

Population Change and External Commuting in Canada's Rural and Small Town Municipalities: 1996-2001

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Introduction

Over the past twenty-five years, an increasing number of geographers has explored the dynamics of population change occurring in Canada's smallest municipalities. Through myriad studies, it has become clear that the evolutionary path taken by these localities is anything but consistent. While some have prospered during the latter half of the 20th century, many have seen a continual erosion of their economic and demographic base. Although it can be argued that change is increasingly being promoted and indeed managed from within (NRE2 2006), it is also undeniable that external forces have much to do with the fate of Canada's smallest settlement areas. As described below, it is one such force that is the primary concern of this paper.

In the pages that follow, an exploration is made of the relationship between population change and external commuting within Canada's smallest municipalities. For the purpose of this study, the term "external commuting" is borrowed from Mitchelson and Fisher (1987) to describe the daily, or less frequent, trip taken by residents of a small municipality to an employment destination found within a Census Agglomeration (CA) or Census Metropolitan Area (CMA). Small municipalities, the residence of commuters, are equated with rural and small town (RST) census subdivisions (CSDs), as identified by Statistics Canada. These are all municipalities located beyond the boundaries of large urban areas (CAs and CMAs) which, according to the latest census, provided a residence for 20.5 % of

TABLE 1 Characteristics of Canada's Rural and Small Town Municipalities (RSTs), 2001

	Number of RSTs	Population of RSTs	% of total population located in RSTs
NFLD	349	274 392	53.5
PEI	89	60 736	44.9
NS	76	333 311	36.7
NB	218	348 329	47.7
ONT	443	1 484 097	13.0
QUE	1164	1 556 026	21.5
MAN	279	373 399	33.3
SASK	941	413 711	42.3
ALTA	364	730 471	24.5
BC	585	538 703	13.8
YK	30	7 269	25.3
NWT	36	20 819	55.7
NUN	31	26 745	100
Total	4605	6168008	20.5

Source: Statistics Canada (2001)

Canada's population (Table 1; Statistics Canada 2001).

The fundamental goal of this paper is to determine if a relationship exists between population change and external commuting in Canada's small municipalities and to ascertain if spatial variations exist in the strength and/or direction of this relationship. Given the heterogeneity of Canada's rural and small town settlements, it is anticipated that the relationship will not be spatially consistent. In all likelihood, many municipalities located in highly urbanized regions will owe their growth to their ability to attract a commuting population. In other jurisdictions, alternative forces may be at work.

The paper is organized around four specific sub-objectives. First is to describe population change occurring in Canada's RST municipalities (by nation, province and size class) between 1996 and 2001, with limited historical data provided for the 1971-1996 period. Second is to calculate comparative levels of population change within these municipalities during the last census period, while the third is to identify levels of external commuting. The final objective is to explore the relationship between comparative population change, as established under objective two, and external commuting, as outlined under objective three. The methodology used to meet these objectives is presented in a subsequent section. What now follows is a brief justification for undertaking this exploration of population change within Canada's smallest settlement areas.

Justification

A study such as this is warranted for two reasons. First, little attention has been devoted amongst academics to analyzing population change within rural and small town municipalities, as defined by Statistics Canada. The majority of research dealing with population dynamics has focused on either change in the percentage

of the population defined as *rural* (those living in municipalities with fewer than 1000 people and a population density of less than 400/sq. km) or on growth and decline taking place within *towns and villages* of various sizes. Studies of the first type have described rural population change at a national (Robinson 1981; Joseph et al. 1988; Keddie and Joseph 1991; Beaujot and Kerr 2004; Bone 2005), provincial (Carleton University History Collaborative 1993) and local (Dahms and Hallman 1991; Thomson and Mitchell 1998) scale. With few exceptions (e.g. Hodge and Qadeer 1983), those of the second type tend to deal with individual regions. Two localities that have received ongoing attention from academics are the western Prairies (e.g. Davies 1990; Stabler et al 1992; Rounds and Shamanski 1993; Stabler and Olfert 1996; Stabler and Olfert 2002) and the provinces of Atlantic Canada (e.g. Dykeman and Corbett 1986; Bruce and Whitla 1993; Bruce et al 1999). Taken together, this research reveals that although the percentage of population residing in rural Canada has declined, spatial and temporal disparities are apparent. Furthermore, it has been found that population change is not consistent within regional size classes, but also tends to vary through both time and space.¹

Although acknowledged by academics (e.g. Bryant and Joseph 2001), research on rural and small town municipalities, as defined above, is largely limited to working papers and bulletins published by Statistics Canada (e.g. Mendelson and Bollman 1998). This research is invaluable in painting a broad picture of change occurring within RST areas at a national and provincial scale. Given this emphasis, however, subtle variations in population change occurring within municipalities of different sizes may well be masked. Objectives one and two seek to uncover these disparities by describing population change occurring in eight size classes that together comprise Canada's rural and small town population.

Justification for this paper also stems from the absence of a national study on the relationship between population change occurring in RST municipalities and external commuting. The topic of commuting has been dealt with fairly extensively. We do know, for example, that this journey-to-work movement is undertaken by a specific group of migrants, known as "ex-urbanites" (Mitchell 2004). First recognized by Sectorsky (1955), ex-urbanites have relocated from a larger municipality in search of a rural living environment but choose to retain their ties to the urban core through a daily (or less frequent) commute. The presence of ex-urbanites has been well-documented in Canada. They were first observed living in localities adjacent to Metropolitan Toronto (Pearson 1961; Bourne and Simons 1973; Hodge 1973; Punter 1974) and later were found outside the cities of Winnipeg (Carvalho 1974), Edmonton and Calgary (Smith and Johnson 1978), Montreal (Brunet 1980), Quebec City (Vandermissen et al 2003), and indeed most of Canada's largest census metropolitan areas (Preston and Russwurm 1977; Russwurm and Bryant 1984; Beesley 1991).

Recognition of ex-urbanite activity paralleled acknowledgement of the expansion of commutersheds surrounding Canadian cities. A study by Hodge (1974), for example, showed that by the early 1970s, the commuting zone of Metropolitan

1. Specific details regarding these variations will be presented in the findings section of this paper.

Toronto extended approximately 70 miles into the surrounding countryside. By the end of that decade, Bourne and Simmons (1979) suggested that both Toronto and Montreal were surrounded by a widening ring of growth, extending in some instances over 100 miles from the urban core. A similar pattern was soon found to be occurring in various locations within south-western Ontario (Troughton 1981), the Prairie provinces (Stabler and Rounds 1997) and eastern Canada (Bruce et al 1999; Millward 2002a, 2002b).

Concurrent with this expansion, has been the growth of metropolitan-adjacent municipalities. Not surprisingly, those fronting Metropolitan Toronto were the first to record positive population change (Hodge 1973). In contrast, others located at some distance from this expanding sphere of influence endured population loss (Hill 1973; Bourne and Simmons 1979). Additional research soon revealed that higher levels of growth were occurring in many metropolitan-adjacent municipalities of Quebec (Yeates 1984), the Prairies (Stabler 1987; Brierly and Todd 1990; Davies 1990) and indeed around many urban agglomerations across the country (Bourne and Simmons 1979; Robinson 1981; Hodge and Qadeer 1983; Russwurm 1984). According to Bourne and Rose (2001), this is not a short-term trend, but one that will continue. In fact, they predict that more than 80 % of population growth over the next two or three decades will take place in five regions surrounding Canada's highly urbanized cores.

