the region. This task is often complicated by a lack of access to regional socio-economic data.

Policies designed to promote sustainable development require a detailed description of the current level of economic activity on the land base.

Readily available data exists in the form of Statistics Canada census reports. This data includes indicators, such as employment, educational attainment, household income levels and distribution, population levels, and real estate values. Alternatively, input-output tables containing detailed transactions (and levels of activity) within an economy exist only at the national and provincial level. In the United States, small area databases exist that mechanically transform state-level input-output tables into county tables; however, these "off-the-shelf" approaches are not available in Canada.

Survey data collection techniques are frequently employed when gaps in secondary data exist. In many instances, survey approaches provide the most reliable, up-to-date information available. However, survey approaches are also expensive in terms of money and time. For the purpose of this study, a hybrid approach to data collection was adopted that used both targeted primary surveys and secondary data sources.

The purpose of this report is to present the results of a hybrid approach that collected, compiled, and organized data relevant to the economy of the RVFD.[3] This report contains baseline regional level data for

1 Following the 2002 B.C. Ministry of Forests reorganization, the Robson Valley Forest District (previously part of the Prince George Forest Region) has been combined with the Clearwater Forest District to become the Headwaters Forest District of the new Southern Interior Forest Region.

2 Fraser–Fort George Census Subdivision B consists of the rural area and all smaller communities outside of McBride and Valemount that comprised the previous Robson Valley Forest District.

3 The economic overview discussed in this paper was funded under the Robson Valley Enhanced Forest Management Pilot Project (EFMPP)—an initiative intended to further the partial-consensus results of the LRMP. In addition to addressing some of the unresolved issues pertaining to the LRMP, the EFMPP is also intended to develop new or enhance existing forest management processes or tools.

TABLE 1. Resource management zones in the Robson Valley Forest District (RVFD) designated by the Robson Valley Land and Resource Management Plan (B.C. Ministry of Sustainable Resource Management 1999)

Resource Management Zones	Description of zones	% RVFD land base
Resource Development Emphasis	Concentrated development of resources (timber, minerals)	31.4
General Resource Management	Area managed for various values (wildlife, recreation, timber)	19.3
Special Management	Conservation of a particular resource (water, habitat, recreation, scenery)	24.0
Settlement and Agriculture	Main valley floor of Rocky Mountain Trench	4.9
Protected Areas	New protected areas (4.9%), Mt. Robson and Terry Fox Provincial Parks (15.5%)	20.4

traditional indicators of the state of the economy and for the construction of a regionally specific economic impact model to simulate future indicator levels. This study was conducted in conjunction with another study examining indicators of community sustainability in the Robson Valley (see Parkins *et al*. 2004). A detailed description of the dominant sectors in the RVFD economy is provided, including the forestry, visitor, agriculture, and public sectors. Formal and informal surveys were conducted in the industrial sectors and these are discussed on a sector-by-sector basis. Within the visitor sector, details of several individual studies are reported, including a visitor expenditure study, a visitor employment study, a snowmobile user survey, and a survey of heliski operators. The final section summarizes the details contained in the report.

Forestry Sector

The RVFD is composed of the Robson Valley Timber Supply Area[4] (TSA) (1 236 227 ha) and Mt Robson and Terry Fox Provincial parks (223 000 ha). Twenty-six percent of the TSA (321 419 ha) has been designated as environmentally sensitive, wildlife habitat, areas of low productivity or unmarketable product, inaccessible, or valuable recreation land. The remaining 74% (914 808) is potentially available for harvesting. However, only 43% (531 578 ha) of the total TSA is productive forest managed by the B.C. Ministry of Forests. Of the other 31%, 14.5% has been allocated for harvest and a further 2.5% is designated as "not satisfactorily restocked" (NSR)[5] and is not available for harvest at this time; a further 14% has been allocated for future timber harvesting and as such is not considered in the amount currently available for harvest (B.C. Ministry of Forests 2000).

Allowable Annual Cut

The allowable annual cut (AAC) is the maximum amount of timber that can be cut each year on a sustainable basis. The current AAC for the RVFD, 602 377 m^3, includes coniferous (99%) and deciduous (1%) trees. The coniferous component is 596 377 m^3, of which 371 458 m^3 is held by forest licenses. The remaining 224 919 m^3 is divided among smaller claims including the Small Business Forestry Enterprise Program (SBFEP), Woodlot Licenses, Forest Service Reserves, Non-Replaceable Licenses, and Timber Sale Licenses greater than 100 000 m^3. The 6000 $m^3$of deciduous forest is held by the SBFEP.

Historical information indicates that the total AAC is often not completely harvested. This is due to "Cut Control," a provision that allows licensees to fluctuate harvest volumes in response to market conditions and operating costs. Volumes may fluctuate by 50–150% of the AAC in any year and between 90% and 110% of the total AAC in a 5-year period (B.C. Ministry of Forests 2000). In 2000, the following volumes were billed: 244 635 m^3 to Forest Licensees; 82 425 m^3 to SBFEP; and 8333.9 m^3 to woodlots (Helena Adamowicz, B.C. Ministry of Forests, pers. comm., May 2001).

4 The Robson Valley TSA used in this analysis is TSA No. 17.
5 Not satisfactorily restocked (NSR) as defined by the TSA Analysis 2000 report is: "Area not covered by a sufficient number of well-spaced tree stems of desirable species. Areas harvested prior to October 1987 and not yet sufficiently stocked according to standards are classified as backlog NSR. Areas harvested or otherwise disturbed since October 1987 are classified as current NSR."

TABLE 2. Employment in forest-related industries in the Robson Valley Forest District (Statistics Canada 1996a)[a]

Census subdivision	Logging	Forest services	Wood	Total
Valemount	80	—	75	155
McBride	25	10	25	60
Fraser–Fort George Subdivision B	140	15	165	320
Total	**245**	**25**	**265**	**535**

[a] Census data is reported by location of residence rather than location of actual employment, thus forest sector employees who live in the region, but work outside the region is captured. It is also only reports the respondent's primary occupation, and the numbers do not distinguish between full-time, part-time, year-round, and seasonal employment.

TABLE 3. Average incomes ($) in forest-related industries within the Robson Valley Forest District (Statistics Canada 1996a)

Census subdivision	Logging	Forest services	Wood	Total
Valemount	26 830	—	33 973	30 268
McBride	20 231	48 534	48 068	36 545
Fraser–Fort George Subdivision B	37 767	34 115	31 348	34 286
Total	**32 406**	**39 879**	**33 668**	**33 381**

Employment

Twenty-five percent of the total labour force in the RVFD over the age of 15 was employed by forest-related industries in 1996[6] (Statistics Canada 1996a). Table 2 reveals that the RVFD employs 535 people in forest-related industries, and that Fraser–Fort George Subdivision B supports the most forest-related employment. Statistics Canada reports primary employment positions rather than gross employment or full-time equivalent positions. In 1999, the British Columbia Ministry of Finance and Corporate Relations released a document indicating that 36.8% of the labour force in the Robson Valley TSA is supported by forestry-related employment (B.C. Ministry of Finance and Corporate Relations 1999). The 2000 Timber Supply Analysis states that between 1996 and 1998, silviculture and harvesting provided 171 person years of employment in British Columbia, while processing provided 315 person years of employment. These numbers are based on an annual average harvest of 483 027 m^3.

