# Banks in Small Communities in Canada: 1998-2004

Ken Jones and Ricardo Gomez-Insausti
Centre for the Study of Commercial Activity
Ryerson University
350 Victoria Street
Toronto, ON M5B 2K3

## Introduction

The Canadian banking system has undergone major changes in the delivery of services to customers since the early 1990s. Advances in banking technology, efforts to reduce costs, improvements in efficiency and consolidation processes combined to reorganize the banking network. Banks moved towards a multi-channel approach by combining physical outlets, automated banking machines (ATMs) and Internet technology. The number of branches declined throughout the country while the branchless options for banking increased.

This study addresses how banks fit into the transformation of small communities in Canada -- those with less than about 50,000 inhabitants -- and presents an exploratory examination of this transformation. Previous works suggest that rural communities suffered to a great extent from bank branch closures (Bowles 2000) and that access to ATMs would not replace bank branches easily (Option Consommateurs 2003). However, studies conducted in the U.S. (Avery et al 1999), Great Britain (Willis et al 2001) and Australia (Argent 2002) have found that the impact on small places is not unambiguously negative. The analysis assesses developments in the banking system within the context of the retail-service transformation of small communities. The performance of these places either positively or negatively affects the increase or decrease of entrepreneurial initiatives in those communities (Dahms 1995). This study emphasizes community factors over business-specific factors without denying the fact that the latter can also be decisive in the


ISSN: 0705-4580 Printed in Canada/Imprimé au Canada

performance of small town businesses (Miller et al 2003). The paper thus deals with changes in several local services and businesses (e.g., physicians, post offices, grocery/convenience stores, pharmacies) to expose similarities or dissimilarities between their performances and that of the banking system over time and space. The services and businesses chosen usually rank high among all activities in small communities (Mendelson 1999).

## Data and Method

The 2001 Census provided the list of census sub-divisions (CSDs) with population of about 50,000 or less. These spatial units of analysis embrace the small communities for which data on banking and other services were collected. In order to represent the overall socioeconomic environment of these communities, data on population and dwellings growth, labour force, participation, employment, unemployment, household income and sources of income were obtained for the appropriate CSDs from the 2001 Census. The Canadian Bankers Association supplied the location of branches of its member banks and, from Canadian Payments Association data, of other members of the Canadian Payments Association for 2000-2004 and branch closures for the five largest banks for 1998-2004.[1] The Centre for the Study of Commercial Activity, Ryerson University, provided the total number of physicians/surgeons, dentists, clinics, pharmacies, post offices, grocery/convenience stores and car/truck dealers for the appropriate CSDs.

Since the working data set actually emerged from the combination of three different sources, the information that was collected for the CSDs under analysis (n= 874) was examined thoroughly to detect inconsistencies over time series, growth periods or intercensus spatial conversion units. The data on total number of pharmacies and clinics showed to be trustworthier after 2000 when the method of data collection changed.

Adjustments in the banking system were assessed first at the macro level through summary information on the socioeconomic environment and local services and businesses by population range (i.e., < 5000, 5000-9999, 10000-20000 and >20000 inhabitants). Secondly, a regression analysis was performed to test statistically the relationship between developments in the number of bank branches and other local services and businesses (e.g., physicians, grocery/convenience stores) and the community socioeconomic environment (e.g., labour force participation, household income).

1. The five largest nationwide banking institutions are: RBC Financial Group, TD Bank Financial Group, BMO Financial Group, The Bank of Nova Scotia and CIBC.



**TABLE 1 1996-2001 Demographic Changes**

| 2001 Population (Inhabitants) | Population | | Growth 1996-2001 | | Dwellings | | Growth 1996-2001 | |
|---|---|---|---|---|---|---|---|---|
| | 1996 | 2001 | Total | (%) | 1996 | 2001 | Total | (%) |
| < 5,000 (n=544) | 1170429 | 1128963 | -41466 | -3.7 | 498330 | 531821 | 33491 | 6.7 |
| 5,000 - 9,999 (n=161) | 1171946 | 1165327 | -6619 | -0.6 | 501955 | 539550 | 37595 | 7.5 |
| 10,000 - 20,000 (n=115) | 1555053 | 1566354 | 11301 | 0.7 | 668661 | 717853 | 49192 | 7.4 |
| >20,000 (n=54) | 1609191 | 1636809 | 27618 | 1.7 | 651811 | 701327 | 49516 | 7.6 |
| Total | 5506619 | 5497453 | -9166 | -0.2 | 2320757 | 2490551 | 169794 | 7.3 |