Research to date, therefore, suggests that a correlation does exist between external commuting and population change. No attempt, however, has yet been made to test the strength of this correlation within Canada's smallest municipalities. As described below, this task has now been made possible by the collection of RST commuting data by Statistics Canada. Objectives three and four will analyze these data and, in doing so, will enhance our understanding of population change in rural and small town Canada.

Methodology

The first objective of this study is to describe population change within Canada's rural areas and small towns between 1971 and 2001, with particular attention devoted to the 1996 to 2001 period. Population data, collected by Statistics Canada for the period 1971 to 1991, are extracted from the work of Mendelson and Bollman (1998). Data for the most recent period are taken directly from the 2001 census as reported in the GeoSuite data files (Statistics Canada 2001). Absolute and relative levels of population change are described nationally, provincially and then within eight size classes (Table 2).

The second objective is to group all RST municipalities into one of four comparative population change categories. These categories are comparative because they are based on the level of change occurring in one municipality, compared to that occurring in all Canadian municipalities found within the same size class. This task is undertaken for two reasons: it allows for the identification of provinces/territories that are experiencing relatively high levels of population gain or loss within various size class; and, it puts the data set in a format (i.e. ca-

TABLE 2 CSD Size Classes for Canada's Rural and Small Town Municipalities

Size class	Population
1	0 - 199
2	200 - 499
3	500 - 999
4	1000 - 2499
5	2500 - 4999
6	5000 - 7499
7	7500 - 9999
8	> 10 000

Note: RST municipalities lie outside Census Agglomerations and Census Metropolitan Areas

TABLE 3 Population Change Categories for Canada's Rural and Small Town Municipalities

Category	Population change classes	Statistical bases
4	High population gain	More than 1 standard deviation above the mean for the size class
5	Moderate population gain	0.1% to 1 standard deviation above the mean for the size class
6	Moderate population loss (or no change)	0% to 1 standard deviation below the mean for the size class
7	High population loss	More than 1 standard deviation below the mean for the size class

tegies) that will permit a direct comparison with commuting data provided by Statistics Canada (see objective 3). Categories are created by calculating the mean rate of change for each size class and identifying variations around this mean through determination of standard deviations. From this, four population change categories are created for each of the eight population size classes (Table 3).

The third objective is to identify the level of external commuting within each RST municipality. This task has already been accomplished by Statistics Canada. As of 2001, all municipalities that lie outside the boundaries of CMAs and CAs are classified according to their degree of metropolitan influence. Four such "metropolitan influence zones" (MIZs) are recognized, based on the percentage of the population commuting to work in any CMA or CA. Values range from more than 30 % in zones of strong influence, to 0 % in zones of no influence (Table 4). This designation is useful in revealing the importance of external commuting within the eight identified size classes.

Once each municipality's designation has been recorded, the final step is to assess the correlation between external commuting, as reflected in the MIZ designation, and population change, as identified by the PCC label (see objective 2). Spearman's correlation coefficients are calculated for the nation, its provinces and

TABLE 4 Metropolitan Influence Zones

Zone	Influence
4	Strong influence
5	Moderate influence
6	Weak influence
7	No influence

Note: 1. Strong MIZ: more than 30% of the municipality's residents commute to work in any CMA or CA.
 2. Moderate MIZ: from 5% to 30% of the municipality's residents commute to work in any CMA or CA.
 3. Weak MIZ: from 0% to 5% of the municipality's residents commute to work in any CMA or CA.
 4. No MIZ: fewer than 40 (where data suppression rules apply) or none of the municipality's residents commute to work in any CMA or CA.

Source: <http://www.statcan.ca/english/census2001/dict/universes/geography/geo010.htm>

eight RST size classes. Although this technique does not indicate causation, if a positive relationship is found, it is very likely that the arrival of ex-urbanites has fuelled population growth. In contrast, if no correlation is found, or the correlation is negative, then one can tentatively suggest that other forces may be responsible for the recorded levels of population growth and decline being experienced by Canada's RST municipalities.

Population Change in Canada's Rural and Small Town Municipalities

The first question we must address is how has Canada's rural and small town population changed since 1971? To answer this necessitates taking a look at absolute and relative population data provided by Statistics Canada, and partially summarized by Mendelson and Bollman (1998). This assessment reveals that the number of Canadians residing in Canada's 4065 small municipalities has fluctuated considerably since 1971 (Table 5).

Over the course of the past thirty years, the percentage of Canadians residing in RST areas has declined by one fifth. However, it is important to note, as others have (Keddie and Joseph 1991a, 1991b; Mendelson and Bollman 1998), that these figures are somewhat misleading given that many small municipalities lying adjacent to metropolitan areas are eventually included in the larger statistical units. This has the effect of reducing the numbers of RST residents when, in fact, no such absolute loss may actually have occurred.

Despite this apparent reduction in RST population, decline has not been a constant for small municipalities in all provinces. During two census periods (1976-1981 and 1986-1991), this national trend was reversed, when the number of RST dwellers in Canada actually increased by 20.4 % and 2.2 % respectively. This national scenario resulted from population gains in several provinces. The

TABLE 5 Percent Change in Total Population of RST Municipalities 1971 - 2001

	1971-76	1976-81	1981-86	1986-91	1991-96	1996-01	1971-01
NFLD	-8.4	-5.3	-7.8	1.0	-2.6	-10.6	-29.7
PEI	-8.2	-21.0	-8.6	-0.2	7.4	-1.0	-29.7
NS	-15.5	-6.9	8.8	-5.5	-4.3	-2.3	-24.4
NB	-0.6	-17.3	1.0	-0.1	3.0	-2.7	-16.8
ONT	-2.8	-10.6	-19.0	7.1	-7.9	1.5	-29.6
QUE	-6.5	-0.3	-11.6	3.0	0.4	-0.8	-15.3
MAN	-2.9	-8.4	-11.2	2.6	2.3	0.5	-16.6
SASK	-11.5	-7.7	-10.3	-10.7	-0.5	-3.5	-37.2
ALTA	10.0	21.8	-31.0	-0.4	7.5	5.5	4.3
BC	34.1	-17.4	-39.9	12.0	7.7	-1.1	-20.5
YK	18.7	6.0	-65.6	24.0	-9.2	-18.9	-60.5
NWT	22.4	7.3	14.2	-18.7	-47.2	-7.0	-40.2
NUN	--	--	--	--	--	8.1	--
Canada	-22.8	20.4	-16.9	2.2	-0.6	-0.4	-21.1

Note: Population data for Nunavut are included with the NWT until 1996.

Source: Mendelson and Bollman (1998); Statistics Canada (1977, 1987, 2001).

