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THE RURAL RENAISSANCE IN ALBERTA: SOME EMPIRICAL EVIDENCE

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INTRODUCTION

There is strong evidence of a quiet renaissance taking place in small communities throughout Alberta. This rebirth is a consequence of advances in communications technology which have altered the comparative advantage of living and working in these communities. The favourable effects of communications technology have been supplemented by changes in lifestyle preferences, in the ownership of wealth, and in social policy.

Canada's bestselling demographer of the baby boomers, David Foot, estimates that as many as 9.8 million baby boomers will turn 50 during the next two decades. Some will opt to live and continue to pursue their careers in rural Canada. [Foot 1994] Keen trend observers have laid out various rationales for this revival. A recent article in *Business Week* noted the number of "city folks" plugging in "wherever they wanted." It is clear that today's professional can service their clients as easily from the "sticks as from their old urban canyons." Even agricultural journals are taking stock of the situation. Last year, Canada's *Western Producer* discussed the shifting population in terms of "urban 'amenity seekers' moving to the countryside for a better way of life." The *Wall Street Journal* discussed this trend by focussing on what is making it all possible: electronic communication. As Richards [1994] sees it, electronic communication can be likened to the coming of the railroad and the modern highway system. "Such developments as fiber optics and data compression are shaking up everything from business to rural education to medicine. And perhaps as important as its influence on how people live", Richards believes, "the new technology is starting to affect where they live."

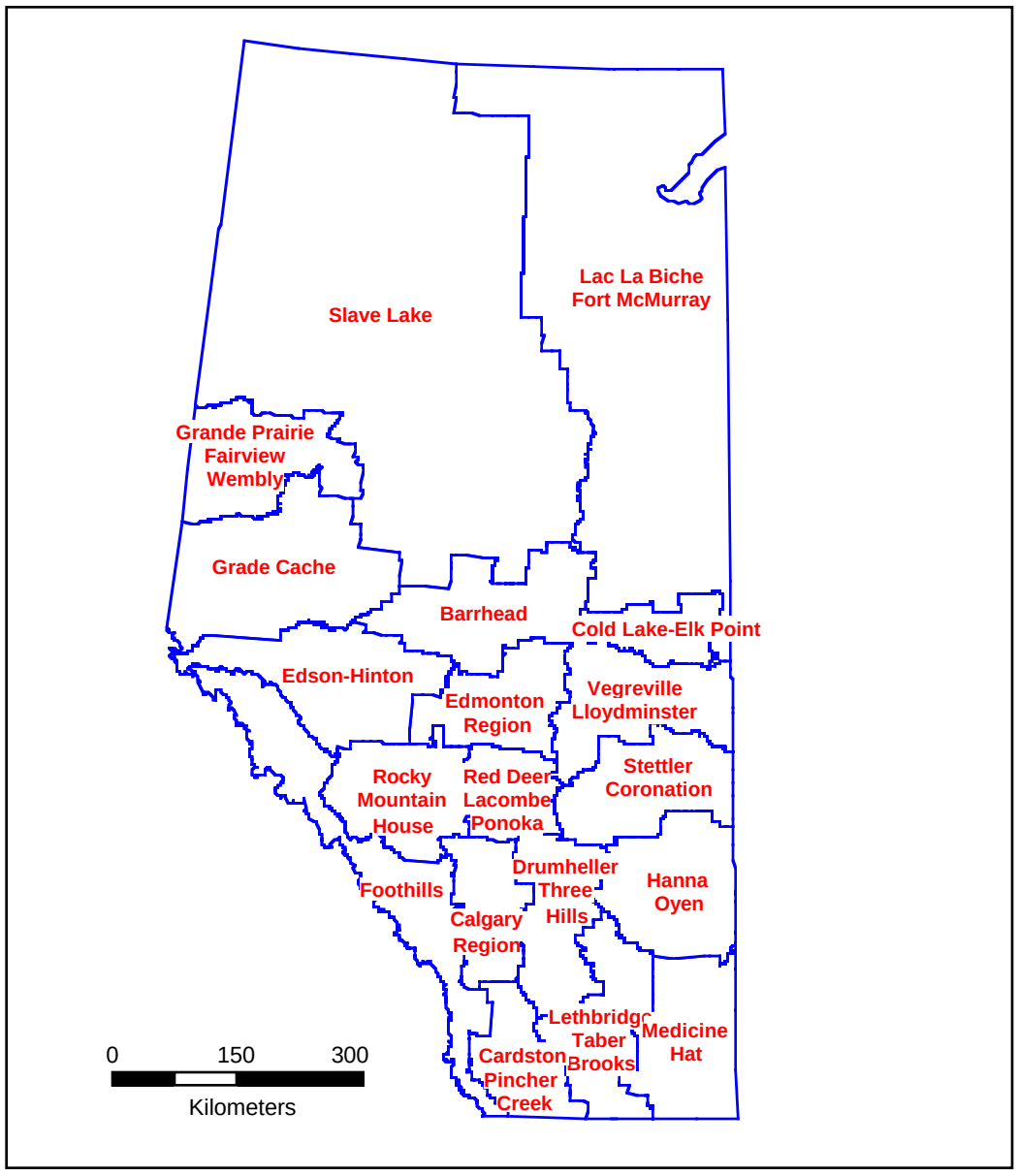
Many of these people will be returning to places where they were raised; others will choose communities for personal reasons. These are the 'amenity seekers'. They make personal choices that may not necessarily mean earning the optimum salary. They will be content to earn less in a place that offers intangible benefits, such as lower stress, a quieter way of life, being close to older family members, or taking advantage of park and wilderness areas. [Blair and Premus 1993]

Other recent assessments of the rural condition are not so positive. Reimer [1997:1] reflects that work is more professionalized. Consequently the familiar forms of rural work are being threatened. Family farms, forestry and fish plant workers are being reorganized and in many cases these industries no longer require traditional workers. The commentary in a Government of Canada document as quoted by Bollman [1997: 3-4] suggests that "Rural areas of Canada not adjacent to metro areas are experiencing out-migration, high unemployment and lower income....Rural Canada appears disadvantaged."

In western Canada, recent socio-economic evidence about rural areas is conflicting. In British Columbia over the past decade the vast majority of census divisions outside of greater Vancouver experienced substantial net positive domestic migration, but in Saskatchewan the experience has been one of net negative migration. The experience of rural census divisions in Alberta and Manitoba is more varied and provincial experience lies somewhere between the extremes of British Columbia and Saskatchewan. The broader question about rural futures can be stated as: Does the interaction of market forces, revolutionary changes in communications technology, the search for a better quality of life, and social safety net policies, when taken together, enhance the potential for many rural communities?

This paper looks at the rural community experience of one province—Alberta—during the past decade. We begin by considering selected demographic and income variables in each of the province's nineteen census divisions (see map on page 3) during the 1986-91 and 1991-96 periods. The evaluation includes the contribution of domestic migration to growth, the presence of older age cohorts, and importance of nonemployment income sources that are contractual or quasi-contractual in character, including investment and retirement income and transfer payments. The next section considers the population growth experienced by 105 communities dispersed across all census divisions with a 1991 population ranging from 1,000-15,000. The third section of the paper reports the results of new survey data that we have collected covering business service firms—generally acknowledged as the heaviest users of communications technology—drawn from 40 of the 105 communities. The findings reported cover markets served, education, age, reasons for location, jobs created, perceptions of competitive advantage, and collaborative activity. Our conclusion is that technological and socio-economic forces are measurably strengthening the prospects of rural communities.