Income

In 1996, the total income earned in the RVFD was $17.9 million. This is broken down into average yearly incomes per subdivision and industry in Table 3. Although the forest service industry provides the highest paying jobs, few individuals are employed in this industry and the forest service industry appears absent from Valemount. Overall, the highest average income is provided by the forest service industry, followed by the wood industry and the logging industry. On a community basis, McBride provides the highest overall average incomes ($36 545), followed by Fraser–Fort George Subdivision B ($34 286) and Valemount ($30 268). The overall average forest sector wage for the RVFD, estimated from the 1996 census, is $33 381. The updated 2001 income figures were not available at the time of this study. However, the estimated average annual income for those working directly in the forestry, logging, and support category in British Columbia between August 2000 and July 2001 was $46 975 before taxes and deductions (Statistics Canada 2001c) and will be used as the basis for comparison with our survey estimates.

Table 4 compares the 1996 RVFD employment and income estimates to the provincial estimates. It shows that relative to the province, average incomes provided by the logging industry in the RVFD are much lower,

[6] This number does not capture those who work in forest-related fields, but are classified under a different heading, such as transportation or government services.

TABLE 4. Average income and total employment for the RVFD and British Columbia (Statistics Canada 1996a)

Industry	Average income ($)		Total employment (%)	
	RVFD	Province	RVFD	Province
Logging	32 406	41 637	45.8	29.8
Forest services	39 879	28 836	4.7	15.0
Wood	33 668	37 874	49.5	55.1
Overall industry	**33 381**	**37 637**	**100.0**	**100.0**

while average incomes provided by the forest service industry are much higher. Despite the low average income in the logging industry, the RVFD supports about two-thirds more of its total forest-related employment in this industry than the province does, but it supports only 4.7% of its forest-related employment in the forest service industry—less than one-half of the province's employment percentage in this industry. Income and employment estimates for the wood industry are relatively similar for the RVFD and the province as a whole.

Based on 1996 census data, the Canadian Forest Service has estimated forest dependency ratios for communities across Canada. These ratios attempt to estimate the percent of total personal income derived from the forest industry. The figures for Valemount, McBride, and Fraser–Fort George Subdivision B are 63.59%, 55.55%, and 98.4%, respectively; this suggests that, in each community, forest sector income dominates the economic base (Socio-Economic Research Network 2001). If a community's dependency ratio for an industry is 50% or more, that community is assumed to be dependent on that particular industry.

Forestry Survey Results

On June 20, 2001 a forest industry questionnaire was provided to 21 forest companies in the RVFD, and a response rate of 38% was achieved. The following summary is based on eight usable surveys.

Respondents generally felt that the RVFD's economy was stable or growing, but that McBride is not experiencing the same growth as Valemount. It is believed that tourism offers the potential for growth; however, many expressed concern over the low wages earned in tourism-related jobs. Other sectors identified as potential areas for growth were mining, non-timber forest products, secondary or value-added manufacturing, and the log home industry. Bureaucracy and intervention of government were identified as constraints to growth. Many expressed a desire for comprehensive long-term planning to ensure minimal conflicts between the forestry sector and other sectors relying on healthy forests. The potential for future reductions in the annual allowable cut was expressed as a great concern. Other concerns were for forest health (mountain pine beetle) and saturation in the lumber market.

The forest industry's main interactions are with the transportation sector (railway and trucking), service sector (accommodation and restaurants), retail sector (repair and maintenance, industrial suppliers, and manufacturing), and government. Between 1998 and 2000, approximately 25% of respondents' business expenditures occurred within the RVFD, and approximately 80% of products were sold outside of the region.

Based on the 2000 survey, direct gross employment (including full-time and part-time or seasonal jobs) in the forest industry was 574, relatively close to the number of primary jobs reported by Statistics Canada in 1996, (535). The total value of sales was $74 074 769 and wages for the industry totalled $36 720 089. On average, employees earned approximately $64 007 per year. The forest industry contributed $11 849 458 in stumpage fees and $2 306 689 in taxes and fees. These numbers have been adjusted for usable surveys. To derive an estimate for the portion of the industry that has not been accounted for (62%), each number has been multiplied by 2.63 (i.e., 1 ÷ 0.38) to find the RVFD industry numbers. Note that these estimates are a reflection of the companies that responded, and that the size of responding companies may influence the estimates. It is also possible that the survey estimate includes the value of employee benefits beyond the actual amount of wages paid. In addition, managers were included as forest sector employees and not separated from other forms of employment such as logging. These factors may explain why the estimated average forest industry salary is much higher than that estimated by Statistics Canada ($46 975).

Forestry in the Robson Valley Forest District remains the most important sector in terms of employment and income.

Visitor/Recreation Sector

The visitor sector is an important contributor to the economy of the RVFD. It is second only to the forestry sector in terms of employment and value of sales. Within the last 50 years, rural resource-dependent communities have increasingly incorporated tourism into their economies (English *et al.* 2000). The importance of visitors to a region cannot simply be defined as tourism. The definition of tourism is often vague as it may be considered as distance travelled, number of nights away from home, purpose of trip, or some variation or synthesis of all three (Wellstead *et al.* 2000). To avoid potential ambiguity, this study follows the Wellstead *et al.* (2000) methodology of using the term "visitors." This term allows the focus of the study to be broadened to include not only "tourists," but also those travelling for business and personal reasons.

Visitor expenditures and employment must be examined to understand the contribution of the visitor sector. The visitor expenditure section (below) estimates the amount of visitor dollars spent in the area by examining various secondary sources, such as accommodation, restaurant, and camping expenditure studies conducted in the area. The visitor employment section uses primary data to estimate employment ratios, employment levels, and wages. Unlike other industrial sectors, the visitor sector is unique in that it is composed of numerous other sectors and does not exist alone. For example, both visitors and locals may purchase gasoline while in the region. Separate services are not provided for visitors and locals. Compared to other sectors, little data exists that is unique to visitors. As a result, a higher level of effort is required to understand and document the visitor sector. The following sections summarize several studies that detail the visitor sector.

