

**A Multi-year Spatial Analysis of Domestic Tourism
in Ontario, Canada**

by

David Ian Martin Clark

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ABSTRACT

Tourism researchers have typically focused on the international market, neglecting the much more prevalent domestic market. The Canadian domestic market accounts for \$34.8 billion (69.5%) of the total Canadian tourism market and 79.4% (75.6 million) of all trips. Further, research has neglected the spatial aspects of tourism. Tourism is about the movement of people from one place to another, hence it is important to understand the dynamics associated with this movement.

This study utilised location quotients, a well-established spatial analytic technique typically used in economic geography. It examined travel originating in, and destined for, census divisions (n=49) in the Province of Ontario, Canada between 1996 and 2001. A tourism-potential ratio was used to assist in identifying annual trends of travel for census divisions.

The findings confirm the usefulness of spatial analysis, particularly location quotients, as a technique leading to a better understanding of tourist movement. Interestingly, census divisions with lower base populations both generated (i.e., origin) and received (i.e., destination) greater numbers of person-trips than might be expected. Many of these were rural. Generally, higher location quotient values were related to day-trips for origins and over-night trips for destinations. Demographic variables were not, but participation rates for activities (e.g., winter sports, attending fairs and festivals, water-based activities) were in explaining higher location quotient values.

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APPENDIX A

AN APPLICATION OF THE ANALYTIC TECHNIQUES USED IN THE STUDY: AN EXAMPLE OF GREY AND BRUCE CENSUS DIVISIONS

As stated in the introduction, the findings were used to highlight Grey and Bruce counties/census divisions (referred to as Grey and Bruce), to explore the practical application of the techniques used in the study when applied to specific census divisions, and to explore marketing implications of the techniques. This chapter highlights Grey and Bruce CDs as destinations relative to each other and to Ontario, as a whole.

Socio-economic and Spatial Descriptions of Bruce and Grey Census Divisions

Grey and Bruce CDs are known and promoted locally as the “Twin Counties”. They share a lengthy border, have several common characteristics, especially their ruralness, farming as an important industry, and are politically grouped for purposes of provincial and federal elected representatives. Despite some commonness, they have separate county-level governments although previously separate school boards are amalgamated. A major regional tourism marketing body (Southern Ontario Tourism Organization/SOTO) serves both counties as well as others in the southern part of the study area. Many smaller bodies, such as chambers of commerce and tourism promotion offices also operate year-round and seasonally. Like many regions of the study area, there is significant economic and social interconnectedness between the two.

Grey CD has the largest urban area (City of Owen Sound) within the two CDs with a population of 21,390 (Statistics Canada, 2003b). Grey CD’s 1996 population was 87,621 and Bruce CD’s was 65,680 (Statistics Canada, 2003b). Both CDs have populations that are more than 50% rural with Bruce at 52.6% and Grey at 53.3% (Statistics Canada, 2003c). Statistics Canada reports that Ontario’s population grew by 6.1% between 1996 and 2001; Bruce’s grew

by 2.7% and Grey's by 1.7%.

Table A1 illustrates some of the differences and similarities between each CD and with provincial means based on 1996 census data. The lower population densities and lower total populations highlight the rural nature of the two CDs. Compared to both Ontario's and Grey's mean, Bruce's higher percentage of detached homes and houses owned reflect the slightly lower home value and presence of a larger number of summer homes/cottages. Grey and Bruce both have lower representativeness of non-Canadian citizenships and college and university graduates compared to the provincial mean. The overall number of people employed out of the entire population is lower for both Grey and Bruce, which, together with higher percentages of people aged fifty-five and older, indicates these two CDs are oriented as "retirement communities". Overall population growth is quite low for Bruce compared to both Grey and Ontario which can not be explained with the present data. Part of the answer might be explained by the slightly lower percentage of people aged twenty-four to fifty-five, typically those having children. As well, higher death rates will be experienced in the older population. Economically, residents of Grey and Bruce appear very similar as indicated by mean personal and family incomes, incidence of low income families, and employment levels of those in the labour force. Mean home values are lower but reflect lower housing costs mostly due to lower land values and demand compared with the Ottawa - Toronto - Windsor corridor. Other characteristics noted on Table A1 lack significant differences to be noteworthy.