Alberta Census Divisions



POPULATION CHANGES IN ALBERTA CENSUS DIVISIONS (CDS)

Population change from one census to another can be attributed to a number of factors. The principal components are natural increase, net domestic migration (both inter and intraprovincial), and net foreign immigration. In Alberta, foreign immigration has been heavily concentrated in the Calgary and Edmonton CDs—and more specifically in the two cities proper. Hence, for other CDs, natural increase and domestic migration have been the key elements of population change. However, despite the fact that Calgary and Edmonton have been the location choice of foreign migrants, natural increase and domestic migration have also been significant sources of population change in the two metropolitan areas.

POPULATION GROWTH AND DOMESTIC MIGRATION

TABLE 1 shows population growth in Alberta's CDs and provides comparisons with provincial growth in the 1986-91 and 1991-96 periods. In TABLE 1 CDs are ranked by the rate of growth in the 1991-96 period. In the 1986-91 period the Calgary and Edmonton CDs were two of only three CDs with growth exceeding the provincial average. In relative terms growth was highly concentrated in the two metropolitan areas. However, a substantially different pattern is evident in the second five year period when the growth rate in ten CDs exceeded the provincial average. The Calgary CD continued to experience an above average rate of growth but Edmonton did not.

Table 1 Alberta Population and Growth Rate by Census Division* 1986-91 and 1991-96

Census Division	*Pop 1986*	*Pop 1991*	*Pop 1996*	*% gr 86-91*	*% gr 91-96*
17 Slave Lake	*49924*	*50258*	*55939*	*0.7*	*11.3*
6 Calgary region	*737594*	*820876*	*911189*	*11.3*	*11.0*
15 Foothills	*25049*	*27094*	*30040*	*8.2*	*10.9*
9 Rocky Mountain House	*16289*	*17028*	*18727*	*4.5*	*10.0*
8 Lacoimbe-Ponoka	*121739*	*129036*	*141073*	*6.0*	*9.3*
1 Medicine Hat	*57889*	*59254*	*64666*	*2.4*	*9.1*
19 Gr Pr-Fairview-Wembley	*74707*	*76314*	*83214*	*2.2*	*9.0*
4 Hanna-Oyen	*12598*	*12132*	*13138*	*-3.7*	*8.3*
13 Barrhead-Athabasca	*56074*	*58547*	*63360*	*4.4*	*8.2*
2 Lethbridge-Taber-Brooks	*118643*	*121348*	*130835*	*2.3*	*7.8*
18 Grande Cache	*13842*	*14243*	*15271*	*2.9*	*7.2*
5 Drumheller-Three Hills	*39641*	*40360*	*43120*	*1.8*	*6.8*
14 Edson-Hinton	*25852*	*26258*	*28014*	*1.6*	*6.7*
12 Cold Lake-Elk Point	*46243*	*46224*	*48926*	*0*	*5.8*
7 Stettler-Coronation	*41499*	*40389*	*42718*	*-2.7*	*5.8*
3 Cardston-Princher Creek	*37171*	*36768*	*38569*	*-1.1*	*4.9*
11 Edmonton region	*832203*	*894468*	*929340*	*7.5*	*3.9*
10 Vegreville-Lloydminster	*81443*	*79832*	*81194*	*-2.0*	*1.7*
16 Lac La Biche-McMurray	*5303*	*50860*	*50193*	*1.1*	*-1.3*
Provincial total	*2438703*	*2601289*	*2789526*	*6.7*	*7.2*
No. CDs above prov. rate				*3*	*10*
No. outside Calg and Edm				*1*	*9*

Source: Statistics Canada, 1986, 1991 and 1996 Census of Population.

** CDs in Alberta as reported by Statistics Canada have no geographical attribution. They are simply listed generically from 1 to 19. The authors have assigned place names to each CD.*

TABLE 1 reveals not only that many rural CDs recorded strong rates of population growth in the later period but also that the direction of growth moved from negative to positive in four rural areas. In only one division—Lac La Biche-McMurray—did the growth rate swing from positive to negative. The table indicates that above average growth rates were more widely prevalent in the second period, suggesting a demographic pattern more supportive of the rural economy.

TABLE 2 considers the contribution of the sum of inter and intraprovincial migration to the five year growth rate in population for each CD. The table ranks CDs by the contribution of net domestic migration to population growth during the 1991-96 period. To interpret the table, for example, the Medicine Hat CD results can be used.

For the Medicine Hat division the figure of -55.7% in the 1986-91 column has a negative sign.. Here the negative number of -55.7% in the 1986-91 column means that there was net negative domestic migration (outflows) from the CD in this five year period.

Table 2 Net Domestic Migration as a Per Cent of Census Division Growth 1986-91 and 1991-96

Census Division	Net Domestic Migration as % of 86-91 Popn. Change*	Net Domestic Migration as % of 91-96 Popn. Change**
Medicine Hat	-55.7	51.0
Lethbridge-Taber-Brooks	33.0	27.4
Cardston-Pincher Creek	-320.6	3.8
Hanna-Oyen	-178.9	70.3
Drumheller-Three Hills	-129.1	47.1
Calgary Region	9.7	24.6
Stettler-Coronation	-154.8	25.6
Lacombe-Ponoka	17.9	38.3
Rocky Mountain House	-11.6	30.2
Vegreville-Lloydminster	-219.8	20.2
Edmonton Region	-31.4	-79.3
Cold Lake-Elk Point	***	-58.1
Barrhead-Athabasca	77.6	63.2
Edson-Hinton	-97.5	16.6
Foothills	-61.2	41.7
Lac La Biche-McMurray	-1085.9	-601.0
Slave Lake	-1294.6	0.1
Grande Cache	-198.5	-3.8
Gr Pr-Fairview Wembly	-120.7	22.7

Source: CANSIM matrices 6196 to 6199

** net domestic migration is calculated as the sum of inter and intraprovincial in and outmigration annually from July 1 1986 through July 1 1991.*

*** net domestic migration is calculated as the sum of inter and intraprovincial in and outmigration annually from July 1 1991 through July 1 1996.*

**** the decline in population 1986-91 was 19. Net migration during the period was -2245.*

Effectively the growth occurring in the period was attributable to other sources listed above—primarily natural increase and foreign migration. Another way of looking at the result is to hypothesize the effect on population change in any division had domestic net migration for that CD over the period been zero. In the case of Medicine Hat, for example, actual population growth from 1986-91 amounted to 1,365 persons. Had net domestic migration been zero, then the population of this division would have grown not by 1,365 but by 2,125. While this may be somewhat artificial, it nevertheless underscores the impact of domestic migration, particularly on rural areas. Exceptionally large percentages, as in the case of Lac La Biche-Ft. McMurray and Slave Lake, imply that domestic out-migration had a large constraining effect on the recorded rate of population growth. With the exception of the Calgary region, Lacombe-Ponoka and the Barrhead-Athabasca CDs, the contribution of net domestic migration to population growth was uniformly negative.

