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More than just farming: employment in agriculture and agri-food in rural and urban Canada

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Highlights

- ◆ Employment in the agriculture and agri-food industry remained at 15 percent of the total employment over the 1981 to 1996 period. Thus, one in seven Canadian jobs was in agriculture and agri-food.
- ◆ Although farm employment has declined, employment in agri-food sectors (beyond the farm gate) has grown faster than the overall economy to allow the industry to maintain a constant share of 15 percent of the overall workforce.
- ◆ In 1981, more people worked on farms than worked in restaurants, bars and taverns. By 1996, employment in the food and beverage service sector was 63 percent larger than farm employment.
- ◆ Although still relatively intensive in agriculture and agri-food employment, predominantly rural (PR) regions became less so as farm employment declined. In terms of agri-food employment (beyond the farm gate), PR regions gained in intensity, mostly in the restaurant, taverns and bar sub-sector, as well as in agriculture and food wholesale and retail trade, and now equal the Canada-level intensity in “beyond the farm gate” employment.
- ◆ The processing sector continued to grow, but with fewer workers. Prince Edward Island had the highest proportion of food processing workers in all of Canada, followed by Quebec and New Brunswick.



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Abstract

While the number of census-farms and farm operators is shrinking, the number of jobs in the agriculture and agri-food industry is growing. During the 15 year period from 1981 to 1996, the industry employed 15 percent of Canada's

workforce. In other words, 1 in 7 jobs were in the agriculture and agri-food industry.

Employment in the agri-food sector (beyond the farm gate) has grown faster than the overall Canadian economy and this has offset the decline in employment on farms. In 1981, more people worked on farms than worked in restaurants, bars

and taverns. By 1996, this had reversed – employment in the food and beverage services sector far outstripped the number of workers on farms.

Food processing is often promoted as part of agricultural policy (to provide a local market for Canadian farmers) and as part of rural development policy (to create jobs in rural areas). However, in 1996, fewer people were working in Canada’s food processing sector than in 1981. More food was processed (there was growth in the GDP or valued-added of this sector) but fewer workers were involved. Rural regions adjacent to urban areas gained a greater share of food processing employment. Thus, rural metro-adjacent regions appear to be relatively competitive in keeping a food processing workforce, which is important information for rural development policy.

Employment in agriculture and agri-food is growing, but the nature of the work and where it is being done is changing.

Introduction

The 2001 Census of Agriculture reported an 11 percent decline in the number of census-farms, compared with 1996. This was a much larger drop than that reported from 1991 to 1996 (-1.2 percent). Does this mean that the agriculture and agri-food industry is in trouble? And since farming is largely a rural industry, are rural areas in trouble?

From 1981 to 1996¹, employment in the broad agriculture and agri-food sector grew by 24

percent. This growth was greater than overall employment growth in Canada over this period (20 percent).

Rural areas are relatively specialized in agriculture and agri-food employment but, more importantly, rural areas are increasing the share of their employment, relative to the Canada-level share, in agri-food employment (beyond the farm gate).

Who works in the agriculture and agri-food industry?

When people think of agriculture, the job that comes to mind most often is “farmer”. In this bulletin, the broad agriculture and agri-food industry is examined — it is diverse and includes everyone from the farmer to the person who serves the food in your local restaurant (see Box 1 for a detailed description of the types of jobs included in the agriculture and agri-food industry).

¹ The publication of this bulletin was delayed in order to include the results of the 2001 Census of Population. However, the 2001 Census of Population used the North American Industrial Classification System (NAICS) to code the major job of each individual to an industrial sector. We attempted to specify a series of NAICS codes that would replicate the SIC (Standard Industrial Classification) codes used in this report but our best attempt at a reconciliation

(Appendix C) would, in some cases, show more change between 1996 to 2001 due to coding changes than due to changes in the agriculture and agri-food economy. The 2001 Census of Population is being coded to the SIC codes and an update of our analysis will be possible in early 2004.

Box 1 Definition of the agriculture and agri-food industry

Agriculture group

Primary agriculture: This includes paid workers, self-employed workers and unpaid family workers who work on farms.

Agricultural services: Includes employment in services directly related to the farm such as veterinarians and others in animal health care, livestock breeding services, poultry breeding and hatching, barn cleaning, egg grading, sheep shearing, cropping services provided to farmers including soil preparation and cultivation, crop dusting and spraying, harvesting, hay baling and other services such as grain drying services. Also included are agricultural consulting and farm management services as well as agriculture-related research.

Agri-food group

Food processing: This includes employment in meat and poultry processing, fruit and vegetable processing, the flour and cereal products industry, beverage industries, and tanneries.

Agriculture and food products wholesale and retail trade: This includes employment with wholesalers of farm equipment and farm input products (such as chemicals and fertilizer) and employment with wholesalers and retailers of food, flowers, liquor and tobacco.

Food and beverage services: This includes employment with restaurants, caterers, bars and taverns.

In addition, employment in agricultural implement manufacturing, manufacturing of mixed fertilizers and grain elevators is included in the total agri-food group but is not analysed separately due to the relatively small number of workers in these sectors.

Note that this definition of the agriculture and agri-food industry differs from that of an earlier study by Cloutier (1997) because we have included the “food and beverage sector” in the agri-food group. This is consistent with the current practice of Agriculture and Agri-Food Canada. However, including the food and beverage sector has a major impact on the results — both in the magnitude of the size of the agriculture and agri-food sector and on the rate of the growth of the agriculture and agri-food sector.

Agriculture and agri-food is one of the largest industries in Canada, with a total workforce over 2 million in 1996, representing 1 of very 7 jobs in Canada (Figure 1 and Table 1).

Two components of the agriculture and agri-food industry are considered: the agriculture group and the agri-food group. The agriculture group represented 23 percent of employment in agriculture and agri-food in 1996.

All of the job growth in the agriculture and agri-food industry has been due to growth in the agri-food component — an increase of 34 percent over the 1981 to 1996 period. The agriculture component was essentially the same size in 1996 as it was in 1981 – it grew during the 1980s but declined in the 1991 to 1996 period.

Table 1. Employment in agriculture and agri-food, Canada, 1981 to 1996.

	All industrial sectors	Agriculture and agri-food		
		Total	Agriculture(1)	Agri-food(2)
	**** number employed ****			
1981	11,877,035	1,725,385	486,990	1,238,395
1986	12,740,230	1,932,535	512,695	1,419,840
1991	14,220,230	2,120,470	521,335	1,599,135
1996	14,317,545	2,144,290	485,605	1,658,685
	**** percent change from 1981 to 1996 ****			
1981 to 1996	20.5	24.3	-0.3	33.9
	**** as percent of all industrial sectors ****			
1981	100.0	14.5	4.1	10.4
1986	100.0	15.2	4.0	11.1
1991	100.0	14.9	3.7	11.2
1996	100.0	15.0	3.4	11.6
	**** as percent of agriculture and agri-food ****			
1981	...	100.0	28.2	71.8
1986	...	100.0	26.5	73.5
1991	...	100.0	24.6	75.4
1996	...	100.0	22.6	77.4

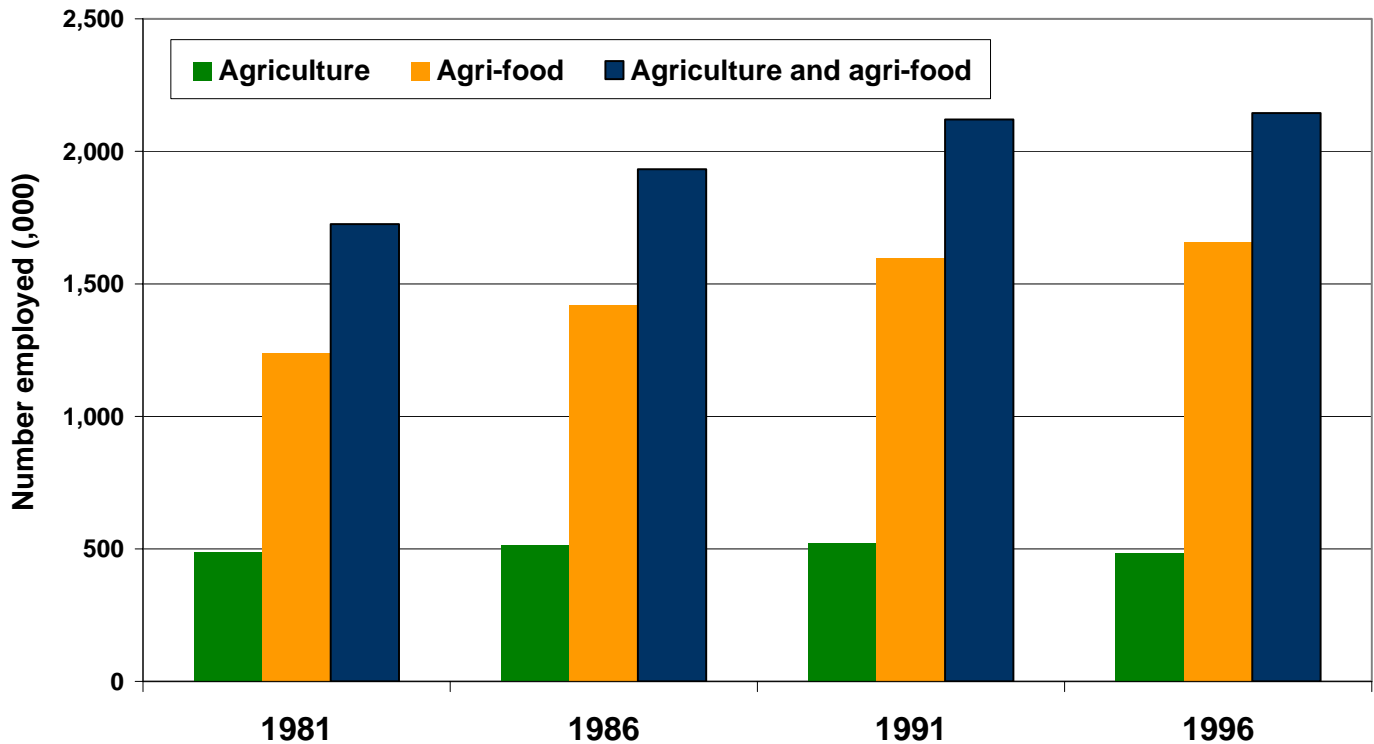
(1) "Agriculture" includes (paid, self-employed and unpaid family) workers on farms plus employment in agricultural services.

(2) "Agri-food" refers to employment with food processing establishments, wholesale and retail trade of farm inputs and food products (including grocery stores) and restaurants and taverns providing food and beverage services.

... not applicable

Source: Statistics Canada. Census of Population, 1981 to 1996.