TABLE 6 Percentage of Total Population Living in RSTs: 1971-2001

	1971	1976	1981	1986	1991	1996	2001
NFLD	74.7	64.1	59.6	54.8	55.4	55.6	53.5
PEI	77.4	67.0	51.0	45.1	43.9	45.6	44.9
NS	55.9	44.9	40.9	43.2	39.6	38.6	36.7
NB	65.9	61.4	49.4	49.0	47.9	48.5	47.7
ONT	27.4	24.8	21.2	16.3	15.7	14.8	13.0
QUE	30.5	27.5	26.7	23.3	22.7	22.3	21.5
MAN	45.3	42.5	38.8	33.3	33.2	33.3	33.3
SASK	70.4	63.3	55.5	47.7	43.5	43.3	42.3
ALTA	43.0	41.9	41.9	27.3	25.3	25.7	24.5
BC	31.1	36.8	27.4	15.6	15.4	15.5	13.8
YK	100.0	100.0	100	33.9	35.4	29.1	25.3
NWT	100.0	100.0	100	100	73.6	56.4	55.7
NUN	--	--	--	--	--	100	100
Canada	36.1	33.5	29.9	24.0	22.7	22.0	20.5

Source: Mendelson and Bollman (1998); Statistics Canada (2001).

Yukon Territory, for example, saw its rural areas and small towns grow during both census periods. In contrast, growth only occurred during the latter period in Newfoundland/Labrador, Ontario, Quebec, Manitoba, and British Columbia, with a similar trend taking place during the former period in Alberta and the Northwest Territories.

Other census periods also have seen individual jurisdictions grow, while nationally numbers have fallen. This is certainly the case for the most recent census period. Although the total percentage of Canadians residing in small municipalities fell by 0.4 % between 1996 and 2001, in three provinces (MAN,

TABLE 7 Percentage of Rst Population Within Each Size Class: 2001

	<199	200-499	500-999	1000-2499	2500-4999	5000-7499	7500-9999	> 10000
NFLD	2.6%	15.1%	23.3%	22.7%	24.8%	8.5%	2.9%	0.0%
PEI	2.1%	16.1%	47.7%	34.1%	0.0%	0.0%	0.0%	0.0%
NS	0.1%	0.3%	2.0%	5.7%	21.7%	15.6%	19.8%	34.7%
NB	0.2%	3.2%	10.9%	40.7%	20.1%	17.1%	2.5%	5.3%
ONT	0.4%	1.5%	2.8%	5.8%	14.8%	18.0%	17.5%	39.3%
QUE	0.3%	4.7%	14.1%	32.1%	25.5%	11.6%	7.0%	4.6%
MAN	0.4%	4.5%	18.7%	30.2%	21.3%	7.6%	11.4%	5.8%
SASK	6.4%	24.9%	29.6%	27.8%	6.4%	2.6%	2.3%	0.0%
ALTA	1.3%	3.1%	5.0%	12.7%	19.7%	24.5%	17.7%	16.2%
BC	2.5%	3.3%	6.0%	21.4%	35.5%	15.8%	10.7%	4.8%
YK	14.8%	31.4%	19.9%	34.0%	0.0%	0.0%	0.0%	0.0%
NWT	5.9%	11.5%	28.3%	23.5%	30.8%	0.0%	0.0%	0.0%
NUN	1.2%	4.9%	25.6%	48.7%	0.0%	19.6%	0.0%	0.0%
% of total RST population	1.2%	5.3%	10.9%	20.8%	20.6%	14.4%	11.2%	15.5%
% of Canadian Population	0.2%	1.1%	2.2%	4.3%	4.2%	2.9%	2.3%	3.2%

ALTA and ONT) and one territory (NUN), positive change was recorded. Thus, despite an overall decline in the absolute number of RST residents, population gains in small municipalities have been recorded in certain parts of the country.

Fluctuations in absolute levels of growth and decline have had a direct impact on the relative importance of the RST population in Canada. Since 1971, the percentage of Canadians living in rural and small town municipalities has continually declined. While more than a third of the Canadian population lived outside CMAs and CAs thirty years ago, by 2001 this percentage fell to only one fifth. With the exception of New Brunswick, the most notable declines (of more than 40 %) occurred in those provinces where more than 70 % of the population in 1971 reported a residence outside a CMA or CA (i.e. SASK, NFLD and PEI). Somewhat smaller losses were recorded in other jurisdictions (notably ONT and QUE) where the percentage of the population living in small municipalities was already relatively low in 1971.

National and provincial population totals presented thus far are useful but they do mask trends that are occurring within individual size classes. Table 7 presents the distribution of Canada's RST population within eight classes. As demonstrated here, mid-sized municipalities (i.e. those with 1000 to 4999 residents) appear to be the most popular size category for residents choosing to live outside the country's larger urban areas. This general trend is a result of the situation in seven jurisdictions. In three others, however, smaller municipalities are of greater importance. Here are included the Yukon Territory, Prince Edward Island and Saskatchewan, where a relatively large percentage of residents live in municipalities with fewer than 1000 people. In contrast, larger municipalities are of somewhat greater importance in the provinces of Ontario, Nova Scotia and Alberta. In each case,

TABLE 8 Change in the Percentage of RST Residents Living in Eight Size Class: (1996-2001)

	< 199	200-499	500-999	1000-2499	2500-4999	5000-7499	7500-9999	> 10000
NFLD	0.7%	2.4%	0.0%	0.6%	2.5%	-3.9%	-2.4%	--
PEI	0.6%	1.9%	0.3%	-2.8%	--	--	--	--
NS	0.0%	0.0%	0.3%	0.4%	0.4%	-4.1%	2.3%	0.7%
NB	0.1%	-0.2%	0.5%	1.9%	-3.6%	1.5%	-0.1%	-0.1%
ONT	0.1%	0.1%	0.4%	-0.5%	0.1%	-1.4%	-0.2%	1.5%
QUE	0.0%	-0.2%	0.2%	-0.9%	-0.2%	1.5%	-0.4%	-0.1%
MAN	0.0%	0.4%	1.4%	-4.5%	-0.8%	0.7%	-0.4%	3.1%
SASK	0.7%	0.5%	-2.7%	2.5%	-1.1%	0.1%	0.0%	--
ALTA	0.2%	-0.6%	0.4%	0.1%	-1.7%	-3.5%	1.8%	3.5%
BC	0.2%	0.4%	-0.2%	1.3%	-0.1%	-3.0%	1.3%	0.2%
YK	0.0%	12.9%	2.4%	-15.2%	0.0%	0.0%	0.0%	0.0%
NWT	-0.1%	0.9%	-0.3%	-0.4%	--	--	--	--
NUN	-0.5%	-5.5%	4.3%	-0.8%	-17.1%	19.6%	--	--
% change in total RST population	0.1%	0.1%	0.0%	-0.4%	-0.6%	-0.7%	0.3%	1.2%
% change in Cdn pop. in RST municipalities	0.0%	0.0%	-0.1%	-0.1%	-0.2%	-0.2%	0.0%	0.3%

more than 50 % of the RST population reports residence in places with more than 5000 people. Thus, while the general trend is one of concentration in mid-sized RST municipalities, spatial variations are apparent.