Turning to 1991-96 and again illustrating with the case of Medicine Hat, column (3) indicates that 51% of population growth between 1991 and 1996 was accounted for by net positive domestic migration. Put otherwise, the population of this CD grew between 1991 and 1996 by 5,412 persons; if domestic migration had been zero, then the population of this CD would have been less by 2,759 persons—the total of the net positive domestic migration. What occurred in 1991-96 differed measurably from the earlier period in most rural CDs. Net domestic migration contributed positively to population growth in all but four CDs, and of these, three recorded net negative domestic migration in both five year periods. The evidence from net domestic migration during these years lends further support to the view that many rural areas are not in decline, but on the contrary show signs of a renaissance.

THE 45 AND OLDER POPULATION: LOCATION PATTERNS

It is frequently argued that the population of rural areas is characterized by above average numbers of older people. In this paper we define the older population as those cohorts aged 45 and over. Location quotients for this age group have been calculated by CD for the census years 1986, 1991 and 1996. "Localization" is a concept applicable to any particular characteristic and measures its area concentration relative to some total magnitude—in this case the provincial proportion of the population 45 and over. The result is expressed in the form of a location quotient (LQ). Hence, in calculating an LQ of those 45 and over for each CD, the numerator is the proportion of the population 45 and over in any CD, and the denominator is the proportion 45 and over in the province. If the LQ for a CD exceeds 1.0 then the proportion of those aged 45 and over exceeds the proportion for the province as a whole; if the quotient is less than 1.0, then the proportion in the CD is less than the provincial proportion; if the quotient equals 1.0 then with respect to these cohorts the

CD is an exact replica of the province. If the arguments are correct that rural areas contain an above average share of older cohorts, then the LQs for the rural CDs should generally exceed 1.0.

TABLE 3 presents LQs by CD for each of the three census years ranked in descending order by size of LQ in 1996. This table reveals a number of significant demographic changes occurring within the province. Perhaps the most important of these is reduced variance across Alberta with respect to the relative importance of those 45 and over. In other words, the vast majority of divisions recorded an LQ closer to 1.0 in 1996 than in either 1986 or 1991. The standard deviation of the LQs—a widely used measure of variance— fell from .21 in 1986 to .15 in 1996. This suggests that rural areas are not a parking lot for seniors. Both Calgary and Edmonton regions with increasing LQs over the period moved against the more general trend. The exceptions are: the Rocky Mountain House division which moved from slightly above to slightly below 1.0; Cold Lake-Elk Point and Grande Prairie-Fairview-Wembley which both moved slightly away from 1.0; and the Slave Lake division with an LQ that was measurably below 1.0 in the earlier censuses and even more so in 1996.

Table 3 Location Quotients for the 45 and over Age Cohorts by Census Division for 1986, 1991 and 1996 in Descending Order by 1996 Value

Census division	LQ 1986	LQ 1991	LQ 1996
10 Vegreville-Lloydminster	1.34	1.35	1.26
13 Barrhead-Athabasca	1.26	1.22	1.14
7 Stettler-Coronation	1.28	1.25	1.13
1 Medicine Hat	1.20	1.19	1.12
5 Drumheller-Three Hills	1.20	1.17	1.11
3 Cardston-Pincher Creek	1.16	1.16	1.10
4 Hanna-Oyen	1.27	1.21	1.05
2 Lethbridge-Taber-Brooks	1.14	1.11	1.05
11 Edmonton region	0.98	0.99	1.03
8 Lacombe-Ponoka	1.02	1.02	1.00
9 Rocky Mountain House	1.01	1.04	0.99
6 Calgary region	0.95	0.96	0.98
14 Edson-Hinton	0.91	0.90	0.89
15 Foothills	0.91	0.89	0.88
12 Cold Lake-Elk Point	0.92	0.91	0.87
19 Gr Pr-Fairview-Wembly	0.90	0.90	0.86
18 Grande Cache	0.75	0.80	0.82
16 Lac La Biche-McMurray	0.54	0.62	0.71
17 Slave Lake	0.74	0.74	0.69
Standard Deviation of LQs	**0.21**	**0.19**	**0.15**

Source: Western Centre for Economic Research and the 1986, 1991 and 1996 Censuses.

PATTERNS OF SELECTED TYPES OF NONWAGE AND NONEARNINGS INCOME BY CENSUS DIVISION

There has been some discussion in the literature—much of it in the United States—about the economic role in rural areas of nonearnings income, i.e. income derived from sources other than wages and salaries and self-employment. [Nelson 1997; Kendall and Pagozzi 1994; Smith and Harris 1993] Nonearnings sources include retirement income, dividends, interest and rent, and transfer payments. Such sources of income generally flow from outside the local community and are therefore unaffected by changes in the condition of the local economy. They yield an income flow to rural residents under a variety of conditions. In some instances, as in the case of retirement pensions, CPP and Guaranteed Income Supplements, these payments are contractual in nature; flows of dividends and interest, though not contractual in the same sense, represent returns on assets whose rates are determined by growth and cyclical conditions in the national and international economy. The overall effect locally of these income flows is to act as stabilizers of local economic ups and downs. In fact, income from these sources contributes to an area's economic base. For Alberta as a whole, retirement/investment income amounted to 20.5%, and transfer payments (primarily employment insurance and welfare) to 7.5% of total 1994 tax filer income or almost 28 percent of aggregate income.

However, there is no reason to believe that nonearnings income is distributed uniformly across space. TABLE 4 reports an LQ value by CD for retirement and investment income, for transfer payments, and for the two sources of income combined. The share of these forms of combined income in total CD tax filer income is also shown. CD ordering is from highest to lowest LQ for combined retirement, investment and transfer payment income. The standard deviation measure at the bottom of TABLE 4 summarizes the degree of spatial variance in these sources of income. In this table an LQ value greater than unity for any income component means that the reliance on that form of income in the CD is greater than in the province as a whole, while an LQ less than unity means a lower dependence than in the province.

This table reveals substantial geographic variation, most particularly in retirement and investment income, where the LQ ranges from a high of 1.56 in Cardston-Pincher Creek (CD3) to a low of .33 in Lac La Biche-McMurray.

Table 4 Location Quotients and Share of Retirement/Investment and Transfer Sources of 1994 Income by Census Division

Census division	LQ Ret/Inv	LQ Transfer	Share Ret/Inv andTransfer	LQ combined Ret/Inv and Transfers
Cardston-Pincher Creek	1.56	1.23	0.41	1.47
Drumheller-Three Hills	1.46	0.99	0.37	1.33
Hanna-Oyen	1.57	0.63	0.37	1.32
Stettler-Coronation	1.43	0.82	0.35	1.27
Vegreville-Lloydminster	1.32	1.05	0.35	1.25
Lethbridge-Taber-Brooks	1.27	0.98	0.33	1.20
Medicine Hat	1.25	0.95	0.33	1.17
Rocky Mountain House	1.19	1.05	0.32	1.15
Barrhead-Athabasca	1.12	1.20	0.31	1.13
Lacombe-Ponoka	1.14	1.01	0.31	1.10
Edmonton region	0.96	1.05	0.28	1.00
Cold Lake-Elk Point	0.92	1.10	0.28	0.99
Foothills	1.01	0.94	0.27	0.98
Calgary region	0.96	0.92	0.27	0.95
Edson-Hinton	0.92	1.15	0.26	0.92
Gr Pr-Fairview-Wembley	0.83	0.88	0.24	0.84
Slave Lake	0.71	0.89	0.23	0.83
Grande Cache	0.58	0.84	0.18	0.65
Lac La Biche-McMurrary	0.33	0.91	0.13	0.48
Province			0.280	
Standard deviation	0.33	0.143	0.069	0.246

Source: Western Centre for Economic Research and Revenue Canada, Taxation Statistics 1994.