**TABLE 2 2001 Socioeconomic Indicators: Labour Force**

| 2001 Population (Inhab.) | Avg. Participation Rate | Avg. Employment Rate | Avg. Unemployment Rate |
|---|---|---|---|
| < 5,000 (n=543) | 60.4 | 53.9 | 11.3 |
| 5,000 - 9,999 (n=161) | 64.4 | 59.4 | 8.1 |
| 10,000 - 20,000 (n=115) | 64.6 | 59.8 | 7.6 |
| >20,000 (n=54) | 64.3 | 59.0 | 8.4 |

## Socioeconomic Environment

Many small communities declined in population between 1996 and 2001 despite the fact that they accounted for some growth in dwellings (Table 1). Small places like Georgian Bay, Sioux Narrows-Nestor Falls, Muskoka Lakes and Lunenburg are tourist destinations where secondary residences are frequently established (Dahms 1999). The situation is somewhat different in places over 10,000 inhabitants, where population and dwellings grew slightly. They portray a more favourable socioeconomic environment.

The largest communities, where the business environment is relatively more favourable, display higher rates of labour force participation and employment in 2001 (Table 2). The opposite is true for smaller places where the rates of unemployment are the highest.

Median household income corroborates the overall unfavourable socioeconomic situation of smaller places. In smaller places the median household income is lower and only 68.5% of the income is generated from employment sources while 20.6% comes from government assistance (Table 3). In sum, the smallest communities tend to reflect declining economic conditions that might discourage the establishment of business operations.

**TABLE 3 2001 Socioeconomic Indicators: Household Income**

| 2001 Population (Inhabitants) | Median Household Income ($) | Median Employment Income ($) | Income Source (%) | | |
|---|---|---|---|---|---|
| | | | Employment | Government Transfers | Other |
| < 5,000 (n=535) | | | | | |
| Average | 37919 | 18582 | 68.5 | 20.6 | 10.9 |
| Minimum | 14542 | 4880 | 41.0 | 1.8 | 0.5 |
| Maximum | 80456 | 54991 | 96.5 | 48.5 | 29.1 |
| 5,000 – 9,999 (n=161) | | | | | |
| Average | 43246 | 20404 | 72.3 | 15.7 | 11.9 |
| Minimum | 25652 | 13850 | 54.9 | 3.1 | 2.2 |
| Maximum | 74252 | 33743 | 93.5 | 31.6 | 26.5 |
| 10,000 - 20,000 (n=115) | | | | | |
| Average | 45550 | 21487 | 73.0 | 14.7 | 12.4 |
| Minimum | 28519 | 15195 | 45.5 | 4 | 1.9 |
| Maximum | 81544 | 38927 | 92.2 | 32.1 | 33.6 |
| >20,000 (n=54) | | | | | |
| Average | 45622 | 21593 | 73.7 | 14.2 | 12.1 |
| Minimum | 30857 | 15592 | 44.1 | 3.2 | 2.8 |
| Maximum | 90361 | 30447 | 94 | 22.3 | 34.6 |

## Changes in the Distribution of Bank Branches

The smallest and the largest communities account for most of the branch closures between 1998 and 2004. Moreover, the most critical years in the process of reorganization were 2001 and 2003 (Table 4). Between 2000 and 2003, the total number of bank branches declined by 13.2% on average, for the communities examined in this study (Table 5). In relative terms, the smallest communities exhibit an average decline in the number of branches of 13.8%. These places also exhibit a disproportionately high number of bank branches per capita, 5.7 per 10,000 inhabitants, while the largest towns only averaged a ratio of 2.1 and account for the largest proportion of closures. This reveals that the pattern of branch closures in the country's numerous smallest communities (n=544), which are usually dispersed geographically, is different from that developed in the largest communities (n=54) where the access to other banking alternatives such as ATM and Internet is more generalized. Closing bank branches in small isolated places has not been as universal as it is assumed sometimes.