Table A1
Selected Census Demographic, Economic, and Spatial Characteristics for Grey and Bruce
Counties with Comparison to Ontario for 1996

Characteristic	Mean for Ontario	Actual for Grey CD	Actual for Bruce CD
Land area in square kilometres	18709	4505	4048
Population	219461	87621	65680
Population change: 1991 to 1996 (%)	4.88	4.2	0.6
Population per square kilometre	160	19	16
Incidence of detached house (%)	71.44	77.58	83.06
Houses owned (%)	71.42	74.88	78.64
Incidence of apartment units (%)	16.04	16.39	10.75
Non-Canadian citizenship (%)	3.11	1.64	1.57
Males (%)	49.27	49.07	49.58
Married or with a partner (%)	56.28	57.89	60.64
Employed of total population (%)	58.57	46.35	45.92
Employed of those in the labour force (%)	90.39	91.36	91.26
College diploma/university degree (%)	13.8	9.31	9.26
Males & females 14 years & under (%)	21.1	20.37	21.56
Males & females 15 - 24 years (%)	12.82	12.22	12.55
Males & females 25 - 54 years (%)	42.87	40.34	40.1
Males & females 55 - 69 years (%)	13.71	15.42	14.97
Males & females 70 years & over (%)	9.51	11.62	10.79
Mean personal income	\$25,088	\$22,755	\$23,887
Mean family income	\$58,420	\$52,324	\$55,172
Mean home value	\$142,030	\$137,360	\$127,741
Incidence of low income families (%)	11.86	11.9	10.2

Canadian Travel Survey Data Comparison of Grey and Bruce Census Divisions

The following tables show the state of tourism in Grey and Bruce CDs in comparison to each other and to Ontario. The perspective is as tourism destinations as that is the focus of tourism marketing and development efforts at local and regional levels. Clearly Bruce leads Grey in total person-trips for each year and has a annual average share of total provincial person-trips double that of Grey (see Table A2). With little exception, each follows the ups and downs of the provincial changes. Grey has a slightly smaller range (0.6%) than Bruce's (0.8%).

Purpose of Trip: Pleasure and Business

Table A3 indicates that both Grey (80.2%) and Bruce (89.2%) are above the provincial annual average for pleasure trips and both were consistently higher than Ontario on a year-by-year basis. Grey is about 3.7% and Bruce is 15.3% higher than the Ontario annual average. Both are lower than the provincial mean for business trips with Bruce lower than Grey. This might reflect more year-round business activity in Grey, as Bruce has clearly been shown to be a tourist-oriented destination. Another part of the explanation might be the presence of the major urban centre of Owen Sound.

Duration of Trip: Same-day and Overnight

Compared to the six-year provincial mean (see Table A4) Grey and Bruce were well-above in overnight trips with Bruce at almost twice the provincial mean and higher than Grey. This reinforces the view of Bruce as a significant tourism destination. Table A5 highlights two reasons for higher over-night percentages; higher use of private accommodations (i.e., cottages) and camping. These cottages are the seasonal (i.e., summer) and weekend homes of many people from southern urban areas. Despite the annual ups and downs, travel to Grey and Bruce includes trips of one or more nights of stay (see Table A7).