Notice that all the LQ values greater than 1.0 are in rural CDs.

The standard deviation of transfer payment LQ values is considerably smaller, in fact less than half the retirement/investment measure. Transfer LQ values range from a high of 1.23 in Cardston-Pincher Creek to a minimum of .63 in Hanna-Oyen. When the two income sources are combined their share in 1994 total tax filer income ranged from a high of .41 in Cardston-Pincher Creek to a low of .13 in Lac La Biche-McMurray. This wide range is apparent in the LQ values for combined income sources.

THE RECORD OF 105 RURAL COMMUNITIES

We have so far considered the demographic record of Alberta CDs, together with the relative importance of retirement/investment and transfer payment income to their households. Demographically in a number of CDs outside of the Calgary and Edmonton regions, population growth and domestic migration shifted from net outflows in the last half of the eighties to net inflows in the first half of the nineties. So far in this decade domestic net migration has been an important source of population growth. Further, the evidence from the change in LQ values for each CD during the entire decade is that the proportions of those 45 years and over in rural areas converged on the provincial average. The overall message from CD data is that rural Alberta is neither in decline nor stagnating.

CD level data offer important yet incomplete evidence. A more thorough assessment of what has occurred follows from a look at individual communities. To do this we consider 105 Alberta communities with a 1991 population ranging from 1,000 to 15,000. These communities, listed in Appendix A by CD and Stabler market centre index (defined in Appendix A), cover each CD in the province. Some sixteen of them are in the respective Calgary and Edmonton CMAs, and eleven others are in the Calgary and Edmonton census regions. Seventy-eight towns are located in the other CDs. Choosing communities within this population range may seem somewhat arbitrary, but our rationale is that by taking the lower limit of 1,000 we encompass communities large enough to maintain viability, while the upper upper limit is not so large as to raise doubts about the community's degree of 'ruralness'. We have chosen to exclude very small communities because it is highly likely that many lack social and economic viability and may even cease to exist beyond the next generation.

POPULATION GROWTH AT THE COMMUNITY LEVEL

Population growth in the 105 communities is summarized in TABLE 5 by five year periods. The classification is by loss or gain for metro adjacent and non-adjacent towns. This table suggests that metro-adjacent towns, with but one exception, experienced growth throughout the period. On the other hand, gains in both of the intercensal periods were experienced in one-half of the non-adjacent communities. However, in 20 towns there was a shift from loss to gain in the second period.

Table 5 Categories of Intercensal Population Growth 1986-96 by Metro Adjacent and Non-Adjacent Communities (number of communities)

Category*	Metro adjacent**	Metro non-adjacent
Loss-Loss	---	11
Loss-Gain	1	20
Gain-Loss	---	12
Gain-Gain	14	47

** These categories represent the growth experience of the community 1986-91 and 1991-96.*

*** Communities in the sample identified as metro adjacent communities are: Chestermere Lake, Crossfield, Cochrane (Calgary); Beaumont, Bon Accord, Calmar, Devon, Fort Saskatchewan, Gibbons, Leduc, Legal, Millet, Morinville, Spruce Grove, and Stony Plain.*

There are eleven communities contained in the Calgary and Edmonton CDs which we have considered as non-adjacent. These are the following:

Black Diamond, Carstairs, Didsbury, Drayton Valley, High River, Olds, Okotoks, Redwater, Sundre, Turner Valley and Wetaskiwin.

Nine of these eleven towns are in the 'Gain-Gain' cell and two (Drayton Valley and Redwater) are in the 'Gain-Loss' cell. Allowing for the above communities, those towns outside of the Calgary and Edmonton regions account for thirty-six in the 'Gain-Gain' cell, and all of the twenty in the 'Loss-Gain' cell.

TABLE 5 indicates eleven communities—all outside of the Calgary and Edmonton regions—in the 'Loss-Loss' cell. They are:

Bonnyville, Cardston, Coronation, Crowsnest Pass, Ft. MacLeod, St. Paul, Pincher Creek, Swan Hills, Two Hills, Valleyview and Viking.

Those communities in the Gain-Loss cell are:

Bruderheim, Falher, Grimshaw, High Level, High Prairie, Killam, Lamont, Mayerthorpe, Oyen, Peace River, Raymond, and Vauxhall.

Figure 1 Frequency Distribution of Population Growth Rates in 105 Rural Communities, 1986-91 and 1991-96

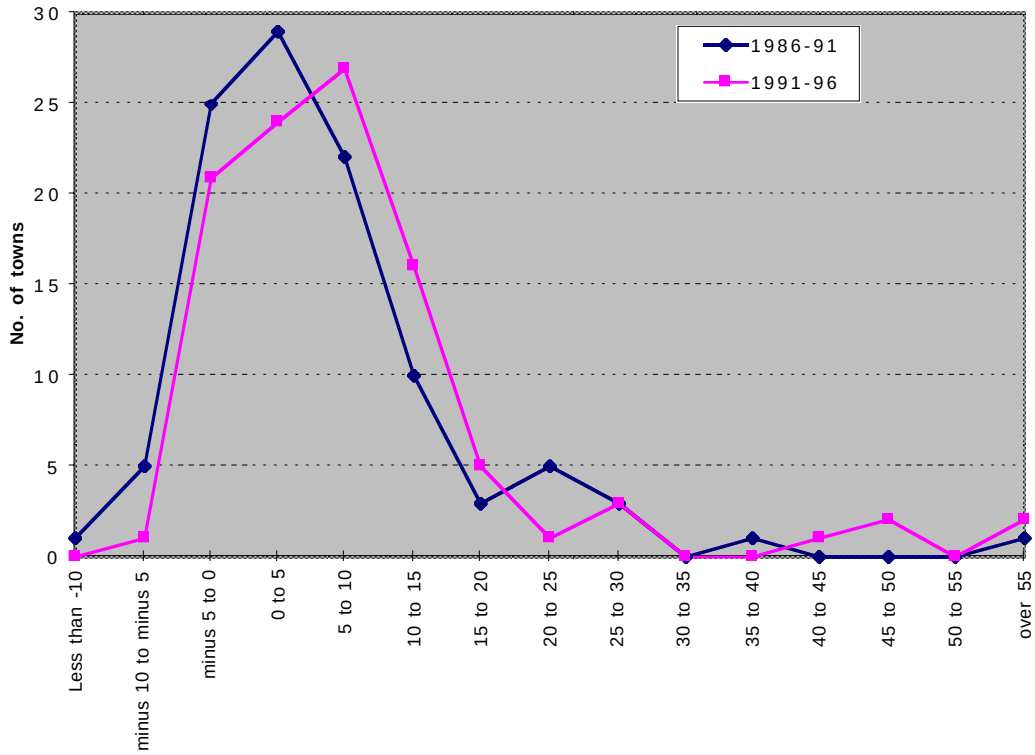


FIGURE 1 is a frequency distributions of the population growth rate of the 105 communities in the periods 1986-91 and 1991-96. Percentage growth rates are scaled at 5% intervals and are on the horizontal axis. Classes range from 'less than minus10%' at the lower end to a frequency of 'over 55%' at the upper end. The vertical axis is the number of communities in each growth interval.