The period 1996 to 2001 was one of change in the distribution of Canada's population within these size classes. Data provided in Table 8 for the nation as a whole suggests that the smallest and largest size classes are becoming of greater relative importance than are those in the mid-range. This pattern, however, is not consistent across the country. In two of Canada's territories (NWT and NUN), a smaller percentage of the total RST population resided in very small municipalities (less than 199) in 2001, than in 1996. In two other areas (NB and QUE) the percentage of the RST population living in very large RST municipalities (more than 10 000 residents) declined, thus contrasting with the trend experienced nationally. Despite these variations, on a national scale at least, one can conclude that very small and very large RST municipalities are becoming of greater relative importance as a home for Canadians, than are those of mid-size.

Thus far, change in the relative distribution of population within size classes has been considered. The patterns described above are a direct outcome of absolute population gains and losses experienced within each size class. It has already been established that the total percentage of the population residing in Canada's RST areas declined between 1996 and 2001 (by 0.4 %). A closer look at the data, however, reveals that this situation has not taken place within all size classes (Table 9). As expected, population change in the mid-sized categories mirrors that occurring nationally. The situation is very different in those size classes supported by either very few (i.e. less than 499) or significantly more (greater than 7500) residents. Of note here, is the relatively large increase experienced by the smallest

TABLE 9 Population Change by RST Size Classes: 1996-2001

	< 199	200-499	500-999	1000-2499	2500-4999	5000-7499	7500-9999	> 10 000	Total (%)
NFLD	25.8	6.6	-10.4	-8.0	-0.6	-38.8	-51.5	0.0	-10.6
PEI	39.2	12.2	-0.3	-8.5	0.0	0.0	0.0	0.0	-1.0
NS	29.3	7.9	17.4	4.5	-0.7	-22.6	10.3	-0.3	-2.3
NB	66.0	-9.1	1.86	1.9	-17.6	6.6	-3.8	-3.8	-2.7
ONT	29.9	12.2	19.0	-7.4	1.9	-6.1	0.4	5.5	1.5
QUE	-4.4	-3.4	0.9	-3.4	-1.8	14.0	-6.2	-2.7	-0.8
MAN	22.8	11.7	8.3	-12.3	-3.2	11.6	-2.9	111.8	0.5
SASK	8.9	-1.4	-11.6	6.2	-18.1	-1.04	-1.9	0.0	-3.5
ALTA	15.9	-12.2	16.1	6.0	-2.9	-7.8	17.3	34.5	5.5
BC	4.9	9.5	-5.8	5.6	-1.4	-16.9	13.5	2.7	-1.1
YK	-19.0	37.5	-7.9	-43.1	0.0	0.0	0.0	0.0	-18.9
NWT	-8.5	0.8	-8.1	-8.6	-7.3	0.0	0.0	0.0	-7.0
NUN	-21.6	-49.6	29.9	6.5	-100	100.0	0.0	0.0	8.1
Total RST population change	7297	457	-4025	-27814	-39141	-45787	15525	69436	24061
% change in total population	10.9	0.1	-0.6	-2.1	-2.9	-4.9	2.3	7.8	-0.4

size class (10.9 %), in all but three of Canada's provinces and territories (QUE, YK and NUN). As revealed in the next paragraphs, this situation is a direct outcome of population loss in many of Canada's mid-sized municipalities.

Analysis reveals that somewhat more than one half of all RST municipalities (57.2 %) experienced a decline in population between 1996 and 2001 (Table 10), with somewhat less than half (41.3 %) undergoing population gain (Table 11). For the country as a whole, we can generally conclude that as municipality size increases, so too does the likelihood of population growth. Furthermore, with the exception of the two smallest size classes, the smaller the municipality, the greater the chances of population decline. Those places with fewer than 199 residents stand out as the anomaly here given that considerably fewer reported population loss than expected (only 40.8 %).

Provincial variations can be observed. In five jurisdictions, traditionally associated with primary production, more RST municipalities lost population than the national average. The greatest percentage of municipalities to lose population can be found in Newfoundland, where more than 90 % reported no population gain. In contrast, in the remaining 8 jurisdictions, fewer municipalities witnessed population loss than occurred nationally. Nunavut stands out in this regard since only 16.1 % of its RST subdivisions reported a population reduction.

In summary, data presented here suggest that rural and small town municipalities are dynamic entities. Over a relatively short period of time, most have experienced either population gain or lose. Although the trend overall is one of population decline, several provinces/territories (i.e. MAN, ONT, ALTA and NUN) have seen gains in the number of residents living outside larger urban centres. Furthermore, even in jurisdictions reporting an overall loss in rural numbers, in some po-

TABLE 10 Percentage of RSTs in 1996 Size Categories That Experienced a Population Decrease Between 1996 and 2001

	< 199	200-499	500-999	1000-2499	2500-4999	5000-7499	7500-9999	> 10000	Total
NFLD	67.9%	93.0%	96.0%	95.7%	100.0%	100.0%	100.0%	--	90.8%
PEI	50.0%	42.3%	71.8%	41.2%	--	--	--	--	55.7%
NS	18.2%	33.3%	42.9%	90.9%	89.5%	90.9%	85.7%	71.4%	71.1%
NB	50.0%	67.6%	75.0%	78.7%	75.0%	66.7%	100.0%	100.0%	74.1%
ONT	33.3%	54.2%	59.6%	63.8%	56.7%	56.5%	36.7%	35.9%	50.2%
QUE	24.5%	55.6%	60.4%	59.8%	65.5%	48.0%	57.1%	66.7%	54.6%
MAN	26.7%	48.8%	70.0%	61.4%	25.0%	50.0%	40.0%	0.0%	54.7%
SASK	53.1%	73.2%	71.4%	72.4%	77.8%	50.0%	0.0%	--	65.2%
ALTA	30.3%	48.0%	37.2%	38.9%	52.4%	37.5%	30.8%	14.3%	39.2%
BC	36.6%	64.7%	58.3%	64.2%	59.3%	52.9%	83.3%	0.0%	47.1%
YK	35.0%	40.0%	100.0%	100.0%	--	--	--	--	46.7%
NWT	66.7%	28.6%	77.8%	100.0%	100.0%	--	--	--	66.7%
NUN	33.3%	28.6%	0.0%	11.1%	0.0%	--	--	--	16.1%
Total	40.8%	64.9%	67.1%	64.2%	63.2%	55.6%	49.4%	39.7%	57.2%

Note: Addition of % of municipalities increasing (TABLE 11) and decreasing in population will not equal 100, given that CSDs experiencing no population change, and those with incomplete data for one or both years, are excluded in the calculation.