**TABLE 4 Bank Branch Closures, 1998-2004**

| 2001 Population (Inhabitants) | Bank Branch Closures | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | Total |
| < 5,000 (n=544) | 3 | 1 | 1 | 34 | 9 | 18 | 4 | 70 |
| 5,000 - 9,999 (n=161) | 1 | 3 | 1 | 10 | 8 | 6 | 4 | 33 |
| 10,000 - 20,000 (n=115) | 1 | 7 | 8 | 13 | 8 | 12 | 2 | 51 |
| >20,000 (n=54) | 3 | 11 | 9 | 22 | 10 | 30 | 11 | 96 |
| Total | 8 | 22 | 19 | 79 | 35 | 66 | 21 | 250 |

**TABLE 5 Changes in Bank Branch Distribution, 2000-2003**

| 2001 Population (Inhabitants) | Bank Branches | | | | 2002 Branch/ 10,000 Inhab. | Change | |
|---|---|---|---|---|---|---|---|
| | 2000 | 2001 | 2002 | 2003 | | 2003-2000 | (%) |
| < 5,000 (n=544) | 703 | 655 | 641 | 606 | 5.7 | -97 | -13.8 |
| 5,000 - 9,999 (n=161) | 413 | 405 | 399 | 382 | 3.4 | -31 | -7.5 |
| 10,000 - 20,000 (n=115) | 443 | 429 | 426 | 391 | 2.7 | -52 | -11.7 |
| >20,000 (n=54) | 376 | 348 | 343 | 300 | 2.1 | -76 | -20.2 |
| Total | 1935 | 1837 | 1809 | 1679 | 3.3 | -256 | -13.2 |

### Changes in Accessibility to Bank Branches

The current analysis uses data from the five largest nationwide banking institutions only. Communities with no deposit-taking institution branch are of particular interest, therefore we also needed to determine if these communities truly have no deposit-taking institution. The data were adjusted to take into account other such institutions, e.g., smaller banks, credit unions, caisses populaires. If bank customers from these locations might need to travel considerable distances to reach the nearest branch of one of the largest banks, it would be important to know if other financial services may be more available.

The distances to the closest three communities served by any of the largest five banks were calculated in order to assess changes in accessibility from branchless places to the closest physical bank outlets (Table 6a). The number of places without branches of the five largest banks increased among the 544 smallest communities (<5,000 inhabitants) from 8 in 2000 to 42 in 2001 and to 73 in 2003. However, only 11 of these communities had actually no banking service in 2003.

Despite the increase in the number of communities without branches of the five largest banks, the maximum and minimum linear distances to the closest place with an operating branch of the five largest banks remained fairly stable and within standard values. Furthermore, the median linear distance declined over the time period. That is, this situation expanded quantitatively but in some ways improved

**TABLE 6a Distance from No-Branch CSDs to the Closest CSD with a Branch of the 5 Largest Banks, 2000-2003**

| 2001 Population (Inhabitants) | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|
| < 5,000 | N=8 | N=42 | N=52 | N=73 |
| Median Linear Distance (km)* | 31.2 | 19.6 | 19.2 | 19.8 |
| Min Linear Distance (km) | 5.9 | 2.7 | 2.7 | 2.7 |
| Max Linear Distance (km) | 383.2 | 383.2 | 383.2 | 159.9 |
| 5,000 - 9,999 | N=1 | N=1 | N=3 | N=5 |
| Median Linear Distance (km) | 17.3 | 14.3 | 14.3 | 14.4 |
| Min Linear Distance (km) | -- | -- | 11.7 | 11.7 |
| Max Linear Distance (km) | -- | -- | 28.9 | 28.9 |
| 10,000 – 20,000 | N=1 | -- | -- | N=1 |
| Median Linear Distance (km) | 61.1 | -- | -- | 14.6 |

Note: * Linear distance represents Cartesian measurements on an isotropic space.