Figure 1. Employment in agri-food is more than three times the level of employment in agriculture, Canada, 1981 - 1996



Source: Statistics Canada. Census of Population, 1981 to 1996. "Agriculture" refers to (paid, self-employed and unpaid family) workers on farms plus employment in agricultural services. "Agri-food" refers to employment with food processing establishments, wholesale and retail trade of farm inputs and food products (including grocery stores), and restaurants and taverns providing food and beverage services.

Agriculture

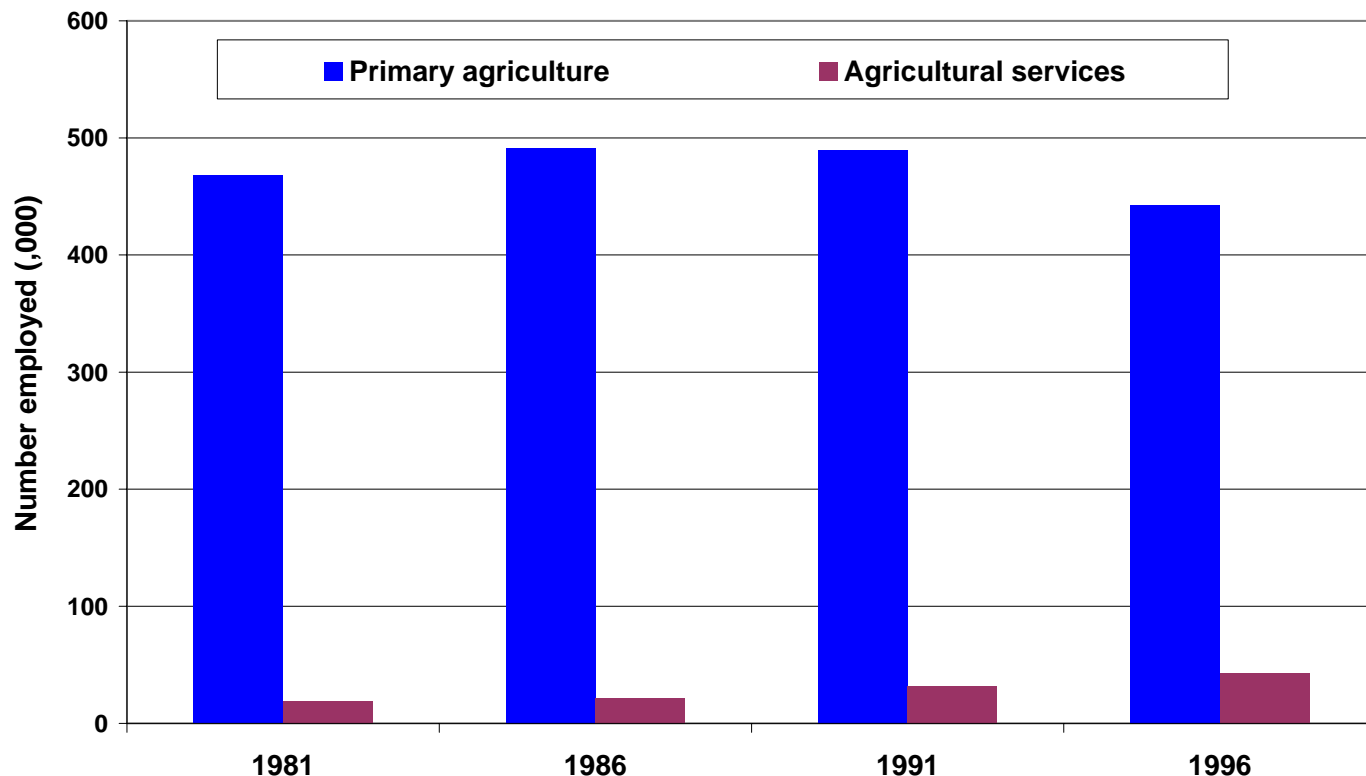
The agriculture group includes workers on farms and workers providing services incidental to agriculture (Box 1). This group totalled 487,000 workers in 1981 and 485,000 in 1996 (Figure 2 and Table 1).

Employment on farms (i.e., in primary agriculture) is significantly larger than in agricultural services. In the early 1980s, about 20 individuals were employed on farms for every one in agricultural services. However, employment in agricultural services doubled by 1996 (and primary agriculture employment declined) and

now the ratio is about 10 to 1. Over time, the technical expertise needed to operate a farm has grown and many farmers are now purchasing specialized services to complement their own expertise. Examples include specialists who provide computer balanced diets for livestock or varied fertilizer application recommendations based on soil samples for individual fields.

The growth in employment in agricultural services has almost off-set the decline in jobs in primary agriculture, suggesting that work once done by farm workers is now provided by specialized enterprises, by individuals working with farmers, but not working as farmers.

Figure 2. Employment in primary agriculture declined from 1991 to 1996 — employment in agricultural services grew in each period



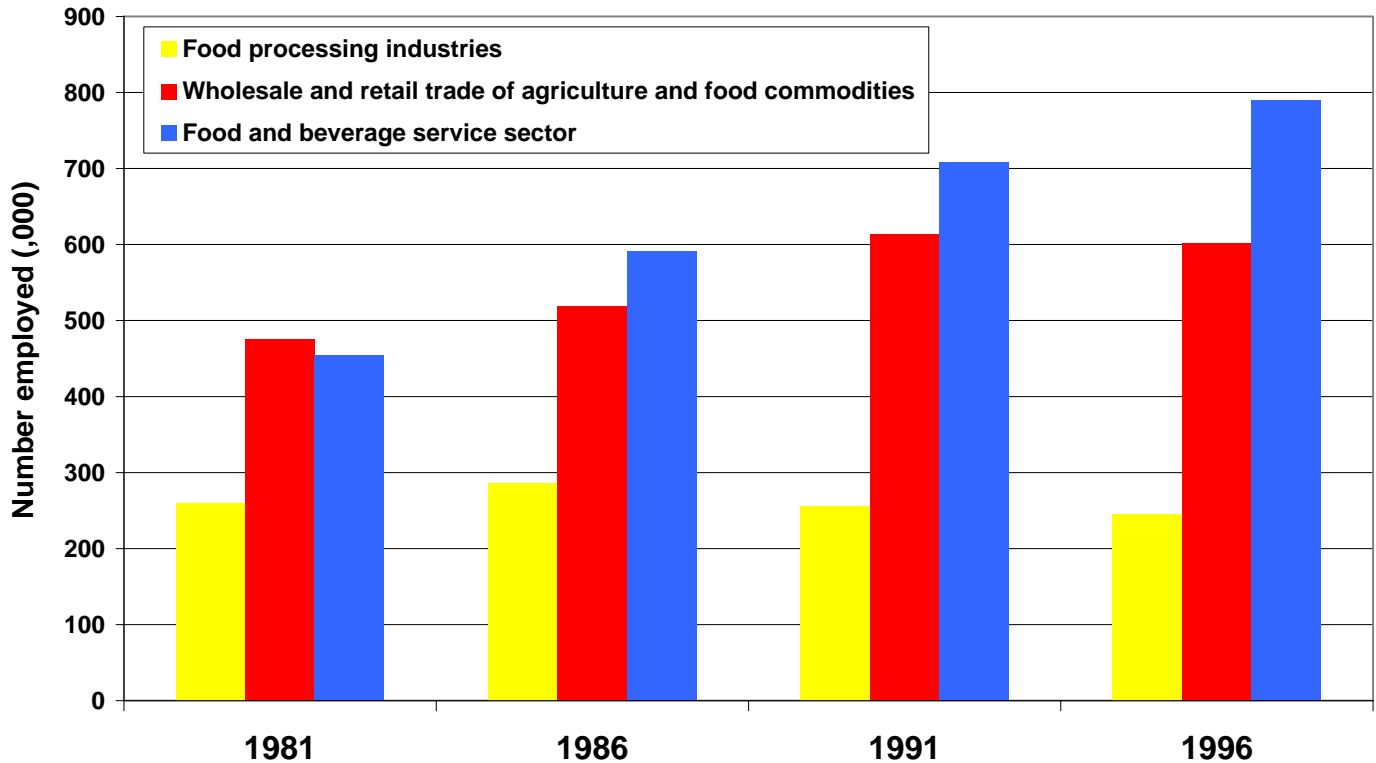
Source: Statistics Canada. Census of Population, 1981 to 1996.

Agri-food

The agri-food group is the larger of the two groups, accounting for 77 percent of the employment in the agriculture and agri-food industry (Figure 1 and Table 1). The three largest sectors² within the agri-food group all saw significant change from 1981 to 1996 (Figure 3). Employment in the food and beverage sector moved up from the position of second largest sector in the group (and, in 1981, with slightly lower employment than the primary agriculture sector) to first place in the agriculture and agri-food industry, with almost 800,000 people employed in 1996.

² Data for the small sectors involved in manufacturing farm inputs and providing grain storage services are shown in Appendix Table B1, but are not discussed in the text.

Figure 3. Most employment in agri-food is in the food and beverage service sector and the wholesale / retail trade of agriculture and food products



Source: Statistics Canada. Census of Population, 1981 to 1996. "Agri-food" refers to employment with food processing establishments, wholesale and retail trade of farm inputs and food products (including grocery stores) and restaurants and taverns providing food and beverage services (plus small employment sectors of agricultural implement manufacturers, mixed fertiliser manufacturers and the grain storage sector, not shown here).

Who's up, who's down

Not all sectors experienced growth. Only two sectors grew in each intercensal period — agricultural services and the food and beverage services sector.

The growth over 15 years in agricultural services was 122 percent, but since it is a small sector, this growth contributed only 24,000 jobs (Appendix Table B1). As noted above, this growth is associated with the demand by farmers for specialized services provided by off-farm entrepreneurs.

The food and beverage service sector was the other sector with continuous growth from 1981 to 1996. It grew 74 percent over this period and contributed 336,000 new jobs. In 1981, more

people worked on farms than in restaurants and drinking establishments. By 1996, the latter group far surpassed the former.

The sector involved in the wholesale and retail trade of agriculture and food products (including grocery stores) grew over the 1981 to 1996 period by 26 percent and created 125,000 jobs. However, employment declined in the 1991 to 1996 period — in a period when the total population of Canada grew 4 percent. Employment in this sector dropped largely in predominantly urban regions (Appendix Table B1) — perhaps urban grocery stores became more efficient and were able to serve more people with fewer employees, compared to the still labour intensive smaller grocery stores in rural regions where carry-out and delivery are still common practice.

Primary agriculture declined by 25,000 jobs, most of them in the 1991 to 1996 period. The main reason for this significant decline in the farm workforce is the adoption of larger machines. As farmers move to mechanical planting and harvesting of fruits and vegetables and computer operated feeding and milking machines, for example, they need less labour (even unpaid labour). As noted above, some specialized services are being contracted out to the agricultural service sector.

rural non-metro-adjacent regions and rural northern regions.

