SEASONAL VARIATION IN RURAL EMPLOYMENT

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HIGHLIGHTS

♦ **Within each industrial sector (except agriculture), the rural and small town (RST) workforce exhibited a higher amplitude of seasonality than the workforce in larger urban centres (LUCs), over the 1996 to 2000 period.**

♦ **After accounting for the national average amplitude of seasonality <u>and</u> after accounting for the intensity of rural employment in highly seasonal sectors (such as "primary sector other than agriculture" and "construction"), we calculated that 39 percent of RST seasonal employment is due to the unique aspects of working in RST areas.**

♦ **Higher rural seasonality many be due to the fact that RST industries, such as processing and transportation, have stronger links to primary commodity flows.**

♦ **Agriculture is the sole sector where the workforce in LUCs is more seasonal than the RST workforce. This may be due to the concentration of nurseries and greenhouses on the fringes of urban areas.**

Introduction

Rural issues have an increasing profile in Canada's policy debate. There has been much discussion concerning the policy choices that best cater to this enduring part of the Canadian landscape. Part of this debate has focussed on the need to promote and cultivate the economic development of rural regions of Canada, particularly with regard to being part of, and sharing the benefits of, an 'innovative economy'. However, while discussions have embraced a wide spectrum of topics, the seasonal variation of employment within rural areas has received scant attention. Seasonal variation (or seasonality) refers to the extent to which employment fluctuates in a seasonal pattern in response to climate or institutional events. Seasonality is important because it introduces a disequilibrium in the allocation of resources and therefore represents a burden to the economy (Marshall, 1999). If seasonality is higher in rural areas there will likely be a drag on the local economy and a constraint on rural economic revitalization.

Note of appreciation

Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued cooperation and goodwill.

This paper represents a first step in attempting to address this void in the study of rural employment seasonality. The employment seasonality in rural areas of Canada was decomposed by using a shift-share analysis. This methodology disaggregated seasonal variation in employment into three components: national, structural and regional. This permitted a quantitative assessment of the impact each component had on total seasonality.

To further investigate the characteristics of rural seasonality, employment data was broken down by industrial sector and the seasonal variation in rural regions was compared to that existing in urban areas.

It is important to note that the results do not only reflect the impact of seasonal jobs. That is, the data is not limited to those individuals who have a non-permanent job that will end at a specified time in the near future, once the seasonal peak has passed. The data used represents total employment movements (that is, the overall pattern of hirings and separations) and does not discriminate between seasonal and permanent jobs. Marshall (1999) found that, in 1997, the overall annual swing in employment levels was more than

twice as great as the swing in the number of seasonal workers. This indicates that the aggregate hirings and separations of the permanent workforce also follow a seasonal pattern. The contribution that this makes to the fluctuations in the employment levels presented here must be borne in mind.

Definitions, data and methodology

This paper uses the Rural and Small Town (RST) definition of rural (Box 1). The charts and tables were generated using Labour Force Survey (LFS) data from 1996 to 2000. The LFS is a monthly household survey that collects detailed information on labour market activity from persons 15 years and over. The data includes both paid employees and the self-employed, and full-time and part-time workers. This paper used LFS data that was not seasonally adjusted.

Box 1   **'Rural and Small Town' (RST)**

Rural and Small Town (RST) refers to the population living outside the commuting zone of Larger Urban Centres (LUCs) – specifically, outside Census Metropolitan Areas (CMA) and Census Agglomerations (CA). RST includes all municipalities with urban populations of 1,000 to 9,999 and rural areas, where less than 50 percent of the employed individuals commute to the urban core of a CMA/CA.

A CMA has an urban core of 100,000 or over and includes all neighbouring municipalities where 50 percent or more of the labour force commutes to the urban core. A CA has an urban core of 10,000 to 99,999 and abides by the same commuting rule as a CMA.

The LFS divides employment on the basis of the activity of the employing firm, not on the actual function of the employee. For example, a research scientist employed by a forestry firm would be classified as being employed in the forestry sector not in the 'professional, scientific and technical services' sector. This is significant because it does not allow the disaggregation of employment activity within industrial sectors and, therefore, it does not permit a distinction to be made between 'head office' jobs and actual field work.

Shift-share analysis

The first part of the investigation entailed performing a shift share analysis on non-seasonally adjusted LFS data for RST areas. This technique decomposed the RST level of seasonal employment into three components:

- national component;
- structural component; and
- regional component

National component

The national component represents the seasonal employment that would exist in RST areas if the RST seasonal employment rate were the same as the overall national rate of seasonal employment (i.e. this is the contribution of the national component, also called the national shift, to RST seasonal employment).

Structural component

The structural component (also called the structural shift) represents the impact on RST seasonal employment if seasonal employment in each RST industry had been at the same rate as the national industry-specific seasonal employment. This provides the contribution of the RST industry mix to the RST average seasonal employment levels.

Regional component

The regional component, where RST is the region of investigation, is simply the residual seasonal employment in RST areas that is not due to:

    a. the "national component" (i.e. what RST seasonal employment would have been if it had varied at the national rate); and is not due to
    b. the "structural component" (i.e. what RST seasonal employment would have been if each industry in RST areas had varied at the national rate for that industry)[1].

Industry sector seasonality

The second part of the investigation involved the extraction of the pure seasonal component from the LFS data and charting this for both RST and LUCs, and by industry sector (Box 2)[2].

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[1]   For a detailed account of the calculations employed to conduct the shift-share analysis, see Appendix 1.
[2]   The extraction of the seasonal component involved the 'smoothing' of the raw data. Smoothing refers to the statistical technique of removing the effects of the trend, seasonality and business cycle from an economic time series. In this study, the "seasonal component" (or the index that analysts use to de-seasonalise their data) is used for the charts. This provides the 'pure' seasonality in the time series.

The author would like to acknowledge the contribution of the Time Series Research and Analysis Division of Statistics Canada for their work in generating the seasonal factors used in this work.

Box 2   **Industry Sectors**

The LFS divides industry into sectors according to the North American Industry Classification System (NAICS). The following sectors are used in this work.

- Agriculture
- Primary sector other than agriculture: comprising 'forestry'; 'fishing'; 'mining'; and 'oil and gas'
- Construction
- Manufacturing
- Distributive services: comprising 'transportation and warehousing'; 'utilities'; 'trade'; and 'information, culture and recreation'
- Producer services: comprising 'finance, insurance and real estate'; 'professional, scientific and technical services'; and 'management of companies and administrative and other support services'
- Educational services
- Health and social services
- Public services
- Personal services: comprising 'accomodation and food services'; and 'other services'

For details of the definitions and survey methodology used by the LFS refer to:
Statistics Canada. (2000) <u>Guide to the Labour Force Survey</u>. Ottawa: Statistics Canada. Cat: 71-543-GIE.

Results

In the following analysis, it is important to bear in mind that LUCs encompass an extensive "metro fringe" area. For example, about one-third of Canada's population living in the countryside reside within the commuting zone of LUCs (du Plessis *et al.*, 2001) and are thus included in the LUC employment data analysed here. As a result, many "rural" economic activities, such as greenhouse operations, are included within LUCs.

Table 1 shows the results of the shift-share analysis performed on the seasonal variation of employment within RST regions. The total seasonal variation has been disaggregated into the national, structural and regional components. Figure 1 shows the share of RST seasonality attributable to each component.

Table 1

Calculation of the National, Structural and Regional components of RST employment seasonality, 1996 to 2000

Total seasonal variation in employment levels in RST areas (i.e. the total shift)

Industry sector	Average annual employment in RST areas ('000 workers)	"Total shift" = Average RST seasonal employment (July average employment minus average annual employment) ('000 workers)	Average RST seasonality rate (percent)
	(1)	(2)	(3) = [(2) / (1)] x 100
Agriculture	301.3	21.2	7.0
Primary *	133.5	16.2	12.1
Construction	176.0	32.9	18.7
Manufacturing	412.7	26.2	6.3
Distributive services	626.6	25.1	4.0
Producer services	231.6	15.6	6.7
Educational services	165.9	-31.7	-19.1
Health and social services	269.5	8.2	3.0
Public administration	121.5	16.5	13.6
Personal services	313.4	37.7	12.0
RST total	2,752.0	167.8	6.1

The National Component: The size of RST seasonal employment levels if RST seasonal employment rate were the same as the national employment rate

	Average annual employment in all areas ('000 workers)	Average national seasonal employment (July average employment minus average annual employment) ('000 workers)	Average national seasonality rate (percent)	Average annual employment in RST areas ('000 workers)	National Component ('000 workers)
	(4)	(5)	(6) = [(5) / (4)] x 100	(1)	(7) = (6) x (1) / 100
Canada	14,164.7	405.5	2.9	2,752.0	79.8

The Structural Component: The size of RST seasonal employment levels due to the impact of industry-specific seasonality rates

Industry sector	Average annual employment in all areas ('000 workers)	Average national seasonal employment (July average employment minus average annual employment) ('000 workers)	Average national seasonality rate in each industry (percent)	Average national seasonality rate across all industries in all areas (percent)	National industry-specific seasonality rate minus average national seasonality rate (percent)	Average annual employment in RST areas ('000 workers)	Structural component: impact of industry-specific seasonality rates on RST seasonal employment ('000 workers)
	(8)	(9)	(10) = [(9) / (8)] x 100	(6)	(11) = (10) - (6)	(1)	(12) = (11) x (1) / 100
Agriculture	410.8	36.5	8.9	2.9	6.0	301.3	18.2
Primary *	287.4	27.6	9.6	2.9	6.7	133.5	9.0
Construction	754.6	78.8	10.4	2.9	7.6	176.0	13.3
Manufacturing	2,113.0	61.9	2.9	2.9	0.1	412.7	0.3
Distributive services	3,650.7	89.9	2.5	2.9	-0.4	626.6	-2.5
Producer services	2,182.1	63.9	2.9	2.9	0.1	231.6	0.2
Educational services	943.0	-120.0	-12.7	2.9	-15.6	165.9	-25.9
Health and social services	1,436.2	22.4	1.6	2.9	-1.3	269.5	-3.5
Public administration	784.5	45.3	5.8	2.9	2.9	121.5	3.5
Personal services	1,601.3	99.1	6.2	2.9	3.3	313.4	10.4
RST total							23.1

The Regional Component: The residual RST employment seasonality

Total shift ('000 workers)	National component ('000 workers)	Structural component ('000 workers)	Regional component ('000 workers)
(2)	(7)	(12)	(13) = (2) - [(7) + (12)]
167.8	79.8	23.1	64.9

* Refers to "primary sector other than agriculture".
Source: Statistics Canada, Labour Force Survey, 1996 to 2000.