TABLE 11 Percentage of RSTs in 1996 Size Categories That Experienced a Population Increase Between 1996 and 2001

	< 199	200-499	500-999	1000-2499	2500-4999	5000-7499	7500-9999	> 10000	Total
NFLD	21.4%	7.0%	4.0%	4.3%	0.0%	0.0%	0.0%	--	9.2%
PEI	50.0%	53.8%	28.2%	58.8%	--	--	--	--	44.3%
NS	63.6%	66.7%	57.1%	9.1%	10.5%	9.1%	14.3%	28.6%	28.9%
NB	30.0%	29.4%	22.9%	21.3%	20.8%	33.3%	0.0%	0.0%	25.9%
ONT	37.7%	42.4%	40.4%	34.5%	43.3%	41.3%	63.3%	64.1%	48.5%
QUE	14.1%	43.0%	39.6%	39.3%	33.6%	52.0%	42.9%	33.3%	45.2%
MAN	33.3%	51.2%	28.9%	37.3%	75.0%	50.0%	60.0%	100.0%	45.3%
SASK	32.0%	26.1%	28.1%	26.3%	22.2%	50.0%	100.0%	--	34.8%
ALTA	61.8%	50.7%	62.8%	61.1%	45.2%	62.5%	69.2%	85.7%	60.8%
BC	35.7%	33.3%	39.6%	34.3%	38.9%	47.1%	16.7%	100.0%	52.9%
YK	45.0%	60.0%	0.0%	0.0%	--	--	--	--	53.3%
NWT	33.3%	71.4%	22.2%	0.0%	0.0%	--	--	--	33.3%
NUN	33.3%	71.4%	100.0%	88.9%	100.0%	--	--	--	83.9%
Total	33.3%	33.9%	32.6%	35.0%	35.7%	43.8%	50.6%	60.3%	41.3%

population size classes, particularly those that are very small or very large, impressive gains have been made. The question to consider at this juncture is, how comparatively important are these gains and losses? This topic is broached in the following section.

TABLE 12 Population Change Categories (PCC)¹

Size category	Large gain (%) (PCC 4)	Moderate gain (%) (PCC 5)	Moderate loss (or no change) % ² (PCC 6)	Large loss ³ (%) (PCC 7)	Mean % population change	Standard deviation (%)
< 199	>141.1	0.1 to 141.1	0 to -16.5	>-116.5	12.3	128.8
200-499	>11.2	0.1 to 11.2	0 to -17.2	>-17.2	-3.0	14.2
500-999	>7.4	0.1 to 7.4	0 to -13.2	>-13.2	-2.9	10.3
1000-2499	>7.2	0.1 to 7.2	0 to -11.4	>-11.4	-2.1	9.3
2500-4999	>4.9	0.1 to 4.9	0 to -8.5	>-8.5	-1.8	6.7
5000-7499	>9.1	0.1 to 9.1	0 to -7.3	>-7.3	0.9	8.2
7500-9999	>10.4	0.1 to 10.4	0 to -7.4	>-7.4	1.5	8.9
> 10 000	>7.5	0.1 to 7.5	0 to -3.3	>-3.3	2.1	5.4

- Notes:
1. Large gain = more than 1 standard deviation above the mean for the size class; Moderate gain = 0.1% to 1 standard deviation above the mean for the size class; Moderate loss = 0% to 1 standard deviation below the mean for the size class; Large loss = more than 1 standard deviation below the mean for the size class.
 2. Excludes all cases for which data are missing in one or both years and those places reporting 0 population in both years.
 3. 100% is substituted for 116.5% given the impossibility of a population loss being greater than the former.

Comparative Population Change

The second objective of this paper is to classify all RST municipalities into one of four comparative population change categories. To meet this objective, the mean percent change in population for all municipalities in each size class is first calculated. As demonstrated in Table 12, rates of change vary amongst the eight classes. Negative rates are recorded in four, with the highest level of population change found in places with between 200 and 499 residents (-3.0 %). Positive rates of change are found in the remaining size classes, with the highest mean percent change (12.3 %) found in the smallest (< 199) census subdivisions. Table 12 also demonstrates that there is considerable variation around these averages. As expected, variations are greatest in the smaller municipalities and lowest in those supported by more than 10 000 residents.

As described in the methodology, four population change categories (PCCs) are created based on variations in these means and standard deviations, two reflecting population growth, and two, population stability or decline (Table 3). Table 13 demonstrates the distribution of RST municipalities, which reported a population in both 1996 and 2001, amongst these four categories. Here we see that approximately 10 % of Canada's RST municipalities experienced large population gain during the study period. Six jurisdictions reported values above this mean, with Nunavut leading the way with more than 35 % of its rural and small towns reporting large population increases. In contrast, the remaining seven provinces or territories reported a smaller percentage than the Canadian average. No RST census subdivisions in the Northwest Territories reported large gains, and the number of these municipalities in Atlantic Canada is very small when compared to the rest of the county.

TABLE 13 Number and Percentage of Municipalities Within Each Population Change Category¹

	Large gain (#)	Large gain (%)	Moderate gain (#)	Moderate gain (%)	Moderate loss (#)	Moderate loss (%)	Large loss (#)	Large loss (%)
NFLD	4	1.2	20	5.8	205	59.5	115	33.5
PEI	3	3.4	35	39.8	49	55.7	1	1.1
NS	2	2.6	18	23.7	53	69.7	3	3.9
NB	10	4.7	41	19.1	141	65.9	22	10.3
ONT	40	10.4	137	35.6	166	43.1	42	10.9
QUE	111	10.4	311	29.2	595	55.9	46	4.3
MAN	52	19.5	60	22.5	129	48.3	26	9.7
SASK	61	6.8	209	23.3	554	61.8	72	8.0
ALTA	73	20.8	139	39.6	128	36.5	11	3.1
BC	45	9.1	162	32.9	210	42.6	76	15.3
YK	3	11.1	9	33.3	13	48.1	2	7.4
NWT	0	0	11	31.6	18	50.0	7	19.4
NUN	11	35.5	15	48.4	3	9.7	2	6.4
Total	415	9.7	1167	27.3	2264	53.0	425	10.0

Note: 1. Table only includes places reporting population in both 1996 and 2001.

At the other end of the spectrum, we see an almost identical percentage of RST municipalities undergoing large population losses (10 %). Five provinces or territories report losses that are higher than the average, with Newfoundland reporting the greatest percentage (33.5). The remaining eight areas of the country have a relatively small percentage of municipalities in this category. Prince Edward Island and Alberta stand out here, with only 1.3 and 3.1 % of all RST municipalities, respectively, showing a relatively large reduction in their population base.

In between these two extremes, we find the bulk of Canada's small municipalities. The majority of RST areas report moderate loss (53 %), with slightly more than one-quarter undergoing a moderate gain. Alberta and Nunavut are the only jurisdictions in Canada where more RST areas underwent moderate growth than moderate decline. In all other cases, a greater percentage of RST municipalities reported moderate loss, than moderate gain.

Population gains and losses have occurred across the country. In a comparative sense, we can conclude that very few rural municipalities in eastern Canada have experienced the same level of population growth as the rest of the country. In fact, in one jurisdiction (NFLD), not only are there few "large gain" municipalities, but here we also find the highest percentage of those classified as "large loss". In stark contrast is the territory of Nunavut, and the province of Alberta, which stand out for their relatively large percentage of rapidly growing RST municipalities. The degree to which these patterns are correlated with external commuting is the topic to which we now turn.