Food processing experienced job losses from 1981 to 1996: more than 15,000 jobs disappeared over this time period. However, the output of the food processing sector has increased slowly over time — at about 0.9 percent per year³. Again, mechanisation is a factor in the loss of jobs in this sector. Eggs are placed into egg cartons using suction cups operated by robotic machines and yarn is spun by computerized equipment instead of using people to handle these products.

What's happening in the regions?

Farming continues to be viewed as a rural industry. What is the contribution of farm employment in rural areas in Canada? Is it important in urban areas? How important is agriculture and agri-food in rural areas and in urban areas?

We show employment in the agriculture and agri-food industries in three types of regions – predominantly urban regions, intermediate regions and predominantly rural regions (Box 2). In addition, predominantly rural regions are disaggregated into rural metro-adjacent regions,

³ An annual growth rate of 0.9 percent was calculated as the slope of the natural log of the GDP of food manufacturing (CANSIM series V2034950) plus beverage and tobacco manufacturing (CANSIM series V2035114) regressed on time, for the 1981 to 2001 period.

Box 2 Definition of the geographic units of analysis

In this study, census divisions are grouped as follows:

- Predominantly rural regions: more than 50 percent of the population resides in a rural community where a “rural community” has a population density of less than 150 persons per square kilometre;
- Intermediate regions: 15 to 49 percent of the population lives in a rural community; and
- Predominantly urban regions: less than 15 percent of the population lives in a rural community.

Following Ehrensaft and Beeman (1992), the predominantly rural regions are further disaggregated into:

- Rural metro-adjacent regions;
- Rural non-metro-adjacent regions; and
- Rural northern regions.

In rural metro-adjacent regions and in rural non-metro-adjacent regions, about 20 percent of the workforce is employed in the agriculture and agri-food sectors (Appendix Table B2). However, relative to the situation at the Canada level, how are these regions faring? A location quotient compares the share of employment in agriculture and agri-food in a given region to the share of employment in agriculture and agri-food for Canada as a whole (Box 3).

Rural metro-adjacent regions and rural non-metro-adjacent regions are 1.35 times as intensive in agriculture and agri-food employment as Canada as a whole (Figure 4 and Appendix Table B3). However, their relative employment intensity in agriculture and agri-food declined over the 1981 to 1996 period, due to the relatively strong decline in agricultural employment, as we shall see below.

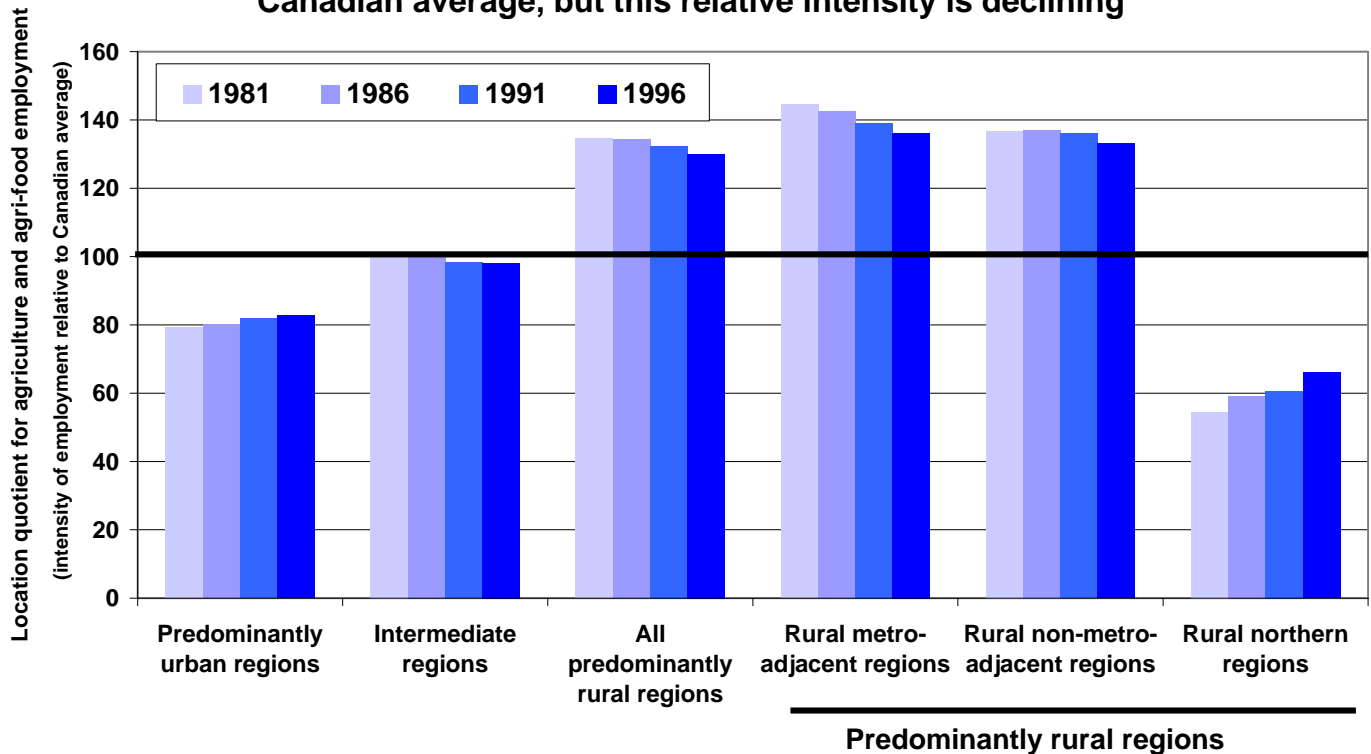
Box 3 Relative employment intensity, as measured by a location quotient

A location quotient, as used in this study, is the share (or percent) of employment in a given sector in a given region divided by the share of employment in this sector at the Canada level, multiplied by 100. Thus, a location quotient greater than 100 indicates that the employment in a given sector, in a given region, is relatively higher — has a higher **relative intensity** — compared to the national level.

As an example, employment in the agriculture and agri-food industry in rural metro-adjacent regions in 1996 was 20.4 percent of total employment in those regions (Appendix Table B2). At the national level, employment in the agriculture and agri-food industry was 15.0 percent of total employment. We calculate the location quotient or the relative intensity of agriculture and agri-food employment in rural metro-adjacent areas as $(20.4/15.0)*100 = 136.2$ percent (Appendix Table B3). Thus, employment in agriculture and agri-food in rural metro-adjacent regions is 1.36 times the intensity of employment in agriculture and agri-food at the national level.

This calculation is important for showing how one type of region is faring relative to others. For example, the share of the workforce employed in establishments providing food and beverage services increased throughout the study period in each type of region (Appendix Table B2). However, which regions are gaining and which regions are losing, relatively? The location quotients (Appendix Table B3) show that the relative employment intensity in the food and beverage service sector is declining in predominantly urban and intermediate regions and is increasing in each type of predominantly rural region. Thus, within predominantly urban and intermediate regions, the share of employment in restaurants, bars and taverns is increasing — however, relative to the national level, their relative employment intensity is declining.

Figure 4. Rural metro-adjacent and rural non-metro adjacent regions are more intense in agriculture and agri-food employment than the Canadian average, but this relative intensity is declining



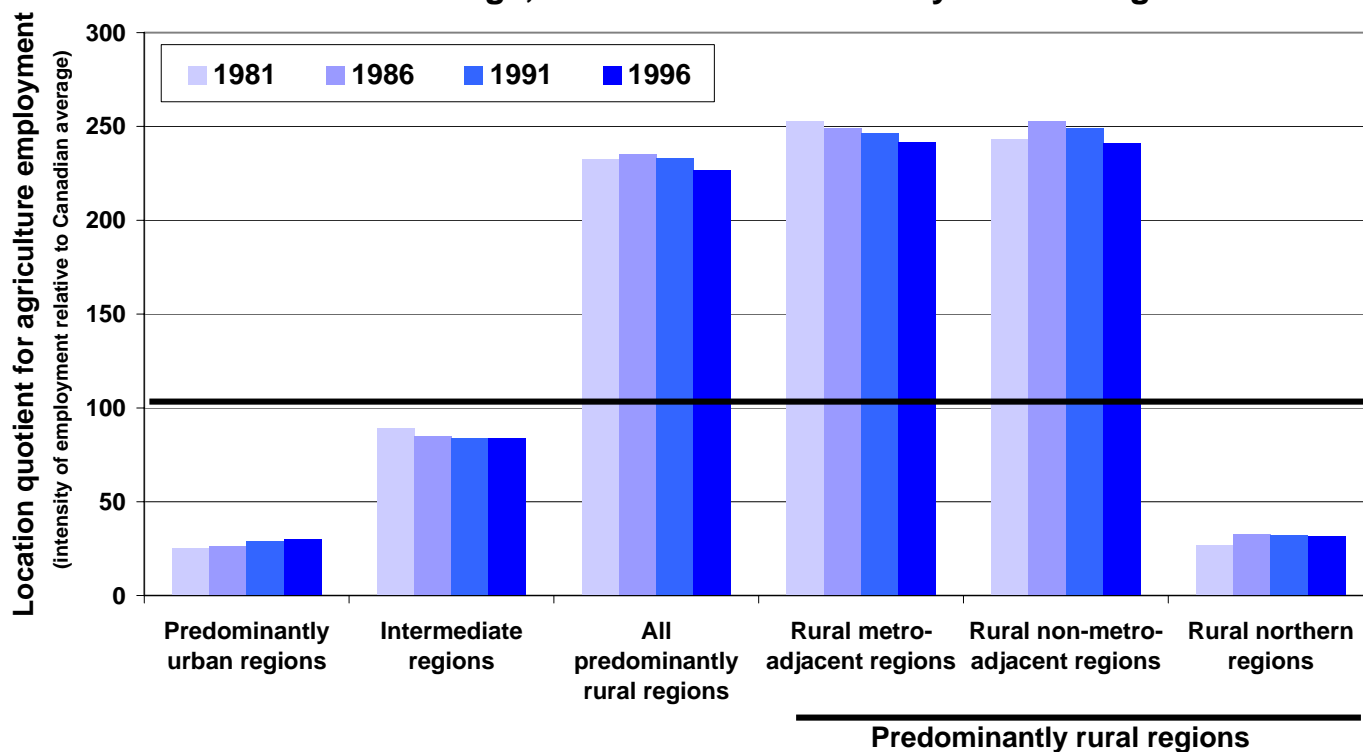
Source: Statistics Canada. Census of Population, 1981 to 1996. "Agriculture" refers to (paid, self-employed and unpaid family) workers on farms plus employment in agricultural services. "Agri-food" refers to employment with farm input suppliers, food processing establishments, wholesale and retail trade of farm inputs and food products (including grocery stores), and restaurants and taverns providing food and beverage services.