**TABLE 6b Distance from No-Branch CSDs to the Closest CSD with Deposit-Taking Institution, 2000-2003**

| 2001 Population (Inhabitants) | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|
| < 5,000 | N=4 | N=6 | N=9 | N=11 |
| Median Linear Distance (km)* | 18.1 | 10.9 | 15.2 | 13.7 |
| Min Linear Distance (km) | 5.9 | 2.7 | 2.7 | 2.7 |
| Max Linear Distance (km) | 32.8 | 16.8 | 32.9 | 32.9 |
| 5,000 - 9,999 | N=1 | N=0 | N=0 | N=0 |
| Median Linear Distance (km) | 11.9 | -- | -- | -- |
| Min Linear Distance (km) | -- | -- | -- | -- |
| Max Linear Distance (km) | -- | -- | -- | -- |

Note: * Linear distance represents Cartesian measurements on an isotropic space.

qualitatively; with the median distance that one needs to travel from a branchless community to a serviced one, decreasing slightly.

In order to get a more complete view of the banking environment, with respect to the other deposit-taking institutions, these measures were run again (Table 6b). In 2003, out of the 79 communities with no branches from any of the five largest nationwide banks, 86% or 68 have another deposit-taking institution operating within the same CSD. Furthermore the median distance any person needs to travel to a deposit-taking institution decreases from 19.8 km to 13.7 km. Of the 874 small communities with a population under 50,000, only 1% (11 CSDs) have no deposit-taking institution. In both cases the median and maximum distance remained stable throughout the study time period; moreover with regard to all deposit-taking institutions, the median distance, even decreased.



**TABLE 7 Changes in Health Practitioners, 1998-2004: Physicians and Surgeons**

| 2001 Population (Inhabitants) | Physicians & Surgeons | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
| < 5,000. | 834 | 828 | 819 | 817 | 847 | 803 | 769 |
| 5,000 - 9,999 | 928 | 919 | 893 | 924 | 945 | 906 | 849 |
| 10,000 - 20,000 | 1261 | 1241 | 1235 | 1215 | 1196 | 1160 | 1141 |
| >20,000 | 1285 | 1314 | 1293 | 1302 | 1294 | 1258 | 1240 |

**TABLE 8 Changes in Health Practitioners, 1998-2004: Dentists**

| 2001 Population (Inhabitants) | Dentists | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
| < 5,000 | 555 | 556 | 524 | 562 | 567 | 561 | 572 |
| 5,000 - 9,999 | 539 | 566 | 541 | 558 | 577 | 584 | 586 |
| 10,000 - 20,000 | 666 | 653 | 663 | 681 | 691 | 692 | 690 |
| >20,000 | 648 | 671 | 637 | 686 | 711 | 738 | 729 |

## Changes in Other Local Services and Businesses

The reorganization of the network of bank branches is not secluded from the economic environment in which the branches operate. The economic performance of small communities can be seen through the evolution of community services and local businesses. The services and businesses that are measured in this analysis are those considered basic in small places and, therefore, good indicators of the community performance. Towns that are economically declining tend to lose services and businesses and vice versa. The flexibility in their fixed investment requirements might shed some light on their dynamics over time and space. Those with less rigid fixed investments might respond more quickly to changes in the operating environment than those with higher levels of fixed investment.

Among health practitioners with private practice offices in small places, physicians and surgeons have declined progressively while dentists have remained somewhat stable or even increased moderately sometimes (Tables 7 and 8). Although the data series for clinics and pharmacies are truncated in 2000 due to later changes in data collection, the series show to be consistent afterwards. The overall trend among these health-related organizations is negative or stagnant between 2001 and 2004; the number of clinics has declined while the number of pharmacies has increased slightly (Tables 9 and 10).[2]

Local private businesses such as grocery/convenience stores and car/truck dealers depict declining trends among the smallest communities. Only the largest

