

**Table 3.8. Factor 6-Manufacturing vs. non-market services employment**

<i>code</i>	<i>Census Division</i>	<i>Factor 6</i>
32	Oxford County	1.42
34	Elgin County	1.40
29	Brant County	1.37
31	Perth County	1.22
37	Essex County	1.21
36	Kent County	1.18
30	Waterloo Regional Municipality	1.18
21	Peel Regional Municipality	1.12
26	Niagara Regional Municipality	0.90
25	Hamilton-Wentworth Reg Municipality	0.90
28	Haldimand-Norfolk Reg Municipality	0.78
22	Dufferin County	0.74
01	Stormont, Dundas and Glengarry	0.68
38	<b>Lambton</b> County	0.63
16	Victoria County	0.61
14	Northumberland County	0.52
20	Toronto Metropolitan Municipality	0.48
18	Durham Regional Municipality	0.46
42	Grey County	0.36
43	Simcoe County	0.31
12	Hastings County	0.29
23	Wellington County	0.21
15	Peterborough County	0.16
40	<b>Huron</b> County	0.16
57	Algoma District	0.16
44	Muskoka District Municipality	0.10
52	<b>Sudbury</b> District	0.08
24	<b>Halton</b> Regional Municipality	0.04
46	Haliburton County	-0.08
41	Bruce County	-0.12
56	Cochrane District	-0.13
13	Prince Edward County	-0.14
39	Middlesex County	-0.21
07	Leeds and Grenville	-0.26
19	York Regional Municipality	-0.38
11	Lennox and Addington County	-0.41
49	Parry Sound District	-0.50
09	Lanark County	-0.52
54	Timiskaming District	-0.59
58	Thunder Bay District	-0.65
53	Sudbury Regional Municipality	-0.90
02	Prescott and Russell	-0.94
48	Nipissing District	-1.07
47	Renfrew County	-1.18
59	Rainy River District	-1.19
60	Kenora District	-2.03
51	Manitoulin District	-2.16
10	Frontenac County	-2.27
06	Ottawa-Carleton Regional Municipip.	-2.93

**Table 3.9. Factor 7—Population 15-24 attending school full time**

<i>code</i>	<i>Census Division</i>	<i>Factor 7</i>
19	York Regional Municipality	2.06
51	Manitoulin District	2.01
41	Bruce County	1.82
53	<b>Sudbury</b> Regional Municipality	1.61
54	Timiskaming District	1.37
57	Algoma District	1.14
48	Nipissing District	1.09
24	<b>Halton</b> Regional Municipality	0.97
38	<b>Lambton</b> County	0.96
13	Prince Edward County	0.90
01	Stormont, Dundas and Glengarry	0.75
15	Peterborough County	0.53
26	Niagara Regional Municipality	0.36
28	Haldimand-Norfolk Reg Municipality	0.36
40	<b>Huron</b> County	0.34
49	Parry Sound District	0.33
16	Victoria County	0.27
37	Essex County	0.24
36	Kent County	0.24
06	Ottawa-Carleton Regional Municipip.	0.16
20	Toronto Metropolitan Municipality	0.10
42	Grey County	0.09
11	Lennox and Addington County	0.08
25	Hamilton-Wentworth Reg Municipality	0.06
52	Sudbury District	0.06
56	Cochrane District	-0.08
09	Lanark County	-0.16
18	Durham Regional Municipality	-0.17
29	Brant County	-0.22
10	Frontenac County	-0.25
23	Wellington County	-0.29
34	Elgin County	-0.29
21	Peel Regional Municipality	-0.29
12	Hastings County	-0.34
39	Middlesex County	-0.39
22	Dufferin County	-0.46
32	Oxford County	-0.49
58	Thunder Bay District	-0.57
07	Leeds and Grenville	-0.64
14	Northumberland County	-0.79
31	Perth County	-0.84
02	Prescott and Russell	-0.85
59	Rainy River District	-1.01
43	Simcoe County	-1.02
30	Waterloo Regional Municipality	-1.05
44	Muskoka District Municipality	-1.15
47	Renfrew County	-1.34
46	Haliburton County	-1.74
60	Kenora District	-3.46

**Table 3.10. Factor 8-Value added per worker in manufacturing**

<i>code</i>	<i>Census Division</i>	<i>Factor 8</i>
38	Lambton County	3.99
41	Bruce County	3.16
07	Leeds and Grenville	1.61
09	Lanark County	1.24
24	Halton Regional Municipality	1.08
37	Essex County	0.91
58	Thunder Bay District	0.79
18	Durham Regional Municipality	0.74
15	Peterborough County	0.66
44	Muskoka District Municipality	0.41
59	Rainy River District	0.37
10	Frontenac County	0.34
12	Hastings County	0.32
26	Niagara Regional Municipality	0.31
14	Northumberland County	0.30
39	Middlesex County	0.28
23	Wellington County	0.26
46	Haliburton County	0.12
60	Kenora District	0.07
52	Sudbury District	0.02
06	Ottawa-Carleton Regional Municip.	-0.03
20	Toronto Metropolitan Municipality	-0.05
47	Renfrew County	-0.08
25	Hamilton-Wentworth Reg Municipality	-0.19
01	Stormont, Dundas and Glengarry	-0.22
43	Simcoe County	-0.25
28	Haldimand-Norfolk Reg Municipality	-0.27
02	Prescott and Russell	-0.33
29	Brant County	-0.38
56	Cochrane District	-0.42
11	Lennox and Addington County	-0.45
31	Perth County	-0.47
53	Sudbury Regional Municipality	-0.47
57	Algoma District	-0.53
34	Elgin County	-0.58
13	Prince Edward County	-0.59
30	Waterloo Regional Municipality	-0.61
36	Kent County	-0.61
54	Timiskaming District	-0.67
32	Oxford County	-0.68
21	Peel Regional Municipality	-0.68
22	Dufferin County	-0.68
49	Parry Sound District	-0.95
40	<b>Huron County</b>	<b>-0.98</b>
48	Nipissing District	-1.06
51	Manitoulin District	-1.14
16	Victoria County	-1.15
42	Grey County	-1.18
19	York Regional Municipality	-1.28