Visitor Expenditure Study

Accommodation Expenditures

Estimated revenues from accommodation establishments in Valemount were obtained from the Corporation of the Village of Valemount. The numbers were based on 11 establishments, which included inns, lodges, hotels, and motels.[7] Revenue information was broken down into summer and winter. The total expenditure estimate for Valemount accommodation was $4 040 319. A Canadian Travel Survey profile for the Census Division that includes the Robson Valley was acquired from Statistics Canada (1999). To find the portion of revenue related to a specific trip purpose, the percentages associated with trip purpose of those staying in accommodation in the Canadian Travel Profile were applied to accommodation revenue in Valemount. Valemount revenues were broken down such that: $783 821 was spent by visiting friends,[8] $925 233 was spent for pleasure,[9] $679 177 was spent for personal reasons or reasons not stated,[10] and $1 672 692 was spent for the purpose of business or conventions.[11]

The Village of McBride does not collect accommodation revenue; therefore, an estimate of total revenue was generated by applying the average summer and winter occupancy rates to the seven accommodation establishments in McBride.[12] The following formula was used:

Sum (occupancy rate × number of season days × average price per room)

The formula estimates that summer revenue is $630 526 and winter revenue is $490 217 (annual total is $1 120 744). Again, the percentages from the Canadian Travel Survey associated with trip purpose can be applied to McBride's annual total to distinguish the portion of revenue associated with stays in accommodation establishments. Expenditures for accommodation in McBride totalled $217 424 for those visiting friends, $256 538 for those visiting for pleasure, $459 505 for those on business or attending conventions, and $188 397 for those visiting for personal reasons or reasons not stated. The accommodation industry in McBride is considerably smaller than that in Valemount, making up only 22% of the accommodation revenues in the RVFD.

Restaurant Expenditures

Partial restaurant expenditure information was available from the Village of Valemount. To estimate restaurant expenditures for Valemount and McBride, Statistics Canada's Restaurant Caterer and Tavern Statistics (2001b) were used. Restaurants are divided into five categories: full-service restaurants, limited-service

7 Valemount has 15 bed and breakfasts; however, revenue information is unavailable on these establishments.
8 Main purpose is to visit friends and (or) relatives, even if participating in other events while on the trip.
9 Main purpose is to shop, sightsee, or attend a sporting event, concert, movie, or festival.
10 Main purpose is to attend a job interview, funeral, or keep a doctor, dentist, or lawyer appointment.
11 Main purpose is to attend business meetings, conferences, seminars, training, inspecting, consulting, or convention.
12 McBride has three bed and breakfasts; however, revenue information is unavailable on these establishments.

restaurants, food service contractors, social and mobile caterers, and drinking establishments. Receipts are collected monthly using direct, sampling, and mandatory surveys. Information is collected via telephone in each region and reported to the head offices.

For the purpose of this overview, a list of establishments in each category in the Robson Valley was compiled using the Internet and community profiles. Multiplying the number of restaurants in each category by the provincial expenditure estimate derives an estimate of restaurant expenditures. McBride's dining guide includes six full-service restaurants and two limited-service restaurants for a total estimated expenditure of $4 770 176. Valemount has six full-service restaurants, two limited-service restaurants, and two drinking establishments for a total estimated expenditure of $6 057 597. The estimated total for the two communities is $10 827 773.[13]

Camping Expenditures

Three types of campgrounds exist in the RVFD, including Forest Service recreation campgrounds, private campgrounds, and Provincial Park campgrounds. Because of infrequent patrolling of campgrounds, user numbers provided by the RVFD are speculative; however, at present it is the best information available. Estimates for the area indicate that 1108 user nights were spent in Forest District campgrounds between May and September of 2000. If multiplied by $8 (the cost of a one-night pass), the total camping revenue for the season would be $8864 (Elaine Gillette, Robson Valley Forest District, pers. comm., June 2001).

The Robson Valley has nine campgrounds with 421 tent and recreational vehicle sites. An informal survey of campground operators was conducted with a response rate of 56%. The occupancy rate from April to September was estimated at 27%, for a total camping expenditure of $212 389.

Overnight camping is available in Mount Robson Provincial Park, but not Terry Fox Provincial Park. Mount Robson has three frontcountry campgrounds with a total of 178 campsites and one backcountry campground with 103 sites. For the 2000 camping season, which extended from mid-May to October, 11 636 nights were spent in the frontcountry and 4161 nights were spent in the backcountry. Camping in the frontcountry costs $12.50, group camping costs $17.50, and backcountry passes are $5. Campers spent an estimated $188 956 on frontcountry camping and $20 805 on backcountry camping, for a total of $209 761 (B.C. Ministry of Environment, Land and Parks 2001).

When the revenues from Forest Service campgrounds, private campgrounds, and Provincial Park campgrounds are combined, the total expenditure on camping in the RVFD in 2000 was $431 014.

Results from the accommodation, restaurant, and camping expenditure studies are summarized in Table 5.

Visitor-Related Employment Survey[14]

A mail-out survey was used to collect data concerning visitor-related employment in the Robson Valley. Because of the small visitor-related business population in the RVFD, we chose to include all visitor-related businesses rather than attempt a random sample. Each business was assigned to one of five categories (i.e., accommodation and restaurants, service stations, tours and transportation, retail, and other). A total of 169 surveys were mailed to businesses on August 10, 2000, of which 140 were returned for an overall response rate of 85.8%. The survey asked employers to reveal how many people they employed in a typical year, in both full-time and part-time positions. It also asked for the average number of hours that employees worked per week and whether employees were seasonal or year-round. Local residents, as well as visitors, patronize many of the businesses in this survey; thus, respondents were also asked to estimate the percentage of their revenue derived from sales to visitors. Answers to this

TABLE 5. Expenditures ($) by visitors in the RVFD, 2000

	Valemount	McBride	Total RVFD
Accommodation	4 040 319	1 120 743	5 161 062
Restaurant	6 057 597	4 770 176	10 827 773
Camping	—	—	431 014
Total	**10 097 916**	**5 890 919**	**16 198 596**

[13] The authors recognize that, at first glance, the estimates seem large; however, evidence suggests that these numbers are reasonable: one restaurant in the area brings in approximately $1 000 000 per year and snowmobilers spend approximately $790 823 per year. Numbers are based on provincial averages, which may not reflect rural expenditures accurately.

[14] This section of the report is based on the methodology of Wellstead *et al.* 2000.

question allowed for the creation of visitor-related employment ratios for each category of visitor-related business. These ratios were then applied to the statistics calculated in this study to determine an estimate of the number of employees and wages derived from visitor expenditures.

Visitor-Related Employment Ratios

To determine the size of the visitor sector, a visitor-related employment ratio was calculated that estimates the proportion of sales attributed to purchases by visitors. Businesses that serve visitors also cater to residents; therefore, calculating this ratio allows us to distinguish between employees needed to serve visitors and those needed to serve residents. The visitor-related employment ratio for the Robson Valley is an estimated 57%, which can be interpreted as the percentage of employment that is based on the expenditures of visitors. This number can be compared to the 74% employment ratio derived by Wellstead *et al.* (2000) for the Foothills Model Forest (FMF). The difference in visitor-related employment ratios between the two studies is likely because the FMF study included the town of Jasper. As tourism is its major sector, Jasper requires a large number of employees to serve visitors, in contrast to forestry-dominated Valemount and McBride.