Accommodation

Grey shows higher percentages for private accommodation (69.3%) and camping (10.0%) than the provincial means (66.6% and 9.4%) and Bruce considerably higher percentages (53.2% and 18.0%) (see Table A5). The use of commercial accommodations in Grey and Bruce does not differ much from the provincial mean although Bruce (26.0%) is slightly higher especially compared to Grey (18.9%). Previously it was shown that Bruce is, overall, more of a tourist destination than Grey so the higher rate for commercial accommodation (rental cottages, motels, hotels, and lodges) is understandable. The very high rate for private accommodation in Bruce (53.2%) is a reflection of many privately owned, non-commercial cottages located along the shores of Lake Huron and Georgian Bay. These are summer and weekend destinations for many of the non-resident cottage owners. The high rate for camping in Bruce (18.0%) also reflects the presence of two provincial parks, one national park, and many commercial campgrounds. Most of these are located on the well-known Bruce Peninsula, a favourite destination of many people.

Table A2
 Comparison of Totals, Means and Percentages for Domestic Person-trips
 for Grey, Bruce, and Ontario From 1996 to 2001

	1996	1997	1998	1999	2000	2001	Mean
Ontario							
Domestic person-trips (n)	71207671	60377488	68361309	69229348	76815472	68896049	69147890
Grey CD							
Person-trips (n)	941634	1142003	1169695	1019763	1167906	1144327	1097555
Share of all Ontario domestic trips (%)	1.32	1.89	1.71	1.47	1.52	1.66	1.59
Bruce CD							
Person-trips (n)	1949158	1651803	1837128	2355497	2431163	2069597	2049058
Share of all Ontario domestic trips (%)	2.74	2.74	2.69	3.4	3.16	3	2.96

Table A3
 Comparison of Percentages for Purpose of Trip for Grey, Bruce, and Ontario From 1996 to 2001 ^a

	1996	1997	1998	1999	2000	2001	Mean
Ontario							
Pleasure	77.96	76.91	77.64	77.35	75.8	78.46	77.33
Business	9.87	9.78	9.31	8.79	10.06	9.05	9.48
Grey CD							
Pleasure	81.78	67.56	80.69	88.4	80.52	82.14	80.18
Business	8.21	2.38	2.71	6.49	6.06	7.25	5.53
Bruce CD							
Pleasure	91.89	81.95	91.55	93.91	88.3	87.24	89.15
Business	4.97	3.07	3.17	2.59	4.52	3.73	3.86

^a Percentages do not add to 100 as the category of "Other" is not included

Table A4
 Comparison of Percentages for Duration of Trip for Grey, Bruce, and Ontario From 1996 to 2001

	1996	1997	1998	1999	2000	2001	Mean
Ontario							
Same-day	63.35	62.82	61.8	61.83	61.94	62.65	62.39
Overnight	36.65	37.18	38.2	38.17	38.06	37.35	37.61
Grey CD							
Same-day	50.53	59.76	38.65	47.41	46.72	53.24	49.33
Overnight	49.47	40.24	61.35	52.59	53.28	46.76	50.67
Bruce CD							
Same-day	31.75	29.44	23.58	36.92	42.36	33.16	33.55
Overnight	68.25	70.56	76.42	63.08	57.64	66.84	66.45

Table A5
 Comparison of Percentages for Type of Accommodation for Grey, Bruce, and
 Ontario From 1996 to 2001 ^a

	1996	1997	1998	1999	2000	2001	Mean
Ontario							
Commercial	19.94	21.36	21.74	20.88	23.36	23.69	21.85
Private	68.17	67.6	65.34	67.74	65.03	66.09	66.61
Camping	10.13	8.85	10.78	9.66	8.73	8.22	9.41
Grey CD							
Commercial	20.25	18.89	12.43	14.2	13.14	31.72	17.97
Private	64.89	70.23	80.23	68.31	70.46	57.34	69.31
Camping	14.87	9.08	5.29	14.7	13.89	4.46	10.02
Bruce CD							
Commercial	27.47	25.05	20.64	23.48	23.79	35.93	25.99
Private	51.45	51.14	56.65	57.78	55.73	45.31	53.18
Camping	19.78	22.01	19.72	18.13	14.09	15.16	18.04