## 4. Clustering results

The Table 4.1 reports the number of leading, lagging and neutral scores presented by each CD on the first four factors. As explained in section 2.3, the clustering does not show specific patterns of

association between factors, even if a relative homogeneity emerges in certain areas. The data presented in the table are displayed spatially in Map 4.1 (leading), Map 4.2 (lagging), and Map 4.3 (neutral).

In general, one finds a prevalence of leading factors (3 or more) in a broken arc around the western end of Lake Ontario, excluding Toronto Metropolitan Municipality and the Niagara peninsula area. Only two CDs, Halton and Dufferin, have leading scores on all four factors. Five CDs record leading scores on three factors but the membership is mixed. York and Durham lead on all the factors except Factor 4 - Unemployment levels, where York records a neutral and Durham a lagging score. Wellington and Waterloo lead on all factors except Factor 2 - Socio-economic stress, where Wellington has a neutral score but Waterloo a lagging score. Finally, Haldimand-Norfolk, the most rural of the five CDs, leads on all factors except Factor 1 - Economic dynamics, on which it records a lagging score.

As the map indicates the spatial distribution of leading and lagging does not always follow a smooth transition. Particularly striking is the juxtaposition of leading CDs (Map 4.1) with the adjacent CDs of Hamilton- Wentworth and Niagara. These last two CDs in fact are lagging on three factors (Map 4.2) and neutral on Factor 1. Similarly, Essex County, another old industrial region, is lagging on three factors but in this case neutral on Factor 3 - Labour force participation and age.

In southern Ontario, the other CDs with three lagging factors are Stormont Dundas & Glengarry, Renfrew and Hastings (Map 4.2). However, also in this case the pattern is mixed. Stormont Dundas & Glengarry is leading on Factor 4; Renfrew is neutral on Factor 3; and Hastings is neutral on Factor 1. Finally, in the north of the province one finds the remaining CDs that are lagging on three factors, namely Cochrane, Algoma and Timiskaming.

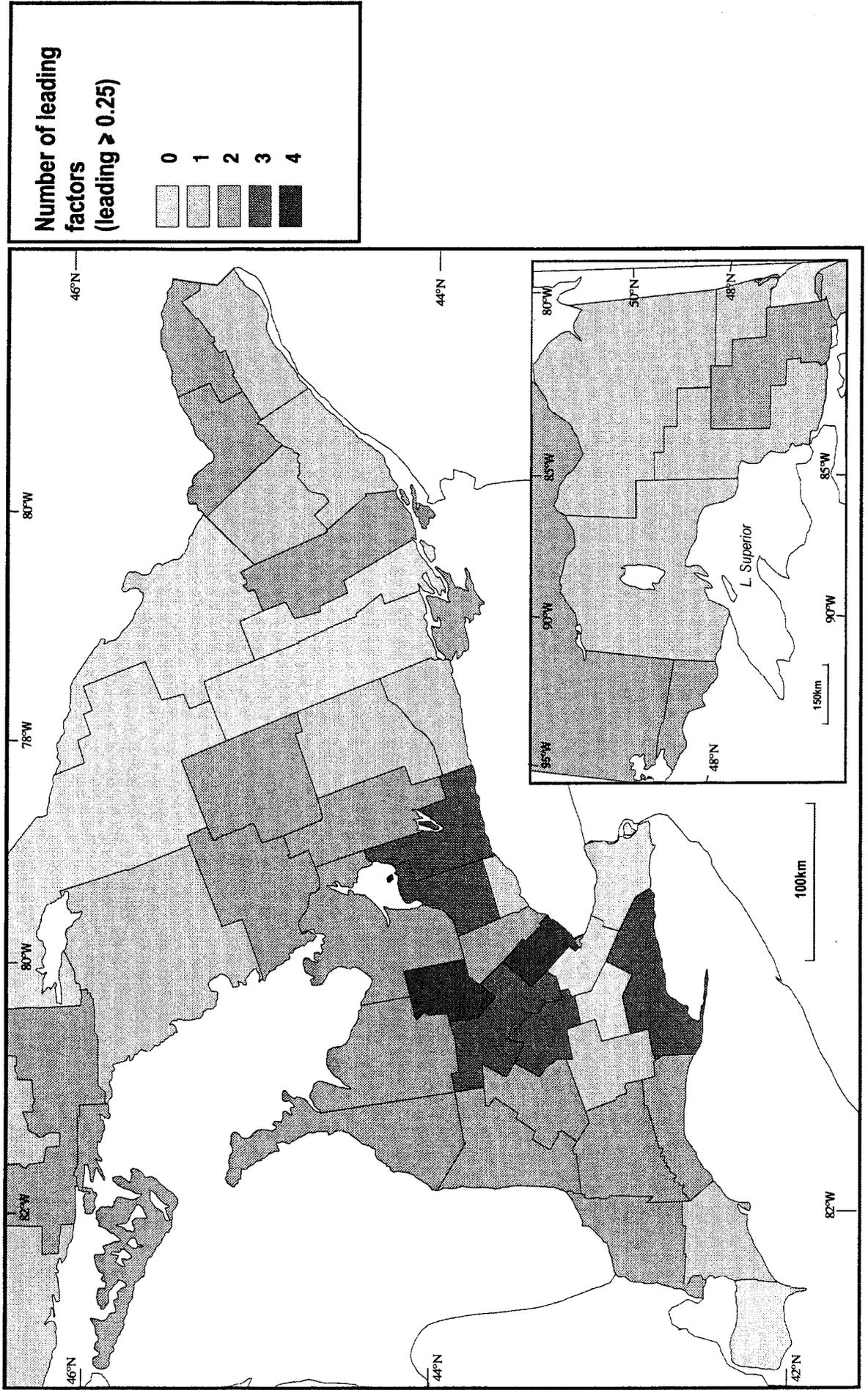
While the pattern of association between factors is not clear, a relative homogeneity emerges in some regions as for instance the CDs of Muskoka, Haliburton, Victoria and Peterborough, on the one hand, and Cochrane, Algoma Sudbury and Timiskaming, on the other.