2. Due to the data consistency issues mentioned earlier, trends are described for the period 2001-2004.

**TABLE 9 Changes in Health Services, 1998-2004: Clinics**

| 2001 Population (Inhabitants) | Clinics | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
| < 5,000 | 104 | 106 | 117 | 250 | 234 | 222 | 206 |
| 5,000 - 9,999 | 64 | 71 | 77 | 190 | 181 | 157 | 140 |
| 10,000 - 20,000 | 77 | 82 | 93 | 197 | 202 | 180 | 172 |
| >20,000 | 156 | 167 | 187 | 234 | 222 | 216 | 193 |

**TABLE 10 Changes in Local Businesses, 1998-2004: Pharmacies**

| 2001 Population (Inhabitants) | Pharmacies | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
| < 5,000 | 359 | 367 | 383 | 534 | 546 | 557 | 557 |
| 5,000 - 9,999 | 188 | 197 | 211 | 354 | 361 | 372 | 363 |
| 10,000 - 20,000 | 169 | 173 | 181 | 329 | 340 | 349 | 362 |
| >20,000 | 146 | 158 | 167 | 287 | 293 | 293 | 297 |

**TABLE 11 Changes in Local Businesses, 1998-2004: Grocery and Convenience Stores**

| 2001 Population (Inhab.) | Grocery & Convenience Stores | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
| < 5,000 | 1713 | 1826 | 1840 | 1760 | 1704 | 1694 | 1686 |
| 5,000 - 9,999 | 832 | 1080 | 963 | 1070 | 1049 | 994 | 950 |
| 10,000 - 20,000 | 796 | 1012 | 898 | 1010 | 1010 | 977 | 975 |
| >20,000 | 711 | 892 | 758 | 881 | 868 | 829 | 822 |

**TABLE 12 Changes in Local Businesses, 1998-2004: All Car and Truck Dealers**

| 2001 Population (Inhab.) | All Car & Truck Dealers | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
| < 5,000 | 526 | 534 | 509 | 507 | 496 | 482 | 477 |
| 5,000 - 9,999 | 578 | 567 | 566 | 574 | 579 | 578 | 568 |
| 10,000 - 20,000 | 603 | 607 | 581 | 596 | 599 | 613 | 623 |
| >20,000 | 568 | 571 | 579 | 563 | 572 | 582 | 581 |

places exhibit to a certain degree a positive trend (Table 11 and 12). Information on post office services shows not only inconsistencies but also a *random walk* pattern over time. Therefore, the assessment of changes in the post office services was excluded from the analysis.



## Association between Developments in Bank Branches and Other Services and Businesses

It is assumed that bank branches, as other local services or businesses, are affected by the socioeconomic environment in which they operate. If so, developments in the banking network and other local services and businesses are expected to follow similar patterns over time. A multiple regression analysis was performed to test these associations.

The frequency distributions of the number of bank branches and the other local services and businesses for the CSDs under consideration were skewed positively. Therefore, the variables were transformed into common logarithms (log10) to achieve symmetry, homoscedasticity and linearity within the multiple linear regression analysis. To avoid the problem of working with zeros, a constant number (1) was added to the counts.

The relationship between the number of bank branches (Y variable) and the other local services and businesses (X variables) was tested through bivariate correlations for each pair of variables and each year combination in order to detect possible lags in the relationships. The number of bank branches for 2002 showed the strongest relationships with all the other variables and with most of the years. This finding was of particular interest as 2002 is virtually in the middle of the period under analysis, having observations for years before and after. The designation of 2002 as the base year ($t_0$) facilitated the analysis of the relationship between developments in Y and the exogenous variables Xs. The variables selected proved to follow to some extent similar patterns either simultaneously or at slightly different times.

The number of bank branches in 2002 for the relevant CSDs (n=874) proved to be significantly related at $\alpha$=.05 to the number of physicians/surgeons in 1999 (r=.730), dentists in 2001 (r=.756), car/truck dealers in 2003 (r=.725) and pharmacies in 2002 (r=.687). Data on branches for 2002 also were related to some extent to the total number of grocery/convenience stores (r=.581) and clinics (r=.329) for the same year, indicating that these businesses tend to develop similar patterns synchronically. Figures for 2002 bank branches also demonstrated significant association at $\alpha$=.05 to the logarithmic transformation of the variables representing the socioeconomic environment: total labour force 2001 (r=.695, n=873), total population 2001 (r=.687, n=874) and total dwellings 2001 (r=.675, n=874).