The chief feature of the figure is the general shift to a positive growth rate for the 1991-96 period, and a decline in the number of communities recording negative growth rates.

TABLE 5 together with accompanying information in TABLE 6 further clarify the changes occurring at the CD level. Firstly, metro-adjacent towns have experienced consistent and in some instances very substantial growth. That is particularly true in the Calgary area where the metro-adjacent communities grew by 81.9% over the entire period This contrasts with a growth in Edmonton metro-adjacent communities of 18.7%.

Table 6 Percentage Population Growth 1986-96 for Towns in the Gain-Gain Cell of Table 5

Towns in the Gain-Gain Cell	% Population Growth 1986-96
Metro adjacent*	24.4
Other towns in the Calgary and Edmonton CDs	9.6
Nonadjacent: towns in other than the Calgary and Edmonton CDs	18.2

** Calgary metro adjacent towns are Chestermere Lake, Cochrane and Crossfield; Edmonton metro adjacent towns are Beaumont, Bon Accord, Calmar, Devon. Fort Saskatchewan, Gibbons, Leduc, Legal, Millet, Morinville, Spruce Grove and Stony Plain.*

Secondly, the overall growth in the Gain-Gain cell for rural towns—apart from those communities in the Calgary and Edmonton CDs—was also strong, amounting to 18.2% over the entire period. The population growth in what we have identified as metro non-adjacent towns in the Calgary and Edmonton CDs over the entire period amounted to 9.6%, measurably less than for either the aggregate growth rate of either metro-adjacent towns or of the towns in other CDs.

The demographic trends in individual communities appear generally consistent with the conclusion from the CD data: while growth in rural Alberta has not been uniform, there are certainly many communities experiencing a healthy expansion—one which is more pronounced in the most recent five year period.

TECHNOLOGY AND RURAL OPPORTUNITY: THE CASE OF BUSINESS SERVICES

Many rural areas in Alberta are doing well. One reason may be that 'stable' income flows—income that is contractual or quasi-contractual in nature and independent of local business conditions—have effectively added to the economic base of the rural community. We turn now to consider another possible factor: the role of telecommunications technology in this rural renaissance.

While the telecommunications revolution is all around us, little attention has been paid to its impact on the future of rural communities. Ready accessibility of the technology in rural Alberta is in part the result of government policy, but also the wide diffusion of telecommunications technology has arisen from demands of the energy industry. A province-wide internationally competitive industry with exploration, drilling, extraction, pipeline and plant activity requires a state of the art telecommunications system. So throughout the province the market for advanced telecommunications services has been fostered, in part, by the energy industry.

Access to telecommunications technology can overcome the frequently listed disadvantages associated with rural communities: geographic isolation, particularly from urban centres; lower levels of human capital relative to urban areas; and a limited range of higher order business services. [Read and Yountie 1996] Telecommunications technology addresses distance disadvantage. Effectively, the rise of telecommuting greatly increases choice in the location of the workplace and improves the comparative advantage of the rural community as a place for conducting business.

THE EFFECTS OF TELECOMMUNICATIONS TECHNOLOGY ON THE LOCATION OF BUSINESS SERVICES IN RURAL COMMUNITIES

Professionals in the business service sector apply, interpret and transmit knowledge. Value added activity in this sector is extremely high with skilled labour generally amounting to at least four-fifths of the cost of the product. In business services it is difficult to separate the product from the person who produces it. The product itself is customized, requiring the assessment and evaluation of non-standardized and often ambiguous information, and the transmission of complex findings in usable form. Further, because the market for business services is national and international in scope the presence of business service firms in the community adds to the economic base and generates a flow of income independent of local sources.

In business services, the essential complementary input to highly skilled labour is telecommunications. Quality, availability and low unit price of this technology are essential. As a very heavy user, the business service sector also increases the local demand for telecommunications infrastructure and creates an incentive for new capital expenditures by service providers.

In view of positive developments in many rural communities, a segment of the WCER research sought to identify the rural presence of business service firms and to assess whether or not they find these communities attractive work venues. 'Lone-eagles' and 'high-flyers' are popular typologies used to describe workers who are 'footloose' and can work anywhere they choose. Those in business services are among the 'footloose' possessing the technical capability to live productive and personally fulfilling lives away from metropolitan centres if telecommuting is available.

The business service sector has no standard definition. Researchers have defined the sector, within limits, to meet their own research objectives. Stabler [1993:22] defines business service firms as "business providing accounting, financial, legal, architectural, computer and management consulting or personnel services to other businesses." For this study, we adopted the Stabler definition to include the following SIC codes:

771 - employment / personnel agencies
772 - computer related services
773 - accounting / bookkeeping services
774 - advertising consultants
775 - engineering / technical services
776 - lawyers / notaries
777 - management consultants
779 - other business services

METHODOLOGY

The 105 communities were clustered by source of personal income using 1991 census data and those with similar economic structures identified. The analysis resulted in nine clusters from which 40 communities were selected as the sample set. The nine clusters and 40 communities are found in Appendix B.

Sample firms were identified using telephone directories and the Canadian Business Directory. The list from these two sources was then compared with one supplied independently by TELUS. We identified a total of 498 business service establishments in the 40 communities, or an average of 12 per community. Though we attempted a complete population of business service firms in each of the 40 communities, it is probably incomplete. For example, if listing is by the proprietor's name only without professional attribution it will be omitted.

The survey instrument collected both quantitative and qualitative information about five specific areas: demographic characteristics of the firm and owner; location factors; use of communications technology; markets, revenues and jobs; and competitive advantage. After a pre-test of the instrument in one of the 105 communities, 100 firms were randomly selected for the telephone survey. Seventy-eight firms agreed to be interviewed.

We turn now to the findings of the survey.

RESEARCH FINDINGS OF THE BUSINESS SERVICES SURVEY

The composition of the sample and results of the survey encompassing 78 firms are reported in the tables that follow.

ATTRIBUTES OF THE BUSINESS

Table 7 Percentage Distribution of Business Service Activities by SIC Code

SIC Code	Activity	% of businesses
771	Employment / personnel agencies	0
772	Computer related services	17
773	Professional accountants	13
774	Advertising consultants	0
775	Engineering / technical services	18
776	Lawyers / notaries	14
777	Management consultants	11
779	Other business services	27

TABLE 7 reveals that forty-five percent of the sample is made up of lawyers, accountants and engineers with almost one-third of this category either a Chartered Accountant or Certified Management Accountant. Other business services included computer related services, consultants, video production companies, answering services supporting the oil and gas industry, and office services. Neither employment-personnel nor advertising firms are represented in the sample. Eighty percent of the respondents were male and twenty percent female.

TABLE 8 provides a frequency distribution by age of the business.