The visitor-related employment ratios for each sector are displayed in Figure 1. Eighty-four percent of year-round positions are required to serve visitors in the tours and transportation category in Valemount, compared to only 40% in McBride. In the four remaining categories, the differences between the communities are less striking. Both McBride (79%) and Valemount (80%) have employed the majority of restaurant and hotel staff based on visitor dollars. However, the expenditure estimates developed in the previous section (see "Visitor Expenditure Study") indicate that visitors are responsible for nearly 97% of expenditures on restaurants and hotels (which should indicate that 97% of employment is based on visitor dollars). This may be attributed to an error in respondents' estimates of revenue generated from visitors, or the authors' methods of estimating restaurant and accommodation expenditures. In McBride, the restaurant and hotel sector is the main source of visitor-related employment, while in Valemount it is the second most important source.

These results differ from results obtained by Wellstead *et al.* (2000), in which the town of Jasper's visitor-related employment accounted for the majority of positions in all categories. However, owing to Jasper's reliance on tourism, a more appropriate comparison may be the town of

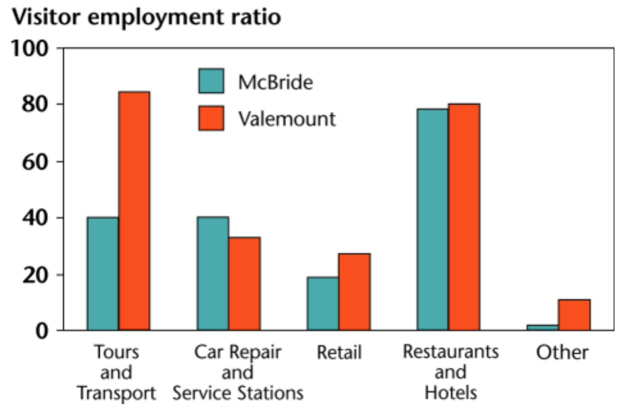

FIGURE 1. Percentage of visitor-related employment by industry and location, 2000

Hinton, also located in the FMF, studied by Wellstead *et al.* (2000). The resource sector in Hinton is the primary source of employment; it is also similar to the communities in our study in that tours and transportation (50.5%) and restaurants and hotels (65.7%) are the only categories in visitor-related employment accounting for over 50% of positions (Wellstead *et al.* 2000).

Employment

The number of people employed in the visitor sector is calculated by multiplying the average estimated visitor-related employment ratio by the adjusted total number of employees. This method was used for both year-round employees and seasonal employees. The total number of employees in the Robson Valley, including all full-time, part-time, year-round, and seasonal positions, was estimated at 901. This means that a total of 901 employment positions exist across the tours and transportation, car repair and service station, retail, restaurant and hotel, and other service industries, and includes employment that is dedicated to domestic expenditures and visitor expenditures. When the visitor-related employment ratio is applied to each category of business in the RVFD, the number of employees required specifically for visitors is 514 (901 multiplied by 0.57). This number is based on the total number of visitor sector positions and does not translate to full-time equivalent positions; therefore, employees with multiple jobs may result in double counting. Valemount employs 64.4%, or 329 of the RVFD's visitor-related employment, while McBride employs 183 people, or 34% of the total employment (includes year-round and seasonal positions).

In the RVFD, restaurant and hotel employees make up the largest part of visitor-related employment, with McBride constituting 25% of RVFD visitor-related employment and Valemount constituting 41% (Figure 2 and 3). The tours and transportation industry is the second largest employer in Valemount; however, it is only the fourth in McBride. McBride's second most important visitor-related industry is retail, followed by service station and car repair, tours and transportation, and other (Figure 2). Valemount's third largest employers are retail, and car repair and service stations (Figure 3). The pattern of visitor-related employment in Valemount follows those previously observed by Wellstead *et al.* (2000) in the towns of Jasper and Hinton.

Table 6 displays the difference in the type of employment in each community. In both McBride and Valemount, full-time year-round positions are the most common. Full-time year-round jobs make up 37% of McBride's visitor-related employment and 36% of Valemount's. Both communities have similar percentages for seasonal employment: Valemount has 22% full-time seasonal, 29% part-time, and 12% part-time seasonal positions; McBride has 28% full-time seasonal, 26% part-time, and 10% part-time seasonal positions. Given that the majority of positions were part-time and seasonal, it was necessary to calculate the number of full-time equivalent positions by dividing the total number of hours worked per week by the full-time average workweek of 40 hours. The total number of "full-time equivalent" visitor-sector positions in the Robson Valley is 317. Of these positions, 65% or 208 positions are in Valemount and the remaining 35% or 110 positions are located in McBride.

Visitor-related Wages

Wages for communities, industries, and visitor-sector employment types were calculated using average hourly wages in British Columbia obtained from Statistics Canada. A summary of total wages in the Robson Valley can be found in Tables 7 and 8. Overall, the average annual full-time employment salary in Valemount is $25 462, and $21 331 in McBride. Although the full-time

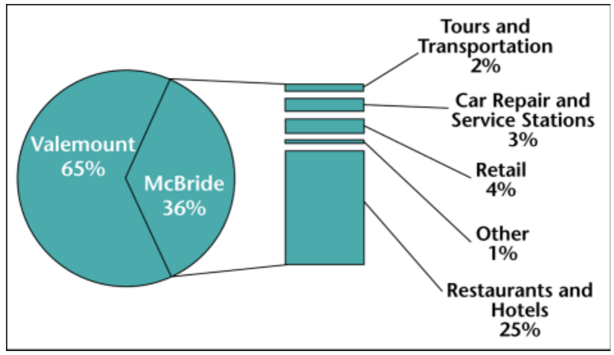

FIGURE 2. Full- and part-time employment by industry in McBride's visitor sector, 2000

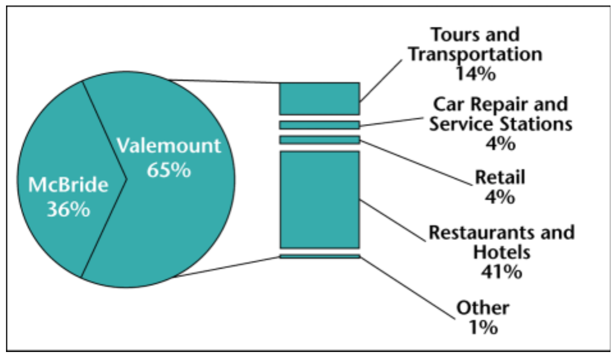

FIGURE 3. Full- and part-time employment by industry in Valemount's visitor sector, 2000

TABLE 6. Type of employment in RVFD's visitor sector, 2000

	Full-time Year-round	Part-time Year-round	Full-time Seasonal	Part-time Seasonal	Total
MCBRIDE					
Number	68	53	42	22	185
Percentage	37	29	22	12	100
VALEMOUNT					
Number	118	85	93	33	329
Percentage	36	26	28	10	100

TABLE 7. Total and average wages ($) for visitor-related employment in Valemount, 2000