Figure 1

In RST areas, the Regional component is a major contributor to employment seasonality

Source: Statistics Canada, Labour Force Survey, 1996 to 2000
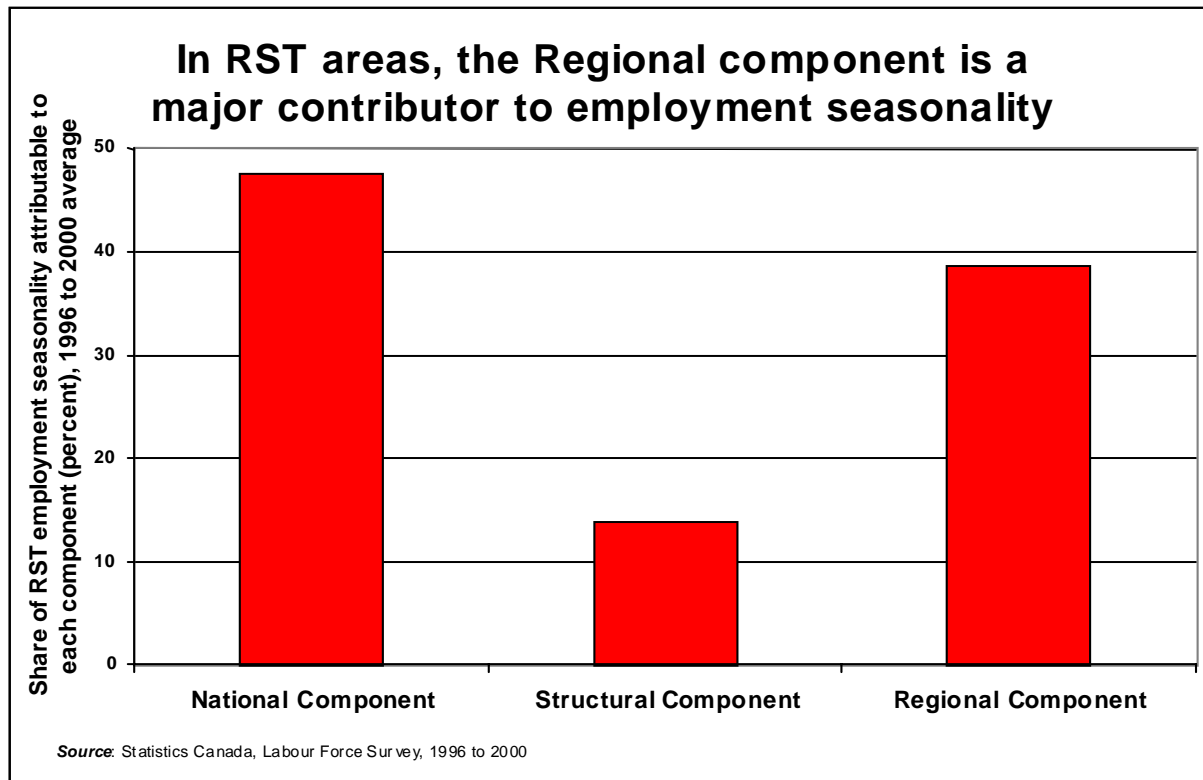
It can be seen that the regional component is a strong contributor to RST employment seasonality, accounting for nearly 39 percent of the seasonal variation in employment. Thus, 39 percent of the seasonality in RST regions was unaccounted for by the national characteristics of the industry or the industry mix in those regions. The national component was the largest component, contributing approximately 48 percent of seasonality. This indicates that Canada's economy as a whole has a seasonal character. The structural component was responsible for just under 14 percent[3].

The regional component incorporates and mirrors economic factors that are unique to RST areas. It is likely that it includes numerous physical attributes (i.e distance and population density), geographic considerations (i.e. the relative location of both communities and economic activity), and the socioeconomic and demographic profile of the RST population. Moreover, the regional component will reflect the complex ways in which these factors interact and influence each other.

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[3] The structural component is small, in part, because of the impact of the educational services seasonal employment pattern. Unlike all other sectors, educational services have lower employment in the summer. This acts to depress the magnitude of the structural component. In addition, this seasonal decline is greater in RST areas than LUCs (see Figure 8).

Figures 2 – 11 constitute the results of the second part of the investigation. They compare the employment seasonality in RST areas and LUCs, broken down by industry sector. To allow visual comparison between these charts the Y-axis scale has been held constant.

Figure 2
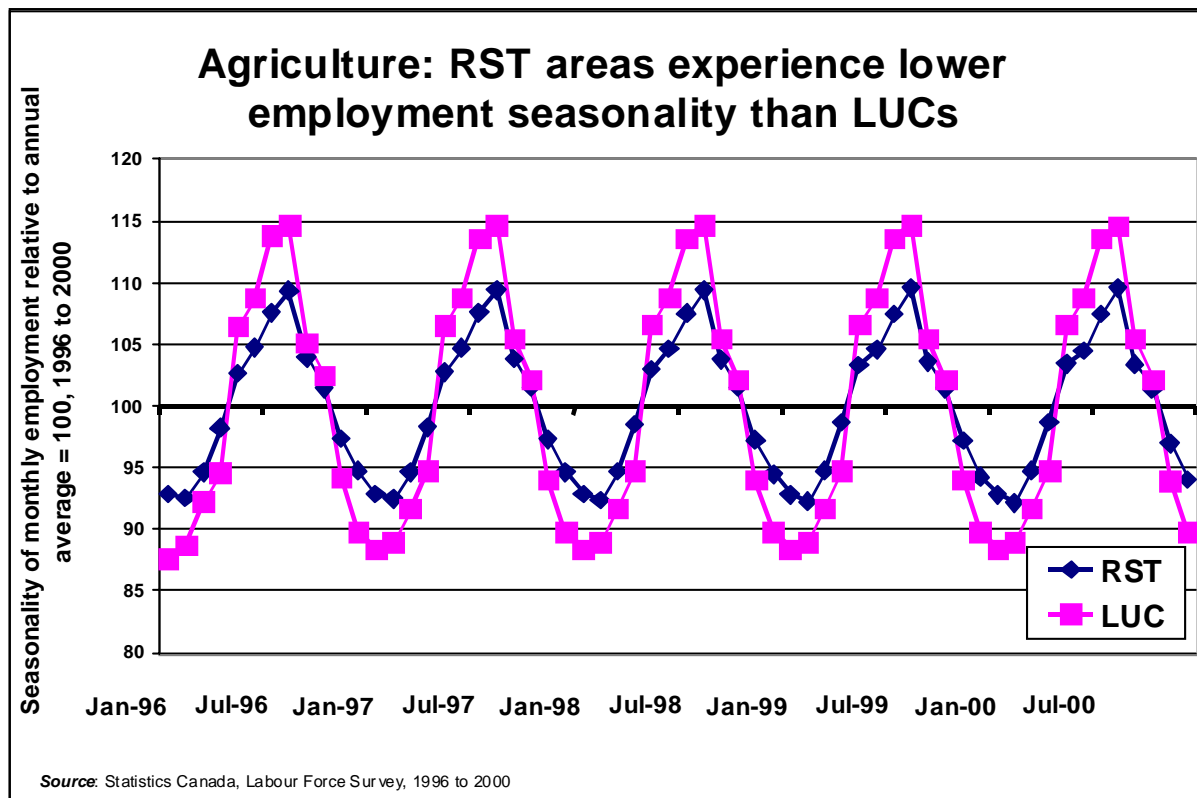
Agricultural employment is the only industry sector that exhibits lower employment seasonality in RST areas (Figure 2). This is a somewhat surprising result and merits further investigation. The reason may be that the agricultural workforce in RST areas is more likely to be in livestock (such as dairy and hogs and beef feedlots) where there is a constant year-round demand for labour, or in extensive grain production, where most of the labour is self-employed. The self-employed farmer tends not to move into and out of the workforce (a significant share have off-farm jobs but it is unlikely that the reported "major job" would shift between farming and the off-farm job from one season to the next).

In contrast, agriculture operations in LUCs tend to use land more intensively and have a need to be close to their customers. Lonmo (1999) found that just over one-half of all greenhouse operations were LUC based, and these LUC-based operations had, on average, almost two-and-a-half times the area under cultivation of their RST counterparts. Similarly, over one-third of all field vegetable areas were near a city, while 47 percent of farmland with fruit trees was in LUCs. These types of operations tend to have a higher proportion of paid employees than is the case with agriculture generally. The 1996 census data indicates that

approximately 18 percent of all agriculture and horticulture workers were employed in nursery and greenhouse operations (in comparison, only about 3.25 percent of total farm cash receipts were generated by greenhouse operations). The paid workers required for these types of farming operations could account for the higher seasonality found in LUCs.

Figure 3

Primary sector other than agriculture: RST areas experience higher seasonality than LUCs

Source: Statistics Canada, Labour Force Survey, 1996 to 2000
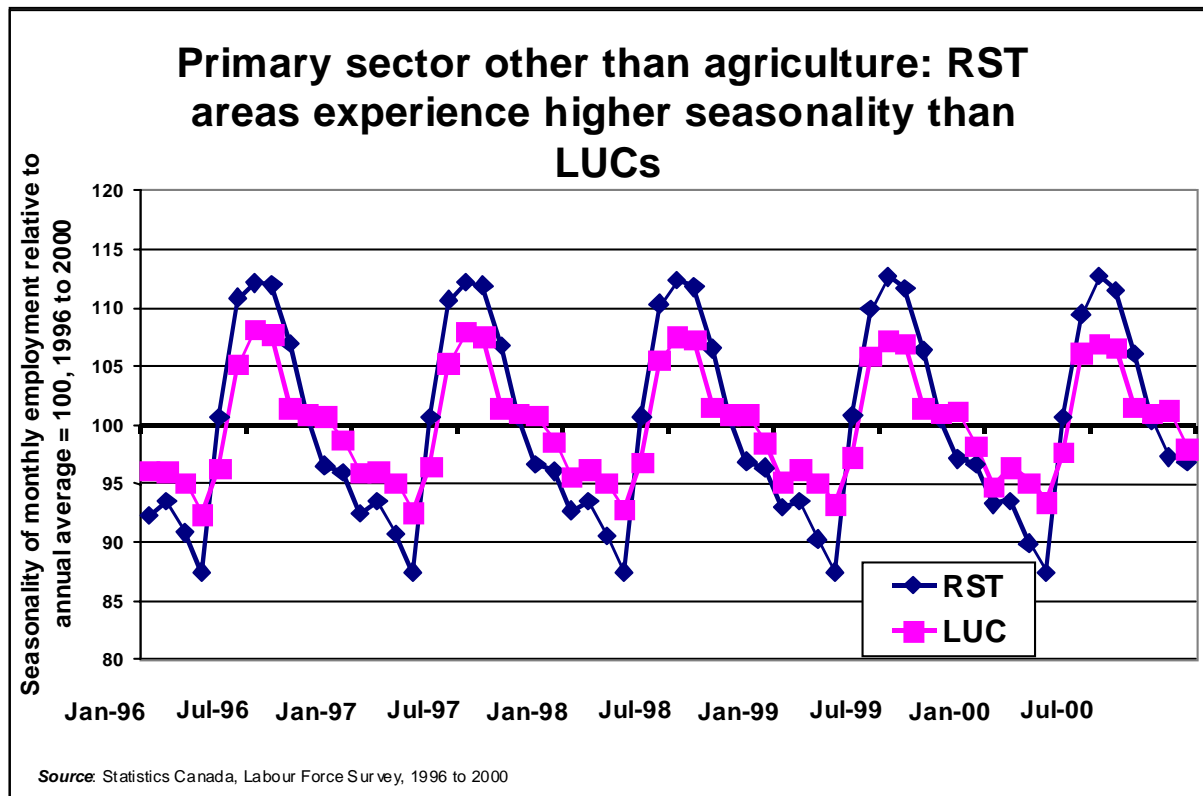
The "Primary sector other than agriculture", which comprises 'forestry', 'fishing', 'mining' and 'oil and gas', exhibits higher seasonal employment variation in RST areas (Figure 3). This may reflect a difference in the type of employment between the two areas, with more "head office" functions being performed in LUCs and the more climate-dependent production work being carried out in RST areas.