TABLE 14 Distribution of Population within Canada's Metropolitan Influence Zones (MIZs), 2001 and 1996(%)

	Strong (MIZ 4)		Moderate (MIZ 5)		Weak (MIZ 6)		No (MIZ 7)	
	%	% change	%	% change	%	% change	%	% change
	2001	since 96	2001	since 96	2001	since 96	2001	since 96
NFLD	6.5	-10.7	45.6	-10.9	39.0	-10.0	8.9	-11.2
PEI	31.3	0.1	48.4	-1.2	19.2	-2.0	1.1	-5.8
NS	6.7	4.9	29.6	-2.1	62.4	-3.2	1.4	-1.3
NB	14.5	-1.6	41.8	-3.5	38.9	-2.9	4.8	3.0
ONT	46.9	4.1	33.0	-0.1	18.2	-2.9	1.9	11.6
QUE	28.3	2.3	50.8	-1.3	18.0	-4.4	3.0	-0.4
MAN	13.1	3.1	31.2	1.8	44.8	-1.3	10.9	1.4
SASK	6.3	0.8	24.3	-2.6	46.9	-4.4	22.6	-3.5
ALTA	18.3	12.7	27.6	5.9	49.1	1.8	5.0	17.9
BC	13.2	2.5	35.0	0.7	44.0	-3.9	7.8	1.1
Total	24.8	3.7	37.4	-0.9	32.2	-2.9	5.5	1.0

Source: <http://www.statcan.ca/english/census2001/dict/universes/geography/geo010.htm>

External Commuting in Southern Canada

The first step in testing the relationship between external commuting and population change is to identify the level of the former within each RST municipality. This step has been taken by Statistics Canada who base their MIZ designation on the level of commuting taking place within each CSD of southern Canada. As described earlier in Table 4, this designation yields four metropolitan influence categories. A perusal of Table 14 reveals that the RST population is distributed very unevenly amongst these categories. The majority are found in the moderately and weakly influenced zones, particularly in the four eastern provinces. Approximately one-quarter occupy those CSDs classified as being strongly influenced, with significantly more residents of Prince Edward Island, Ontario and Quebec found in these areas. In contrast, only 5.5 % fall into the zone of no influence, although the importance of these influence zones is somewhat greater in Manitoba and Saskatchewan.

Table 14 also reveals that population change has not been constant within these influence classes. Nationally, we see that commuting zones are growing, but so too are those municipalities located beyond this urban sphere of influence. This situation is not new, and has been recognized by others (e.g. Hodge and Qadeer 1983). In contrast, places with a weak tie to the urban core have lost population. While these are the national trends, there are, of course, deviations. Newfoundland/Labrador and New Brunswick, for example, have seen a decline occur in the zones of strong influence. Alberta, Manitoba and British Columbia have seen growth in areas of moderate influence and in the case of the former, also in areas of weak influence. Finally, population loss has been found in municipalities of no influence in five jurisdictions (NFLD, PEI, NS, QUE and SASK), countering the national trend of increase. Thus, as seems to be the case with all demographic data,

TABLE 15: Percentage of MIZ Municipalities Within 8 Population Size Classes

Size Category ¹	Strong influence	Moderate influence	Weak influence	No influence	Territories
<199	3.0%	4.7%	2.4%	82.0%	7.9%
200 – 499	12.0%	33.8%	20.4%	31.7%	2.0%
500 – 999	12.1%	43.6%	28.2%	14.0%	2.0%
1000 – 2499	17.0%	40.8%	33.1%	7.3%	1.8%
2500-4999	20.5%	40.8%	36.8%	1.1%	0.8%
5000 – 7499	22.2%	35.9%	41.8%	0.0%	0.0%
7500 – 9999	27.8%	36.7%	35.4%	0.0%	0.0%
> 10 000	44.4%	31.7%	23.8%	0.0%	0.0%

Note: 1. Based on 1996 size category classification.

spatial variations are significant.

Data provided by Statistics Canada can be rearranged to illustrate the prevalence of each metropolitan influence zone category amongst each of the eight size classes. Table 15 demonstrates a direct relationship between size and influence; specifically, the larger the size class, the greater the percentage of municipalities of strong metropolitan influence. The converse is true for the relationship between size and the no influence category, specifically, the larger the size class, the smaller the percentage of CSDs of no influence. For RSTs designated as areas of moderate influence, a peak occurs in the percentage of these municipalities at the 500 – 999 size class, with values declining both up and down the settlement hierarchy around the category. A similar trend is apparent for the low influence zone. Here, the peak is reached at size class 5000 – 7499, with smaller percentages reported for municipalities either larger or smaller than those in this category. Whether or not this distribution impacts the relationship between population change and external commuting is determined in the next section.

The Relationship between Population Change and External Commuting in Southern Canada

Although Statistics Canada has provided a general overview of population growth and decline within metropolitan influence zones, we do yet know how statistically strong the correlation is between external commuting and population change. For the purpose of this analysis, it is hypothesized that as the degree of urban influence increases (i.e. from MIZ category 7 through 4), so too will the level of population gain (i.e. from PC category 7 through 4). Spearman's rank correlation coefficients are calculated to test the direction and strength of this relationship for the country as a whole, for individual provinces and finally for individual size classes. Given the potential for a negative correlation between the two variables, two-tailed tests of significance are conducted for both .01 and .05 confidence levels. Results reveal the relationship between population change and external commuting as described below.

TABLE 16 Spearman's Rank Correlation Coefficients for All RSTs

Province	Correlation Coefficient
NFLD	-.149**
PEI	.200
NS	-.136
NB	-.061
ONT	.123*
QUE	.150**
MAN	.008
SASK	.037
ALTA	.153**
BC	.022
Total population	.077**

Note: 1. * = Correlation is significant at the .05 level (2-tailed); ** = Correlation is significant at the .01 level (2-tailed)

TABLE 17 Spearman Rank Correlation Coefficients for RST Size Classes

	< 199	200-499	500-999	1000-2499	2500-4999	5000-7499	7500-9999	> 10000
NFLD	.059	-.075	.047	.157	-.204	.091	--	--
PEI	.693	-.035	.102	.623**	--	--	--	--
NS	.239	-.500	-.722	.537	.018	.089	1.0	.732
NB	.452	-.157	-.182	-.046	.028	.195	--	--
ONT	-.018	-.199	-.090	.210	.333**	.141**	.359**	.383*
QUE	.062	-.065	.144*	.160**	.439**	.406*	.658*	.839*
MAN	-.201	-.094	-.123	.171	.027	.707	.471	--
SASK	-.039	.126*	.233**	.065	-.651	--	--	--
ALTA	-.056	-.058	.257	.201	.151	.367*	.048	.633
BC	-.047	-.091	.249	.136	-.428*	.513**	--	--
Total	-.030	.023	.133**	.180**	.247**	.272**	.426	.520

Note: 1. * = Correlation is significant at the .05 level (2-tailed); ** = Correlation is significant at the .01 level (2-tailed)

Table 16 shows that the relationship between these two variables is statistically significant at a .01 confidence level for the nation as a whole. Provincial analyses also reveal a weak, but significant, relationship in four of Canada's 10 provinces. In one case, Newfoundland/Labrador, the direction of the significant relationship is negative (as it is also in Nova Scotia and New Brunswick). In this case, areas within and beyond urban influence experience both population loss and gain, irrespective of the level of external commuting. Thus, one cannot base an explanation of change on the presence or absence of ex-urbanite commuters.