^a Percentages do not add to 100 as the category of "Other" is not included

Activities

Table A6 illustrates the activities travellers reported while on the trip. Two, VFR and shopping, reflect the Ontario levels of participation. The activity of attending or visiting cultural attractions is lower and most likely represents fewer opportunities or a lack of attractions that are unique enough to draw many travellers. Grey stands out in two, attending sporting events as a spectator (7.6%) and snow-based activities (4.8%) (i.e., snowmobiling, downhill and cross-country skiing). The snow-based activities are mostly explained by the presence of the Beaver Valley and Blue Mountain's ski areas which draw many skiers from southern and eastern Ontario. The Blue Mountains sits right on the boundary adjacent to the Town of Collingwood (Simcoe CD) and within Grey CD. Collingwood is a significant beneficiary of this proximity and had experienced a 2.8% growth rate compared to Grey at 1.7% between 1996 and 2001 (Statistics Canada, 2003b). Within Grey and adjacent to the Blue Mountains, the Town of the Blue Mountains (previously known as the Town of Thornbury) grew by 7.9% in the same period. Snowmobiling is also a popular activity in Grey with many groomed trails, which helps explain this higher rate.

Attending sporting events as a spectator in Grey (7.6%) might be related to a number of semi-pro sports teams in Owen Sound and to the many tournaments such as hockey, baseball, curling, and lacrosse held throughout the year. These tournaments typically have both participants and spectators in attendance including parents and spouses/significant others.

Bruce showed higher participation rates in sightseeing, attending fairs and festivals, and water-based activities. Sightseeing (30.5%) was almost double the provincial mean (17.5%) (see Table A6). Bruce has a number of natural features which continue to draw people including world-famous sunsets once featured in the National Geographic magazine, the

Niagara Escarpment which is a designated UNESCO biosphere reserve, special geological features known as “flower-pot islands”, and one of the longest sand beaches in Ontario, all of which are related to sightseeing. Clearly, sightseeing is not an ancillary activity to others for people travelling to Bruce CD and includes a deliberate travel purpose.

Water-based activities in Bruce (32.6%) were more than three-times that of the provincial mean (9.5%) and four-times that of its neighbour, Grey (8.2%). Again, Bruce affords a number of opportunities for water-based activities including boating (i.e., yachting, canoeing, kayaking, sailing), scuba diving at numerous historical boat wrecks in the national underwater park, swimming and sail-boarding at the world-famous Sauble Beach, and the availability of a number of pleasure boat harbours on Georgian Bay and Lake Huron.

Attending fairs and festivals in Bruce (5.9%) was almost double the provincial mean (3.8%) and almost twice that of Grey (2.0%) indicating an important “pull” feature of the area. Anecdotal evidence indicates these attendances are related to events throughout the year.

Time and Distance Indicators

Table A7 indicates the slight variation of time and distance indicators for person-trips taken in 2001. Mean distance from home does not indicate significant differences between each CD and the Ontario mean. The only indicators to stand out are the maximum and mean number of nights on trip. Bruce’s mean nights (2.14) is almost double that of Grey (1.14) and the provincial mean (1.09). The maximum number of nights for Bruce is 18 and is more than twice that of Grey at 7 and supports the position that Bruce is a tourism destination and benefits from the longer-stay cottage owners.

Seasonality

Table A8 indicates some variation of person-trips throughout the year for Ontario travel with

July to September showing the highest (35.1%) and January to March the lowest (18.0%). Grey CD showed a fairly even distribution with April to June (28.1%) the highest quarter. Bruce CD showed more dramatic fluctuations with more than one-half (57.8%) occurring during July to September and January to March dropped to the lowest (7.4%). Using the redefined seasons of summer and winter as described earlier in this study, Bruce continued to show very high participation during the summer (47.4%) with the lowest in the winter (10.4%). Bruce's higher-demand summer travel was highlighted above and was significantly influenced by demand for water-based activities and sightseeing. Grey's summer season (15.1%) was about three-times lower than Bruce's and winter (28.3%) was about three-times higher than Bruce's. As has been stated, Grey benefits significantly from the demand for skiing at the Blue Mountain resort area.