Figure 4

Construction: RST areas have higher employment seasonality

Source: Statistics Canada, Labour Force Survey, 1996 to 2000
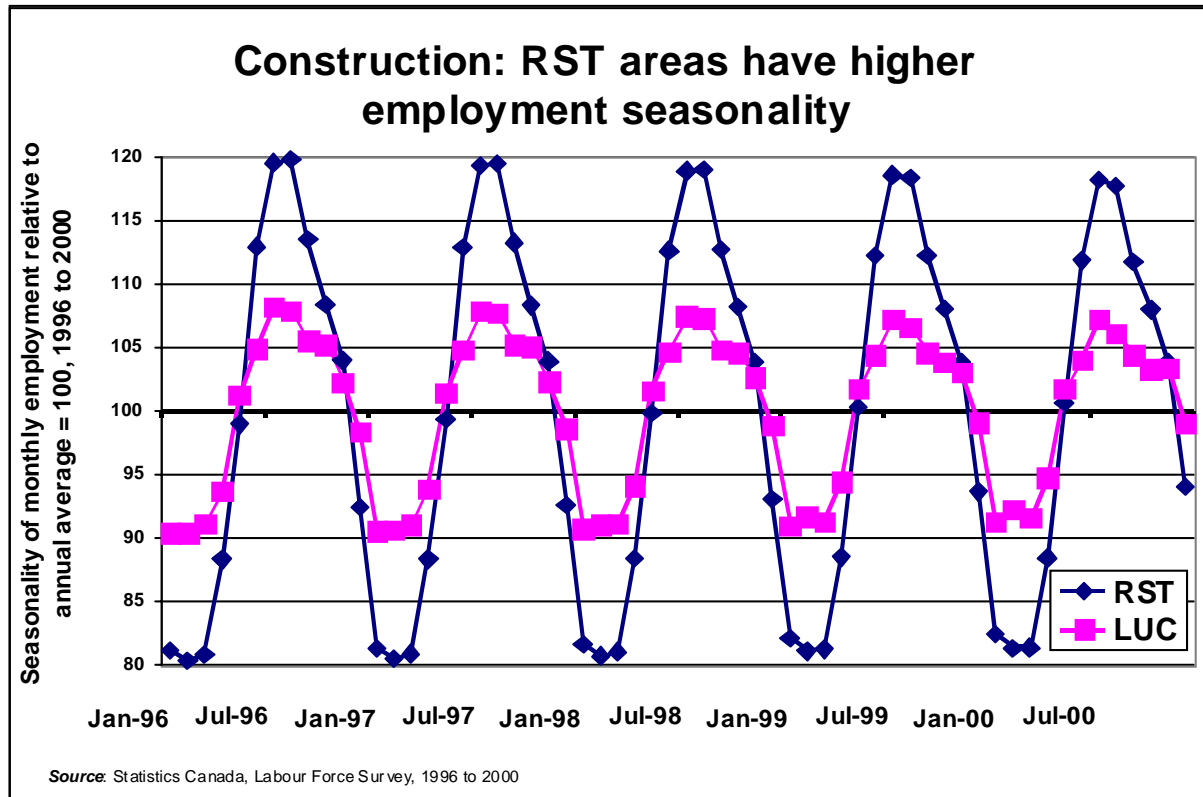
Construction employment had the highest RST seasonal variation of all the industry sectors (Figure 4) and is a consequence of the outdoor nature of this kind of work. There was a large difference between RST areas and LUCs and this could, again, be a reflection of the difference between "head office" type work and "field work". In addition, the higher RST seasonality may reflect the relative lack of severity of winter in many LUCs in Canada (e.g. Vancouver, Toronto, Montreal and Ottawa) compared to many RST areas such as Saskatchewan, Manitoba and Northern Ontario. Moreover, the period 1996 to 2000 represented a period of economic expansion and may have corresponded to the best years in "urban" construction. This would have encouraged year-round activity within LUCs.

Interestingly, both RST areas and LUCs had slightly declining construction employment seasonality between 1996 and 2000. This may have been caused by the adoption of new construction materials (an obvious example being concrete that will set at very low temperatures allowing building work to continue through the Canadian winter), again underpinned and encouraged by the economic boom that existed during this period.

Figure 5

Manufacturing: RST areas have higher employment seasonality than LUCs

Source: Statistics Canada, Labour Force Survey, 1996 to 2000
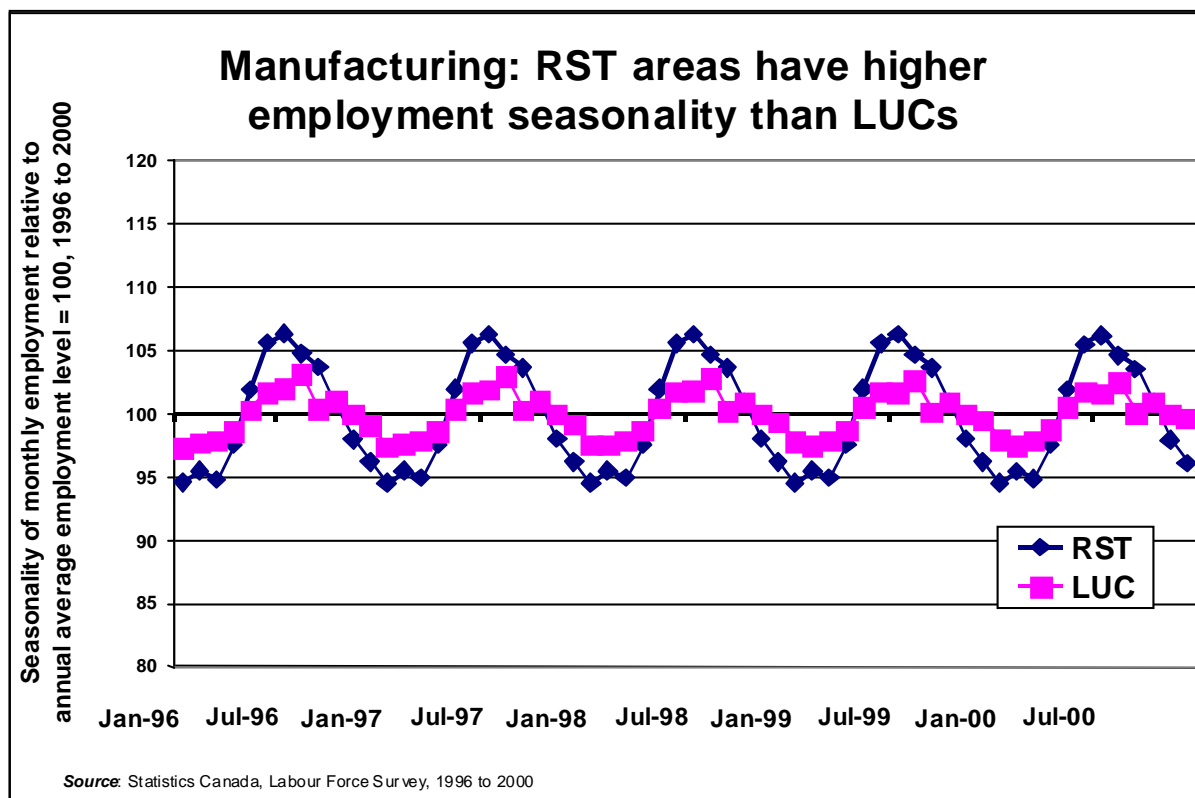
The manufacturing sector comprises both traditional and complex manufacturing. Manufacturing exhibited low employment seasonality in both RST areas and LUCs (Figure 5). This is predictable given the indoor nature of manufacturing. Once again, the seasonality was higher in RST areas. This may reflect a higher concentration of manufacturing that used primary products and which had a consequential seasonal pattern associated with the acquisition of raw materials.

In contrast, the lower seasonality in LUCs may have been partly due to the presence of technology based complex manufacturing. There does appear to be a tendency for technology based industry to locate in clusters within LUCs. Britton (1996) states that Canadian urbanization is the key to understanding the location of technology-intensive activity with Toronto, Montreal and Ottawa being the major locations of high-tech manufacturing plants. Ottawa's 'Silicon Valley North' is a prime example of this trend. This locational pattern is supported by analysis of survey data. Beshiri (2001 a) studied the employment intensity of traditional and complex manufacturing. He found that traditional manufacturing was more intensive in rural areas, while complex manufacturing was more intensive in urban areas.

Figure 6

Distributive services: Both RST areas and LUCs have low employment seasonality

Seasonality of monthly employment relative to annual average employment = 100, 1996 to 2000

Legend: RST, LUC

X-axis: Jan-96, Jul-96, Jan-97, Jul-97, Jan-98, Jul-98, Jan-99, Jul-99, Jan-00, Jul-00

Y-axis: 80, 85, 90, 95, 100, 105, 110, 115, 120

Source: Statistics Canada, Labour Force Survey, 1996 to 2000
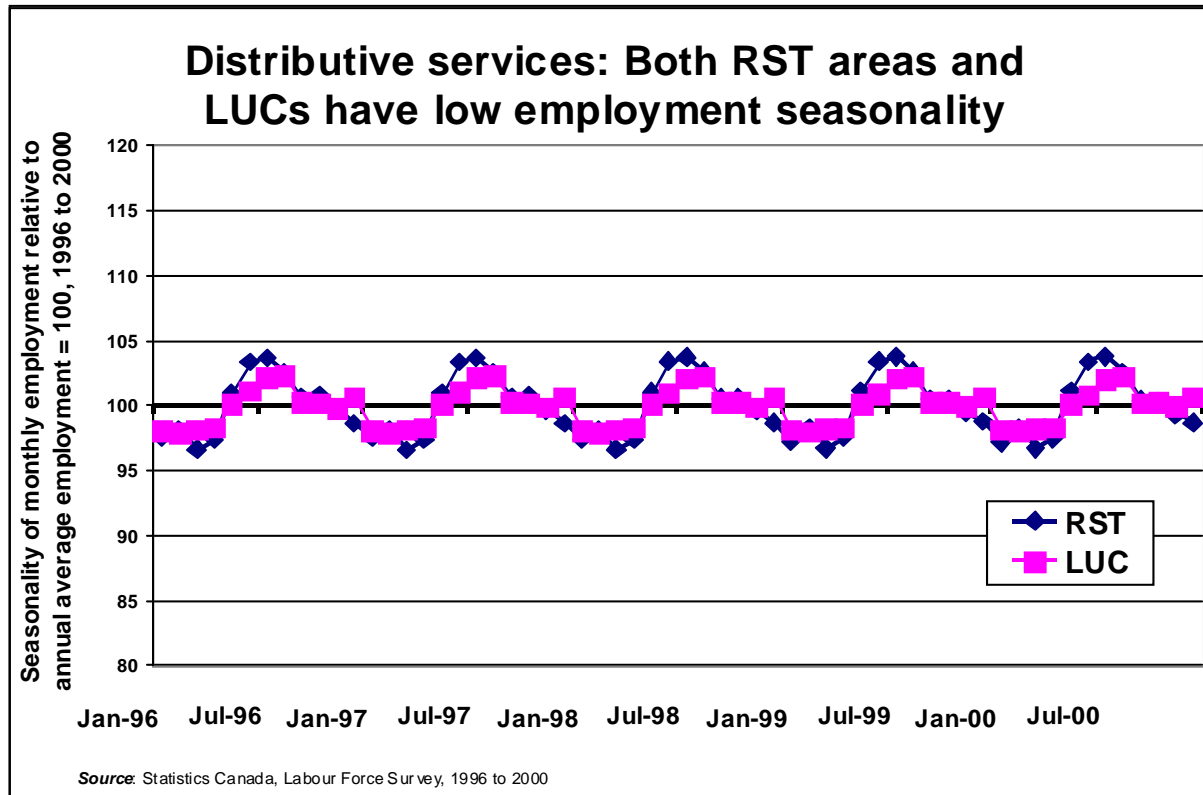
Distributive services also had low employment seasonality (Figure 6) and there was little difference between RST areas and LUCs. The seasonality in both areas remained steady throughout the study period.

Producer services also had relatively low employment seasonality but, unlike distributive services, RST areas had a higher seasonal variation (Figure 7). This interesting finding merits future analysis. It is possible that some of the increased seasonality in RST areas was due to the provision of services to the more traditional industries located in these areas. This finds support in the work of Beshiri (2001, b). Beshiri found that, in the mid-1990s, RST areas of Canada were twice as intensive in services related to the primary industries as compared to Canada as a whole.