In contrast, in the three provinces of Ontario, Quebec and Alberta, the direction of the significant relationship is positive. A similar relationship also can be found in Prince Edward Island, Manitoba, Saskatchewan and British Columbia,

although it is statistically insignificant. In each of the significant cases, therefore, population change is correlated, to some degree, with external commuting.

Table 17 presents the correlation coefficients for each size class. Significant and positive relationships can be found for the mid-ranged CSDs (i.e. 500 – 7499 population). In contrast, population growth and external commuting is insignificant for those municipalities that are either very small (less than 499) or very large (more than 7500). Furthermore, although the direction of the relationship is positive in the latter, the reverse is true for those municipalities that are supported by very few people. Thus, we can infer, (although not prove) that while external commuting is a contributor to population growth in mid-sized RST areas, other factors are driving change in Canada's smallest and largest municipalities.

Thus far, this analysis has been based on the assumption that the migration of ex-urbanites is responsible for the growth of rural and small town municipalities. This assumption is of course flawed because population change is also influenced, among other things, by rates of net natural increase (total births – total deaths) (Mitchell 2004). Although it is agreed that differences in birth and death rates between Canada's "rural" and "urban" areas have basically disappeared (Bourne 1995), discrepancies, however, have been observed between Canada's Aboriginal and non-Aboriginal populations, many of whom reside outside Canada's larger urban areas. In fact, in 2001, fertility rates of the former approached 30 births per 1,000 people, compared to only 13/1000 for non-Aboriginals (Bone 2005). Thus, one can hypothesize that population change in Aboriginal communities should be somewhat higher than in those municipalities classified as non-Aboriginal. This disparity will undoubtedly distort the relationship between population change and external commuting, as described above. Furthermore, one also can hypothesize that if we remove Aboriginal settlements from our analysis, a statistically significant relationship may emerge in provinces that contain a number of these settlement types.

Population Change in Aboriginal Municipalities of Southern Canada

Statistics Canada designates all CSDs into one of 46 types. For the purpose of this paper, twelve of these are classified as Aboriginal (Table 18). In total, there are 1136 such municipalities in Canada, of which 710 reported population for both 1996 and 2001. Tables 19 and 20 reveal the spatial distribution of these municipalities and their population in 2001. The former table demonstrates that less than one-fifth (19.3 %) of all CSDs in southern Canada are Aboriginal. The two eastern provinces of Newfoundland/Labrador and P.E.I claim the lowest percentage (0.3 and 1.1 % respectively) with B.C. home to the most (58.8 %). Likewise, a small minority of the rural and small town population lives in municipalities classified as aboriginal (Table 20). This percentage is less than 1 % in parts of eastern Canada, but is somewhat higher in the provinces of Manitoba and Saskatchewan (14.1 and 13.9% respectively). Thus, although non-Aboriginal CSDs do dominate, it is important to note the presence of Aboriginal municipalities in certain parts of the country.

TABLE 18 Aboriginal Municipalities of Southern Canada

Census subdivision type	Total
Indian government district	2
Nisga's land	1
Nisga's village	5
Indian reserve	1041
Indian settlement	23
Terre Inuite	10
Terres Réserves	9
Village Cri	8
Village nordique	14
Village Naskapi	1
Northern village	13
Northern hamlet	9
Total	1136
Total reporting population for 1996 and 2001	710

Note: 1. Inclusion in this TABLE is based on either the presence of an Aboriginal moniker (e.g. Inuite) or a majority Aboriginal population.

Source: <http://www.statcan.ca/English/census2001/dict/universes/geography/geo012.htm>

TABLE 19 Percentage of RST Municipalities in Southern Canada that are Aboriginal and Non-Aboriginal

	Non-Aboriginal %	Aboriginal %	Total #
NFLD	99.7%	0.3%	344
PEI	98.9%	1.1%	88
NS	78.4%	21.0%	76
NB	95.3%	4.7%	214
ONT	78.2%	22.0%	386
QUE	95.7%	4.3%	1063
MAN	75.3%	24.7%	267
SASK	83.8%	16.2%	896
ALTA	85.5%	14.5%	351
BC	41.2%	58.8%	493
Total %	80.7%	19.3%	100%
Total number	2974	710	3684

Note: 1. Includes only those csds reporting population for both 1996 and 2001

Although less prevalent than their non-Aboriginal counterpart, Aboriginal municipalities are changing at a much greater rate. At the provincial scale, Table 21 demonstrates that population loss occurred in all non-Aboriginal rural and small town CSDs (yielding an overall decline of nearly 1 %). This contrasts markedly with the situation in Aboriginal municipalities, which grew by 8 % between 1996 and 2001. Positive rates of growth can be seen in all provinces, reaching a maximum in Prince Edward Island (17.6 %), and followed closely by gains in New Brunswick (14.4 %) and Quebec (11.4 %). Thus, as hypothesized, population

TABLE 20 Number and Percentage of Total RST Population Living in Aboriginal and Non-Aboriginal RSTs of Southern Canada: 2001

	Aboriginal #	Aboriginal %	Non-Aboriginal #	Non-Aboriginal %
NFLD	837	0.3%	273555	99.7%
PEI	261	0.4%	60465	99.6%
NS	3201	1.0%	330110	99.0%
NB	4859	1.4%	342947	98.6%
ONT	29622	2.0%	1447855	98.0%
QUE	39287	2.5%	1516739	97.5%
MAN	52492	14.1%	320746	85.9%
SASK	57515	13.9%	356196	86.1%
ALTA	27649	3.8%	698308	96.2%
BC	33066	6.2%	504008	93.8%
Total population	248789	4.1%	5850929	95.9%

Note: Includes only those CSDs that reported population for both 1996 and 2001.

TABLE 21 Population Change in Aboriginal and Non-Aboriginal RSTs of Southern Canada, 1996-2001

	Non-Aboriginal (#)	Non-Aboriginal (%)	Aboriginal (#)	Aboriginal (%)	Total (#)	Total (%)
NFLD	-32618	-10.7%	86	11.5%	-32532	-10.6%
PEI	-645	-1.1%	39	17.6%	-606	-1.0%
NS	-8147	-2.4%	238	8.0%	-7909	-2.3%
NB	-10784	-3.0%	610	14.4%	-10174	-2.8%
ONT	14912	1.0%	1965	7.1%	16877	1.2%
QUE	-16905	-1.1%	4006	11.4%	-12899	-0.8%
MAN	-2387	-0.7%	4171	8.6%	1784	0.5%
SASK	-19350	-5.2%	4496	8.5%	-14854	-3.5%
ALTA	31463	4.7%	2309	9.1%	33772	4.9%
BC	-8239	-1.6%	527	1.6%	-7712	-1.4%
Total change	-52700	-0.9%	18447	8.0%	-34253	-0.6%

Note: 1. Includes only csds that reported population for both 1996 and 2001.

gains in Aboriginal municipalities are much more prevalent than in other RST census subdivisions.