After assessing previous results, a multiple linear regression analysis was conducted to measure the contribution of each variable to the total variance of bank branches in 2002. In addition to this set of variables, the distance to the closest CSD with at least one branch of any of the five largest nationwide banks was incorporated to represent the relational position of the communities over space.

All services and businesses that proved to be significantly associated with variations in the number of bank branches and the closest distance variable were included in our stepwise model procedure. Since the goal of the regression analysis is descriptive, the results from the modelling procedure for the best descriptive

**TABLE 13 Bank Branch Model Parameters Coefficients[a]**

| Model | Unstandardized Coeff. B | Unstandardized Coeff. Std. Error | Standard. Coeff. Beta | t | Sig. | Collinearity Statistics Tolerance | Collinearity Statistics VIF |
|---|---|---|---|---|---|---|---|
| (Constant) | .080 | .034 | | 2.363 | .018 | | |
| lg(1+dentis01) Dentists 2001 | .138 | .018 | .230 | 7.797 | .000 | .273 | 3.665 |
| lg(1+card03) Car/truck Deal. 2003 | .154 | .015 | .263 | 10.342 | .000 | .369 | 2.712 |
| Dist. Closest CSDwB_02 (metres) | -7.798E-06 | .000 | -.229 | -14.536 | .000 | .956 | 1.046 |
| lg(1+physic99) Physicians 1999 | .126 | .012 | .266 | 10.190 | .000 | .349 | 2.869 |
| lg Total Labour Force 2001 | .048 | .012 | .109 | 4.152 | .000 | .349 | 2.869 |
| lg(1+pharm02) Pharmacies 2002 | .057 | .023 | .065 | 2.459 | .014 | .346 | 2.891 |

Note: a. Dependent Variable: lg(1+bank02)

model (not the most parsimonious) are now presented.

The total adjusted R square value .803 indicates that 80% of the changes in the number of bank branches are associated with variations in the predictors selected (Table 13). Changes in the R square show how much of the total variation in the number of bank branches in 2002 ($t_0$) is associated with individual variations in the following variables: 63% with the number of dentists in 2001 ($t_{-1}$), 9% with the number of car/truck dealers in 2003 ($t_1$), 5% with the number of physicians/surgeons in 1999 ($t_{-3}$), 3% with the distance to the closest CSD with bank branches in 2002 ($t_0$), .05% with the total labour force in 2001 ($t_{-1}$) and .01% with the number of pharmacies in 2002 ($t_0$).[3]

The regression model reveals that banks and other local services and businesses follow similar patterns over time either at different moments or simultaneously. Physicians/surgeons and dentists depict similar patterns to those of banks but three years ($t_{-3}$) and one ($t_{-1}$) year ahead, respectively. Car/truck dealers describe a similar pattern but one year later ($t_1$). Pharmacies display simultaneously ($t_0$) the same pattern that banks do. Therefore, it appears that physicians/surgeons and dentists are chronologically among the first ones to move in or out of small communities while car/truck dealers are the ones more inclined to move afterwards.

The parameters of the model reveal that variations in the number of 2002 bank branches are positively associated with fluctuations in all the independent variables, except for distance to the closest CSD with at least a branch from one of the largest five banks. Distance to the closest CSD with at least a branch, captures in essence, what is expected in terms of the banks branch network. The greater the distance, the more isolated a community is from the rest of the banking network and is the less likely to close. The positive relationships with all other variables representing the economic environment (i.e., labour force) and the local services

3. The Durbin-Watson test value = 1.802 indicates that the observations are not affected by temporal autocorrelation. As indicated by the VIF values, no collinearity problems are observed either.



and businesses (i.e., dentists, car/truck dealers, physicians/surgeons and pharmacies) point out that banks are responding to changes in small places in the same way that other services and businesses do.

The standardized residuals of the model describe the positions of the communities relative to the mean line defined by the model. Those places with residuals beyond two standard deviations (+/-2SD) are communities in which the number of bank branches deviates considerably from the expected number generated by the predictors. That is, the expected count is either underestimated (positive residuals) or overestimated (negative residuals).