Also Huron County emerges as part of a relatively homogeneous sub-region. The county shows a similar performance with Bruce and Perth. All three CDs record leading scores on Factor 2 - Socio-economic stress and Factor 4 - Unemployment levels, lagging scores on Factor 1 - Economic dynamics, and neutral scores on Factor 3 - Labour force participation and age.

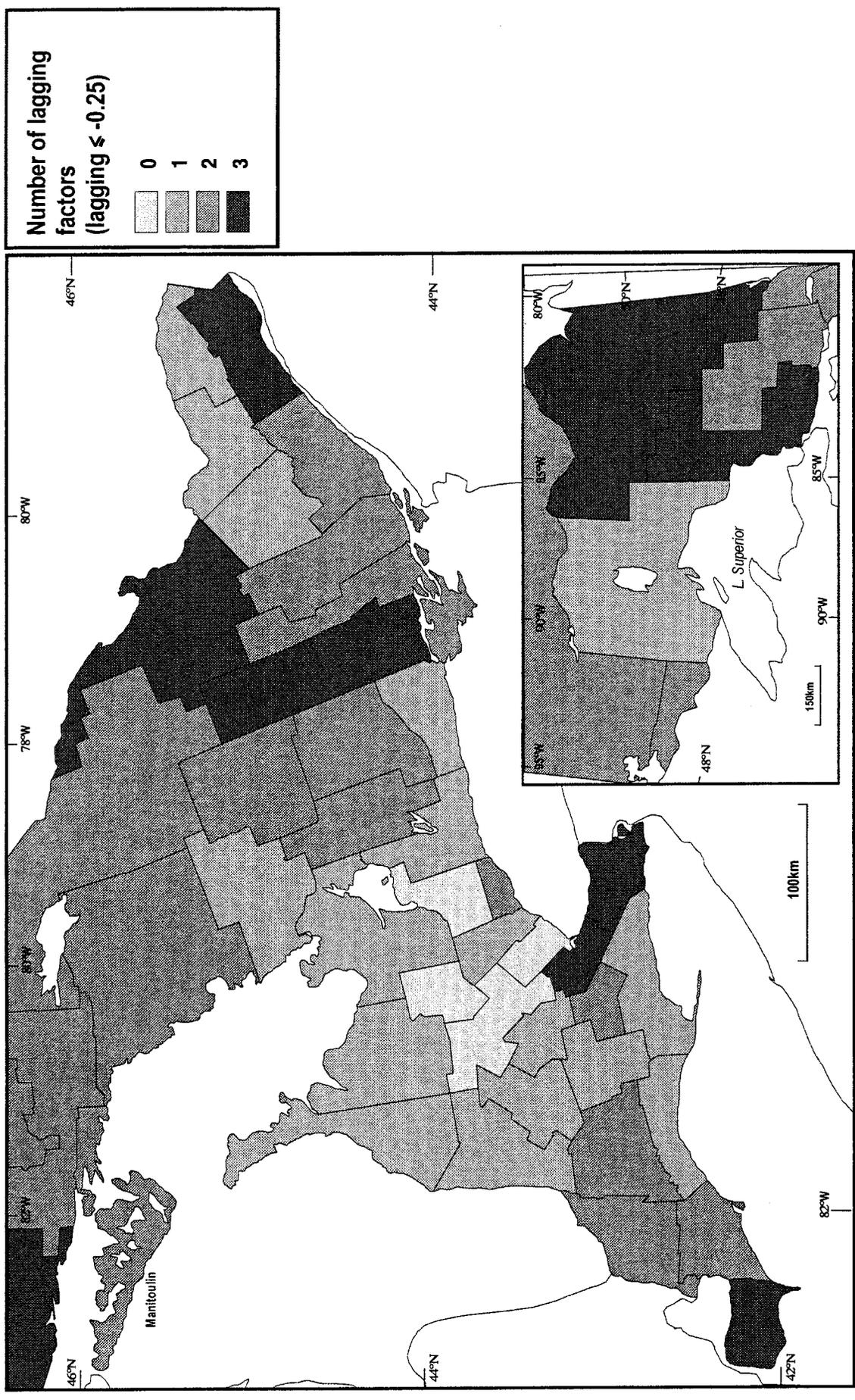
**Table 4.1 . Total leading, neutral and lagging scores for each CD**