Figure 7

Producer services: Employment seasonality is higher in RST areas than LUCs

Source: Statistics Canada, Labour Force Survey, 1996 to 2000
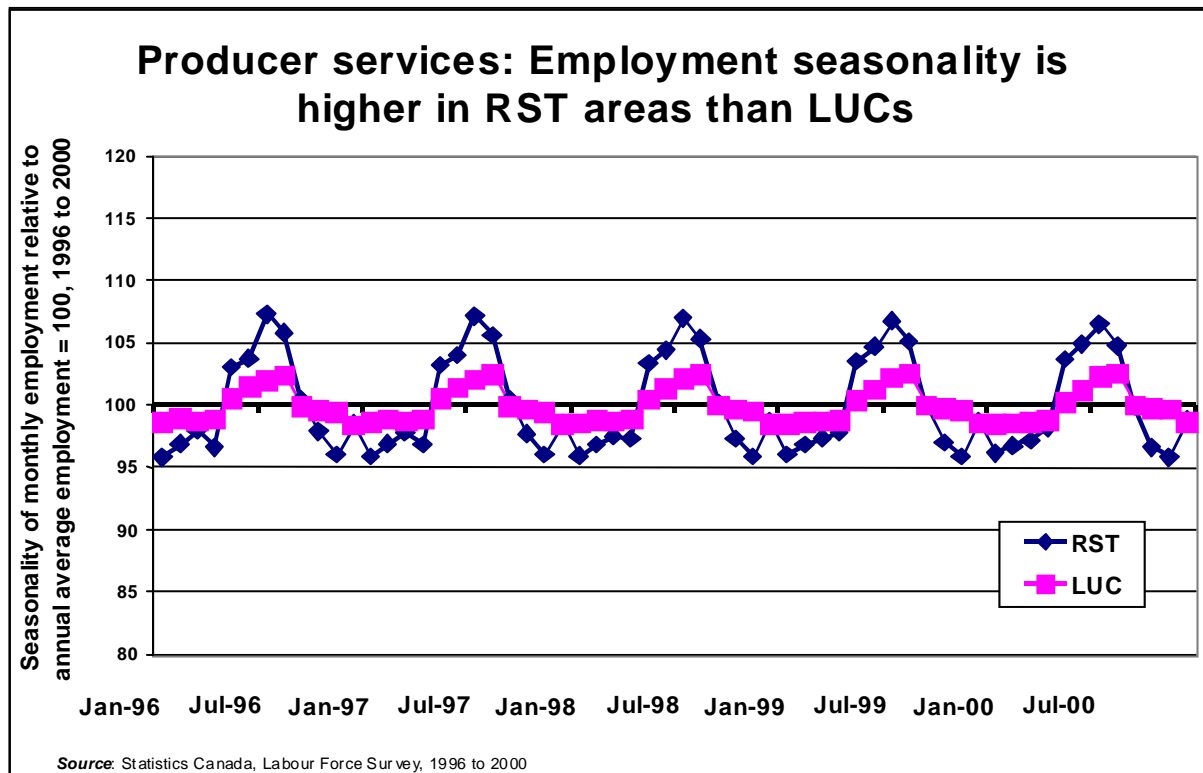
Figure 8

Educational services: Both areas exhibit a summer employment decline but it is more pronounced in RST areas

Source: Statistics Canada, Labour Force Survey, 1996 to 2000
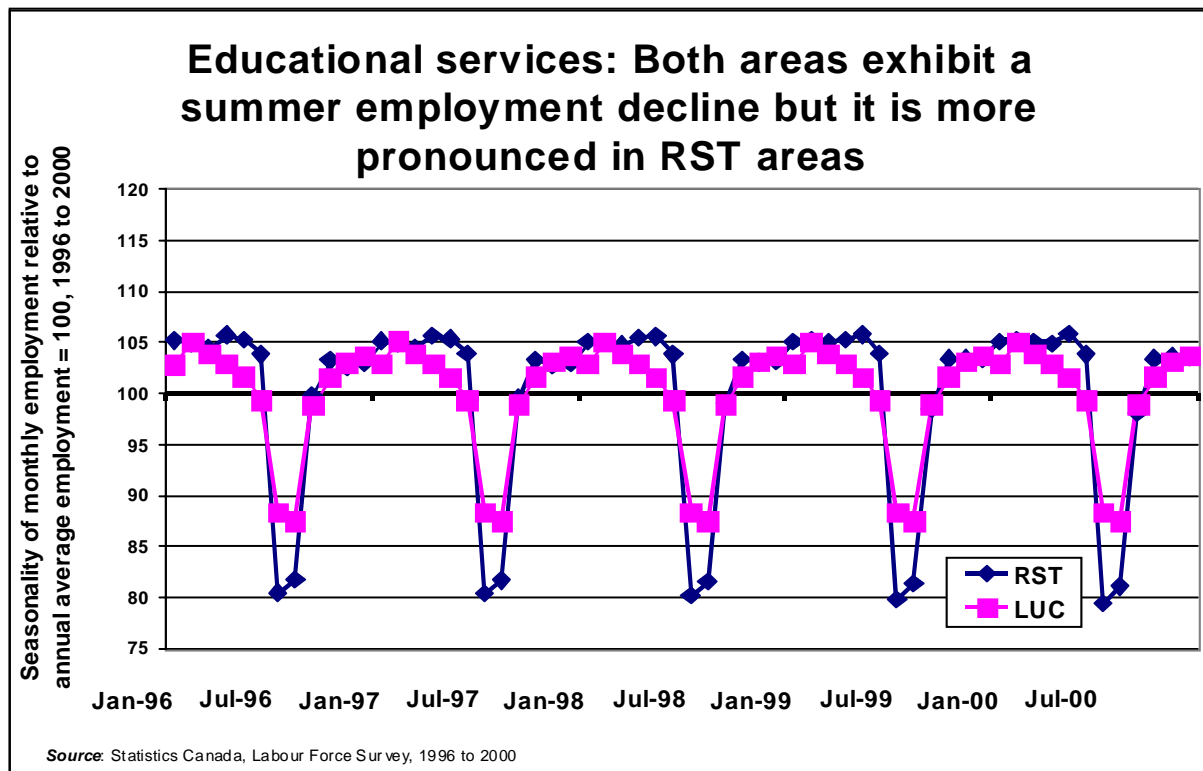
Educational services were atypical with respect to employment seasonality, exhibiting a sharp decline in the summer months in both RST areas and LUCs (Figure 8). This was perhaps to be expected with the school and university summer shut-down and may speak to the proliferation of casual and temporary contracts in this sector. As an example, Carleton University in Ottawa employs approximately 1,100 teaching assistants during the fall and winter terms, but only around 50 during the summer session. Similarly, Carleton University employs approximately 400 sessional lecturers during the fall and winter, but only between 50 and 100 during the summer (personal communication, 2002 a). Within school employment, the Ottawa-Carleton District School Board reported that between 200 and 250 of their teaching staff (out of a total active teaching staff of 2,900) were designated 'continuing occasional' and had their employment discontinued during the summer (personal communication, 2002 b). The summer employment dip may also be due to the use of 10-month contracts (in which workers are laid off for 2 months in the summer) amongst school administrative assistants and custodial workers.

Employment seasonality in the educational sector was greater in RST areas and was more narrowly concentrated in the months of July and August. This may be due to the higher concentration of school- and college-based employment (as opposed to university-based employment with its longer summer break) in rural areas of Canada. Statistics Canada data supports this contention. Only 4.5 percent of university and affiliate campusses are located within RST areas. In contrast, 25 percent of college and affiliate campusses are found in RST areas[4].

Health and social services exhibited generally low seasonal employment variation (Figure 9). Employment seasonality was slightly higher in RST areas.

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[4]   For a detailed discussion of some of the implications resulting from the location of post-secondary education institutions see Page (forthcoming).

Figure 9

Health and social services: Both RST areas and LUCs have low employment seasonality

Source: Statistics Canada, Labour Force Survey, 1996 to 2000
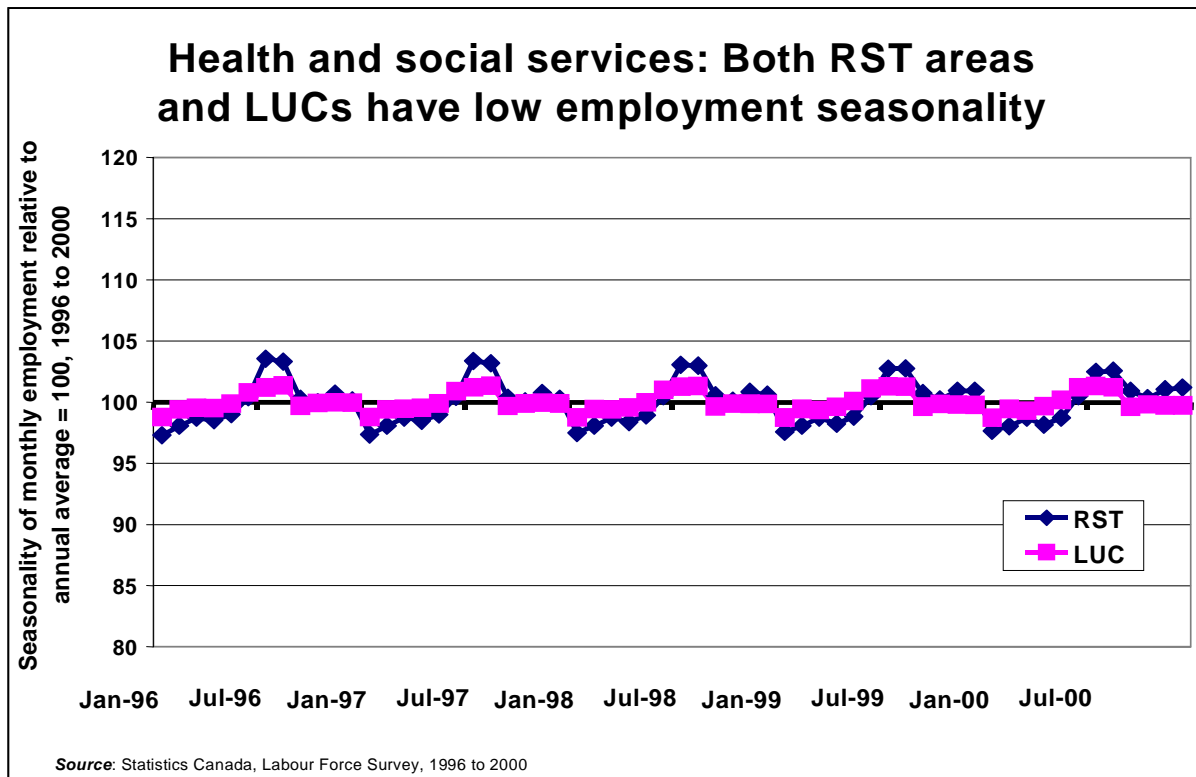
Figure 10

Public service: RST areas have a markedly higher employment seasonality than LUCs