Industry	Full-time				Part-time			
	Total wages	Total employees	Average wage	Average weekly wage	Total wages	Total employees	Average wage	Average weekly wage
YEAR-ROUND								
Tours and transportation	1 350 656	31	42 916	825	33 831	5	6 235	120
Car repair and service stations	406 229	13	30 558	588	66 768	5	14 503	279
Retail	389 879	12	33 644	647	81 178	8	9 574	184
Restaurants and hotels	2 444 464	59	41 653	801	787 057	65	12 031	231
Other	107 236	3	34 399	662	40 124	1	45 048	866
Subtotal	**4 698 464**	**118**	**36 634**	**704**	**1 008 958**	**85**	**17 478**	**336**
SEASONAL								
Tours and transportation	615 680	33	18 911	757	49 906	4	13 935	787
Car repair and service stations	6 986	0	19 727	765	0	0	0	0
Retail	3 952	1	6 991	267	4 477	3	1 760	174
Restaurants and hotels	674 789	59	11 498	464	145 893	26	5 616	248
Other	12 754	1	14 319	625	2 007	1	2 254	248
Subtotal	**1 314 162**	**93**	**14 289**	**575**	**202 284**	**33**	**4 713**	**291**
RVFD Total	**6 012 626**	**211**	**25 462**	**640**	**1 211 242**	**118**	**11 096**	**314**

TABLE 8. Total and average wages for visitor-related employment in McBride, 2000

Industry	Full-time				Part-time			
	Total wages	Total employees	Average wage	Average weekly wage	Total wages	Total employees	Average wage	Average weekly wage
YEAR-ROUND								
Tours and transportation	51 017	2	32 932	633	0	0	0	0
Car repair and service stations	327 712	10	31 713	610	68 905	5	14 548	280
Retail	397 823	11	37 301	717	53 922	6	9 750	188
Restaurants and hotels	1 199 928	43	27 655	532	606 251	40	15 304	294
Other	57 825	2	30 069	578	41 299	3	15 301	294
Subtotal	**2 034 304**	**68**	**31 934**	**614**	**770 377**	**53**	**10 981**	**211**
SEASONAL								
Tours and transportation	108 980	6	17 587	883	13 872	4	3 828	337
Car repair and service stations	17 889	1	13 849	322	0	0	0	0
Retail	9 065	1	6 556	730	5 950	4	1 585	134
Restaurants and hotels	516 662	33	15 650	755	70 341	14	4 972	285
Other	0	0	0	0	0	0	0	0
Subtotal	**652 596**	**8**	**10 729**	**538**	**90 163**	**22**	**2 077**	**151**
RVFD Total	**2 686 900**	**76**	**21 331**	**576**	**860 540**	**74**	**6 529**	**181**

wages are comparable between the two communities, the average part-time annual wage is nearly 50% higher in Valemount than in McBride. The majority of this difference is attributed to Valemount's larger tours and transportation industry, as well as the existence of other industries in the community. In both Valemount and McBride, the year-round tours and transportation industry jobs pay the highest average annual wages; however, the wage is considerably higher in Valemount.

Estimated total visitor-sector wages for the Robson Valley are $10 771 308. The estimated average annual wage per individual working in the visitor sector in the RVFD is $20 956 for 514 positions, including full-time year-round, full-time seasonal, part-time year-round, and part-time seasonal positions. Table 9 breaks this down by employment type. Table 10 breaks down important employment statistics by employment type. Average weekly wages in the forestry sector ($1230) are above the provincial average of $637 per week, while the visitor sector is significantly less, with a weekly average of $404.

Average weekly wages differed between Valemount and McBride for each industry. In McBride, those working in the retail category earned the highest full-time year-round weekly wage ($717), while in Valemount the highest full-time year-round weekly wages were earned by the tours and transportation industry ($825) (Tables 7 and 8).[15] The larger number of people in management positions[16] in Valemount can explain the difference in the average wages of the tours and transportation sector between Valemount and McBride. This also accounts for the higher average weekly earnings of those in the restaurant and accommodation industry in Valemount ($825) when compared to McBride ($532).

TABLE 9. Wages ($) according to employment type and community, 2000

	McBride	Valemount
Full-time year-round	2 034 304	4 698 464
Full-time seasonal	652 596	1 314 162
Part-time year-round	770 377	1 008 958
Part-time seasonal	90 163	202 284
Total	**3 515 805**	**7 190 288**

TABLE 10. Average yearly wages ($) by employment type, 2000

		Wages	
Employment type	**No. employees**	**Total**	**Average**
Full-time year-round	186	6 732 768	36 194
Full-time seasonal	135	1 966 758	14 575
Part-time year-round	137	1 779 335	12 950
Part-time seasonal	55	292 447	5 364
Total	**513**	**10 771 308**	**17 271**

Snowmobiling

The Robson Valley is a major destination for alpine snowmobiling, one of the region's largest draws for winter recreation. In addition to trail use by local residents, snowmobiling attracts hundreds of groups of snowmobilers from outside the region every year. Haener (2001) summarized the results of a survey of snowmobilers in the RVFD. The report describes various aspects of snowmobiling use including number of users, the origin of users, and expenditures in the region.

According to Haener, approximately 88% of the visiting snowmobilers come from areas outside the study region. Only 2% of the snowmobile groups that responded originated from within the study region. Between 33% and 44% of the groups that visited Valemount and McBride came from Edmonton, making it the largest single market of snowmobilers to the RVFD. The vast majority of groups contained 2–4 people and "friends" was the predominant group type. On average, visiting groups stayed 3.1 days to snowmobile in the McBride area, while visitors to the Valemount area stayed slightly longer, with an average of 3.7 days. Very few groups stayed longer than 7 days. Only 13% of respondents reported that this was their first trip to the region, as most respondents had snowmobiled in the region at least once in the last 5 years. Renshaw is by far the most popular trail reported in the McBride area, and Allan Creek and Clemina Creek shared trail popularity in the Valemount area.

[15] Wages do not include gratuities. Social norms dictate that a gratuity of 10–20% of the bill is adequate. Wellstead *et al.* (2000) used 15% as a standard gratuity.

[16] Owners included themselves as managers in this survey.

Over 2000 groups visited the RVFD for the purpose of snowmobiling—estimates of use from Haener suggest that 925 groups visited McBride trails and 1117 groups visited Valemount trails in the 2001 season. On average, McBride riders spent $84 per day per person and Valemount riders spent $85 per day per person. This equates to $1295 per trip by groups visiting McBride trails and $1585 per trip by groups visiting Valemount trails. The majority of expenditures were for on accommodation and restaurant meals. This suggests that a large portion of money spent on snowmobiling is spent within the RVFD region. Fuel expenditures are also large; however, it was not determined where fuel expenditures are made. Combining average expenditure estimates with the number of groups visiting the region to snowmobile provides an estimate of the total contribution of snowmobilers to the local economy. An estimated $2 968 265 was spent in the region by snowmobilers in 2001 (Haener 2001). Of this total, 99% is derived from visitors to the region and local residents generate 1%.

Heliskiing

Interviews with heliski companies in the RVFD provided the information presented here. Four heliski companies are located in the RVFD, including Canadian Mountain Holiday Inc., Crescent Spur Helicopter Holidays Ltd., Robson Helimagic, and Mike Wiegele Backcountry Heli-skiing and Boarding. Three of the four companies responded to our request for interviews. Each company is granted "License of Occupation" land tenures through the provincial government for a period of 20 years with a review every 5 years. Multiple licenses can be granted for the same area of land. Companies are responsible for devising management plans that consider regulations involving fuel, wildlife, and flight lines.