Trip Expenditures

Mean trip expenditures associated with travel costs are shown in Table A9 and generally show consistency. Grey was consistently lower than the provincial mean except recreation and entertainment which is close to the mean. Bruce was consistently higher than both the provincial mean and Grey, except slightly lower in the recreation and entertainment category. These higher mean costs are easily explained as trips to Bruce were shown to be longer in duration (i.e. nights away) and would have had correspondingly higher mean costs. Travel to Grey was shown to have slightly shorter trips and equally lower costs.

Table A6
Comparison of Percentages of Participation in Activities for Grey, Bruce, and Ontario
for 2001

Activity ^a	Ontario %	Grey CD %	Bruce CD %
Visit friends & relatives	55.23	55.64	52.15
Shopping	29.35	25.19	23.06
Sightsee	17.5	15.34	30.5
Attend a sporting event as spectator	6.82	7.59	5.32
Attend or visit a culture attraction	4.39	1.46	1.76
Attend a fair or festival	3.84	2.03	5.95
Water-based activity	9.51	8.16	32.6
Snow-based activity	3.25	4.84	1.07

^a survey respondents could report participation in more than one activity

Table A7
Comparison of Time and Distance Indicators for Grey, Bruce, and Ontario for 2001

Characteristic	Ontario	Grey CD	Bruce CD
Mean distance in kilometres from home	192	172	210
Mean number of nights on trip	1.09	1.14	2.14
Maximum number of nights on trip	365	7	18
Mean number of census divisions attached to trip	1.6	1.58	1.58

Table A8
Comparison of Quarters and Seasonality of Person-trips for Grey, Bruce, and
Ontario for 2001

Quarter	Ontario %	Grey CD %	Bruce CD %
January to March	18.04	24.2	7.43
April to June	22.41	28.09	21.69
July to September	35.12	22.63	57.83
October to December	24.43	25.09	13.05
Season			
Winter (December, January & February)	22.69	28.31	10.4
Summer (July & August)	26.65	15.13	47.37

Table A9
Comparison of Mean Travel Costs for Grey, Bruce, and Ontario for 2001

Trip Expense Category	Ontario \$	Grey CD \$	Bruce CD \$
Transportation (automobile)	41.74	37.24	46.32
Food purchased at restaurants	40.03	38.41	43.58
Accommodation	35.3	34.58	53.86
Recreation & entertainment	18.63	20.39	18.53

Location Quotients and Tourism-potential Index

Location Quotients

Location quotients and tourism-potential indices were discussed elsewhere and are summarised here for the purposes of the present discussion (see Table A10). The LQs and T-PI indices continue to highlight the differences, as discussed above, between the two census divisions and compared with the Ontario provincial means.

As an origin or generator of person-trips Bruce (1.9818) was higher than the provincial mean (1.3114) and higher than Grey (0.9958). As destinations, and using annualised data, both Grey (1.7199) and Bruce (2.5996) were above the provincial mean (1.1826) indicating each showed strength as tourism destinations. Bruce's LQ is higher than Grey's by about one and one-half times (1.5115) which supports the above discussions regarding relative positioning as tourism destinations. Simply put, Bruce did better.

Summer-only travel showed that Bruce (5.1462) did much better than Grey (1.2082) with an LQ slightly more than four-times higher. Table A6 shows that the percentage of person-trips reporting participating in water-based activities for Bruce (32.6%) is about four-times higher than Grey's (8.16%). Bruce showed a higher participation in sightseeing (30.5%) than Grey (15.3%) which together with water-based activities accounts for the higher LQ. Seasonality of travel (see Table A8) indicates the importance of summer travel for Bruce as a destination with 57% percent of person-trips received in the third quarter.