<i>CODE</i>	<i>Census Division</i>	<i>Leading</i>	<i>Neutral</i>	<i>Lagging</i>
22	Dufferin County	4	0	0
24	Halton Regional Municipality	4	0	0
19	York Regional Municipality	3	1	0
23	Wellington County	3	1	0
18	Durham Regional Municipality	3	0	1
28	Haldimand-Norfolk Reg Municipality	3	0	1
30	Waterloo Regional Municipality	3	0	1
2	Prescott and Russell	2	1	1
6	Ottawa-Carleton Regional Municip.	2	1	1
21	Peel Regional Municipality	2	1	1
31	Perth County	2	1	1
34	Elgin County	2	1	1
40	<b>Huron County</b>	2	1	1
41	Bruce County	2	1	1
42	Grey County	2	1	1
43	Simcoe County	2	1	<b>1</b>
44	Muskoka District Municipality	2	1	1
10	Frontenac County	2	0	2
13	Prince Edward County	2	0	2
16	Victoria County	2	0	2
38	<b>Lambton County</b>	2	0	2
39	Middlesex County	2	0	2
46	Haliburton County	2	0	2
51	Manitoulin District	2	0	2
52	Sudbury District	2	0	2
59	Rainy River District	2	0	2
60	Kenora District	2	0	2
9	Lanark County	1	2	1
14	Northumberland County	1	2	1
32	Oxford County	1	2	1
58	Thunder Bay District	1	2	1
7	Leeds and Grenville	1	1	2
15	Peterborough County	1	1	2
20	Toronto Metropolitan Municipality	1	1	2
36	Kent County	1	1	2
49	Parry Sound District	1	1	2
53	Sudbury Regional Municipality	1	1	2
1	Stormont, Dundas and <b>Glengarry</b>	1	0	3
54	Timiskaming District	1	0	3
56	Cochrane District	1	0	3
57	Algoma District	1	0	3
11	Lennox and Addington County	0	2	2
29	Brant County	0	2	2
48	Nipissing District	0	2	2
12	Hastings County	0	1	3
25	Hamilton-Wentworth Reg Municipality	0	1	3
26	Niagara Regional Municipality	0	1	3
37	Essex County	0	1	3
47	Renfrew County	0	1	3

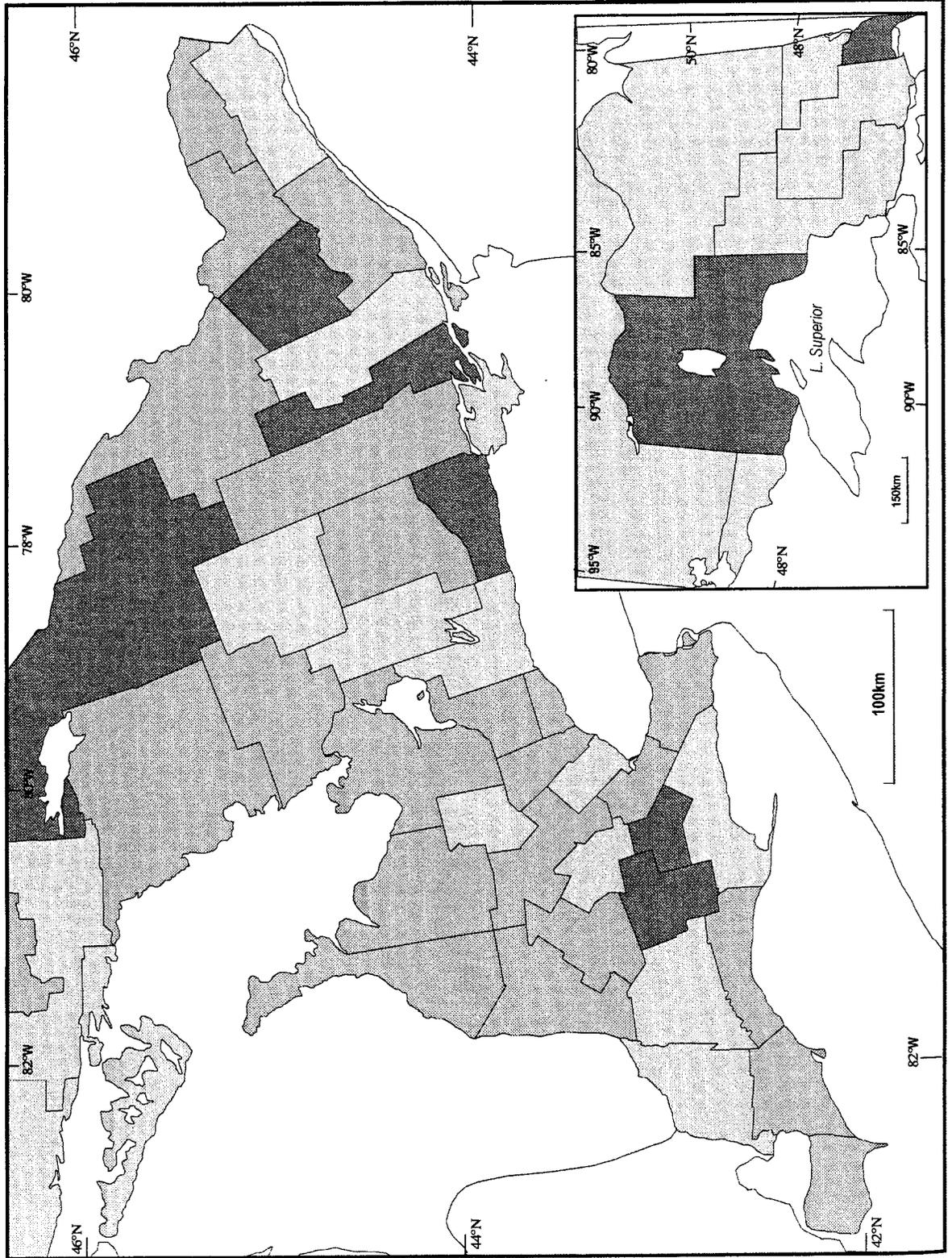
**Map 4.1. Total leading factors**



**Map 4.2. Total lagging factors**



**Map 4.3. Total neutral factors**



## 5. Conclusions

### 5.1 Summary and recommendations

The present study moves us toward the identification of a method for territorial comparison and for the characterization of the territorial units. The approach adopted here provides a simplified but meaningful picture of a complex reality. A factor analysis has been applied to Census of Canada 1991 data. Forty variables, which reflect demographic, social and economic characteristics of each locality, are used in the analysis. Most of their variability can be attributed to 4 factors, which account for 75.8 percent of the variance of the original set of variables.