## Conclusions

The study shows that the growth of local services and businesses is influenced by the overall economic performance of the community in which they are located. Changes in the banking network proved to be significantly related to variations in the socioeconomic environment of these communities as much as other activities are. The decline or increase in the number of bank branches follows more or less the same temporal patterns that other activities do but at different times. Physicians/surgeons and dentists display the same cycle of the banks but three and one year ahead of the banks, respectively. Car and truck dealers depict a similar pattern but one year later. Pharmacies, and to some extent grocery/convenience stores and clinics, follow simultaneously the same dynamics as the banks over time. As proven, the reorganization of the banking system is part of a broader process of economic restructuring. Despite the significant reorganization of the banking system in 2001, the smallest communities with populations under 5,000 maintained a higher branch density (5.7 branches per 10,000 inhabitants) than larger communities with populations between 20,000 and 50,000 (2.1 branches per 10,000 inhabitants. In 2003, 86% of the 79 communities that had no branches of the five largest banks had nonetheless other deposit taking institutions, leaving only 11 communities without service. The minimum and maximum linear distance to the closest community with an operating branch of one of five largest banks remained fairly stable over 2000-2003. The same can be said for the minimum and maximum linear distance to the closest community with any deposit-taking institution. The minimum and maximum distances, from un-serviced communities to serviced ones, decreases when locations for all deposit-taking institutions are considered. Furthermore, the median linear distance between un-serviced communities to a community with a deposit-taking institution even decreased between 2000 and 2003.

## References

Argent, N. 2002. "A Global Model or a Scaled-Down Version? Geographies of Convergence in the Australian Retail Banking Sector". *Geoforum,* 33: 315-334.

Avery, R. B., R.W. Bostic, P.S. Calem and G. B. Canner 1999. "Consolidation and Bank Branching Patterns". *Journal of Banking & Finance*, 23: 497-532.

Bowles, P. 2000. "Assessing the Impact of Proposed Bank Mergers on Rural Communities: A Case Study of British Columbia". *Social Indicators Research,* 51: 17-40.

Canada 1998. *Change, Challenge and Opportunity*. Report of the Task Force on the Future of the Canadian Financial Services Sector. Ottawa, Department of Finance.

Dahms, F. A. 1995. "'Dying Village', 'Counterurbanization' and the Urban Field: A Canadian Perspective". *Journal of Rural Studies,* 11: 21-33.

_____. 1999. "Counterurbanization', Interaction and Functional Change in a Rural Amenity Area: A Canadian Example". *Journal of Rural Studies,* 15: 129-146.

Keddie, P. D. 1997. *The Demographic, Social and Economic Diversity of Rural and Small Town Southern Ontario*. Occasional Paper No. 23 A & B. Guelph: Department. of Geography, University of Guelph.

Mendelson, R. 1999. "The Composition of Business Establishments in Smaller and Larger Communities in Canada". *Rural and Small Town Canada Analysis Bulletin,* 1: 1-10.

Miller, N. J., T.L., L.R. Gaskill and S. G. Sapp. 2003. "Community and Managerial Predictors of Performance in Small Rural US Retail and Services Firms". *Journal of Retailing and Consumer Services,* 10: 215-230.

Option Consommateurs. 2003. *La revision des lignes directrices sur les fusions bancaires et la santé des marches financiers canadiens*. Ottawa : Report submitted to the Department of Finance Canada.

Ramirez, R. 2001. "A Model for Rural and Remote Information and Communication Technologies: A Canadian Exploration". *Telecommunications Policy*, 25: 315-330.

Statistics Canada. 2003. *Canada's Journey to an Information Society*. Ottawa: Statistics Canada, Catalogue No. 56-508-XIE.

Thompson-James, M. 1999. "Computer Use and Internet Use by Members of Rural Households". *Rural and Small Town Canada Analysis Bulletin*, 1: 1-12.

Willis, R., J.N. Marshall and R. Richardson 2001. "The Impact of 'Branchless Banking' on Building Society Branch Networks". *Environment and Planning A*, 2001: 1371-1384.