Sectors with which the heliski operators interact include the service industry (restaurants and accommodation), transportation industry (aviation), forest industry, government (local and provincial), and other helicopter skiing companies. Between 1996–2000, approximately 67.5% of the expenses incurred by operators originated within the RVFD, and about 99.3% of the clients purchasing heliski holidays originated from outside of the RVFD.

Respondents to the heliski interviews felt that a shift toward tourism and recreation-related industries may be spurred by a reduction in the area's forestry. Snowmobiling, a ski destination, and urban planning in McBride were identified as likely to increase tourism in the region. Industry operators felt that growth of the existing companies would occur; however, additional companies could result in overcrowding of the industry because of the finite availability of large tracts of land required for good quality heliskiing. Opportunity for growth may also exist in snow-cat skiing, which requires less land. Summer activities, such as helihiking and mountaineering, offer potential growth that can extend business to all seasons of the year. Overseas marketing of "package trips," such as cultural and multi-sport trips, is another opportunity for potential growth in the industry.

Three main constraints to growth of the industry were identified as: security of tenures, restricted access to parkland, and lack of regulation over snowmobiling. Other restrictions included access to the Robson Valley via air, incompatible forestry practices, and obtaining tenure for summer activities.

Direct employment in the heliski industry remained stable at approximately 67 individuals per year over the period of 1996–1998. Direct employment increased to 69 individuals in 1999 and the heliski industry employed approximately 71 individuals in 2000. Total expenditures by individuals on heliskiing in the RVFD in 2000 were $10.7 million. Of this amount $2.6 million accounted for the annual wage bill of the industry. On average, individuals employed in the heliski industry earn approximately $36 170 per ski season.[17] The 2000 ski season consisted of over 7700 skier days in the region resulting in nearly $40 000 worth of skier user fees. A summary of the heliskiing statistics is displayed in Table 11.

TABLE 11. Summary of Robson Valley heliskiing industry statistics, 2000

	No. Employees	Visitor expenditure ($)	Wage bill ($)	Average wage ($)	Skier days	Skier user fees ($)
Heliskiing Industry	71	10 700 000	2 600 000	36 170	7700	40 000

[17] A large amount of employment is seasonal and the wages earned may not accurately reflect the total annual earning potential of seasonally employed individuals.

The visitor sector supplies the region with the second highest number of jobs, and generates the second highest amount of revenues.

Hunting and Trapping

British Columbia's impressive wilderness makes it a popular destination for hunters. The RVFD is located in the Omineca-Peace Region.[18] This area is most recognized for its moose hunting; however, other species include black bear, grizzly bear, mountain goat, and stone sheep. Less commonly hunted species include bighorn sheep and elk.

There were 2035 resident hunters in the Robson Valley in 2000.[19] The majority hunted moose (789) and deer (1058) (Lynne Damant, Guide Officer, B.C. Ministry of Water, Land and Air Protection, pers. comm., October and December 2001). Resident hunters spend an average of 7 days a year hunting in the RVFD, which amounts to an estimated 14 245 days. In 2000, the Robson Valley hosted 126 international and national non-resident hunters[20] of which 53 were black bear hunters and 24 were moose hunters. These non-resident hunters spent between 5 and 10 hunter days in the Robson Valley for a total of 729 hunter days.

In British Columbia regulations insist that non-resident hunters are accompanied. Licensed guides must accompany big game hunters who are not Canadian citizens; Canadian citizens who are not residents of British Columbia must hunt with a British Columbia resident who holds a permit (British Columbia Wildlife Federation 2001). The Robson Valley has six outfitters who act as guides for resident and non-resident hunters. Clients will spend from $5000 to $15 000 for a guided hunting trip (Lynne Damant, Guide Officer, B.C. Ministry of Water, Land and Air Protection, pers. comm., December 2001).

Approximately 66 trappers were working in the Robson Valley between 1985 and 2000. It is not clear how many trap lines are actually located in the valley as some trappers operate on private property and do not have a registered trap line. The approximate cumulative total value of trapping over the period of 1985 to 2000 was $847 459 (constant 2000 dollars). Little First Nations trapping occurs in the Robson Valley (Mike Badry, Commercial Use Biologist, B.C. Ministry of Water, Land and Air Protection, pers. comm., August 2000).

Artisan Community

The RVFD has a developing artisan community. This sector consists of a diverse group working in wood crafting, beadwork, photography, quilting, needlepoint, and pottery. Painters in the area work in oil, acrylics, and watercolor (Sheilagh Foster, Principal, Dunster Fine Arts School, pers. comm., March 2002). As this sector of the economy grows, it offers the potential to attract visitors to the area. An estimate of the relative size of this sector was not available.

Public Sector

The public sector includes education, health, and all levels of government services. Table 12 gives a description of public sector employment and income in the RVFD. The total wage bill for the public sector is approximately $8 727 335. The average wage for an individual in the public sector is approximately $25 669. Average wages are between the visitor ($20 956) and forestry sectors ($46 975–64 007). In Valemount, the public sector includes the Royal Canadian Mounted Police (RCMP), the Health Care Centre, the Health Unit, a senior housing facility, the dental office, the elementary school, the senior secondary school, the library, a provincial government agency office, and the local government. In McBride, areas of employment for those in the public sector include: the RCMP, McBride and District Hospital, Robson Centre Medical Clinic,

Average wage in the public sector is the second highest at $25 669.

[18] Wildlife Management Units used in this study are 7-1, 7-2, 7-3, 7-4, 7-5. Due to the set area of Wildlife Management Units, the combined areas may be larger than the Robson Valley Forest District (B.C. Ministry of Water, Land and Air Protection 2003).
[19] Resident hunters are defined as "a hunter from British Columbia."
[20] Non-resident hunter is defined as "a hunter from a different province in Canada or foreign country."

TABLE 12. Public sector employment and average incomes in the RVFD (Statistics Canada 1996a)

	Government services		Education services		Health services	
	No. employed	Average income	No. employed	Average income	No. employed	Average income
Valemount	30	38 810	20	28 952	20	—
McBride	45	37 615	10	—	30	18 249
Fraser–Fort George	30	31 725	80	25 265	75	23 612

Robson Valley Home Support, a senior housing facility, McBride Dental Clinic, Northern Interior Health Unit, the elementary and high school, the library, and the offices of the B.C. Ministry of Forests, Ministry of Transportation, Ministry of Children and Families, and local government.