Winter-only travel shows Bruce (1.0966) and Grey (2.1926) switch relative positions but not with the same degree as in summer. Table A8 indicates Bruce has a low percentage of person-trips whether using the first quarter or winter season as the reference. Table A6 shows that snow-based activities are higher for Grey pointing to higher numbers of person-trips

during the winter months for skiing and snowmobiling. As discussed elsewhere in this chapter, downhill skiing is a significant factor in winter travel to Grey County, specifically the Blue Mountain and Beaver Valley areas.

Tourism-Potential Index

The T-PI (see Table A10) is a ratio of the destination LQ to the origin LQ and indicates whether a CD is primarily a tourist destination or a tourist generator. Because tourism development is about increasing the flow of revenue into a CD, the preferred orientation is to a higher T-PI. Interestingly, Grey, at 1.7272, showed such an orientation although Bruce, at 1.3117, was shown to receive more person-trips. The apparent contradiction is simply that Grey, as an origin, generates fewer trips than does Bruce given base population. This is a measure of net person-trips and indicates Grey had fewer person-trips leave the area for tourism than did Bruce, which had a lower T-PI.

As discussed in chapter six this index is not a measure of how well (i.e., quantitatively) a CD is doing but rather a relative indication of the flow of tourism trips or tourism economic orientation. A T-PI calculated on an annual basis would provide an additional indicator of the general “net” direction of a CD, that is, it would help answer the question, “Is the CD moving towards being a destination or an origin is stability present?” Table A11 and Figure A1 illustrate this concept. A different picture than discussed above results when looking at the T-PIs yearly. The trend for Grey is downward (i.e., oriented towards functioning as a generator of travel) although the annualised mean indicated the contrary. The mean (see Table A10) was influenced by several higher T-PI values from 1997 to 1999. Bruce, on the other hand, shows a role that is increasingly one of a receiver of tourism. This illustrates the value of multi-year analysis.

Table A10
 Comparison of Annualised Location Quotients and Annualised Tourism-Potential Indices
 for Ontario, Grey, and Bruce Census Divisions

	Location Quotient Origin	Location Quotient Destination	Tourism-potential Index (T-PI)
Ontario			
Mean	1.3114	1.5731	1.4621
SD	.5627	1.1826	
Grey			
Annualised	0.9958	1.7199	1.7272
Summer	n.c.	1.2082	n.c.
Winter	n.c.	2.1926	n.c.
Bruce			
Annualised	1.9818	2.5996	1.3117
Summer	n.c.	5.1462	n.c.
Winter	n.c.	1.0966	n.c.

n.c. = not calculated

Table A11
 Comparison of Tourism-Potential Indices for Grey and Bruce Census Divisions

	1996	1997	1998	1999	2000	2001
Grey	1.3678	2.0482	2.3582	1.8646	1.4768	1.5449
Bruce	1.5988	0.7123	1.4309	1.3476	1.3768	2.066