Table 8 Age of Business in Years: Percent Distribution

Age of the Business in Years	% of businesses
5 years or less	37
6-10	22
11-15	18
16-20	6
21-25	10
over 25	6

Two-thirds of the sample had been in business for less than 10 years, and more than one-third for less than five years. The majority of the businesses were incorporated (59%) while individual proprietorships accounted for one-third of the sample.

The survey also asked the respondents their reason for starting the business. TABLE 9 indicates that about two of every five respondents went into business specifically to create employment for themselves.

Table 9 Reasons for Starting the Business

Reason for starting the business	% of respondents
Needed employment	41
Trained professional	21
Corporate downsizing	17
Business venture	14
Early retirement	7

For the remaining majority of the respondents, several reasons are apparent: they are trained professionals; they created a business venture; they were the objects of corporate downsizing; or they had taken early retirement and decided to enter business for themselves.

OWNER CHARACTERISTICS

A frequency distribution of owner age is reported in TABLE 10. Sixty-five percent of owners were in the 20-49 age bracket.

Table 10 Percent Distribution of the Age of Respondents

Age range	% of respondents
20-24	1
25-29	1
30-34	8
35-39	14
40-44	13
45-49	28
50-54	16
55-59	9
60-64	4
over 65	6

Recently the Rural Education and Development Association (REDA) published a study of community leaders in rural Alberta. [Morgan 1997] At least two demographic characteristics of community leaders offer interesting comparisons with those of business service owners: educational attainment and average years lived in the community. Business service respondents had lived in their community only half as long as community leaders and can be classified as newcomers to the community.

TABLE 11 compares the educational attainment of the business service respondents with the educational attainment of community leaders as reported in the REDA survey. In the survey of business services, 45 per cent of respondents had either a university degree or a professional designation, and a further 28 per cent had a certificate or diploma.

Table 11 Educational Attainment of Business Survey Respondents Compared to Rural Community Leaders

Educational Level	% Business Services	% Community Leaders
Some high school	7	15
High school	14	27
Certificate / diploma	28	24
Some university	5	9
Professional designation	13	0
University degree	32	24
no response	1	1

In the REDA survey those with a university degree together with those holding a post secondary certificate / diploma amounted to 48 per cent. There were no holders of a professional designation among the REDA community leaders. In his recent research, Bollman [1997: 6] has pointed out that Canada has a larger rural-urban education gap than other OECD countries. He concludes that local economic development strategies should recognize the importance to development of human capital [1997: 22]. The higher educational attainment of those in business services enlarges the human capital base of the rural community in which they locate.

LOCATION CHOICE FACTORS

The distribution of respondents across census divisions is reported in TABLE 12 below. The sample included 14 of the 19 CDs in Alberta.

Table 12 Distribution of Respondents by Census Division

Census Division	Number of Respondents
1 Medicine Hat	3
2 Lethbridge-Taber-Brooks	8
3 Cardston-Pincher Creek	2
4 Hanna-Oyen	7
5 Drumheller-Three Hills	0
6 Calgary region	6
7 Stettler-Coronation	3
8 Lacombe-Ponoka	8
9 Rocky Mountain House	0
10 Vegreville-Lloydminster	4
11 Edmonton region	15
12 Cold Lake-Elk Point	1
13 Barrhead-Athabasca	2
14 Edson-Hinton	0
15 Foothills	5
16 Lac La Biche-McMurray	0
17 Slave Lake	0
18 Grande Cache	8
19 Wembly-Peace River-Fairview	6

The survey asked respondents to indicate reasons for location choice. The responses indicate two distinct categories of choice as reported in TABLE 13 below.

Table 13 Reasons for Locating in the Community

Reason for Locating	% of Respondents
strategic locators	44
amenity seekers	56

'Strategic locator' is defined first as someone who deliberately assesses the costs and benefits of establishing a business. The community is targeted and a client base cultivated. This category also includes those who purchase an existing community business. Finally, it includes those who identify a service need in the community not presently being satisfied.

We define an 'amenity seeker' as someone who has elected to develop their business in a rural community for several reasons. The first concerns quality of life issues including a quieter setting, less stress from commuting, proximity to nature and areas of natural beauty, and recreational opportunities. The second reason is a returning of the owner to a community where he/she was raised—there is name recognition, family-ties and a well developed network of family and social acquaintances. Finally, we included a group who, though victims of corporate downsizing, have elected to remain in the community and become self-employed rather than search for employment elsewhere.

The survey also inquired whether respondents had relocated their business to the community from a previous location, i.e. brought an already established business with them. Almost 3 of every 10 respondents indicated that they had.

THE USES AND IMPACTS OF TECHNOLOGY

Information was obtained about (a) the use of technology in respondents' own operations, (b) the impact of technology on their quality of life, and (c) their views about the implications of communications technology for community economic development.

The survey asked a series of questions about the relative importance to their own activities of some 20 forms of telecommunications technology. These ranged from what can be described as low technology, such as the phone, a pager, and a telephone answering machine, to high technology exemplified by e-mail, a business web site, other uses of the internet, and satellite data reception. This question allowed construction of an index of technology use for each enterprise that could be used to separate 'low' from 'high' technology users.

Respondents were also asked about the importance of technology versus face-to-face contact in delivering services to their clients. This allowed development of a further index of technology application at the firm level related specifically to the exchange of product, with the client.

Respondents were also asked how they evaluated the impact of communications technology on their competitive situation. The findings below in TABLE 14 are that market expansion, reduced commuting costs and increased productivity were substantially more important effects of technology than work force replacement.

Table 14 Effects of Communications Technology on Operations

Effects of Technology	% of Respondents
Reduced transportation costs	65
Expanded the market	65
Increased productivity	71
Replaced labour	22

Individual respondent indexes are employed in parts of the analyses reported in the section below.

TABLE 15 reports how respondents viewed the impacts of technology on their own quality of life and on community economic development.

Table 15 Respondents' Opinion of the Importance of Communications Technology on Quality of Life and Community Economic Development

Importance of Communications Technology	% Moderately to Very Important
Quality of Life Factors	
Public safety	92
Educational services	92
Medical services	84
Library services	82
Economic Development Issues	
Home-based businesses	95
Future economic growth	94
Business retension / expansion	89
Recruitment of new businesses	84
Good paying jobs	80
Reduce rural disadvantage	70

Public safety together with educational, medical and library services all rated highly as factors in telecommunications' contribution to quality of life. Respondents believe that community economic development is positively affected in a variety of ways ranging from business creation to higher quality jobs to a general reduction in the perceived disadvantages of a rural location.

REVENUES, MARKETS AND JOBS

Respondents were asked their gross revenues for three periods: five years ago; currently; and projected revenues five years into the future (2002). The results in TABLE 16 indicate substantial growth in revenues over the past five years and a generally optimistic assessment of growth prospects over the next five years. Twenty-two per cent of the sample had revenues in excess of $350,000 in 1997 and one-third expected revenues in excess of that figure by 2002. If this potential, as seen by the market participants themselves is realized, it will an important source of rural community development. Projected revenues below $50,000 in 2002 represent a phasing down of operations by those owners who are in the older age cohorts.