Not surprisingly, rural metro-adjacent and rural non-metro-adjacent regions are relatively more intensive in agricultural employment – about 2.4 times as intensive as the Canadian average (Figure 5 and Appendix Table B3). However, the relative intensity of agricultural employment in these regions has declined over time, as they are losing agricultural employment relative to predominantly urban regions.

Although predominantly urban regions are not intensive in agriculture employment, the relative intensity of agriculture increased over the 1981 to 1996 period (Figure 5). Thus, predominantly urban regions were slightly better in maintaining employment in agriculture. One factor influencing the growth of agriculture employment in predominantly urban regions is the concentration

of greenhouses, nurseries and fruit and vegetable farming within the vicinity of cities (Lonmo, 1999). These horticultural sectors were growing to meet the demands of their neighbouring urban centres. Overall, the growth in primary agriculture was small – only an increase 2,000 jobs in the 1981 to 1996 period – and note the 11 percent decline in the last five-year period, from 1991 to 1996 period (Appendix Table B1). Another factor impacting agriculture employment growth in predominantly urban regions was the growth in agricultural services – largely veterinarians who deal with household pets. Relative to other regions, the intensity in predominantly urban regions (i.e. the location quotient reported in Figure 5 and Appendix Table B3) increased consistently over the 1981 to 1996 period.

Figure 5. Rural metro-adjacent and rural non-metro adjacent regions are 2.4 times as intense in agriculture employment as the Canadian average, but this relative intensity is declining



Source: Statistics Canada. Census of Population, 1981 to 1996.

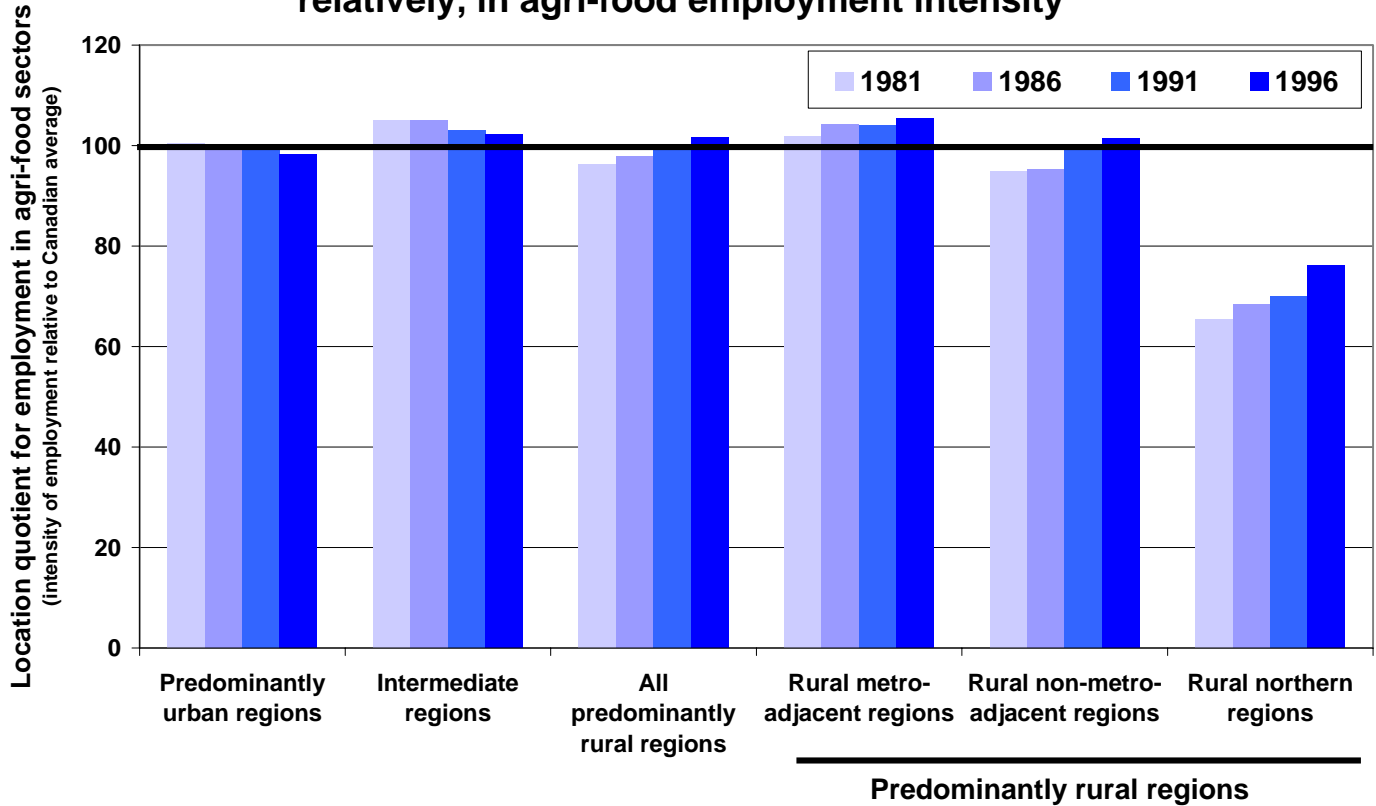
"Agriculture" refers to (paid, self-employed and unpaid family) workers on farms plus employment in agricultural services.

In 1981, intermediate regions were the most intensive type of region (by a slight margin) in terms of employment in **agri-food sectors** (Figure 6). By 1996, the relative intensity in intermediate regions had declined and rural metro-adjacent regions had become (by an equally slight margin) the most intensive in agri-food employment. In fact, each type of predominantly rural region increased their employment intensity in agri-food sectors over the 1981 to 1996 period. This growth was due to increasing intensity of employment in each of the three major agri-food sectors: food processing; wholesale and retail trade; and food and beverage services (Appendix Table B3).

The converse occurred in predominantly urban and intermediate regions which became (slightly) less intensive in agri-food employment over this period.

One feature influencing the result for predominantly urban regions is a lower intensity of employment in the wholesale and retail trade of agriculture and food products and this intensity is declining (Appendix Table B3), perhaps due to more efficient grocery stores in urban areas.

Figure 6. Predominantly rural regions are gaining, relatively, in agri-food employment intensity



Source: Statistics Canada. Census of Population, 1981 to 1996. "Agri-food" refers to employment with food processing establishments, wholesale and retail trade of farm inputs and food products (including grocery stores), and restaurants and taverns providing food and beverage services.

Employment in food processing

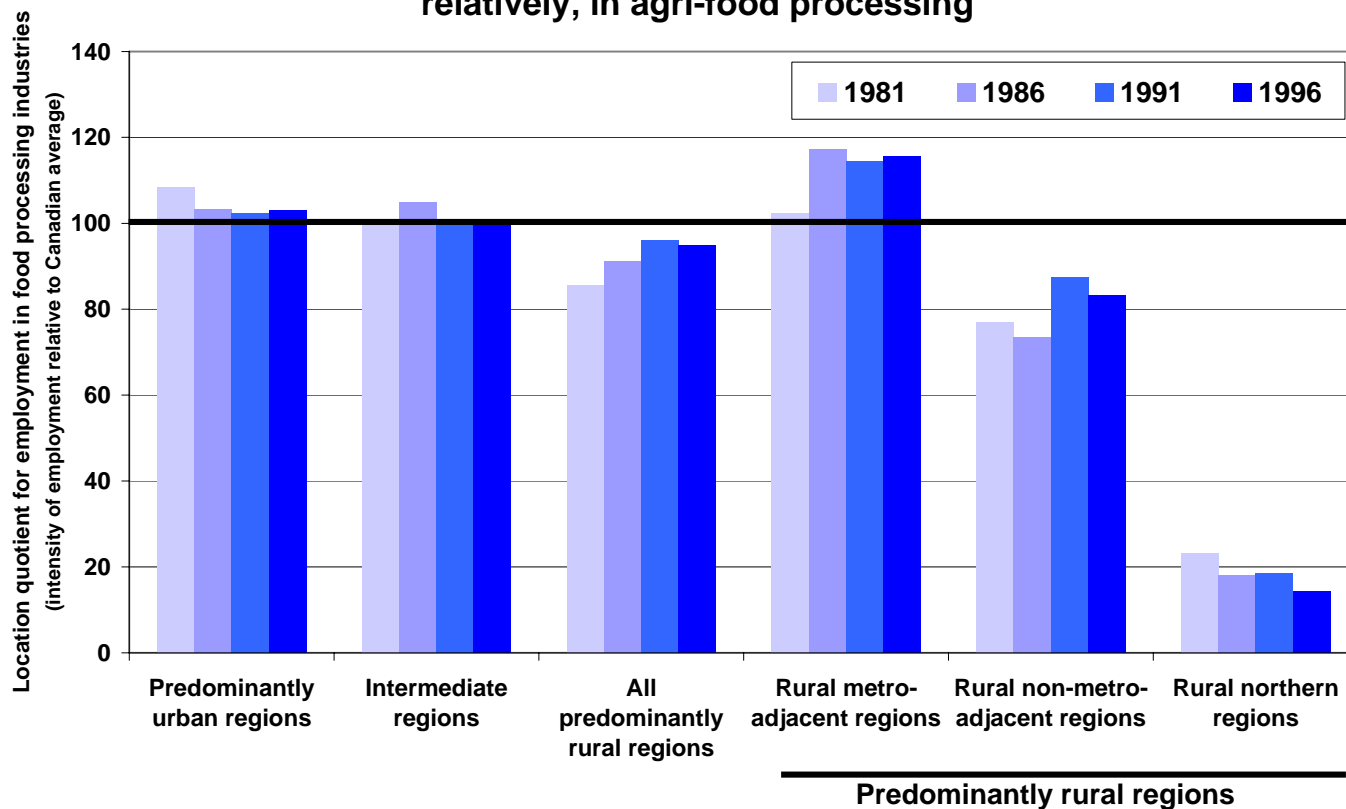
One agriculture policy objective is to add value to raw agricultural commodities in order to provide market options for farmers. This would also further a rural development policy objective of creating jobs, *if the jobs were created in rural areas*. Adding value to agricultural commodities generally implies more activity by establishments involved in food processing.

In 1996, employment in food processing was lower than in 1981. By 1996, employment in food processing was 245,000 (Appendix Table B1), or 1.7 percent of Canada's workforce (Appendix Table B2). However, the output of the food

processing sector has increased over time (see Footnote 3) – this growth has occurred with less and less labour.

Importantly, for rural development policy, rural metro-adjacent regions are relatively competitive in employment in the food processing sector (Figure 7). These regions have held this level since 1986, in spite of the fluctuations in the level of food processing employment from 1981 to 1996 (as noted in Appendix Table B1). Although predominantly urban regions and intermediate regions remain at the Canadian average level of intensity in food manufacturing, they did not gain at the expense of rural regions over this time period.