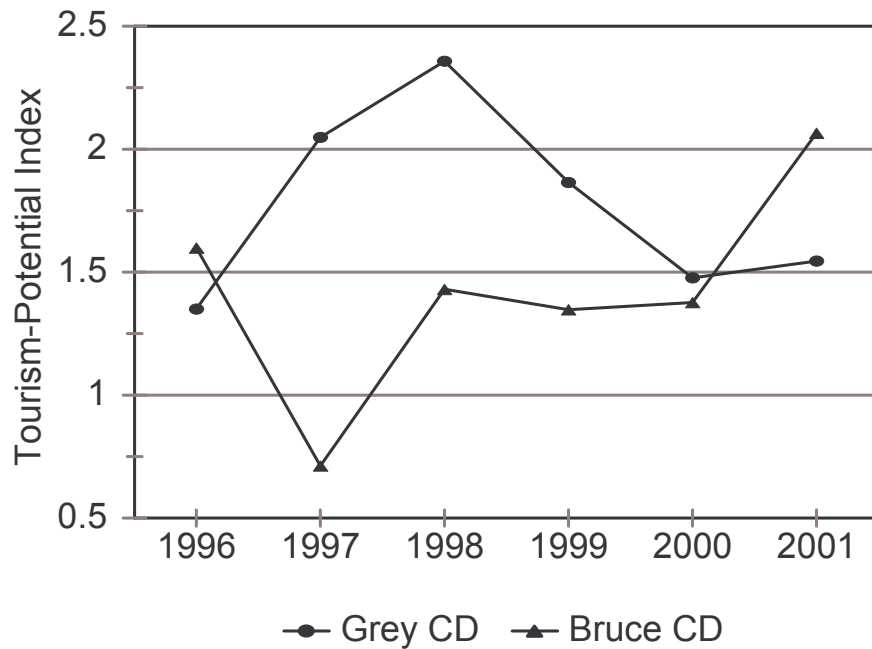


Figure A1. Tourism-potential Indices for Grey & Bruce CDs
 (1996 to 2001)

Hierarchical Regression and Prediction of Location Quotients for Grey and Bruce CDs

Table A12 is presented simply to see how well the regression equation did in predicting the LQs for Grey and Bruce CDs. We would expect the equation to do a good job of prediction unless CDs had high residuals.

Overall, the regression equation predicted the LQs for Bruce and Grey reasonably well, hence each had residuals with low values. An exception is noted: Bruce CD's summer LQ was under predicted by 1.3574. Referring to Table 31 helps us understand why. Location quotients with higher values for summer person-trips were explained, primarily, by the activities ($F=3.308$, $p=.003$) in which people participated but especially water-based ($\beta=.502$, $p=.020$). A reference to Table 24 indicates, further, that participation in water-based activities has a significant correlation coefficient ($r=.642$, $p < .001$). Together, these statistical indicators combined with knowledge of Bruce helps us better understand why the LQ was under estimated. It helps, also, in identifying an important characteristic of Bruce's tourism appeal and hints at an important marketing imagery, that of water-based activities, that could be used to enhance one market segment of travellers.

As was discussed in chapter six, the LQ is one more tool that enhances our understanding of tourism, in this case from a much neglected spatial perspective. It is not a predictive tool but combined with other approaches (e.g., gross and net numbers, percentages, and correlation coefficients) we get a better understanding of domestic tourism at both lower and upper levels of aggregation (i.e., national, provincial, regional, and census division). And, as was illustrated above and discussed in chapter six, this approach combined with census data information gives us a much better understanding of potential markets and marketing directions.

Table A12
Comparison of Actual and Estimated Location Quotients
for Grey and Bruce Census Divisions as Destinations

Census Division	Location Quotients		Difference Between Actual & Estimated (Residual)
	Actual	Estimated by Regression Equation	
Grey			
Annualised	1.9456	1.873	0.0726
Summer	1.2082	1.2722	-0.0640
Winter	2.1926	2.4284	-0.2358
Bruce			
Annualised	2.6466	2.3288	0.3178
Summer	5.1462	3.7888	1.3574
Winter	1.0966	0.9987	0.0979

Summary

Certainly, as this section on the CDs of Grey and Bruce illustrates, there is a wealth of information to be gleaned from the CTS data sets. The LQ, when compared to the provincial mean, gives an indication of how well CD is doing relative to a larger context. When compared to other CDs, it is possible to gain insight into strengths and weaknesses of one's own CD and others, especially neighbouring ones, which might be the competition. The T-PI is particularly helpful as an early-warning system of changing conditions. An annual tracking, as shown above, allows tourism planners and marketers to explore reasons for the changes and to respond as needed. A seasonal T-PI calculation and plotting might prove interesting and beneficial in detecting more subtle, micro changes.

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