Table 16 Percent Distribution of Estimated Gross Revenues: 5 Years Ago, Current (1997), and Five Years in the Future (2002)

Revenues ($000)	5 Years Ago	1997	Projected 2002
below $50	39	16	26
$50-100	24	20	9
$101-150	11	19	9
$151-200	3	11	9
$201-250	4	6	2
$251-350	4	6	18
$351-1 million	9	15	9
over $1 million	6	7	18

The results in TABLE 17 reporting the sector composition of present client demand underscore the importance of the resource sector to rural business service firms. More than one half of reported revenues came from the natural resource sector: energy (28%); agriculture (23%); and forestry (1%). Next in importance were consumer service firms and households which together accounted for 28 per cent of reported revenues.

Table 17 Percent Distribution of Gross Revenues by Client Sector

Sector	% of Gross Revenues
Energy	28
Agriculture	23
Consumer services	18
Households	10
Construction	8
Governments in Canada	7
Non-profit	2
Finance, insurance, real estate	2
Forestry	1
Foreign governments	1

Information about the spatial distribution of markets is found in TABLES 18 and 19. This provides key knowledge concerning the role of the business service sector as a contributor to rural community stability. To the extent that business service firms generate revenues from outside the local community, the revenue flow is unrelated to conditions within the local community itself. As 'exporters' they add to the economic base of the community and increase its viability.

To identify the degree to which the respondents are enhancing the community economic base, the questionnaire had them separate revenues from clients serviced outside from those serviced inside a 30 kilometre radius of their location. Any sale outside the radius is then defined as an 'export'—a source of revenue external to the community. The finding is that 86 percent of our respondents derived some portion of their gross revenues from outside the 30 kilometre radius and thus qualified as 'exporters'.

Table 18 Percent of Respondent Sales Outside a 30 Kilometre Radius of Place of Business

Exports as a % of Sales	% of Respondents
None	14
1-10	19
11-20	13
21-30	14
31-40	8
41-50	9
51-60	0
61-70	0
71-80	1
81-90	5
91-100	17

Low population densities mean low saturation points for absorbing goods and services locally. Thus firms must look further afield to locate markets. Only 14 percent of firms were entirely sustained by the local market.

We also wished to identify the extent to which respondents had clients in metropolitan centres. Results reported in TABLE 19 suggest that ties between the rural business service firms and the metropolitan centre are quite significant. Two of every five respondents had at least one quarter of their customers in these centres.

Table 19 Percent of Respondents' Clients in a Metropolitan Centre

% of Metropolitan Clients	% of Respondents
Less than 25	60
26-50	16
51-75	8
76-100	16

The firms interviewed were small and as such, characteristic of much of the business service sector. Together they accounted for 426 employees (including the owner) of whom 213 were full time (176 male and 172 female). The gender distribution of employment was almost equal, while male owners constituted four-fifths of those sampled.

RESPONDENTS PERCEPTIONS OF FACTORS CREATING A COMPETITIVE ADVANTAGE

Respondents were given a series of factors that are frequently recognized as contributing to a firm's competitive advantage and asked to rate them on a Likert scale from 1 (unimportant) to 5 (extremely important). The combined results are shown TABLE 20. Those factors that represent customization of a product on account of client needs (issues related to quality or expertise) and other qualitative-subjective factors rate very high. These results are consistent with expectations in the case of a business service firm.

Table 20 Respondents Perceptions of Factors Contributing to Competitive Advantage: Average Likert Scale Values

Competitive Factor	Average Likert Value
Attention to client needs	4.9
Established reputation	4.8
Product quality / design	4.7
Special expertise	4.5
Quick adaptation to changing needs	4.3
Range of expertise	4.3
Creative ability	4.0
Research and development capacity	3.8
Price of service	3.6
geographic proximity to clients	3.4
Marketing activities	3.3

COLLABORATION WITH OTHER BUSINESSES

Respondents were asked if they collaborated with other business service firms. Self-employed independents dominate the business service sector throughout the developed world, not only in numbers, but also in billings. Because of small size—often a sole proprietor—collaboration with other firms is central to fulfilling client demand. Collaboration and alliances exist for the primary purpose of expanding the independent's range of expertise, but in so doing it also ties these local business service firms to the global economy.

Table 21 Respondents' Collaborative Activity

Collaborative Activity	% of Respondents
Yes	29
No	71

TABLE 21 reveals that about 3 of every 10 respondents engage in collaborative activity with other business service firms.

SELECTED ANALYSES OF THE TABULAR DATA

Below are some significant relationships identified through data analysis. In each instance statistical results are reported:

Reasons for Starting the Business

Management consultants, computer analysts, engineers and other business services are most likely to start a company because they need employment. Lawyers and accountants are somewhat different. They may have articled with an existing firm or they may have purchased existing practices. They often do not need to create employment as much as to develop an existing client base including householders. (Chi-square=7.930; significance level=.005)

Choice of Rural Community

Respondents fell into two categories—strategic locators and amenity seekers (TABLE 14). We found that amenity seekers are more likely to be computer analysts, management consultants, engineers, and other business services rather than lawyers and accountants. This suggests that the former business service categories are somewhat more 'footloose' in choice of location than lawyers and accountants, i.e., they are less dependent on the local community as a market for their services. (Chi-square=3.920; level of significance=.048)

Respondents who relocated their business are much more likely to be computer analysts, management consultants and other types of business services than lawyers, accountants and engineers. This again emphasizes that some types of business services are more 'footloose' than others.
(Chi-square=5.513; significance level=.023)

Amenity seekers are much more likely to choose metro nonadjacent communities. Choice is dependent on lifestyle preferences rather than proximity to an urban environment.
(Chi-square=6.184; significance level=.013)

Use of Telecommunications Technology

Use of higher order technology, e.g., the web, e-mail and the internet, is more prevalent among those who export some portion of their services.
(Chi-square=10.658; significance level=.001)

Use of technology is more important in expanding the markets of exporters than non-exporters.
(Chi-square=4.601; significance level=.032)

Higher level technology is very important to exporters in the delivery to clients of their product.
(Chi-square=5.862; significance level=.015)
Communications technology contributes to increased firm productivity more for exporters compared with non-exporters.
(Chi-square=4.813; significance level=.028)

Communications technology expands markets for those who collaborate or ally with other businesses in delivering client services compared with those who do not collaborate.
(Chi-square=5.823; significance level=.016)

Communications technology is more important in expanding their client market for engineers, management consultants, computer analysts and other business services than for lawyers and accountants.
(Chi-square=6.443; significance level=.011)

Market Dependence on Resource Industries

Resource industries are energy, agriculture and forestry (TABLE 18).

These industry markets are more important to engineers, management consultants, computer analysts and other business services than to lawyers and accountants.
(Chi-square=5.514; significance level=.019)

Statistical Model of 'Export' Share in Gross Revenues

We have repeated at a number of places in this research report the importance of 'exports' in strengthening the economic base of the community. To repeat, the definition of 'exports' is client revenue from sources beyond a radius of 30 kilometres from the firm's place of business. Our analysis suggests the following model as a tentative guide in understanding the relative importance of exports for rural based business service firms. We find the following three factors to be significant:

—high use of communications technology;

— relocation of a business to the rural community;

— percentage of clients in metropolitan areas.