Figure 7. Rural metro-adjacent regions remain most intensive, relatively, in agri-food processing



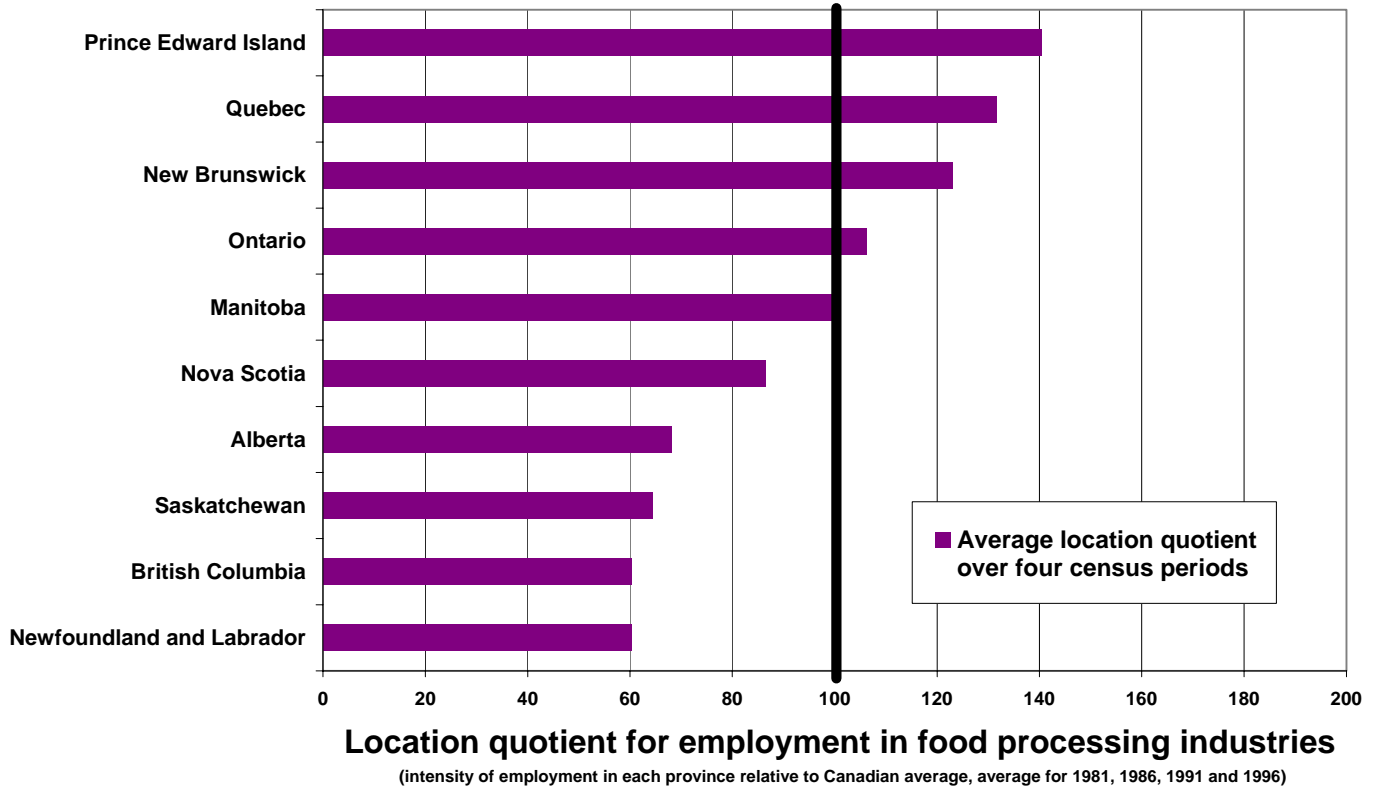
Source: Statistics Canada, Census of Population, 1981 to 1996.

Food processing industries includes the processing of meat, poultry, fruit, vegetables, dairy products, grain and bakery products, canola and soybean oil processing, etc.

Among the Canadian provinces, Prince Edward Island, Quebec and New Brunswick are relatively more intensive in food processing (Figure 8). The Canada-level fluctuations noted over time were most evident in Ontario (Appendix Table B5).

As noted in Figure 7, it is the rural metro-adjacent areas that are the most intensive (or the most competitive) in maintaining employment in the food processing sector. In many provinces, and especially in Quebec, the rural metro-adjacent regions have the highest intensity of employment in food processing (Appendix Table B6).

Figure 8. Prince Edward Island, Quebec and New Brunswick are relatively more intensive in employment in food processing



Source: Statistics Canada. Census of Population, 1981 to 1996.

Food processing industries includes the processing of meat, poultry, fruit, vegetables, dairy products, grain and bakery products, canola and soybean oil processing, etc.

Summary

The agriculture and agri-food industry retained its share of one in seven Canadian jobs over the 1981 to 1996 period. To maintain this share, growth of employment in the agri-food group has been essential, because employment in the agriculture group declined. The increase in employment in the agri-food group not only surpassed the decrease in the agriculture group, it also outpaced overall employment growth. Most of the agri-food growth was due to the increase in employment in food and beverage services. In 1981, more people worked on farms than worked in restaurants, bars and taverns. By 1996, the food and beverage service sector was 63 percent larger than farm employment.

Predominantly rural regions are intensive in agriculture and agri-food employment, relative to urban areas, but this concentration (or specialization) is declining. This is due to the declining intensity of employment on farms in predominantly rural regions.

In terms of agri-food employment (beyond the farm gate), predominantly rural regions are as intensive as the Canadian average and they are gaining, relatively. Thus, predominantly urban and intermediate regions are losing, relatively, their competitiveness in maintaining employment in agri-food sectors.

Among the major agri-food sectors, predominantly rural regions are gaining relative intensity in employment in restaurants, taverns

and bars, but their intensity is not yet at the Canadian average. Predominantly rural regions are relatively intensive and becoming more so in the wholesaling and retailing of agricultural and food commodities. Predominantly rural regions are relatively intensive and are maintaining their intensity (or specialization) in food processing.

Food processing (i.e., adding value to raw agricultural commodities) is often promoted as part of agricultural policy (to provide a local market for Canadian farmers) and it is often promoted as rural development policy (to create jobs in rural areas). In 1996, fewer people were working in Canada's food processing sector than in 1981. More food was processed (there was growth in the GDP or valued-added contribution of this sector) but fewer workers were involved. Importantly for rural development policy, rural

metro-adjacent regions gained a higher share of food processing employment (specifically, their decline in food processing employment was smaller, compared to the decline in other types of regions). Thus, rural metro-adjacent regions appear to be relatively competitive in keeping a food processing workforce.

Among Canadian provinces, workers in Prince Edward Island are more intensively involved in the food processing sector. Quebec and New Brunswick are also above the Canadian average intensity.

The drop in the number of census-farms does not mean that the agriculture and agri-food industry is in trouble. Employment in the agri-food group is growing, and growing faster than overall employment growth in the Canadian economy.

Barbara Keith is an analyst in the Research and Rural Data Section, Agriculture Division, Statistics Canada.

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Appendix A: List of industrial sectors coded to “agriculture” and “agri-food”

→1981 data:

The 1981 data were coded to the following 1970 3-digit SIC (Standard Industrial Classification) codes:

“Agriculture” group

“Agriculture” sector

- 001 – Experimental and university farms
- 003 – Institutional farms
- 011 – Livestock and livestock combination farms
- 013 – Field crop and field crop combination farms
- 015 – Fruit and vegetable farms
- 017 – Other crop and livestock combination farms
- 019 – Miscellaneous specialty farms

“Services incidental to agriculture” sector

- 021 – Services incidental to agriculture

Agri-food group

“Food and fibre processing” sector

- 101 – Meat and poultry products industries
- 103 – Fruit and vegetable processing industries
- 104 – Dairy products industry
- 105 – Flour and breakfast cereal products industry
- 107 – Bakery products industry
- 108 – Miscellaneous food industries
- 109 – Beverage industries
- 151 – Leaf tobacco processors
- 153 – Tobacco products manufacturers
- 172 – Leather tanneries
- 182 – Wool yarn and cloth mills

“Agricultural inputs supplier manufacturing industries” sector

- 106 – Feed industry
- 311 – Agricultural implement industry
- 372 – Manufacturers of mixed fertilizers

“Agricultural storage” sector

- 524 – Grain elevators

“Agricultural and food products trade” sector

- 602 – Wholesalers of farm products
- 614 – Wholesalers of food
- 615 – Wholesalers of tobacco products
- 622 – Wholesalers of farm machinery and equipment
- 631 – Food stores
- 692 – Florists’ shops
- 696 – Liquor, wine and beer stores
- 697 – Tobacconists

“Food and beverage service” sector

- 886 – Restaurants, caterers and taverns

➔ Data for 1986, 1991 and 1996

For 1986, 1991 and 1996, data were coded to the following **1980 3-digit SIC (Standard Industrial Classification) codes:**

“Agriculture” group

“Agriculture” sector

- 011 Livestock farms (except animal specialties)
- 012 Other animal specialty farms
- 013 Field crop farms
- 014 Field crop combination farms
- 015 Fruit and other vegetable farms
- 016 Horticultural specialties
- 017 Livestock, field crop and horticultural combination farms

“Services incidental to agriculture” sector

- 021 Services incidental to livestock and animal specialties
- 022 Services incidental to agricultural crops
- 023 Other services incidental to agriculture

“Agri-food” group

“Food and fibre processing” sector

- 101 – Meat and poultry products industries
- 103 – Fruit and vegetable industries
- 104 – Dairy products industry
- 105 – Flour, prepared cereal food and feed industries
- 106 – Vegetable oil mills (except corn oil)
- 107 – Bakery products industry
- 108 – Sugar and sugar confectionery industries
- 109 – Other food products industries
- 111 – Soft drink industry
- 112 – Distillery products industry
- 113 – Brewery products industry
- 114 – Wine industry
- 121 – Leaf tobacco industry
- 122 – Tobacco products industry
- 171 – Leather and allied products industries
- 182 – Spun yarn and woven cloth industries

“Inputs supplier industries” sector

- 311 - Agricultural implement industry
- 372 - Agricultural chemical industries

“Agriculture storage and warehousing industries” sector

- 471 Grain elevator industry

“Agricultural wholesale and retail trade industries” sector

- 501 Farm products, wholesale
- 521 Food, wholesale
- 522 Beverages, wholesale
- 524 Tobacco products, wholesale
- 571 Farm machinery, equipment and supplies, wholesale
- 593 Agricultural supplies, wholesale
- 601 Food stores
- 602 Liquor, wine and beer stores
- 652 Florists, lawn and garden centres