Agriculture Sector

A comparison of the 2001 census data to the 1996 data demonstrates a slight declining trend in the agriculture sector throughout the Robson Valley region. Although the total number of farms has remained relatively stable, increasing from 143 in 1996 to 144 in 2001, and the total area of farmland has increased from 22 083 ha to 25 695 ha (Table 13), gross receipts has decreased slightly (2.6% or $125 235). Changes in agriculture production in the valley have led to a reduction in employment in the sector from 160 in 1991 to 135 by 1996. The net farm income for farmers in the Robson Valley was $335 per week in 1996 (approximately $17 420 per year). The annual income amount equates to $19 145 in 2001 dollars. This is low relative to the provincial average for British Columbia of $479 per week. Total farm business operating expenses increased by nearly $500 000 between 1996 and 2001, but total weeks of paid labour and total rent or leasing expenses of land and buildings decreased. While the province experienced an increase in total gross receipts between 1996 and 2001, total gross receipts for the RVFD fell. This implies that the RVFD's share of provincial gross receipts decreased from 0.26% in 1996 to 0.20% in 2001. The only estimate of employment in agriculture available at the time of this study was 285 primary jobs, as reported in the 1996 Census. This number is for Fraser–Fort George Subdivision B, the rural census subdivision within the RVFD.

TABLE 13. Agricultural production and operation data (Statistics Canada 1996b and 2001a)

	RVFD		British Columbia		RVFD % of B.C. total	
	1996	2001	1996	2001	1996	2001
Total gross farm receipts ($)	4 732 844	4 607 609	1 839 216 758	2 307 697 089	0.26	0.20
Total farm business operating expenses ($)	4 549 441	5 046 919	1 661 721 704	2 088 607 363	0.27	0.24
Total rent or leasing expenses of land and buildings ($)	108 964	69 240	34 977 113	34 414 663	0.31	0.20
Total wages and salaries ($)	434 459	[a]	339 910 599	405 678 748	0.13	
Total weeks of paid labour (no. weeks)	1 297	846	709 376	776 892	0.18	0.11
Use of irrigation (ha)	215	315	115 374	111 181	0.19	0.28
% of total farm area under irrigation	0.97	1.23	4.56	4.3	21.34	22.56
Total area of farms (ha)	22 083	25 695	2 529 060	2 587 118	0.87	0.85

[a] Suppressed to protect confidentiality.

Informal interviews with local farmers indicated that a major reason for farming in the area is a love for the way of life. However, concerns were expressed that land is being sold to people from outside the region and non-farmers. One means by which farm operators survive is by working on a part-time basis and supplementing farm income through the winter months with forestry-related jobs (Deloitte and Touche Management Consultants 1995).

As indicated in Table 14, the majority (66%) (95 farms) of farms are between 70 and 559 acres in size. In 1996, only 55% (78 farms) of farms had this many acres. It appears that, for the most part, the number of farms having less than 129 acres or more than 760 acres decreased. The most common size of farm, 130–179 acres, did not change between 1996 and 2001, however 20% fewer farms reported this size in 2001 than in 1996. The most common size of farm in the province in both 1996 and 2001 was 10–69 acres. This was the second most common size of farm in the RVFD in 1996, but this size was far less common in 2001.

Table 15 breaks down the total number of farms according to total gross farm receipts. Total gross farm receipts have decreased in the RVFD, but the decrease does not appear to be specific to any particular value category. The greatest loss is in the $50 000–99 999 category where the number of farms reporting this amount has decreased from 9.8% of the RVFD to 4.9%. The number of farms reporting the next largest category decreased by nearly one-half. The majority of farms earned less than $50 000 per year in gross farm receipts in 2001.

Table 16 shows the breakdown of farms by farm type for those farms reporting total gross farm receipts greater than $2499. In 2001, the RVFD's agriculture sector was primarily composed of cattle (55%), field crops (18%), specialty farms (18%), and livestock combination farms (8%). Dairy farms fell by 4% between 1996 and 2001. The dairy producers are mainly located in the McBride-Dunster area and supply milk to Prince George. Beef operations are located throughout the valley on 45 grazing tenures integrated with forest management plans.

TABLE 14. Number of farms by farm area (Statistics Canada 1996b and 2001a)

	RVFD		British Columbia		RVFD % of B.C. total	
	1996	**2001**	**1996**	**2001**	**1996**	**2001**
Total number of farms	**143 (100) [a]**	**144 (100)**	**21 835 (100)**	**20 290 (100)**	**0.65**	**0.71**
Total area of farms (acres)	**54 568**	**63 494**	**6 249 444**	**6 392 909**	**0.87**	**0.85**
Under 10 acres	9 (6.3)	6 (4.2)	6 539 (30)	5 252 (25.9)	0.14	0.11
10–69 acres	23 (16.1)	12 (8.3)	7 731 (35.4)	7 418 (36.6)	0.30	0.16
70–29 acres	14 (9.8)	10 (7)	1 624 (7.4)	1 697 (8.4)	0.86	0.59
130–179 acres	24 (16.8)	30 (20.8)	1 629 (7.5)	1 662 (8.2)	1.47	1.81
180–239 acres	8 (5.6)	15 (10.4)	508 (2.3)	524 (2.6)	1.57	2.86
240–399 acres	19 (13.3)	20 (13.9)	1 125 (5.2)	1 110 (5.5)	1.69	1.80
400–559 acres	13 (9.1)	20 (13.9)	580 (2.7)	543 (2.7)	2.24	3.68
560–759 acres	17 (11.9)	11 (7.6)	496 (2.3)	460 (2.3)	3.43	2.39
760–1119 acres	8 (5.6)	12 (8.3)	532 (2.4)	485 (2.4)	1.50	2.47
1120–1599 acres	5 (3.5)	2 (1.4)	374 (1.7)	385 (1.9)	1.34	0.52
1600–2239 acres	1 (0.7)	1 (0.7)	272 (1.3)	258 (1.3)	0.37	0.39
2240–2879 acres	1 (0.7)	3 (2.1)	121 (0.6)	134 (0.7)	0.83	2.24
2880–3519 acres	0 (0.7)	1 (0.7)	79 (0.4)	76 (0.4)	0	1.32
3520 acres and over	1 (0.7)	1 (0.7)	225 (1)	286 (1.4)	0.44	0.35

[a] % of RVFD (or British Columbia) total is in brackets.

TABLE 15. Number of farms by gross farm receipts (Statistics Canada 1996b and 2001a)

	RVFD		British Columbia		RVFD % of B.C. total	
	1996	2001	1996	2001	1996	2001
Total number of farms	**143 (100)[a]**	**144 (100)**	**21 835 (100)**	**20 290 (100)**	**0.65**	**0.71**
Under $2 500	26 (18.2)	26 (18.2)	3 813 (17.5)	2 908 (14.3)	0.68	0.89
$2500–4999	22 (15.4)	25 (17.5)	4 443 (20.4)	4 097 (20.2)	0.50	0.61
$5000–9999	15 (10.5)	19 (13.3)	3 274 (15)	3 082 (15.2)	0.46	0.62
$10 000–24 999	31 (21.7)	35 (24.5)	3 413 (15.6)	3 426 (16.9)	0.91	1.02
$25 000–49 999	24 (16.8)	24 (16.8)	1 959 (9)	1 936 (9.5)	1.23	1.24
$50 000–99 999	14 (9.8)	7 (4.9)	1 533 (7)	1 464 (7.2)	0.91	0.48
$100 000–249 999	7 (4.9)	4 (2.8)	1 589 (7.9)	1 509 (7.4)	0.44	0.27
$250 000–499 999	4 (2.8)	6 (4.2)	1 006 (4.6)	879 (4.3)	0.40	0.68
$500 000 and over	0 (0)	0 (0)	805 (3.7)	989 (4.9)	0.00	0

[a] % of RVFD (or British Columbia) total is in brackets.