Source: Statistics Canada, Labour Force Survey, 1996 to 2000
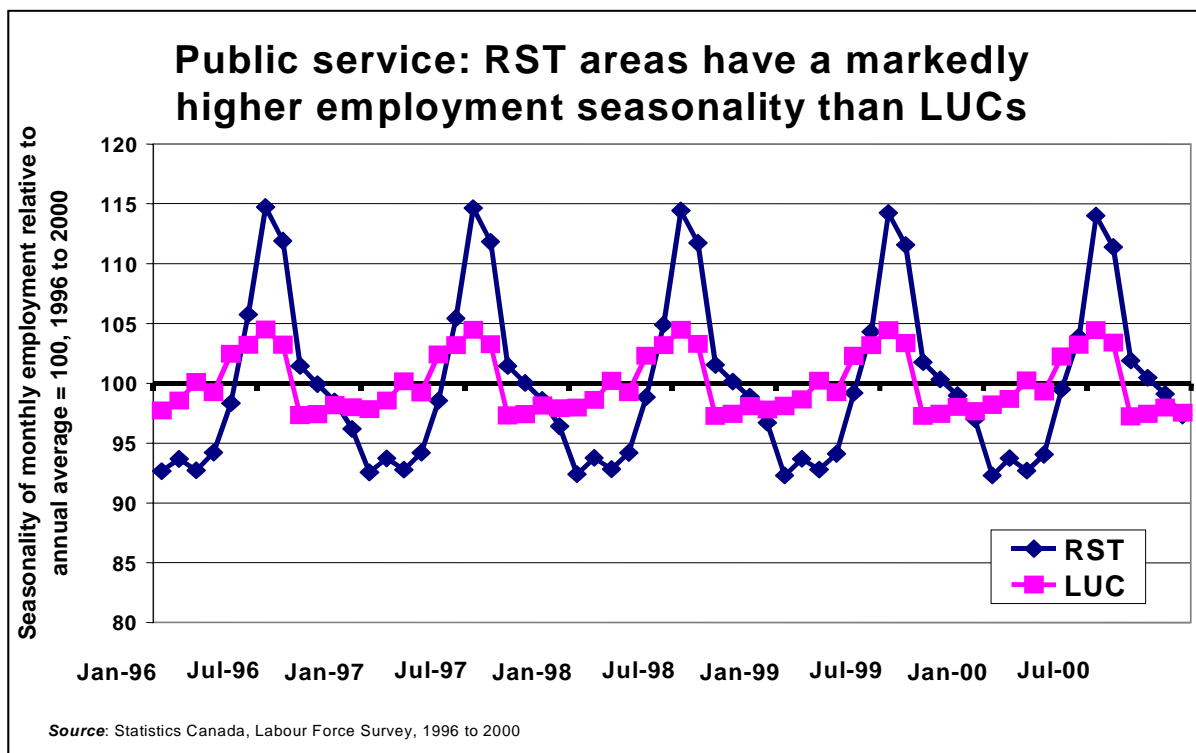
Public service employment displayed a big difference in seasonality between RST areas and LUCs (Figure 10). Interestingly, the pattern also differs, with LUCs having steady or rising employment between September and January while RST areas continue to loose employment over this part of the year. This would seem to indicate a fundamental difference between the type of public service employment that exists in RST areas and that found in LUCs. This may, in part, reflect a higher concentration of outdoor work associated with the maintenance of public parks and outdoor attractions in RST Canada.

Figure 11

Personal services: employment seasonality is higher in RST areas than LUCs

Source: Statistics Canada, Labour Force Survey, 1996 to 2000
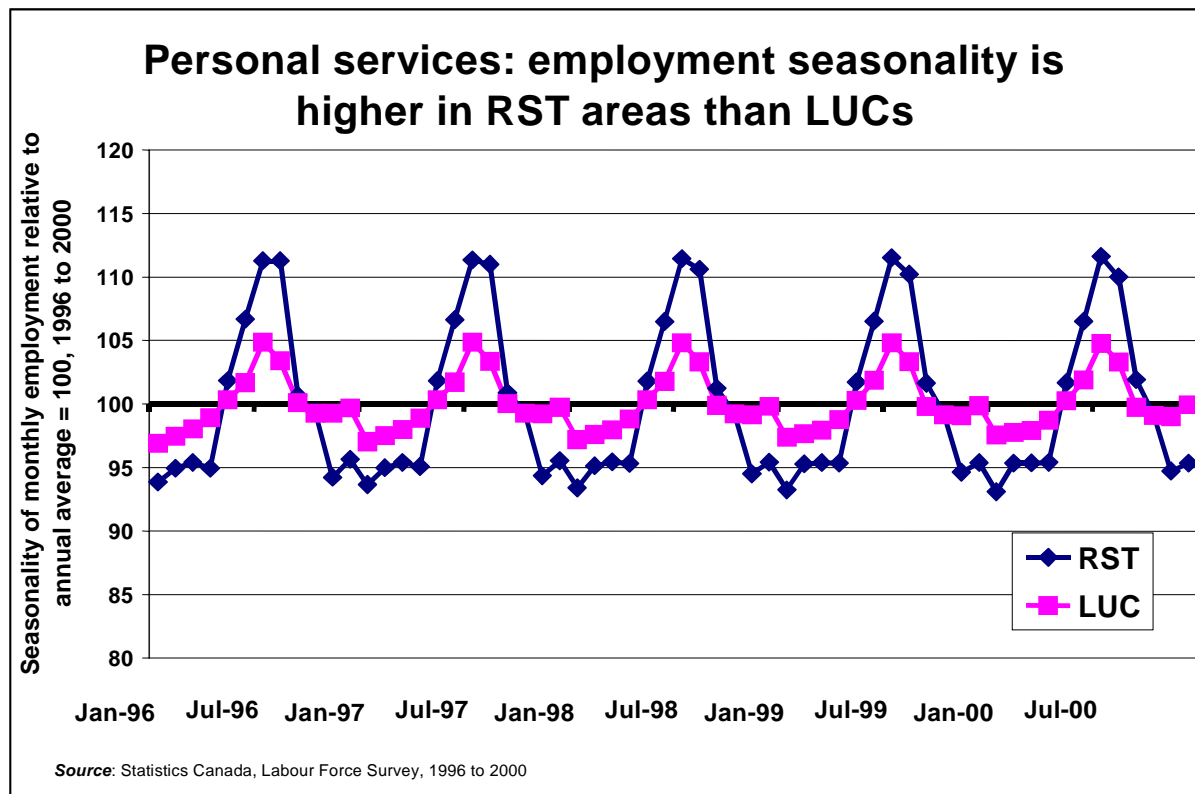
Personal services also showed distinctly higher employment seasonality in RST areas. This may speak to a higher concentration of businesses involved in the provision of services for tourists engaged in outdoor, summer related activity.

Conclusion

A shift-share analysis of the RST employment seasonality found that over 39 percent of this seasonality was attributable to the regional component. That is, 39 percent of the seasonality was unaccounted for by the overall characteristics of specific industries (the national component) or the mix of industry sectors (the structural component) found in RST areas. The regional component, therefore, encompasses and reflects economic factors that are unique to RST areas. However, the exact nature of the regional component is impossible to determine from the data used here. Some possibilities of the factors that might contribute to the regional component include differences between RST and LUCs with respect to:

- government policy (for example, employment insurance eligibility rules differ according to regional unemployment rates).
- the socioeconomic or age characteristics of workers
- the gender split of workers in RST areas as compared to LUCs.
- distance *per se* (and the consequential lower density of economic and social activity) in RST areas.
- historical inertia regarding business organization and practice (in which seasonality is regarded as the norm) playing more forcefully in RST areas.

Importantly, and more obviously, the data does not permit a determination of the spatial differences in the characteristics of employment activity <u>within</u> industrial sectors. As mentioned before, this prevents a distinction being made between 'head office' and 'in the field' jobs within a specific industry sector.

When the industry sectors were considered in isolation it was found that employment seasonality was higher in RST areas in all sectors with the exception of agriculture. It is important to note that increased RST seasonality was not limited to those sectors traditionally associated with seasonal employment (principally the primary sectors and construction) but was spread across nearly all sectors. It is possible that RST workers in these "non-seasonal" sectors are more linked to primary commodity flows than are LUC workers in the same sector. Rural manufacturing using primary products, rural producer services and rural transportation serving the primary sector are obvious examples.

The results of this study indicate that higher seasonal variation in employment exists in RST areas of Canada as compared to LUCs. The lowered industrial productivity and reduced wages that likely result have the potential to negatively impact the development of RST areas and presents a particular challenge for economic revitalization. It is hoped this work will help inform the policy debate concerning the revitalization of rural areas of Canada and act as a starting point for further investigation of the rural/seasonality nexus.

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Appendix 1

The steps in the calculation of the National component are:

1. For all industries at the national level, we calculate the national average seasonal employment as (July average employment) minus (annual average employment).
2. We calculate a "national seasonality rate" by calculating the national average seasonal employment as a percent of the annual average employment.

To calculate the national component of RST average seasonal employment (i.e. to calculate what RST seasonal employment would have been if it had varied at the national rate),

3. We multiply RST average annual employment times the "national seasonality rate" (from Step 2).

The steps in the calculation of the Structural component are:

4. For each industry sector at the national level (i.e. for all regions), we calculate a "seasonality rate" for that sector. This is the (July average employment in each sector) minus (annual average employment in each sector) as a percent of annual average employment in each industry.
5. Then, we calculate the industry-specific seasonality-differential rate as the difference between the seasonality rate in each sector (from Step 4) at the national level minus the overall national seasonality rate (from Step 2);
6. Then, we multiply the industry-specific seasonality-differential rate (from Step 5) times the RST average level of employment in the specific sector to get the level of seasonal employment in each RST sector due to how that sector's seasonality differs from the national level.
7. Finally, we aggregate the employment calculated in Step 6 for each sector to get the total contribution of industrial structure (i.e. the structural component) to RST seasonal employment.

The calculation of the Regional component is:

8. Average RST seasonal employment minus the "national component" (from Step 3) minus the "structural component" (from Step 7).

Thus, this calculation attributes to "region" or to "region-specific factors" (i.e. factors specific to RST in our case) all the remaining variability in seasonal employment, after taking account of national average trends and industry-specific average trends in each sector.