“Food and beverage service industries” sector

- 921 Food services
- 922 Taverns, bars and night clubs

Appendix B: Supplementary tables

Appendix Table B1. Employment by sector and by type of region, 1981 to 1996

	Predominantly urban regions	Intermediate regions	All predominantly rural regions	Rural metro-adjacent regions	Rural non-metro-adjacent regions	Rural northern regions	All regions
**** Employment in all industrial sectors ****							
1981	6,069,825	2,204,575	3,602,590	1,751,195	1,594,590	256,805	11,876,990
1986	6,511,510	2,431,995	3,796,700	1,865,610	1,665,565	265,525	12,740,205
1991	7,232,715	2,783,585	4,203,910	2,098,755	1,813,645	291,510	14,220,210
1996	7,196,115	2,799,125	4,322,245	2,181,045	1,843,560	297,640	14,317,485
**** Employment in agriculture and agri-food ****							
1981	698,500	322,020	704,775	367,835	316,600	20,340	1,725,295
1986	791,065	368,045	773,475	403,430	346,305	23,740	1,932,585
1991	883,020	407,815	829,770	435,140	368,275	26,355	2,120,605
1996	891,275	411,175	841,840	445,055	367,385	29,400	2,144,290
**** Employment in agriculture (sub-total) ****							
1981	62,805	80,510	343,640	181,775	159,020	2,845	486,955
1986	69,505	83,305	359,920	187,025	169,385	3,510	512,730
1991	76,765	85,470	359,195	189,785	165,960	3,450	521,430
1996	73,080	79,695	332,835	178,980	150,700	3,155	485,610
**** Employment in primary agriculture ****							
1981	55,835	76,295	335,640	177,315	155,665	2,660	467,770
1986	61,980	78,620	350,435	181,550	165,570	3,315	491,035
1991	65,200	78,390	345,945	182,170	160,650	3,125	489,535
1996	57,800	70,530	314,525	168,555	143,215	2,755	442,855
**** Employment in services "incidental" to agriculture ****							
1981	6,980	4,255	8,020	4,480	3,350	190	19,255
1986	7,505	4,680	9,520	5,460	3,840	220	21,705
1991	11,545	7,080	13,160	7,555	5,290	315	31,785
1996	15,310	9,180	18,290	10,350	7,495	445	42,780
**** Employment in agri-food (sub-total) ****							
1981	635,695	241,510	361,135	186,060	157,580	17,495	1,238,340
1986	721,560	284,740	413,555	216,405	176,920	20,230	1,419,855
1991	806,255	322,345	470,575	245,355	202,315	22,905	1,599,175
1996	818,195	331,480	509,005	266,075	216,685	26,245	1,658,680
**** Employment in the food and fibre processing sector ****							
1981	144,195	48,605	67,475	39,320	26,825	1,330	260,275
1986	150,945	57,135	77,605	48,880	27,665	1,060	285,685
1991	133,285	50,070	72,770	43,165	28,645	960	256,125
1996	126,690	47,995	70,075	43,090	26,245	740	244,760
**** Employment in input supply sectors ****							
1981	14,275	10,465	12,195	7,840	4,320	35	36,935
1986	6,615	5,590	6,050	3,675	2,375	0	18,255
1991	4,745	3,350	5,150	3,220	1,910	20	13,245
1996	4,875	5,350	7,380	4,650	2,710	20	17,605
**** Employment in the grain storage sector ****							
1981	2,215	3,010	5,100	2,270	2,795	35	10,325
1986	1,540	1,835	2,850	1,465	1,330	55	6,225
1991	2,505	1,955	4,040	1,960	2,040	40	8,500
1996	1,115	1,100	2,430	1,000	1,325	105	4,645
**** Employment in the wholesale and retail trade of agricultural and food products ****							
1981	231,995	90,060	153,975	74,625	70,385	8,965	476,030
1986	245,860	104,275	168,865	82,415	77,025	9,425	519,000
1991	296,440	125,005	191,870	96,060	85,225	10,585	613,315
1996	280,785	119,015	201,560	100,040	89,925	11,595	601,360
**** Employment in the food and beverages services sector ****							
1981	243,035	89,335	122,355	62,010	53,240	7,105	454,725
1986	316,580	115,920	158,130	79,930	68,525	9,675	590,630
1991	369,260	141,965	196,775	100,970	84,490	11,315	708,000
1996	404,755	158,005	227,565	117,280	96,500	13,785	790,325

For detailed definitions of sectors, see Box 1.

Source: Statistics Canada. Census of Population, 1981 to 1996.

Appendix Table B2. Employment in each sector as a percent of total employment, within each type of region, 1981 to 1996

	Predominantly urban regions	Intermediate regions	All predominantly rural regions	Rural metro-adjacent regions	Rural non-metro-adjacent regions	Rural northern regions	All regions
**** Employment in all industrial sectors ****							
1981	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1986	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1991	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1996	100.0	100.0	100.0	100.0	100.0	100.0	100.0
**** Employment in agriculture and agri-food ****							
1981	11.5	14.6	19.6	21.0	19.9	7.9	14.5
1986	12.1	15.1	20.4	21.6	20.8	8.9	15.2
1991	12.2	14.7	19.7	20.7	20.3	9.0	14.9
1996	12.4	14.7	19.5	20.4	19.9	9.9	15.0
**** Employment in agriculture (sub-total) ****							
1981	1.0	3.7	9.5	10.4	10.0	1.1	4.1
1986	1.1	3.4	9.5	10.0	10.2	1.3	4.0
1991	1.1	3.1	8.5	9.0	9.2	1.2	3.7
1996	1.0	2.8	7.7	8.2	8.2	1.1	3.4
**** Employment in primary agriculture ****							
1981	0.9	3.5	9.3	10.1	9.8	1.0	3.9
1986	1.0	3.2	9.2	9.7	9.9	1.2	3.9
1991	0.9	2.8	8.2	8.7	8.9	1.1	3.4
1996	0.8	2.5	7.3	7.7	7.8	0.9	3.1
**** Employment in services "incidental" to agriculture ****							
1981	0.1	0.2	0.2	0.3	0.2	0.1	0.2
1986	0.1	0.2	0.3	0.3	0.2	0.1	0.2
1991	0.2	0.3	0.3	0.4	0.3	0.1	0.2
1996	0.2	0.3	0.4	0.5	0.4	0.1	0.3
**** Employment in agri-food (sub-total) ****							
1981	10.5	11.0	10.0	10.6	9.9	6.8	10.4
1986	11.1	11.7	10.9	11.6	10.6	7.6	11.1
1991	11.1	11.6	11.2	11.7	11.2	7.9	11.2
1996	11.4	11.8	11.8	12.2	11.8	8.8	11.6
**** Employment in the food and fibre processing sector ****							
1981	2.4	2.2	1.9	2.2	1.7	0.5	2.2
1986	2.3	2.3	2.0	2.6	1.7	0.4	2.2
1991	1.8	1.8	1.7	2.1	1.6	0.3	1.8
1996	1.8	1.7	1.6	2.0	1.4	0.2	1.7
**** Employment in the wholesale and retail trade of agricultural and food products ****							
1981	3.8	4.1	4.3	4.3	4.4	3.5	4.0
1986	3.8	4.3	4.4	4.4	4.6	3.5	4.1
1991	4.1	4.5	4.6	4.6	4.7	3.6	4.3
1996	3.9	4.3	4.7	4.6	4.9	3.9	4.2
**** Employment in the food and beverages services sector ****							
1981	4.0	4.1	3.4	3.5	3.3	2.8	3.8
1986	4.9	4.8	4.2	4.3	4.1	3.6	4.6
1991	5.1	5.1	4.7	4.8	4.7	3.9	5.0
1996	5.6	5.6	5.3	5.4	5.2	4.6	5.5

For detailed definitions of sectors, see Box 1.

Source: Statistics Canada. Census of Population, 1981 to 1996.

Appendix Table B3. Location quotient (1) of employment in each sector in each type of region, compared to the Canadian average, 1981 to 1996

	Predominantly urban regions	Intermediate regions	All predominantly rural regions	Rural metro-adjacent regions	Rural non-metro-adjacent regions	Rural northern regions	All regions
**** Employment in agriculture and agri-food ****							
1981	79.2	100.6	134.7	144.6	136.7	54.5	100.0
1986	80.1	99.8	134.3	142.6	137.1	58.9	100.0
1991	81.9	98.2	132.4	139.0	136.2	60.6	100.0
1996	82.7	98.1	130.0	136.2	133.1	66.0	100.0
**** Employment in agriculture (sub-total) ****							
1981	25.2	89.1	232.7	253.2	243.2	27.0	100.0
1986	26.5	85.1	235.6	249.1	252.7	32.8	100.0
1991	28.9	83.7	233.0	246.6	249.6	32.3	100.0
1996	29.9	83.9	227.0	241.9	241.0	31.3	100.0
**** Employment in primary agriculture ****							
1981	23.4	87.9	236.6	257.1	247.9	26.3	100.0
1986	24.7	83.9	239.5	252.5	257.9	32.4	100.0
1991	26.2	81.8	239.0	252.1	257.3	31.1	100.0
1996	26.0	81.5	235.3	249.9	251.2	29.9	100.0
**** Employment in services "incidental" to agriculture ****							
1981	70.9	119.1	137.3	157.8	129.6	45.6	100.0
1986	67.7	113.0	147.2	171.8	135.3	48.6	100.0
1991	71.4	113.8	140.1	161.0	130.5	48.3	100.0
1996	71.2	109.8	141.6	158.8	136.1	50.0	100.0
**** Employment in agri-food (sub-total) ****							
1981	100.4	105.1	96.1	101.9	94.8	65.3	100.0
1986	99.4	105.1	97.7	104.1	95.3	68.4	100.0
1991	99.1	103.0	99.5	104.0	99.2	69.9	100.0
1996	98.1	102.2	101.7	105.3	101.5	76.1	100.0
**** Employment in the food and fibre processing sector ****							
1981	108.4	100.6	85.5	102.5	76.8	23.6	100.0
1986	103.4	104.8	91.2	116.8	74.1	17.8	100.0
1991	102.3	99.9	96.1	114.2	87.7	18.3	100.0
1996	103.0	100.3	94.8	115.6	83.3	14.5	100.0
**** Employment in the wholesale and retail trade of agricultural and food products ****							
1981	95.4	101.9	106.6	106.3	110.1	87.1	100.0
1986	92.7	105.3	109.2	108.4	113.5	87.1	100.0
1991	95.0	104.1	105.8	106.1	109.0	84.2	100.0
1996	92.9	101.2	111.0	109.2	116.1	92.7	100.0
**** Employment in the food and beverages services sector ****							
1981	104.6	105.8	88.7	92.5	87.2	72.3	100.0
1986	104.9	102.8	89.8	92.4	88.7	78.6	100.0
1991	102.5	102.4	94.0	96.6	93.6	78.0	100.0
1996	101.9	102.3	95.4	97.4	94.8	83.9	100.0

(1) A location quotient indicates the intensity of employment in a given sector in a given region, relative to the intensity of total employment in the region.