High levels of growth experienced by Aboriginal municipalities are, in all likelihood, a result of the high fertility rates presented above. If we remove the Aboriginal municipalities from our analysis, therefore, one might expect additional provinces to display a relationship between population change and level of external commuting. Table 22 presents the Spearman rank correlation coefficients for all non-Aboriginal RST areas. As expected, once the Aboriginal CSDs are removed, three additional provinces (PEI, BC and MAN) now display a statistically significant correlation between population change and level of external commuting.

Although urban influence has now been correlated with population change in

TABLE 22 Spearman's Rank Correlation Coefficients for all Non-Aboriginal RSTs

	Non-Aboriginal RSTs
NFLD	-.142**
PEI	.241*
NS	.202
NB	-.038
ONT	.403**
QUE	.232**
MAN	.305**
SASK	.062
ALTA	.318**
BC	.282**
Total population	.202**

Note: 1. * = Correlation is significant at the .05 level (2-tailed); ** = Correlation is significant at the .01 level (2-tailed)

seven of Canada's provinces, no such relationship exists in Nova Scotia, New Brunswick or Saskatchewan. In New Brunswick, not only is the relationship insignificant, but it is also negative. In contrast, the direction is positive, although also insignificant, in Nova Scotia and Saskatchewan. Thus, while some municipalities may be benefiting from the spread of urban influence into the countryside, others are evolving for different reasons.

This recognition is not novel but harkens back to the early work of Hodge and Qadeer (1983). Upon analyzing change in Canadian towns and villages, it was concluded that not all towns and villages located within the vicinity of metropolitan centres had experienced growth during the 1970s. In fact, they observed that more than one-third of these settlements lost population between 1961 and 1971. Furthermore, their analyses revealed that high levels of growth were occurring in relatively remote areas, far removed from the sphere of urban influence. Their conclusions, and those drawn here, suggest that other forms of migration (both out and in-migration) may be contributing to the growth and decline of Canada's RST areas.

Rural out-migration should be factored into any explanation of RST population change. Although detailed migration data to support this contention will appear in a subsequent paper, one can draw attention to numerous studies that demonstrate the departure of rural residents in those regions whose economic base remains tied to primary sector activity. Studies conducted in eastern Canada, for example, point to the demise of communities whose fortunes have been linked to the groundfish industry (e.g. Byron 2003). Similar scenarios have been played out on the west coast and more northerly parts of southern Canada where the "winding down" of resource towns is a consequence of either resource depletion, or global forces (e.g. Halseth 1999). In the Prairie provinces, the reduced viability of small towns can be attributed to out-migration (e.g. Stabler and Olfert 2002) driven by low commodity prices and climatic variability. Thus, the departure of rural residents has plagued municipalities dependent on the production of primary sector commodities. This undoubtedly is contributing to the levels of population change

recorded here for Nova Scotia, New Brunswick and Saskatchewan (and for other municipalities across the country).²

High levels of in-migration, however, also have contributed to population growth or stability in other parts of the country (Simmons 1980; Field 1988). In this paper, I have focused on one very specific type of in-migration; that is, the movement of residents into the countryside who maintain a tie to the urban core through their journey-to-work. Evidence has been put forward, however, that not all newcomers to RST areas retain this urban bond. Some may simply "come for the work" (Halseth 1999), regardless of location, and may return to a former residence once economic circumstances change. This situation has certainly been the case in New Brunswick (Marshall and Foster 2002) where employment opportunities have attracted workers for short periods to small municipalities.

Others, however, come for the amenities that are perceived to exist in a rural setting (Coppack 1988; Park and Coppack 1994). Many seek out a bucolic environment in which to retire (Dahms and Hallman 1991; Joseph and Cloutier 1991; Dahms 1996; Bryant and Joseph 2001). In contrast, some are drawn to scenic areas as places not only to live, but also to work. Unlike those described above, the main motivation here is the desire to relinquish ties to the urban core through both relocating one's home and employment to a rural setting (Thomson and Mitchell 1998; Dahms and McCoomb 1999; Mitchell et al 2004). In either case, the ultimate result is population increase in areas that may well be far removed from urban influence. It is highly likely that such movements are underway in most provinces, including Saskatchewan, Nova Scotia and New Brunswick. Additional localized study is now needed to confirm if such a trend is indeed underway.

Conclusions

Demographic change is a fact of life for small municipalities. The trend documented in this study for the period 1996 to 2001, and indeed extending back more than 30 years, is one of population loss in census subdivisions that lie outside larger urban environments. Despite this general state of affairs, population change is far from being spatially consistent. It has been revealed here that contrary to national trends, Canada's smallest and largest RST municipalities are growing, at the expense of those of mid-size. Furthermore, within at least four jurisdictions (ALB, ONT, MAN and NUN), the national trend of population loss is absent, with many municipalities (often Aboriginal) displaying quite impressive levels of growth. The main thrust of this paper was to determine if these patterns are correlated with urban influence, as reflected in levels of external commuting.

The daily commute to a large urban area is also a fact of life for many employees who chose to take up residence in the city's countryside. This journey-to-work has given rise to an extended sphere of urban influence that pulls many rural areas and small towns into the metropolitan orbit. This research finds that external

2. This is not to say that in-migration does not occur in regions dependent on primary-sector activity. See, for example, work by Halseth (1999) on resource towns in B.C.

commuting is of considerable importance in Ontario, Prince Edward Island and Quebec, and appears to become of greater importance as municipalities increase in size. This finding is interesting, given the nature of the relationship that is found between population change and external commuting.

Calculation of Spearman's correlation coefficients demonstrates a weak, but significant, relationship between external commuting and population change for the nation as a whole. However, this situation is found to be a result of the scenario occurring in only those municipalities of mid-size. In contrast, for larger and smaller census subdivisions, the ability to commute to an adjacent metropolitan area does not appear to be influencing population change. This is a somewhat surprising finding, given the overwhelming prevalence of external commuters who live in larger RST areas.

The study also finds that spatial variations do indeed exist in the strength and direction of this relationship across Canada's southern provinces. When the Aboriginal cohort is removed, it is revealed that growth occurring in six provinces is correlated positively with levels of external commuting. In the province of Newfoundland/Labrador, a significant relationship is found, but its direction is negative. Thus, in this jurisdiction, higher rates of growth prevail in municipalities with lowest levels of external commuting. In contrast, no significant relationship is found in New Brunswick, Nova Scotia or Saskatchewan. This leads one to conclude that other types of migration are driving change in many of Canada's smaller municipalities.

Migration is a complex phenomenon. As alluded to previously, individuals choosing to take up residence in small municipalities may do so for myriad reasons. Movements may be spurred by the search for employment opportunities (either by choice or necessity) or a pleasant setting in which to retire. It is highly likely that such migration motivations are fuelling population growth in select municipalities located at some distance from major metropolitan centers. Whatever the motivation, the choice to move to a small municipality has given rise to a rural and small town settlement system that is far from homogenous. Although it is a system that in part owes its present state to external forces (i.e. commuting to a larger urban core), other influences, awaiting investigation, also appear to be at work.

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