The four factors identified have been named, on the base of the loading on the observed variables, as: Economic dynamics, Socio-economic stress, Labour force participation and age, and Unemployment levels.

The CDs that lead on the Economic dynamics factor tend to present high income, high employment and educational status, high dwelling value and cost and rapid population growth and low employment in the primary sector. The CDs that lead on the Socio-economic stress factor tend to present a low incidence of poverty, low incidence of lone parent families, low cost housing relative to the income level, and high percentage of males and females working at home. The CDs that lead on the Labour force participation and age factor tend to show high percentage of young population, high participation rates and high percentage of families with two or more members in the labour force. Finally, the CDs that lead on the fourth factor, named Unemployment levels, tend to show low unemployment levels and low percentage of families with one member only in the labour force.

In the provincial context, Huron County records leading scores on the Socio-economic stress factor and on the Unemployment level factor, while it is lagging on the Economic dynamics factor and neutral on the Labour force participation and age factor. Overall, these results point to the rural-agricultural base that characterizes Huron County. Factor one indicates, in particular, a low demographic and average income dynamic and the strong agricultural employment base of the area. This is associated with a relatively even distribution of income and a housing structure typical of rural areas (single detached owned houses). Finally, Huron presents a relatively high participation rate, particularly in light of its demographic structure, and a low unemployment rate.

The data also reveal a relative similarity of Huron County conditions with those of Bruce and Perth Counties. On the contrary, it contrasts with the neighboring Middlesex County, dominated by the London metropolitan area, on the first three factors.

These results bring us to some general conclusions. First, the concept of leading and lagging is multidimensional. The majority of CDs are leading on some of the dimensions and lagging on others, which indicates the complexity of the social and economic realities present in Ontario. This means also that the assessment of the social and economic performances of localities should consider these often diverging dimensions. The focus on one single variable can produce a distorted interpretation of reality.

Second, the approach matches areas that present relatively similar performances on a selected number of indicators. Yet, the reasons for this association are several and, in general, areas that fall in the same group for a certain factor have often substantially different economic and social structures. Some of the CDs with a prevalence of lagging scores are urban traditional-manufacturing based centers such as Essex and Hamilton-Wentworth. Other lagging CDs are

predominantly rural areas such as Hastings and Renfrew counties and the northern districts. Similarly, some of the leading CDs are predominantly rural areas, while other are peri-urban areas. This fact is even more evident when a single factor is considered.

The results presented in this study, therefore, should be treated as a starting point for further inquiry into causes of spatial diversity. To enhance the research in that direction it is recommended, **first**, to develop an integrated database on communities in Ontario; second, to integrate the information that emerges from the data analysis with in-depth studies of the socio-economic processes of interest.

Many are the suggestions in this regard. Particularly interesting, for instance, is the result relative to the unemployment factor, which stands as a separate factor. The result raises several questions about the meaning of unemployment indicators, their determinants and even their appropriateness as single measures to represent the conditions of the **labour** market.

The coexistence of low unemployment levels with low demographic dynamics and high youth out-migration could indicate that some regions “export” their unemployment to other areas, as suggested by the literature on this topic. Another hypothesis that could be explored is the relation between the **sectoral** structure of the local economy and the unemployment (or under-employment) levels. It is interesting to note, for instance, that Huron County presents the highest percentage of employment in the primary sector (18.16%) and is leading on Factor 4 - Unemployment levels. In contrast, Haliburton County with only 2.8 1% of its **labour** force employed in the primary sector, records one of the lowest scores on Factor 4.

Moreover, the correlation coefficients between the percentage of employment in the primary sector and the different indicators of unemployment, for the southern Ontario (CD code from 1 to 49), show an interesting pattern. The coefficient is only -0.30 when male unemployment is considered, but rises to -0.39 when considering female unemployment, and to -0.42 when the correlation is set with youth unemployment. This suggests that the **sectoral** characteristics of the economy may have in some cases a critical influence on the characteristics of unemployment.

## 5.2. Limitations of the research

In using the results of this study it is important to keep in mind that the procedures adopted here present a number of limitations.

Firstly, the results of the factor analysis depend on the nature of the variables used in the computation. This point may seem trivial. However, it is not if we consider the large number of available variables that focus on a certain phenomena. For instance, there exist several Census variables on unemployment, aggregated or disaggregated for age cohorts and gender. The choice of one variable instead of another can, in certain cases, influence substantially the results. The selection of the appropriate variables remain certainly the most crucial and difficult step in this type of analysis. Further research, then, could attempt to integrate more variables in the analysis, as for instance environmental variables, data on consumption, investment and so on, which were not available for this study.

The use of more variables, however, will not overcome a more general restriction of the approach followed. Factor analysis consists of a wide range of techniques. In this study an exploratory approach has been adopted. On one hand, this has the advantage that the understanding of a certain situation can be “learned” rather than “imposed” by aprioristic theory. On the other hand, however, the exploratory model presents some arbitrary assumptions. In particular, it is assumed that all observed variables are directly affected by all common factors and that all common

factors are uncorrelated (or alternatively correlated) among each other. These assumptions are made regardless of their substantive appropriateness.