Appendix 2, Table 1

RST monthly employment level ('000 workers) by industry sector, 1996 to 2000

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average	Descriptive statistics, 1996 - 2000	
All sectors															
1996	2,487.1	2,479.6	2,472.7	2,510.1	2,647.0	2,732.1	2,784.5	2,781.0	2,702.7	2,685.1	2,597.0	2,569.2	2,620.7	Standard deviation	152.9
1997	2,514.9	2,540.0	2,539.3	2,551.4	2,702.4	2,821.3	2,848.5	2,852.9	2,757.5	2,705.6	2,661.6	2,624.4	2,676.7	Mean	2,752.0
1998	2,539.5	2,584.6	2,605.2	2,643.9	2,754.3	2,844.3	2,915.1	2,910.8	2,838.7	2,791.8	2,731.7	2,731.1	2,740.9		
1999	2,639.3	2,685.4	2,665.6	2,740.1	2,899.4	3,002.6	3,032.0	2,990.2	2,932.2	2,887.1	2,862.8	2,803.7	2,845.0	Coefficient of variability (%)	5.6
2000	2,746.0	2,768.0	2,772.9	2,793.8	2,940.3	2,995.0	3,018.3	2,997.9	2,934.0	2,896.1	2,829.7	2,826.6	2,876.6		
Average 1996 - 2000	2,585.4	2,611.5	2,611.1	2,647.9	2,788.7	2,879.1	2,919.7	2,906.6	2,833.0	2,793.1	2,736.6	2,711.0	2,752.0		
Agriculture															
1996	284.7	288.5	294.4	306.7	323.7	337.1	347.6	349.7	329.7	322.8	305.2	299.2	315.8	Standard deviation	25.7
1997	288.0	289.0	298.7	308.6	318.7	326.0	332.9	338.8	330.1	320.8	309.5	298.1	313.3	Mean	301.3
1998	295.2	290.2	296.2	314.5	322.2	315.8	323.5	342.1	326.8	310.4	292.1	291.9	310.1		
1999	290.2	293.0	287.7	299.3	314.1	316.5	327.4	327.5	306.1	299.8	284.3	274.8	301.7	Coefficient of variability (%)	8.5
2000	264.4	260.1	275.5	273.9	282.7	279.2	280.9	283.6	262.5	255.8	240.2	227.9	265.6		
Average 1996 - 2000	284.5	284.2	290.5	300.6	312.3	314.9	322.5	328.3	311.0	301.9	286.3	278.4	301.3		
Primary sector other than Agriculture															
1996	125.9	125.0	117.6	116.3	128.0	135.9	143.4	145.6	141.8	135.0	130.6	127.1	131.0	Standard deviation	11.2
1997	122.4	126.0	123.6	116.6	139.8	148.6	148.0	148.5	147.1	134.8	126.2	125.9	134.0	Mean	133.5
1998	121.3	122.5	121.6	116.9	136.2	150.2	153.7	152.0	143.5	131.8	126.6	127.1	133.6		
1999	122.6	123.7	118.2	117.4	132.7	146.5	148.1	143.0	140.6	136.6	134.2	135.6	133.3	Coefficient of variability (%)	8.4
2000	130.8	129.3	118.7	118.1	137.6	146.4	155.4	152.6	144.4	136.2	132.0	129.0	135.9		
Average 1996 - 2000	124.6	125.3	119.9	117.1	134.9	145.5	149.7	148.3	143.5	134.9	129.9	128.9	133.5		
Construction															
1996	149.1	143.5	140.5	149.8	164.6	188.9	201.0	198.5	192.6	188.2	170.5	149.6	169.7	Standard deviation	26.5
1997	130.5	131.3	131.5	139.0	169.4	197.0	205.7	212.4	196.2	187.1	175.8	157.0	169.4	Mean	176.0
1998	138.1	135.8	145.1	150.7	165.3	183.0	200.5	200.1	191.2	184.5	181.5	162.9	169.9		
1999	143.1	143.0	146.7	157.9	180.5	204.4	215.0	216.9	202.1	203.2	198.5	176.8	182.3	Coefficient of variability (%)	15.0
2000	160.2	162.1	152.5	168.1	196.4	211.2	222.5	213.9	210.0	201.7	187.0	180.7	188.9		
Average 1996 - 2000	144.2	143.1	143.3	153.1	175.2	196.9	208.9	208.4	198.4	192.9	182.7	165.4	176.0		
Manufacturing															
1996	352.8	346.1	350.3	362.9	379.8	390.0	390.0	391.6	390.2	383.1	374.1	370.3	373.4	Standard deviation	34.4
1997	370.3	371.7	368.4	370.6	397.1	416.3	422.3	423.6	418.5	402.4	392.7	389.8	395.3	Mean	412.7
1998	367.9	382.6	386.3	397.5	413.7	434.1	441.3	427.2	457.1	415.0	412.1	403.9	409.1		
1999	394.7	412.5	405.4	423.9	457.1	469.2	472.4	460.5	457.5	445.8	439.2	419.7	438.2	Coefficient of variability (%)	8.3
2000	418.3	421.3	429.5	431.3	450.8	453.9	468.6	468.3	465.8	465.5	451.9	446.3	447.6		
Average 1996 - 2000	380.8	386.8	388.0	397.2	419.7	432.7	438.9	434.2	431.8	422.4	414.0	406.0	412.7		

Source: Statistics Canada, Labour Force Survey, 1996 - 2000

Appendix 2, Table 1 (continued)

RST monthly employment level ('000 workers) by industry sector, 1996 to 2000

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average	Descriptive statistics, 1996 - 2000	
Distributive services															
1996	577.1	578.9	569.4	576.0	600.5	616.8	625.6	614.6	604.2	605.3	595.1	585.8	595.8	Standard deviation	39.2
1997	580.3	576.5	572.1	574.4	589.8	615.6	616.3	617.1	598.2	597.2	595.0	588.9	593.5	Mean	626.6
1998	569.0	591.4	598.2	594.3	608.8	618.6	623.5	622.0	618.9	630.9	627.7	643.8	612.3		
1999	619.6	633.4	621.9	626.0	655.2	674.8	678.3	673.4	663.3	648.9	657.3	651.9	650.3	Coefficient of variability (%)	6.3
2000	648.4	659.0	651.7	664.2	694.4	707.9	714.6	704.9	686.6	684.2	673.7	681.8	681.0		
Average 1996 - 2000	598.9	607.8	602.7	607.0	629.7	646.7	651.7	646.4	634.2	633.3	629.8	630.4	626.6		
Producer services															
1996	199.4	203.5	203.2	196.3	212.6	212.0	224.9	229.5	225.7	221.8	215.2	217.0	213.4	Standard deviation	18.0
1997	210.2	220.5	209.7	206.9	222.0	227.1	236.2	228.3	217.0	215.4	212.3	225.7	219.3	Mean	231.6
1998	221.7	223.4	231.6	229.9	240.4	242.5	254.2	251.1	234.0	226.3	224.6	219.3	233.3		
1999	212.9	219.6	225.2	240.9	249.9	250.5	251.6	244.6	241.0	231.5	234.7	247.5	237.5	Coefficient of variability (%)	7.8
2000	242.1	245.3	241.7	247.9	261.0	267.2	269.0	266.1	255.9	250.5	248.9	259.0	254.6		
Average 1996 - 2000	217.3	222.5	222.3	224.4	237.2	239.9	247.2	243.9	234.7	229.1	227.1	233.7	231.6		
Educational services															
1996	158.1	156.9	155.6	162.6	162.2	166.2	134.6	137.1	163.4	166.1	165.5	165.7	157.8	Standard deviation	16.8
1997	163.9	162.7	167.3	168.6	168.6	163.5	133.5	129.1	155.5	159.6	158.1	158.2	157.4	Mean	165.9
1998	165.8	168.6	167.6	169.5	169.2	166.3	128.1	128.8	164.3	174.6	175.1	179.5	163.1		
1999	187.3	181.3	180.1	180.4	183.3	182.9	143.7	146.4	178.3	186.7	184.9	180.6	176.3	Coefficient of variability (%)	10.1
2000	183.7	184.9	186.1	184.4	187.1	182.1	131.2	139.9	167.2	179.9	184.4	186.9	174.8		
Average 1996 - 2000	171.8	170.9	171.3	173.1	174.1	172.2	134.2	136.3	165.7	173.4	173.6	174.2	165.9		
Health and social services															
1996	249.7	250.4	252.5	242.0	254.6	251.9	262.6	262.8	252.0	256.5	253.6	259.5	254.0	Standard deviation	13.9
1997	257.4	260.6	264.4	265.0	268.2	269.6	275.1	272.4	262.2	258.1	261.9	259.3	264.5	Mean	269.5
1998	251.3	255.7	255.4	257.1	257.1	265.4	277.3	278.7	273.0	272.3	271.1	276.6	265.9		
1999	256.1	261.4	261.0	265.1	267.6	274.7	281.7	285.5	284.5	285.6	294.6	289.9	275.6	Coefficient of variability (%)	5.2
2000	286.7	280.3	286.4	281.8	284.6	288.9	291.4	290.8	287.3	285.9	289.6	293.5	287.3		
Average 1996 - 2000	260.2	261.7	263.9	262.2	266.4	270.1	277.6	278.0	271.8	271.7	274.2	275.7	269.5		
Public service															
1996	122.2	119.4	116.0	116.9	129.3	132.1	139.7	134.0	121.5	120.0	115.5	115.4	123.5	Standard deviation	10.1
1997	110.9	115.1	117.5	118.8	123.5	133.8	144.1	142.3	125.9	123.9	124.9	119.2	125.0	Mean	121.5
1998	114.1	114.6	113.3	116.1	121.4	130.4	144.9	150.9	131.1	127.3	122.8	121.3	125.7		
1999	120.8	119.8	113.3	116.4	120.8	126.1	139.7	128.4	119.5	118.3	116.4	113.7	121.1	Coefficient of variability (%)	8.3
2000	104.3	105.7	106.2	105.9	113.3	114.5	121.6	123.6	118.4	112.7	111.0	109.2	112.2		
Average 1996 - 2000	114.5	114.9	113.3	114.8	121.7	127.4	138.0	135.8	123.3	120.4	118.1	115.8	121.5		
Personal services															
1996	267.9	267.4	273.1	280.6	291.6	301.1	315.3	317.6	281.5	286.1	271.6	279.5	286.1	Standard deviation	26.5
1997	280.9	286.9	286.0	283.0	305.2	323.8	334.5	340.5	307.0	306.3	305.0	302.1	305.1	Mean	313.4
1998	295.1	299.7	290.0	297.3	320.0	338.1	368.2	357.7	328.9	318.8	298.3	304.9	318.1		
1999	292.1	297.9	306.2	312.7	338.2	357.0	374.2	364.0	339.2	330.5	318.6	313.3	328.7	Coefficient of variability (%)	8.5
2000	307.2	320.0	324.7	318.2	332.4	343.7	363.0	354.4	335.8	323.5	310.9	312.3	328.8		
Average 1996 - 2000	288.6	294.4	296.0	298.4	317.5	332.7	351.0	346.8	318.5	313.0	300.9	302.4	313.4		