TABLE 16. Number of farms by farm type (Statistics Canada 1996b and 2001a)

	RVFD		British Columbia		RVFD % of B.C. total	
	1996	2001	1996	2001	1996	2001
Total	**117 (100)[a]**	**120 (100)**	**18 022 (100)**	**17 382 (100)**	**0.65**	**0.69**
Dairy	8 (6.8)	3 (2.5)	1 184 (6.6)	795 (4.6)	0.68	0.38
Cattle (Beef)	54 (46.2)	66 (55)	4 413 (24.5)	4 690 (27)	1.22	1.41
Hog	2 (1.7)	3 (2.5)	206 (1.1)	146 (0.8)	0.97	2.05
Poultry and egg	1 (0.9)	0 (0)	925 (5.1)	973 (5.6)	0.11	0
Wheat	1 (0.9)	0 (0)	119 (0.7)	62 (0.4)	0.84	0
Grain and oilseed (excluding wheat)	2 (1.7)	1 (0.8)	240 (1.3)	184 (1.1)	0.83	0.54
Field crop (excluding grain and oilseed)	13 (11.1)	18 (1.7)	1 621 (9)	1 808 (10.4)	0.80	1.0
Fruit	1 (0.9)	0 (0.8)	2 836 (15.7)	2 521 (14.5)	0.04	0
Miscellaneous specialty	27 (23.1)	18 (15)	4 784 (26.6)	4 775 (27.5)	0.56	0.38
Livestock combination	7 (6)	8 (6.7)	623 (3.5)	636 (3.7)	1.12	1.26
Vegetable	0 (0)	2 (1.7)	595 (3.3)	416 (2.4)	0.00	0.48
Other combination	1 (0)	1 (0.8)	476 (2.6)	376 (2.2)	0.21	0.27

[a] % of RVFD (or British Columbia) total is in brackets.

The agriculture sector employs a considerable number of people; however, it offers the lowest average annual wage and generates the lowest amount of revenue.

This productive and accessible Crown land is very important to the agriculture industry because it assures that productive grazing areas are available for herd production. Compared to the rest of the province, the RVFD appears to have a higher percentage of cattle, hog, and livestock combination farms.

Mining and Petroleum Sector

Historically, mining and petroleum exploration have not been major activities in the Robson Valley. However, recently the potential for a quartz silica mine has been identified by Card JM Resources. The pending mine is located 40 km from McBride on the Loos Road toward Crescent Spur. It is in the early stages of approval with consent for drilling and bulk sampling. Depending on the estimated production of the mine, it will go through a local mine development review and an environmental impact assessment. These processes could take between 1 and 3 years depending on the co-operation of the proponent and environmental sensitivity of the area. The silica has uses in the production of glass, silicon chips, silica metal, and landscaping material. It is expected that landscaping material will be sold locally while silica in a purer form will be sold nationally and internationally. The type of employment created in the Robson Valley will depend on the construction of processing facilities; however, employment in the mine would involve mechanics, machine operators, drillers, and blasters. The early stages of exploration indicate that the deposit is substantial with the potential to last over 10 years (David Pow, B.C. Ministry of Energy and Mines, pers. comm., November 2001).

Non-Timber Forest Products

Little harvesting of non-timber forest products (e.g., berries and mushrooms) occurs for commercial use in the RVFD. However, a Enhanced Forest Management Pilot Project (EFMPP) study (see Ehlers, Berch, and MacKinnon 2003) is assessing the potential for this type of forest use on a larger scale in the future. The researchers are looking at preferred species and the types of forest environments in which they thrive. A small harvest of pine mushrooms, morels "red tops," "brains," blueberries, and huckleberries occurs in the valley (Michèle MacNeil, Planning Officer, Robson Valley Forest District, pers. comm., November 2001).

Conclusion

The estimates for the year 2001 are summarized in Table 17. Forestry in the RVFD remains the most important sector in terms of employment and income. The sector creates approximately 574 direct employment positions and the average annual wage, ranging from $46 975 to an estimated $64 007, is the highest among all the sectors studied. The forestry sector also generates the highest amount of revenue in the RVFD. This sector also interacts with the visitor, transportation, and government sectors. The majority of forest products are sold outside of the region. Indications are that the valley is largely dependent on forestry as a source of income,

TABLE 17. Statistical summary by sector, 2001

Sector	Average annual wage	No. employment positions	Total revenue
Forest Sector	$46 975–64 007	574	$74 074 769
Visitor Sector	$20 956	514	$17 802 257[a]
Heliskiing Sector	$36 170	71	$10 700 000
Public Sector	$25 669	340[b]	—
Agricultural Sector	$19 145[a]	285[b]	$4 607 609

[a] Estimate has been converted using the consumer price index to inflate to 2001 dollars.

[b] Estimate of primary employment from the Statistics Canada Census (1996).

A comprehensive understanding of the mechanics of an economy facilitates decision making.

both directly through forestry jobs and indirectly through interactions with other sectors.

The RVFD has a relatively strong visitor sector. Activities offered in both summer (camping, hiking, and sight seeing) and winter (heliskiing and snowmobiling) provide the valley with the opportunity to attract visitors year-round. This sector supplies the region with the second highest number of jobs, and generates the second highest amount of revenues. Those living in the area have expressed concern that the increasing focus on the visitor sector will create employment, but that these new jobs offer lower incomes than sectors such as forestry. As our results show, the visitor sector average annual income is the second lowest among all the sectors.

Individuals working in government, education, and health were considered to be part of the public sector. Average wage in this sector is the second highest at $25 669, and an estimated 340 employment positions exist in this sector. Revenues were not estimated for this sector.

The agriculture sector in the RVFD appears to be making a smaller contribution to the region's economy relative to the other sectors. The sector employs a considerable number of people; however, it offers the lowest average annual wage and generates the lowest amount of revenue. Despite these discouraging employment and income statistics, the agricultural sector appears to be relatively stable in terms of the number of farms. In 2001, the RVFD had 25 695 ha of land allocated to agriculture, consisting mainly of cattle, specialty farms, and field crops.

This study describes the major sectors in the RVFD in their current economic state. Compiling descriptive statistics through survey work and secondary data collection is the first step in estimating the economic impacts of various economic shocks on an economy with a computable general equilibrium (CGE) model. The CGE model is useful for examining how various shocks to the individual sectors will affect a regional economy as a whole. Recent occurrences, such as the softwood lumber dispute, the mountain pine beetle outbreak, and provincial government budget cuts, are examples of events for which economic impacts could be estimated.

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