Two points, then, have to be made. First, the set of variables used in the analysis capture both causes and effects of certain phenomena. There has been no attempt at this stage of the research to discern between the two aspects. Second, the results emerge as mathematical relations whose theoretical appropriateness is assessed ex-post. Many of these are supported by other research or appear in line with prevailing theoretical explanation. Other results, are not supported by theory and may in fact be simply empirical relations. Therefore, the evidence that emerges from the study requires further analysis of the qualitative character of the causal relationships. Also, the use of confirmatory factor analysis models, which impose theoretically motivated constraints on the relationships among variables, can represent an appropriate alternative in further studies.

Finally, in this analysis it is assumed that the only variance of interest occurs between the observational units, which correspond to the CDs. Their internal variability is ignored. In interpreting the results, therefore, it has to be kept in mind that, for the variables used, the present analysis does not take into account the variation that might occur within the Census Divisions.

### 5.3. Suggestions for future research

The present study offers several insights that could be used to guide further research on the nature and spatial distribution of specific variables or sets of variables. Here, however, three general directions for further research are suggested.

First, a similar analysis can be run at the Census Subdivision level. In this case it would be possible to define a threshold for urban centres and exclude the CSDs that are considered urban, if one's interests were essentially rural.

Second, a similar analysis can be run with the Census data of other years. This would provide an understanding of temporal trends in spatial diversity.

Finally, as suggested in the previous section, it is possible to develop a confirmatory factor analysis and causal models. This would allow to test the relationship between variables on the base of predetermined theoretical models.

# Statistical Appendix

## Appendix I: Operational definition of the variables

The operational definition of the variables is given below. The data source is the Census of Canada 1991 for all the variable except *Value added per worker in manufacturing*. For this variable, data is taken from the SABAL database (Manufacturing and Small Business Survey). The following list explains how the variables used in this research were computed. For a detailed definition of the original variables refers to the Census of Canada 1991 definitions (Statistics Canada 1992, and 1993). The following list indicates also the code (A1 to A40) which is used instead on the variable name in the statistical analysis and in the statistical results reported in Appendix II.

- A1. ***Percentage population change 1986-1991***. Population change is often considered one of the most important indicators of economic prosperity of a locality. The variable is taken from the Census of Canada 1991 database without further computation.
- A2. ***Percentage of population less than age 20***. This and the following two variables are computed by aggregating the corresponding age cohorts available in the Census.
- A3. Percentage of population age 20-39. As previous variable.
- A4. Percentage of population age 65 and over. As previous variable.
- A5. ***Percentage of population age 5 and over in-migrant***. This variable indicates the percentage of population (5 years and over) not resident in the CD five years earlier. It is computed as: Intraprovincial migrants, Interprovincial migrants, External migrants as a percentage of the total population 5 years and over.
- A6. ***Youth migration***. This variable shows whether the CD has a net in-migration or out-migration of young people. It is computed as the percentage of the population age 20-24 in 1991 over the population age 15-19 in 1986, for each CDs. This computation assumes equal death rate for this cohort in all the CDs. A value marginally below 100 indicates net out migration of young people. A value above 100 indicate a net in migration of young people.
- A7. ***Percentage low income economic families***. This variable is taken from the Census.
- A8. Percentage low income unattached individuals. This variable is taken from the Census.
- A9. ***Percentage of lone parent census families***. This variable is considered an indicator of social stress. It is computed as the total lone-parent families divided by the total number of census families in private households.

- A10. ***Fertility rate.*** This variable indicates the children ever-born per ever-married women 15 - 44 years of age.
- A11. ***Male unemployment rate.*** This variable is taken from the Census (Unemployment rate, males age 25 and over).
- A12. ***Female unemployment rate.*** This variable is taken from the Census (Unemployment rate, females age 25 and over).
- A13. ***Youth unemployment rate.*** This variable is taken from the Census (Unemployment rate, both sexes 15-24 years).
- A14. ***Percentage of households with gross rent equal or greater than 30% of total income.*** This variable is computed as the number of private households with gross rent equal or greater than 30% of total income divided by the total number of private households.
- A15. ***Percentage of households with owner gross payments equal or greater than 30% of total income.*** This variable is computed as the number of private households with owner gross payments equal or greater than 30% of total income divided by the total number of private households.
- A16. ***Percentage of private dwelling rented.*** This variable is computed as the number of private dwelling rented divided by the total number of occupied private dwellings.
- A17. ***Percentage of private dwelling single-detached.*** This variable is computed as the number of private dwelling single-detached divided by the total number of occupied private dwellings.
- A18. **Average value of dwellings (non farm dwellings).** This variable is taken from the Census.
- A19. ***Average gross rent.*** This variable is taken from the Census.
- A20. ***Percentage population 15-24 attending school full time.*** The variable is computed as population 15-24 attending school full time divided by total population 15-24.
- A21. ***Population with schooling beyond secondary certificate as a percentage of the population age 20 and over.*** This variable is computed as the sum of people with Trades certificate or diploma, Other non-university - Without certificate, Other non-university - With certificate, University - Without degree, University - With degree, divided by the sum of the age cohorts 20 and over (males + females).
- A22. ***Percentage primary employment.*** Primary employment is calculated as the sum of employment in Agricultural and related service industries, Fishing and trapping industries,