Source: Statistics Canada, Labour Force Survey, 1996 - 2000

Appendix 2, Table 2

LUC monthly employment level ('000 workers) by industry sector, 1996 to 2000

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average	Descriptive statistics, 1996 - 2000	
All sectors															
1996	10,544.3	10,625.5	10,647.6	10,712.9	10,919.7	11,034.7	11,106.5	11,106.1	10,867.3	10,848.4	10,847.6	10,842.5	10,841.9	Standard deviation	475.6
1997	10,677.7	10,727.1	10,794.8	10,865.7	11,100.1	11,295.8	11,348.3	11,404.6	11,241.0	11,268.8	11,224.9	11,224.6	11,097.8	Mean	11,411.7
1998	11,002.8	11,085.3	11,127.7	11,201.3	11,422.0	11,585.1	11,622.4	11,662.3	11,505.1	11,546.5	11,543.3	11,489.8	11,399.5		
1999	11,354.5	11,380.5	11,431.3	11,482.2	11,684.3	11,840.7	11,918.6	11,929.0	11,763.3	11,817.5	11,786.9	11,844.7	11,686.1		
2000	11,653.2	11,739.1	11,777.7	11,835.1	12,076.4	12,210.0	12,251.2	12,273.9	12,113.0	12,145.0	12,175.1	12,147.9	12,033.1	Coefficient of variability (%)	4.2
Average 1996 - 2000	11,046.5	11,111.5	11,155.8	11,219.4	11,440.5	11,593.3	11,649.4	11,675.2	11,497.9	11,525.2	11,515.6	11,509.9	11,411.7		
Agriculture															
1996	96.6	99.6	101.6	103.3	120.6	117.7	123.4	123.8	112.4	112.5	104.2	100.2	109.7	Standard deviation	11.9
1997	101.2	92.4	86.6	95.4	105.3	115.2	124.3	122.4	107.7	107.9	99.4	96.0	104.5	Mean	109.6
1998	95.6	103.2	113.3	115.9	127.4	126.2	134.3	136.8	127.8	126.1	108.9	101.4	118.1		
1999	91.5	93.9	102.2	110.1	114.0	119.6	122.1	121.8	116.8	109.8	106.3	94.9	108.6		
2000	101.2	107.4	96.6	102.4	117.1	117.0	120.1	121.8	110.8	103.4	93.4	92.9	107.0	Coefficient of variability (%)	10.9
Average 1996 - 2000	97.2	99.3	100.1	105.4	116.9	119.1	124.8	125.3	115.1	111.9	102.4	97.1	109.6		
Primary sector other than Agriculture															
1996	153.2	153.8	157.1	151.0	159.5	174.0	178.0	171.9	158.8	164.4	160.0	156.5	161.5	Standard deviation	14.4
1997	155.9	156.0	154.4	146.2	156.7	172.0	179.2	182.5	175.0	168.1	168.6	166.7	165.1	Mean	153.8
1998	159.2	158.9	156.2	154.8	158.7	173.4	175.7	173.2	159.4	158.1	156.3	149.2	161.1		
1999	141.6	140.7	131.4	124.1	128.6	136.0	137.3	137.3	133.6	132.3	134.0	134.6	134.3		
2000	130.3	136.7	139.3	140.6	150.7	162.1	156.2	154.2	150.9	151.5	151.4	141.8	147.1	Coefficient of variability (%)	9.3
Average 1996 - 2000	148.0	149.2	147.7	143.3	150.8	163.5	165.3	163.8	155.5	154.9	154.1	149.8	153.8		
Construction															
1996	479.8	478.6	492.4	507.4	549.7	575.6	597.7	608.0	578.9	575.1	551.1	536.8	544.3	Standard deviation	50.1
1997	502.3	502.9	507.9	524.8	555.9	589.7	609.6	609.1	601.2	594.6	572.8	551.6	560.2	Mean	578.5
1998	504.5	506.6	502.8	525.2	572.0	589.6	608.9	620.9	603.6	614.1	599.9	580.4	569.0		
1999	530.9	534.7	534.2	553.6	597.3	618.5	631.7	627.5	622.6	621.9	625.3	611.3	592.5		
2000	568.4	578.8	588.4	594.8	637.8	643.1	674.5	665.0	657.2	636.9	654.0	622.1	626.8	Coefficient of variability (%)	8.7
Average 1996 - 2000	517.2	520.3	525.1	541.2	582.5	603.3	624.5	626.1	612.7	608.5	600.6	580.4	578.5		
Manufacturing															
1996	1,484.3	1,503.0	1,496.4	1,520.6	1,557.7	1,573.3	1,606.6	1,631.3	1,602.2	1,575.1	1,579.8	1,562.0	1,557.7	Standard deviation	109.7
1997	1,536.0	1,547.8	1,572.7	1,593.1	1,621.5	1,657.5	1,662.2	1,684.1	1,655.4	1,672.2	1,663.1	1,660.0	1,627.1	Mean	1,700.3
1998	1,637.6	1,654.1	1,657.8	1,669.6	1,706.1	1,727.9	1,738.1	1,769.1	1,721.0	1,738.5	1,728.8	1,708.1	1,704.7		
1999	1,701.5	1,691.8	1,721.0	1,723.4	1,757.7	1,801.8	1,825.9	1,845.2	1,815.7	1,838.9	1,810.1	1,817.7	1,779.2		
2000	1,797.0	1,779.5	1,788.4	1,817.3	1,853.9	1,870.9	1,847.2	1,861.4	1,822.6	1,847.8	1,846.6	1,858.2	1,832.6	Coefficient of variability (%)	6.5
Average 1996 - 2000	1,631.3	1,635.2	1,647.3	1,664.8	1,699.4	1,726.3	1,736.0	1,758.2	1,723.4	1,734.5	1,725.7	1,721.2	1,700.3		

Source: Statistics Canada, Labour Force Survey, 1996 - 2000

Appendix 2, Table 2 (continued)

LUC monthly employment level ('000 workers) by industry sector, 1996 to 2000

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average	Descriptive statistics, 1996 - 2000
Distributive services														
1996	2,853.2	2,848.2	2,845.7	2,840.8	2,902.1	2,930.2	2,945.9	2,940.2	2,861.2	2,865.1	2,882.2	2,913.9	2,885.7	Standard deviation 126.4
1997	2,845.0	2,847.5	2,877.5	2,890.9	2,953.2	2,992.1	3,032.9	3,057.5	3,009.8	2,997.2	2,973.5	2,997.0	2,956.2	Mean 3,024.2
1998	2,919.2	2,912.5	2,913.6	2,928.3	2,981.9	3,021.7	3,057.9	3,062.3	3,020.0	3,028.6	3,023.9	3,033.9	2,992.0	
1999	2,997.5	2,997.5	3,010.7	3,031.4	3,067.8	3,109.6	3,164.9	3,168.1	3,112.8	3,129.2	3,116.2	3,152.8	3,088.2	Coefficient of variability (%) 4.2
2000	3,060.7	3,108.1	3,123.4	3,107.0	3,189.1	3,209.4	3,243.6	3,290.9	3,237.6	3,249.5	3,270.9	3,296.5	3,198.9	
Average 1996 - 2000	2,935.1	2,942.8	2,954.2	2,959.7	3,018.8	3,052.6	3,089.0	3,103.8	3,048.3	3,053.9	3,053.3	3,078.8	3,024.2	
Producer services														
1996	1,723.9	1,738.2	1,740.8	1,766.9	1,770.0	1,809.0	1,820.9	1,829.5	1,784.5	1,797.4	1,800.4	1,796.8	1,781.5	Standard deviation 123.3
1997	1,817.2	1,830.7	1,832.7	1,841.5	1,882.5	1,908.7	1,918.4	1,941.2	1,898.3	1,898.5	1,892.8	1,870.0	1,877.7	Mean 1,950.5
1998	1,865.2	1,898.1	1,902.1	1,913.6	1,956.8	1,977.9	1,983.3	2,007.9	1,980.8	1,965.6	1,985.0	1,977.5	1,951.2	
1999	1,988.9	1,991.4	1,999.9	2,007.4	2,042.7	2,061.5	2,096.8	2,114.9	2,047.7	2,038.4	2,033.5	2,027.8	2,037.6	Coefficient of variability (%) 6.3
2000	2,011.0	2,005.1	2,034.9	2,048.2	2,083.8	2,120.9	2,174.7	2,175.4	2,132.5	2,153.3	2,173.8	2,140.5	2,104.5	
Average 1996 - 2000	1,881.2	1,892.7	1,902.1	1,915.5	1,947.2	1,975.6	1,998.8	2,013.8	1,968.8	1,970.6	1,977.1	1,962.5	1,950.5	
Educational services														
1996	784.4	801.9	797.8	787.2	769.6	746.3	670.1	647.2	726.1	748.2	759.0	769.4	750.6	Standard deviation 51.0
1997	768.4	790.1	777.3	770.7	777.2	752.5	670.5	667.3	754.0	769.6	789.6	793.5	756.7	Mean 777.1
1998	780.1	800.9	791.8	789.8	777.3	766.6	681.7	680.1	770.9	802.2	807.9	813.6	771.9	
1999	826.6	830.3	825.6	823.0	818.5	797.8	716.8	711.0	804.2	825.0	838.0	858.5	806.3	Coefficient of variability (%) 6.6
2000	847.3	859.7	845.6	830.0	800.2	799.0	704.9	685.0	798.3	807.4	821.0	801.2	800.0	
Average 1996 - 2000	801.4	816.6	807.6	800.1	788.6	772.4	688.8	678.1	770.7	790.5	803.1	807.2	777.1	
Health and social services														
1996	1,134.2	1,140.3	1,135.7	1,145.7	1,150.6	1,153.1	1,153.4	1,153.1	1,133.9	1,124.1	1,126.6	1,123.3	1,139.5	Standard deviation 42.5
1997	1,106.8	1,120.5	1,122.7	1,113.7	1,115.7	1,131.2	1,136.9	1,145.4	1,121.5	1,128.0	1,130.5	1,139.4	1,126.0	Mean 1,166.8
1998	1,129.5	1,130.4	1,150.0	1,148.8	1,154.3	1,163.2	1,173.1	1,169.1	1,165.9	1,178.3	1,176.8	1,185.5	1,160.4	
1999	1,134.6	1,151.7	1,146.2	1,153.5	1,163.1	1,186.3	1,189.7	1,182.3	1,165.7	1,178.3	1,186.0	1,188.1	1,168.8	Coefficient of variability (%) 3.6
2000	1,203.4	1,227.0	1,223.6	1,237.8	1,260.1	1,263.3	1,252.0	1,265.4	1,245.1	1,240.6	1,220.8	1,230.4	1,239.1	
Average 1996 - 2000	1,141.7	1,154.0	1,155.6	1,159.9	1,168.8	1,179.4	1,181.0	1,183.1	1,166.4	1,169.8	1,168.1	1,173.3	1,166.8	
Public service														
1996	666.0	671.8	686.3	680.3	708.0	709.1	715.3	712.2	670.8	669.7	677.7	673.7	686.7	Standard deviation 22.9
1997	666.3	667.1	664.6	673.0	680.8	687.1	695.5	687.8	652.0	655.7	654.4	659.3	670.3	Mean 663.0
1998	649.3	655.7	651.6	652.3	678.8	696.1	690.3	673.3	631.6	626.6	632.9	627.6	655.5	
1999	636.7	643.7	656.2	647.6	670.7	681.1	687.0	677.6	633.6	636.2	629.8	636.9	653.1	Coefficient of variability (%) 3.5
2000	646.5	642.6	653.5	658.0	651.6	658.9	671.1	671.7	633.0	636.7	638.0	633.1	649.6	
Average 1996 - 2000	653.0	656.2	662.4	662.2	678.0	686.5	691.8	684.5	644.2	645.0	646.6	646.1	663.0	
Personal services														
1996	1,168.8	1,190.3	1,193.8	1,209.7	1,231.9	1,246.5	1,295.2	1,288.7	1,238.5	1,216.7	1,206.7	1,210.0	1,224.7	Standard deviation 54.9
1997	1,178.5	1,172.3	1,198.4	1,216.2	1,251.3	1,289.9	1,318.7	1,307.3	1,266.2	1,276.9	1,280.3	1,291.1	1,253.9	Mean 1,287.9
1998	1,262.5	1,265.1	1,288.6	1,303.0	1,308.8	1,342.5	1,379.1	1,369.6	1,324.0	1,308.3	1,323.0	1,312.9	1,315.6	
1999	1,304.9	1,304.7	1,304.0	1,308.3	1,324.0	1,328.4	1,346.5	1,343.6	1,310.6	1,308.0	1,307.8	1,322.2	1,317.8	Coefficient of variability (%) 4.3
2000	1,287.5	1,293.9	1,284.0	1,299.0	1,331.9	1,365.4	1,407.2	1,383.2	1,325.0	1,317.8	1,305.0	1,331.4	1,327.6	
Average 1996 - 2000	1,240.4	1,245.3	1,253.8	1,267.2	1,289.6	1,314.5	1,349.3	1,338.5	1,292.9	1,285.5	1,284.6	1,293.5	1,287.9	

Source: Statistics Canada, Labour Force Survey, 1996 - 2000

Appendix 2, Table 3

All regions monthly employment level ('000 workers) by industry sector, 1996 to 2000