The high use of technology is essential in offsetting the perceived location disadvantage. Relocation to a rural community suggests that the move does not sever linkages with former clients in providing a customized service. The significance of doing business with clients in and through metropolitan areas means that rural communities have established a two way exchange of services rather than being passive recipients of metro domiciled expertise.

TABLE 22 contains the statistical model.

Table 22 Regression Model: Share of Exports in Total Sales
Dependent Variable: Per cent share of exports in total sales

Independent variable	Coefficient	t value	Significance
Constant	-2.091	-0.226	.822
Index of communications technology use	0.633	0.315	.003
Relocation of the business	12.028	1.524	0.132
Percentage of clients in metropolitan areas	0.327	3.126	.003

Adjusted R squared=.239; F test=8.941; significance level=.000

CONCLUSION

This study combined census and taxation data with a survey of business service firms in evaluating the present condition and potential outlook for Alberta's rural communities. Secondary data on rural demographic change and income sources have been supplemented with primary data from a market survey of rural business service firms emphasizing location choice, markets and revenues, and utilization of telecommunications technology. The survey provides information from highly skilled members of the labour force producing sophisticated, customized client services in the form of usable information.

Advances in and availability of communications technology, the lifestyle options available to the highly skilled, and more general market forces have combined to overcome some of the real and perceived disadvantages of rural location. Some, though not all, Alberta rural communities are already beneficiaries of these developments. Telecommuting has reduced the importance of location, particularly metropolitan area location, in the choice of where people live and work. It is reasonable to conclude that the revolution in communications technology will continue to improve, on average, the comparative advantage of smaller communities.

State of the art telecommunications technology in the case of business services is a requirement for a rural community to enter location choice sets. With the technology in place, the rural business service firm can, through 'exports', expand the economic base of the local community. The outlook for rural communities is further strengthened because nonearnings income in the form of retirement and investment income and transfer payments reduce income sensitivity to local economic conditions. Greater stability in income flows means more stable demand, adding to the wealth and longer term potential of the rural town.

The research findings, however, also imply that telecommunications technology is not a sufficient condition for rural renaissance. There is also a leadership issue. The changing and evolving economy poses a challenge to leaders in the rural community. The challenge is to integrate change into development strategies. The business services sector we have surveyed and evaluated is not obviously visible; it lacks the physical presence of a manufacturing plant, a retail establishment, or even a farming operation. Nor, may it be said, do business service firms raise the environmental concerns attached to these activities. What is taking place, silent though it may be, strengthens the community's economic base through attracting a highly skilled labour force linked to more stable income flows

Community leaders should be vigilant in maintaining and enhancing the suitability of their locations for business service firms. Not only do these firms have a positive influence on the local economy, their owners have a personal commitment to the community. The rural renaissance taking place in Alberta is an exciting story.

APPENDIX A

List of the towns included in the study by census division, Stabler market area classification, and cluster grouping

Town	Census Division	Stabler market class*	Cluster**
Bow Island	Medicine Hat	2	1
Redcliff	"	2	1
Bassano	Lethbridge-Taber-Brooks	2	3
Brooks	"	4	2
Coaldale	"	2	1
Coalhurst	"	2	5
Raymond	"	2	2
Taber	"	3	1
Vauxhall	"	2	7
Cardston	Cardston-Pincher Creek	3	4
Claresholm	"	2	2
Ft. MacLeod	"	3	2
Magrath	"	2	4
Nanton	"	2	3
Pincher Creek	"	2	2
Hanna	Hanna-Oyen	2	1
Oyen	"	2	7
Drumheller	Drumheller-Three Hills	3	1
Strathmore	"	3	1
Three Hills	"	2	7
Vulcan	"	2	1
Coronation	Stettler-Coronation	2	7
Killam	"	2	9
Provost	"	2	3
Stettler	"	3	1
Wainwright	"	3	1
Blackfalds	Red Deer-Lacombe-Ponoka	2	4
Bowden	"	2	5
Innisfail	"	3	1
Lacombe	"	3	1

Town	Census Division	Stabler market class*	Cluster**
Penhold	Red Deer-Lacombe-Ponoka	1	8
Ponoka	"	3	1
Rimby	"	2	8
Sylvan Lake	"	2	2
Rocky Mountain House	Rocky Mountain House	4	1
Bruderheim	Vegreville-Lloydminster	2	4
Camrose	"	4	1
Lamont	"	2	7
Lloydminster	"	5	1
Tofield	"	2	2
Two Hills	"	2	6
Vegreville	"	3	1
Vermillion	"	3	1
Viking	"	2	1
Bonnyville	Cold Lake-Elk Point	4	2
Cold Lake	"	2	2
Elk Point	"	2	5
Grande Centre	"	3	4
Smokey Lake	"	2	7
St. Paul	"	3	1
Athabasca	Barrhead-Athabasca	3	2
Barrhead	"	3	1
Mayerthorpe	"	2	7
Westlock	"	3	1
Whitecourt	"	3	1
Edson	Edson-Hinton	4	2
Hinton	"	4	2
Banff	Foothills		2
Canmore	"	3	2
Crowsnest Pass	"	2	2
Jasper	"		2
Lac La Biche	Lac La Biche-McMurray	3	7
High Level	Slave Lake-Swan Hills	2	5
High Prairie	"	3	1

Town	Census Division	Stabler market class*	Cluster**
Manning	Slave Lake-Swan Hills	2	2
Slave Lake	"	3	4
Swan Hills	"	2	2
Fox Creek	Grande Cache-Fox Creek	2	9
Grande Cache	"	2	4
Valleyview	"	2	5
Beaverlodge	Gr. Pr-Fairview-Wembly	2	1
Fairview	"	3	4
Falher	"	2	7
Grimshaw	"	2	3
Peace River	"	4	1
Sexsmith	"	2	9
Spirit River	"	2	3
Wembley	"	2	9
Black Diamond	Calgary region	2	2
Carstairs	"	2	5
Chestermere Lake	"		4
Cochrane	"	5	1
Crossfield	"	2	6
Didsbury	"	2	1
High River	"	3	1
Okotoks	"	3	2
Olds	"	4	1
Sundre	"	3	1
Turner Valley	"	2	4
Beaumont	Edmonton region	2	3
Bon Accord	"	2	4
Calmar	"	2	6
Devon	"	2	8
Drayton Valley	"	4	2
Fort Saskatchewan	"	4	1

Town	Census Division	Stabler market class*	Cluster**
Gibbons	Edmonton region	2	8
Leduc	"	4	1
Legal	"	2	3
Millet	"	2	8
Morinville	"	2	4
Redwater	"	2	2
Spruce Grove	"	4	1
Stony Plain	"	3	1
Wetaskiwin	"	4	1

** Stabler trade centre classifications are as follows:*

(1) MINIMUM CONVENIENCE CENTRE: provides few, if any, consumer/business service functions.

(2) FULL CONVENIENCE CENTRE:

(3) PARTIAL SHOPPING CENTRE: provides common consumer/producer services; a few high-order consumer outlets; a few business services.

(4) COMPLETE SHOPPING CENTRE

***Towns were assigned to clusters based upon the following factors: population; total income; income from paid employment; farm self-employment income; nonfarm self-employment income; transfer payment income; retirement/investment income; other income.*

Business Service firms in the italicized towns were sampled

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