- Logging and forestry industries, Mining (incl. milling), quarrying & oil well industries. This is divided by the total labour force 15 years and over.
- A23. **Percentage manufacturing employment.** This is calculated as the employment in manufacturing industries divided by the total labour force 15 years and over.
- A24. **Percentage dynamic services employment.** The dynamic services employment is calculated as Transportation and storage industries, Communication and other utility industries, Wholesale trade industries, Finance and insurance industries, Real estate operator and insurance agent industries, Business service industries. This sum is divided by the total labour force 15 years and over.
- A25. **Percentage traditional services employment.** The traditional services employment is calculated as Retail trade industries, Accommodation, food and beverage service industries, Other service industries. This sum is divided by the total labour force 15 years and over.
- A26. **Percentage non-market services employment.** The non-market services employment is computed as Government service industries, Educational service industries, Health and social service industries. This is sum divided by the total labour force 15 years and over.
- A27. **Percentage in intellectual and managerial occupations.** The category “intellectual and managerial” includes the following occupations (males + females): Managerial, administrative and related occupations, Occupations in natural sciences, engineering and math., Occupations in social sciences and related fields, Occupations in religion, Teaching and related occupations, Occupations in medicine and health, Artistic, literary, recreational and related occupations. The number of employed in these categories has been divided by total occupations - major groups (males + females).
- A28. **Employment income as a percentage of total income.** This variable is taken from the Census (Employment income %).
- A29. **Male participation rate.** This variable is taken from the Census (Participation rate, males 25 and over).
- A30. **Female participation rate.** This variable is taken from the Census (Participation rate, females 25 and over).
- A31 **Percentage offamilies (now married & common law couples) with one member only in the labour force.** This variable is computed as the number of families with one member only in the labour force divided by Total number of census families in private households.

- A32. *Percentage of families (now married & common law couples) with two or more members in the labour force.* This variable is computed as the number of families with two or more members the labour force divided by total number of census families in private households.
- A33. *Percentage males working at home.* The variable is computed as the number of males working at home divided by males in employed labour force.
- A34. *Percentage females working at home.* The variable is computed as the number of females working at home divided by females in employed labour force.
- A35. *Percentage males working in different CSD than that of residence.* The variable is computed as the number of males working in different census subdivision than that of residence divided by males in employed labour force.
- A36. *Percentage females working in different CSD than that of residence.* The variable is computed as the number of females working in different census subdivision than that of residence divided by females in employed labour force.
- A37. *Value added per worker.* The data to compute this variable are from the SABAL database. The variable is computed as Total Activity (Mfg. and non-mfg.) Value Added divided by Total Number of Salaried and Production Workers. In the SABAL database there are no data for two CDs: Haliburton County and Rainy River District. For these two CDs the average value of the province (Value added per worker = 79.56) has been used in the present research.
- A38. *Average female income.* This variable is taken from the Census (Average income \$, females 15 years and over).
- A39. *Average household income.* This variable is taken from the Census (Average income, household income \$).
- A40. *Percentage of households with income \$60,000 and over.* This variable is computed as the number of households with income \$60,000 and over divided by the total number of households (Household income - All private households).

Table **A.1.** Variable values, Huron County, Ontario, and range

<i>Variable</i>	<i>Huron County</i>	<i>Ontario</i>	<i>Min</i>	<i>Max</i>
Percentage population change 1986 -1991	5.50	10.80	-3.50	<b>44.00</b>
Percentage of population age less than 20	29.99	27.11	22.37	<b>33.79</b>
Percentage of population age 20-39	27.10	33.59	24.86	36.65
Percentage of population age 65 and over	16.52	11.74	6.36	19.83
Percentage of population age 5 and over in-migrant	24.93	25.25	13.90	37.68
Youth migration	76.62	108.0	67.92	128.35
Percentage low income economic families	6.10	10.90	5.30	16.30
Percentage low income unattached individuals	19.10	31.40	15.50	41.30
Percentage of lone parent census families	8.45	12.57	7.93	16.29
Fertility rate	2.08	1.62	1.39	2.14
Male unemployment rate	5.40	7.40	4.30	12.90
Female unemployment rate	5.60	7.60	4.30	10.00
Youth (15-25) unemployment rate	8.90	13.40	8.90	18.40
Percentage of gross rent $\geq$ 30% of total income	1.85	5.05	0.85	6.54
Percentage gross payments $\geq$ 30% of total income	5.42	7.57	4.26	14.83
Percentage of private dwelling rented	22.97	36.23	15.68	51.95
Percentage of private dwelling single-detached	82.14	57.58	33.25	92.37
Average value of dwellings (non farm dwellings)	116838	197967	74565	323351
Average gross rent	488	658	399	919
Percentage population 15-24 attending school full time	57.36	58.53	43.10	65.38
Population with schooling beyond secondary certificate as a percentage of the pop. age 20 and over	42.35	51.85	38.28	64.53
Percentage of primary sector employment	18.16	3.45	0.48	18.16
Percentage manufacturing employment	15.83	17.11	5.35	27.27
Percentage dynamic services employment.	15.63	24.15	11.82	31.08
Percentage traditional services employment	22.38	25.03	21.92	34.29
Percentage non-market services employment	19.80	22.39	15.68	39.80
Percentage in intellectual and <b>manag.</b> occupations	24.41	31.80	22.09	43.13
Employment income as a percentage of total income	69.10	79.00	61.50	87.60
Male participation rate	76.00	79.00	61.90	87.50
Female participation rate	56.10	60.80	47.70	70.40
Percentage of now married & common law couple families with one member only in the <b>labour</b> force	15.63	16.47	14.13	21.54
Percentage of now married & common law couple families with two or more members in the <b>labour</b> force	58.62	58.45	46.77	68.46
Percentage males working at home	22.61	6.87	3.79	23.90
Percentage males working in different CSD than that of residence	47.94	50.29	14.82	73.28
Percentage females working at home	16.26	6.76	4.65	16.26
Percentage females working in different CSD than that of residence	49.05	43.53	10.56	70.61
Value added per worker	54.61	79.46	43.90	183.59
Average female income	15345	19303	13932	22524
Average household income	43093	52225	33244	74289
Percentage census family income \$60,000 and over	19.52	32.52	12.94	55.74