For detailed definitions of sectors, see Box 1.

Source: Statistics Canada. Census of Population, 1981 to 1996.

Appendix Table B4. Employment in agriculture and agri-food by province and type of region, 1981 to 1996

	Predominantly urban regions	Intermediate regions	All predominantly rural regions	Rural metro-adjacent regions	Rural non-metro-adjacent regions	Rural northern regions	All regions
Newfoundland and Labrador							
1981	...	11,900	11,140	...	9,200	1,940	23,040
1986	...	12,450	12,020	...	10,090	1,930	24,470
1991	...	15,205	14,750	...	12,525	2,225	29,955
1996	...	13,600	13,560	...	11,445	2,115	27,160
Prince Edward Island							
1981	...	...	12,250	5,875	6,375	...	12,250
1986	...	...	13,315	6,470	6,845	...	13,315
1991	...	...	13,995	6,765	7,230	...	13,995
1996	...	...	14,835	7,075	7,760	...	14,835
Nova Scotia							
1981	...	14,440	31,540	13,165	18,375	...	45,980
1986	...	16,235	36,335	14,670	21,665	...	52,570
1991	...	18,825	39,610	17,180	22,430	...	58,435
1996	...	19,345	40,200	16,155	24,045	...	59,545
New Brunswick							
1981	5,130	3,950	30,705	14,750	15,955	...	39,785
1986	4,650	4,705	35,515	18,050	17,465	...	44,870
1991	4,860	5,165	39,370	20,055	19,315	...	49,395
1996	4,550	5,240	39,625	20,890	18,735	...	49,415
Québec							
1981	199,810	90,340	121,390	58,595	59,760	3,035	411,540
1986	215,640	104,570	132,405	65,020	63,895	3,490	452,615
1991	244,100	117,870	146,205	71,175	71,415	3,615	508,175
1996	228,765	118,960	143,985	72,390	67,670	3,925	491,710
Ontario							
1981	278,185	164,885	161,785	117,735	38,155	5,895	604,855
1986	316,245	187,855	173,375	126,990	39,455	6,930	677,475
1991	334,580	207,315	184,930	134,990	42,365	7,575	726,825
1996	335,450	210,485	189,455	137,005	44,500	7,950	735,390
Manitoba							
1981	37,365	...	61,240	23,815	35,700	1,725	98,605
1986	40,180	...	66,905	26,230	38,705	1,970	107,085
1991	41,665	...	68,695	28,555	37,860	2,280	110,360
1996	40,715	...	65,400	28,230	34,785	2,385	106,115
Saskatchewan							
1981	...	36,505	96,200	39,975	55,780	445	132,705
1986	...	42,230	103,790	43,165	60,075	550	146,020
1991	...	43,435	100,670	41,965	58,185	520	144,105
1996	...	43,545	93,715	40,955	51,935	825	137,260
Alberta							
1981	86,105	...	100,200	69,350	29,680	1,170	186,305
1986	104,230	...	110,865	75,885	33,425	1,555	215,095
1991	122,705	...	116,880	81,340	33,805	1,735	239,585
1996	133,765	...	120,420	83,735	34,710	1,975	254,185
British Columbia							
1981	91,905	...	76,715	24,575	47,620	4,520	168,620
1986	110,120	...	86,555	26,950	54,685	4,920	196,675
1991	135,110	...	102,245	33,115	63,145	5,985	237,355
1996	148,030	...	117,190	38,620	71,800	6,770	265,220
Yukon							
1981	...	...	895	...	...	895	895
1986	...	...	1,280	...	...	1,280	1,280
1991	...	...	1,270	...	...	1,270	1,270
1996	...	...	1,580	...	...	1,580	1,580
Northwest Territories and Nunavut							
1981	...	...	715	...	...	715	715
1986	...	...	1,115	...	...	1,115	1,115
1991	...	...	1,150	...	...	1,150	1,150
1996	...	...	1,875	...	...	1,875	1,875
Canada							
1981	698,500	322,020	704,775	367,835	316,600	20,340	1,725,295
1986	791,065	368,045	773,475	403,430	346,305	23,740	1,932,585
1991	883,020	407,815	829,770	435,140	368,275	26,355	2,120,605
1996	891,275	411,175	841,840	445,055	367,385	29,400	2,144,290

Agriculture and agri-food includes employment in primary agriculture (i.e. paid, self-employed and unpaid workers on farms), employment in services "incidental" to agriculture, food processing, wholesale and retail trade of agricultural and food products (including grocery stores), and employment in restaurants, bars and taverns providing food and beverage services. (Also, small sectors of agricultural implement manufacturing, manufacturing of mixed fertilisers and grain storage are included in the total, but not discussed separately in this bulletin.)

Source: Statistics Canada. Census of Population, 1981 to 1996.

Appendix Table B5. Employment in food and fibre processing, by province and type of region, 1981 to 1996

	Predominantly urban regions	Intermediate regions	All predominantly rural regions	Rural metro-adjacent regions	Rural non-metro-adjacent regions	Rural northern regions	All regions
Newfoundland and Labrador							
1981	...	1,850	1,395	...	1,175	220	3,245
1986	...	1,955	1,025	...	915	110	2,980
1991	...	1,970	1,290	...	1,160	130	3,260
1996	...	1,335	525	...	495	30	1,860
Prince Edward Island							
1981	...	...	1,690	905	785	...	1,690
1986	...	...	1,690	860	830	...	1,690
1991	...	...	1,885	685	1,200	...	1,885
1996	...	...	1,735	630	1,105	...	1,735
Nova Scotia							
1981	...	2,195	4,495	1,565	2,930	...	6,690
1986	...	2,265	5,340	1,720	3,620	...	7,605
1991	...	2,270	5,280	1,535	3,745	...	7,550
1996	...	1,830	4,350	1,235	3,115	...	6,180
New Brunswick							
1981	1,525	535	6,265	2,880	3,385	...	8,325
1986	1,075	570	6,330	3,290	3,040	...	7,975
1991	1,090	430	6,810	3,245	3,565	...	8,330
1996	735	290	6,030	3,120	2,910	...	7,055
Québec							
1981	45,215	16,275	17,015	9,315	7,460	240	78,505
1986	47,935	22,780	21,305	12,680	8,410	215	92,020
1991	45,090	20,290	20,325	11,760	8,265	300	85,705
1996	37,245	20,315	19,950	12,320	7,410	220	77,510
Ontario							
1981	63,180	23,625	18,790	14,965	3,440	385	105,595
1986	70,355	25,495	23,565	19,835	3,385	345	119,415
1991	56,905	21,645	19,880	16,100	3,535	245	98,430
1996	56,510	21,035	20,010	16,105	3,710	195	97,555
Manitoba							
1981	7,355	...	4,025	2,070	1,795	160	11,380
1986	7,450	...	4,295	2,400	1,795	100	11,745
1991	5,630	...	3,860	2,180	1,645	35	9,490
1996	5,375	...	4,140	2,405	1,695	40	9,515
Saskatchewan							
1981	...	4,125	2,410	1,110	1,285	15	6,535
1986	...	4,070	2,525	1,195	1,295	35	6,595
1991	...	3,465	2,310	1,105	1,180	25	5,775
1996	...	3,190	2,520	1,155	1,330	35	5,710
Alberta							
1981	12,715	...	5,160	4,500	640	20	17,875
1986	11,510	...	5,580	4,960	610	10	17,090
1991	12,250	...	5,555	4,885	650	20	17,805
1996	13,125	...	5,290	4,640	620	30	18,415
British Columbia							
1981	14,205	...	6,190	2,010	3,930	250	20,395
1986	12,620	...	5,860	1,940	3,765	155	18,480
1991	12,320	...	5,540	1,670	3,700	170	17,860
1996	13,700	...	5,455	1,480	3,855	120	19,155
Yukon							
1981	...	...	20	...	...	20	20
1986	...	...	50	...	...	50	50
1991	...	...	15	...	...	15	15
1996	...	...	20	...	...	20	20
Northwest Territories and Nunavut							
1981	...	...	20	...	...	20	20
1986	...	...	40	...	...	40	40
1991	...	...	20	...	...	20	20
1996	...	...	50	...	...	50	50
Canada							
1981	144,195	48,605	67,475	39,320	26,825	1,330	260,275
1986	150,945	57,135	77,605	48,880	27,665	1,060	285,685
1991	133,285	50,070	72,770	43,165	28,645	960	256,125
1996	126,690	47,995	70,075	43,090	26,245	740	244,760

Source: Statistics Canada. Census of Population, 1981 to 1996.

Appendix Table B6. Intensity of employment (location quotient) in food and fibre processing in each type of region, relative to the provincial average intensity, 1981 to 1996

	Predominantly urban regions	Intermediate regions	All predominantly rural regions	Rural metro-adjacent regions	Rural non-metro-adjacent regions	Rural northern regions	All regions
Newfoundland and Labrador							
1981	...	125	79	...	83	63	100
1986	...	143	64	...	70	36	100
1991	...	129	75	...	83	39	100
1996	...	149	55	...	64	16	100
Prince Edward Island							
1981	...	...	100	105	95	...	100
1986	...	...	100	99	101	...	100
1991	...	...	100	69	134	...	100
1996	...	...	100	69	134	...	100
Nova Scotia							
1981	...	84	110	80	138	...	100
1986	...	74	118	81	151	...	100
1991	...	73	119	74	159	...	100
1996	...	71	121	74	163	...	100
New Brunswick							
1981	138	53	101	90	112	...	100
1986	115	58	104	103	106	...	100
1991	117	41	107	96	121	...	100
1996	103	32	111	105	118	...	100
Québec							
1981	101	105	93	125	74	31	100
1986	91	124	102	146	74	24	100
1991	92	115	106	143	82	36	100
1996	86	124	113	159	81	28	100
Ontario							
1981	109	87	93	108	73	24	100
1986	107	81	106	129	67	20	100
1991	108	80	107	123	84	19	100
1996	110	77	107	122	88	15	100
Manitoba							
1981	108	...	88	111	83	29	100
1986	107	...	90	118	82	18	100
1991	101	...	98	124	96	8	100
1996	99	...	102	129	97	8	100
Saskatchewan							
1981	...	142	66	68	68	12	100
1986	...	135	70	75	69	34	100
1991	...	128	76	81	74	27	100
1996	...	118	84	86	86	31	100
Alberta							
1981	105	...	89	119	36	8	100
1986	101	...	98	136	34	4	100
1991	102	...	97	132	37	7	100
1996	106	...	87	118	33	12	100
British Columbia							
1981	120	...	72	70	80	31	100
1986	114	...	80	79	89	23	100
1991	114	...	78	69	91	28	100
1996	121	...	70	54	86	20	100
Yukon							
1981	...	...	100	...	...	100	100
1986	...	...	100	...	...	100	100
1991	...	...	100	...	...	100	100
1996	...	...	100	...	...	100	100
Northwest Territories and Nunavut							
1981	...	...	100	...	...	100	100
1986	...	...	100	...	...	100	100
1991	...	...	100	...	...	100	100
1996	...	...	100	...	...	100	100
Canada							
1981	108	101	85	102	77	24	100
1986	103	105	91	117	74	18	100
1991	102	100	96	114	88	18	100
1996	103	100	95	116	83	15	100

Source: Statistics Canada. Census of Population, 1981 to 1996.