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average	Descriptive statistics, 1996 - 2000
All sectors														
1996	13,031.4	13,105.1	13,120.3	13,222.9	13,566.8	13,766.8	13,891.0	13,887.1	13,570.0	13,533.5	13,444.6	13,411.7	13,462.6	Standard deviation 614.2
1997	13,192.6	13,267.1	13,334.1	13,417.1	13,802.5	14,117.1	14,196.8	14,257.6	13,998.5	13,974.4	13,886.4	13,849.1	13,774.4	Mean 14,163.7
1998	13,542.3	13,669.9	13,732.8	13,845.1	14,176.3	14,429.4	14,537.6	14,573.1	14,343.8	14,338.3	14,274.9	14,221.0	14,140.4	
1999	13,993.8	14,065.9	14,096.9	14,222.3	14,583.7	14,843.3	14,950.6	14,919.2	14,695.6	14,704.5	14,649.7	14,648.4	14,531.2	
2000	14,399.2	14,507.1	14,550.5	14,628.8	15,016.7	15,205.1	15,269.5	15,271.8	15,047.0	15,041.1	15,004.8	14,974.5	14,909.7	Coefficient of variability (%) 4.3
Average 1996 - 2000	13,631.9	13,723.0	13,766.9	13,867.2	14,229.2	14,472.3	14,569.1	14,581.8	14,331.0	14,318.4	14,252.1	14,220.9	14,163.7	
Agriculture														
1996	381.3	388.1	396.0	410.0	444.3	454.8	471.1	473.5	442.0	435.3	409.4	399.4	425.4	Standard deviation 34.4
1997	389.2	381.4	385.3	404.1	424.0	441.3	457.1	461.2	437.7	428.7	408.9	394.1	417.8	Mean 410.8
1998	390.8	393.4	409.4	430.4	449.6	442.0	457.8	478.9	454.6	436.4	401.0	393.3	428.1	
1999	381.7	387.0	389.8	409.4	428.1	436.2	449.4	449.3	422.9	409.6	390.6	369.7	410.3	
2000	365.6	367.5	372.0	376.3	399.8	396.2	401.0	405.4	373.4	359.1	333.6	320.8	372.6	Coefficient of variability (%) 8.4
Average 1996 - 2000	381.7	383.5	390.5	406.0	429.2	434.1	447.3	453.7	426.1	413.8	388.7	375.5	410.8	
Primary sector other than Agriculture														
1996	279.2	278.8	274.6	267.3	287.5	309.9	321.4	317.5	300.7	299.3	290.7	283.6	292.5	Standard deviation 21.4
1997	278.3	281.9	278.0	262.8	296.5	320.5	327.2	330.9	322.1	302.9	294.8	292.6	299.0	Mean 287.4
1998	280.5	281.5	277.8	271.7	294.8	323.6	329.3	325.2	302.8	289.9	283.0	276.3	294.7	
1999	264.2	264.4	249.6	241.4	261.3	282.4	285.3	280.3	274.2	269.0	268.2	270.1	267.5	
2000	261.0	266.0	258.0	258.6	288.3	308.6	311.6	306.8	295.3	287.7	283.5	270.7	283.0	Coefficient of variability (%) 7.5
Average 1996 - 2000	272.6	274.5	267.6	260.4	285.7	309.0	315.0	312.1	299.0	289.8	284.0	278.7	287.4	
Construction														
1996	628.9	622.1	632.9	657.2	714.4	764.6	798.7	806.6	771.5	763.3	721.6	686.4	714.0	Standard deviation 74.9
1997	632.8	634.2	639.4	663.7	725.2	786.7	815.3	821.5	797.4	781.8	748.6	708.6	729.6	Mean 754.6
1998	642.5	642.4	647.9	675.9	737.4	772.6	809.4	821.1	794.8	798.6	781.4	743.2	738.9	
1999	674.0	677.7	680.9	711.6	777.9	822.9	846.7	844.4	824.7	825.1	823.8	788.1	774.8	
2000	728.5	740.9	740.9	762.9	834.3	854.3	897.0	879.0	867.2	838.7	841.0	802.8	815.6	Coefficient of variability (%) 9.9
Average 1996 - 2000	661.3	663.5	668.4	694.3	757.8	800.2	833.4	834.5	811.1	801.5	783.3	745.8	754.6	
Manufacturing														
1996	1,837.2	1,849.1	1,846.8	1,883.4	1,937.5	1,963.3	1,996.6	2,022.9	1,992.4	1,958.2	1,953.8	1,932.3	1,931.1	Standard deviation 142.2
1997	1,906.4	1,919.5	1,941.1	1,963.7	2,018.6	2,073.8	2,084.5	2,107.7	2,073.9	2,074.5	2,055.8	2,049.8	2,022.4	Mean 2,113.0
1998	2,005.5	2,036.7	2,044.1	2,067.1	2,119.8	2,162.0	2,179.4	2,196.3	2,148.1	2,153.5	2,140.9	2,112.0	2,113.8	
1999	2,096.2	2,104.3	2,126.4	2,147.4	2,214.8	2,271.0	2,298.3	2,305.7	2,273.2	2,284.7	2,249.4	2,237.4	2,217.4	
2000	2,215.3	2,200.8	2,217.9	2,248.6	2,304.8	2,324.8	2,315.8	2,329.8	2,288.4	2,313.3	2,298.5	2,304.5	2,280.2	Coefficient of variability (%) 6.7
Average 1996 - 2000	2,012.1	2,022.1	2,035.3	2,062.0	2,119.1	2,159.0	2,174.9	2,192.5	2,155.2	2,156.8	2,139.7	2,127.2	2,113.0	

Source: Statistics Canada, Labour Force Survey, 1996 - 2000

Appendix 2, Table 3 (continued)

All regions monthly employment level ('000 workers) by industry sector, 1996 to 2000

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average	Descriptive statistics, 1996 - 2000
Distributive services														
1996	3,430.3	3,427.1	3,415.2	3,416.8	3,502.5	3,547.2	3,571.4	3,554.9	3,465.4	3,470.3	3,477.2	3,499.6	3,481.5	Standard deviation
1997	3,425.4	3,423.9	3,449.6	3,465.3	3,543.2	3,607.7	3,649.1	3,674.6	3,607.9	3,594.5	3,568.6	3,585.8	3,549.6	163.5
1998	3,488.3	3,504.0	3,511.8	3,522.5	3,590.7	3,640.3	3,681.3	3,684.3	3,638.9	3,659.4	3,651.5	3,677.5	3,604.2	Mean
1999	3,617.0	3,630.7	3,632.5	3,657.3	3,723.0	3,784.5	3,843.3	3,841.2	3,776.0	3,778.0	3,773.5	3,804.6	3,738.5	3,650.7
2000	3,709.1	3,767.1	3,775.0	3,771.3	3,883.5	3,917.4	3,958.1	3,995.7	3,924.3	3,933.9	3,944.7	3,978.3	3,879.9	Coefficient of variability (%)
Average 1996 - 2000	3,534.0	3,550.6	3,556.8	3,566.6	3,648.6	3,699.4	3,740.6	3,750.1	3,682.5	3,687.2	3,683.1	3,709.2	3,650.7	4.5
Producer services														
1996	1,923.2	1,941.5	1,944.1	1,963.1	1,982.7	2,021.0	2,045.8	2,059.1	2,010.2	2,019.4	2,015.8	2,013.8	1,995.0	Standard deviation
1997	2,027.4	2,051.0	2,042.5	2,048.4	2,104.6	2,135.7	2,154.6	2,169.5	2,115.1	2,113.9	2,105.1	2,095.8	2,097.0	139.3
1998	2,086.9	2,121.6	2,133.7	2,143.5	2,197.0	2,220.4	2,237.6	2,259.1	2,214.8	2,191.9	2,209.6	2,196.8	2,184.4	Mean
1999	2,201.8	2,211.0	2,225.1	2,248.3	2,292.6	2,312.0	2,348.3	2,359.7	2,288.6	2,269.9	2,268.2	2,275.2	2,275.1	2,182.1
2000	2,253.1	2,250.4	2,276.7	2,296.0	2,344.9	2,388.1	2,443.7	2,441.5	2,388.4	2,403.8	2,422.9	2,399.4	2,359.1	Coefficient of variability (%)
Average 1996 - 2000	2,098.5	2,115.1	2,124.4	2,139.9	2,184.4	2,215.4	2,246.0	2,257.8	2,203.4	2,199.8	2,204.3	2,196.2	2,182.1	6.4
Educational services														
1996	942.5	958.9	953.4	949.8	931.8	912.5	804.7	784.3	889.4	914.3	924.6	935.1	908.4	Standard deviation
1997	932.4	952.8	944.6	939.3	945.7	916.0	804.0	796.4	909.5	929.2	947.7	951.8	914.1	66.6
1998	946.0	969.5	959.4	959.3	946.6	932.9	809.8	808.9	935.2	976.8	983.0	993.1	935.0	Mean
1999	1,013.9	1,011.6	1,005.7	1,003.4	1,001.8	980.7	860.5	857.5	982.6	1,011.7	1,022.9	1,039.1	982.6	943.0
2000	1,031.1	1,044.6	1,031.7	1,014.4	987.3	981.1	836.0	824.8	965.5	987.4	1,005.4	988.1	974.8	Coefficient of variability (%)
Average 1996 - 2000	973.2	987.5	979.0	973.2	962.6	944.6	823.0	814.4	936.4	963.9	976.7	981.4	943.0	7.1
Health and social services														
1996	1,383.9	1,390.7	1,388.1	1,387.7	1,405.2	1,404.9	1,416.0	1,416.0	1,385.9	1,380.7	1,380.1	1,382.8	1,393.5	Standard deviation
1997	1,364.2	1,381.1	1,387.2	1,378.7	1,383.9	1,400.8	1,412.1	1,417.9	1,383.7	1,386.1	1,392.4	1,398.8	1,390.6	54.3
1998	1,380.8	1,386.1	1,405.5	1,405.9	1,411.3	1,428.6	1,450.4	1,447.8	1,439.0	1,450.6	1,447.8	1,462.0	1,426.3	Mean
1999	1,390.7	1,413.1	1,407.2	1,418.5	1,430.7	1,461.0	1,471.4	1,467.8	1,450.3	1,463.4	1,480.6	1,478.0	1,444.4	1,436.2
2000	1,490.1	1,507.3	1,510.0	1,519.6	1,544.7	1,552.2	1,543.4	1,556.1	1,532.4	1,526.5	1,510.5	1,523.9	1,526.4	Coefficient of variability (%)
Average 1996 - 2000	1,401.7	1,415.7	1,419.6	1,422.1	1,435.2	1,449.5	1,458.7	1,461.1	1,438.3	1,441.5	1,442.3	1,449.1	1,436.2	3.8
Public service														
1996	788.1	791.1	802.3	797.2	837.2	841.3	854.9	846.2	792.3	789.8	793.2	789.1	810.2	Standard deviation
1997	777.2	782.2	782.1	791.8	804.4	820.9	839.6	830.1	777.9	779.7	779.2	778.5	795.3	29.7
1998	763.3	770.2	764.8	768.4	800.0	826.5	835.3	824.2	762.7	754.0	755.7	748.9	781.2	Mean
1999	757.5	763.4	769.5	764.0	791.6	807.1	826.6	805.9	753.1	754.6	746.3	750.6	774.2	784.5
2000	750.8	748.4	759.7	763.9	764.9	773.4	792.7	795.3	751.4	749.4	748.9	742.3	761.8	Coefficient of variability (%)
Average 1996 - 2000	767.4	771.1	775.7	777.1	799.7	813.8	829.8	820.3	767.5	765.5	764.7	761.9	784.5	3.8
Personal services														
1996	1,436.8	1,457.6	1,466.9	1,490.2	1,523.5	1,547.5	1,610.5	1,606.3	1,520.0	1,502.8	1,478.3	1,489.5	1,510.8	Standard deviation
1997	1,459.6	1,459.1	1,484.4	1,499.2	1,556.5	1,613.6	1,653.3	1,647.8	1,573.2	1,583.2	1,585.3	1,593.3	1,559.0	79.0
1998	1,557.6	1,564.6	1,578.5	1,600.3	1,628.7	1,680.6	1,747.2	1,727.3	1,652.8	1,627.1	1,621.2	1,617.8	1,633.6	Mean
1999	1,596.8	1,602.6	1,610.2	1,621.0	1,662.1	1,685.4	1,720.7	1,707.6	1,650.0	1,638.5	1,626.3	1,635.5	1,646.4	1,601.3
2000	1,594.6	1,613.9	1,608.6	1,617.2	1,664.3	1,709.1	1,770.1	1,737.6	1,660.8	1,641.3	1,616.0	1,643.7	1,656.4	Coefficient of variability (%)
Average 1996 - 2000	1,529.1	1,539.6	1,549.7	1,565.6	1,607.0	1,647.2	1,700.4	1,685.3	1,611.4	1,598.6	1,585.4	1,596.0	1,601.3	4.9

Source: Statistics Canada, Labour Force Survey, 1996 - 2000

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