Appendix C: Our attempt to update the analysis with 2001 census data

We attempted to update our analysis with results from the 2001 Census of Population. Individuals on the 2001 census are coded to their major job according to the North American Industrial Classification System (NAICS). Our data for 1981 to 1996 were tabulated using the 1970 and 1980 Standard Industrial Classification (SIC). We attempted to find a set of NAICS codes that could replicate our results for the SIC codes so that we could update our analysis with the 2001 census results. Our attempt is summarised in Appendix Table C1. We feel that the reconciliation is not adequate to monitor changes in the 1996 to 2001 period – specifically, more change in the data might be expected from the change in the coding system rather than the change in the agriculture and agri-food economy. The 2001 Census of Population is being coded to the 1980 SIC (which is expected to be completed in early 2004) and we will attempt to provide an update of the structure and trends in agriculture and agri-food employment at that time.

Our attempt to find NAICS codes to replicate the SIC agriculture and agri-food codes was successful for some components, but unsuccessful for other components, of the agriculture and agri-food sector.

Industrial classification systems typically have detailed coding structures. For example, the 6-digit NAICS code 111421 refers to Nursery and Tree Production, which is one of the 6-digit codes within the 5-digit NAICS code 11142 that covers Nursery and Floriculture Production which is one of the 5-digit codes within the 4-digit NAICS code 1114 that covers Greenhouse, Nursery and Floriculture Production which is one of the 4-digit NAICS codes within the 3-digit NAICS code that covers Crop Production. The structure for this example is as follows:

111	Crop Production
1114	Greenhouse, Nursery and Floriculture Production
11142	Nursery and Floriculture Production
111421	Nursery and Tree Production

It is difficult to obtain enough information from a Census of Population questionnaire to code the industry of the individual's main job to a detailed code – in 2001, the census data were coded to the 4-digit level. This satisfies the needs of most analysts. However, to obtain an adequate reconciliation of NAICS and SIC for our analysis, we would need a more detailed level of coding. For example, the SIC group of “Services incidental to agriculture” includes the employment associated with 10,598 firms (Appendix Table C1) and our best attempt to replicate this SIC group would allocate only the employment associated with 4,919 firms to this group. Hence, if we were to attempt to compare the employment in “Services incidental to agriculture” between 1996 to 2001, we would expect a drop of about 50 percent solely due to differences in coding. Specifically, 3,882 firms in livestock veterinary services are now in NAICS code 5419 “Other Professional, Scientific and Technical Services” – this group totals 13,852 firms – thus, if we excluded NAICS code 5419 from “services incidental to agriculture”, we miss the employment associated with 3,882 firms, but if we include this NAICS code, we include 13,852 firms and only 3,882 are consistent with our SIC coding.

This is the major discrepancy. Also, some firms classified as grocery stores under SIC are now coded with gasoline stations or with health and personal care stores.

Although included in the total picture for agriculture and agri-food, the employment associated with 1,898 bakeries was coded in the

services sector according to the SIC but, at the 4-digit level, would be included in manufacturing under NAICS – thus, care would need to be taken in evaluating the change in the level of employment in the food processing sector.

Thus, we have chosen to wait for the 2001 Census of Population to be coded to the 1980 SIC codes so that we will know that a change in the results is due to a change in the agriculture and agri-food sector and not due to the method of coding.

Appendix Table C1. Given the assignment of SIC codes to the agriculture and agri-food sector, what is the best fit of NAICS codes?

SIC 1980 codes	Number of firms with each SIC 1980 code	NAICS 1997	Number of firms with each NAICS 1997 code
Agriculture Group (subtotal)	170,011		166,184
Primary agriculture sector (subtotal)	159,413		161,265
011 Livestock farms (except animal specialties)	60,143		
012 Other animal specialty farms	3,454	111 Crop production farms	62,944
013 Field crop farms	30,663		
014 Field crop combination farms	15,119	112 Livestock production farms	98,321
015 Fruit and other vegetable farms	6,094		
016 Horticultural specialties	6,171		
017 Livestock, field crop and horticultural combination farms	37,769		
Services incidental to agriculture sector (subtotal)	10,598		4,919
021 Services incidental to livestock and animal specialties	6,851	5419 Other Professional, Scientific and Technical Services (3,882 livestock veterinary services firms in SIC 021 are included in the 13,852 firms in NAICS 5419)	
		1152 Support activities for animal production (of the total 1,608 firms in NAICS 1152, 1,360 firms are in SIC 021 and the remaining 248 firms are in the SIC group: "welding - farrier services")	1,608
		8129 Pet care (except veterinary) services (1,461 of 4,285 firms in NAICS 8129 are in SIC 021)	
022 Services incidental to agricultural crops	3,747	1151 Support activities for crop production (NAICS 1151 includes 3,311 firms included 2,988 firms from SIC 022 plus 234 firms from SIC 023 (farm management consulting services) plus 89 firms from SIC 451 (aerial crop spraying, using specialised equipment))	3,311
		11320 Berries, wild rice and wild ginseng gathering	
		541380 Soil and seed testing services (52 of 42,851 firms in NAICS 541380 are in SIC 022)	
		56173 Ornamental shrub and tree services (planting and maintaining) (659 of 35,683 firms in NAICS 56173 are in SIC 022)	
023 Other services incidental to agriculture	1,690	5416 Agricultural consulting services (livestock breeding, agronomy, agrology, consulting services) (818 of 81,354 firms in NAICS 5416 are in SIC 023)	
		5417 Agricultural research and development services (628 of 4,005 firms in NAICS 5417 are in SIC 023)	

Agri-food group (subtotal)	179,321		172,660
Food and fibre processing sector (subtotal)	9,739		11,211
101 Meat and poultry products industries	1,330	3111 Animal food manufacturing	836
103 Fruit and vegetable industries	536	3112 Grain and oilseed milling	303
104 Dairy products industry	1,111	3113 Sugar and confectionary product manufacturing	399
		3114 Fruit and vegetable preserving and specialty food manufacturing	659
105 Flour, prepared cereal food and feed industries	1,069	3115 Dairy product manufacturing	1,107
106 Vegetable oil mills (except corn oil)	38	3116 Meat product manufacturing	1,338
107 Bakery products industry	1,571	3118 Bakeries and tortilla manufacturing (3,626 firms of which 1,898 (52.3%) were in the SIC retail bakery code)	3,626
		3119 Other food manufacturing	1,007
108 Sugar and sugar confectionery industries	386	3121 Beverage manufacturing	783
109 Other food products industries	1,299	3122 Tobacco manufacturing	65
111 Soft drink industry	305	3161 Leather and hide tanning and finishing	346
112 Distillery products industry	47	3162 Footwear manufacturing	255
113 Brewery products industry	275	3169 Other leather and allied produce manufacturing	487
114 Wine industry	382		
121 Leaf tobacco industry	22		
122 Tobacco products industry	49		
171 Leather and allied products industries	980		
182 Spun yarn and woven cloth industries	339		
Inputs supplier industries sector (subtotal)	1,056		362
		3331 Agricultural, Construction and Mining Machinery Manufacturing (640 firms of 1,439 in NAICS 3331 are in SIC 311)	
311 Agricultural implement industry	706	3253 Pesticide, Fertiliser and Other Agricultural Chemical Manufacturing	362
372 Agricultural chemical industries	350		
Agriculture storage and warehousing industries sector		4931 Warehousing and storage (460 of 3,110 firms)	
471 Grain elevator industry	460		
Agricultural wholesale and retail trade industries sector (subtotal)	72,105		65,169
501 Farm products, wholesale	2,469	411 Farm Product Wholesaler-Distributors	2,426
521 Food, wholesale	10,848	4131 Food Wholesalers - Distributors	10,880
522 Beverages, wholesale	1,077	4132 Beverage Wholesalers - Distributors	1,086
		4133 Cigarrette and Tobacco Product Wholesalers - Distributors	230
524 Tobacco products, wholesale	225	4171 Farm Machinery, Equipment and Supplies, Wholesalers (all 3,208 firms were part of the 3,898 firms in SIC571)	3,208
571 Farm machinery, equipment and supplies, wholesale	3,898	4442 Lawn and Garden Equipment and Supplies (106 of 2,791 firms in NAICS 4442 are in SIC 571)	
		8113 Commercial and Industrial Machinery and Equipment (except automotive and electronic) Repair and Maintenance (635 of 14,308 firms were in SIC571)	
		4183 Agricultural Supplies Wholesaler - Distributors (NAICS 4183 has 2,113 firms of which 2,105 are in SIC 593)	2,113
593 Agricultural supplies, wholesale	2,220	4451 Grocery Stores	28,485
601 Food stores	43,402	4452 Speciality Food Stores (in NAICS 4452, there are 8,325 firms of which 8,128 are in SIC 601) (Note: 1,898 bakeries with SIC601 are with NAICS3118 and are included in manufacturing.)	8,325
		4471 Gasoline stations (in NAICS 4471, there are 16,105 of which 1,878 are in SIC 601)	
		4461 Health and Personal Care Stores (in NAICS 4461, there are 15,138 firms of which 2,667 are SIC 601)	
602 Liquor, wine and beer stores	2,048	4453 Beer, Wine and Liquor Stores	2,049
652 Florists, lawn and garden centres	5,918	4531 Florists	4,576
		4442 Lawn and Garden Equipment Supplies Stores (of the 1,791 firms, 53 firms are SIC 5711= Farm Machinery, Equipment and Supplies, Wholesale; 233 firms are SIC 6531=Hardware Stores; 52 firms are SIC 5019=Other Farm Products, Wholesale; 90 firms are SIC 5939=Agricultural Chemical and Other Farm Supplies, Wholesale; and 1,342 firms are SIC 6522=Lawn and Garden Shops)	1,791
Food and beverage service industries sector	95,961	722 Food Services and Drinking Places	95,918
921 Food services	86,890		
922 Taverns, bars and night clubs	9,071		

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