## Appendix II: Factor analysis statistics

### Table A.2. Factor Extraction

Variable	Communality *		Factor	Eigenvalue	Pct of Var	Cum Pct
		*				
A1	.88701	*	1	14.92049	37.3	37.3
A10	.91443	*	2	a.57173	21.4	58.7
A11	.77733	*	3	4.03679	10.1	68.8
A12	.88426	*	4	2.77578	6.9	75.8
A13	.78751	*	5	2.01323	5.0	80.8
A14	.81298	*	6	1.49342	3.7	84.5
A15	.88587	*	7	1.24858	3.1	87.7
A16	.94935	*	a	1.08773	2.7	90.4
A17	.92854	*				
A18	.91686	*				
A19	.95655	*				
A2	.92822	*				
A20	.91965	*				
A21	.93804	*				
A22	.87863	*				
A23	.83331	*				
A24	.78229	*				
A25	.88700	*				
A26	.93317	*				
A27	.90794	*				
A28	.96122	*				
A29	.97378	*				
A3	.96059	*				
A30	.96045	*				
A31	.83895	*				
A32	.95812	*				
A33	.93582	*				
A34	.95911	*				
A35	.90218	*				
A36	.95631	*				
A37	.87197	*				
A38	.94220	*				
A39	.94779	*				
A4	.95772	*				
A40	.96651	*				
A5	.88874	*				
A6	.86220	*				
A7	.86806	*				
A8	.85008	*				
A9	.a7700	*				

# Table A. 3. Rotated Factor Matrix, Factor 1 to Factor 5

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
A1	.79088	-.43417	.07644	.12475	.16477
A5	.65096	-.37565	-.08222	.16279	.50589
A6	.72349	.44606	.17908	.24993	-.12859
A10	-.68023	-.59809	.03283	-.06045	-.25948
A15	.71112	-.36235	.14116	-.10759	.27908
A18	.88200	.07144	.08070	.20590	.14161
A19	.88459	.10351	.31503	.13721	.09065
A21	.74640	.33960	.23426	.26653	-.11537
A22	-.78232	-.36805	.17751	.20861	-.10612
A24	.75390	.16147	.25742	.09487	.19759
A27	.65063	.35744	.14397	.29285	.05997
A38	.75722	.38390	.32349	.30207	.13700
A39	.73899	.08678	.55776	.21287	.05777
A40	.72190	.08681	.61226	.14478	.05402
A3	.43529	.61501	.58725	.08061	-.07058
A7	-.19183	.68837	-.16899	-.48201	-.10551
A%	.00531	.70395	.13100	-.27722	-.21806
A9	-.12598	.77744	.03927	-.26207	-.34872
A14	.25892	.79509	.06479	-.22233	-.00704
A16	.08347	.94416	.08379	.12359	-.15705
A17	-.33186	-.85772	-.23722	-.12062	.10647
A35	-.42435	-.63200	-.23795	.45047	.17904
A33	-.45684	-.55657	-.31611	.49424	.15538
A2	-.26608	-.42006	.79116	-.02507	-.20994
A4	-.35542	-.21839	-.87055	.09485	.11564
A25	.18594	-.19049	-.66987	-.51247	-.27398
A28	.43033	.28367	.82184	.04147	.00880
A29	.40601	.15179	.77040	.38730	.03394
A30	.55762	.18410	.58495	.49577	.02350
A32	.41270	-.02122	.59953	.57145	.12372
A11	-.29086	.14941	-.27607	-.73934	-.19895
A12	-.08494	.17434	-.21290	-.86954	-.07485
A13	-.17396	.32022	-.08893	-.76019	-.21134
A31	-.29679	-.14664	.13544	-.76392	-.05925
A34	.30385	-.24180	.02954	.21603	.86727
A36	.17780	-.26497	-.06776	.24928	.88707
A20	.20039	.08523	-.04115	.04848	.05869
A23	.02461	.16647	.24767	.14423	.01718
A26	-.14800	.26213	-.06186	-.03640	-.02062
A37	.03329	-.06096	-.01414	.07550	.00155

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Table A. 4. Rotated Factor Matrix, Factor 6 to Factor 8

	Factor 6	Factor 7	Factor 8
A23	.83669	-.14588	.03503
A26	-.91215	-.05536	-.04353
A20	-.07409	.91525	.14687
A37	.05093	.12331	.91839
A1	-.00981	-.03259	-.15266
A10	-.01325	.10144	-.10711
A11	-.00653	-.07223	-.05213
A12	.07547	-.02353	-.18267
A13	.03333	.12762	-.08270
A14	.23668	.03685	-.05211
A15	.30156	.04741	-.21517
A16	-.06158	-.01401	.00234
A17	.01677	-.00864	.01429
A1%	.22727	.09915	-.05820
A19	.17617	.06021	-.04883
A2	.04751	-.02878	-.08511
A21	-.19378	.19175	.22817
A22	.07674	.13340	-.14552
A24	.11137	.18741	.16130
A25	-.15657	-.07100	.01294
A27	-.43504	.20574	.12326
A28	.12023	-.02278	.0580%
A29	.19129	-.05342	.04231
A3	-.03717	-.18629	.02115
A30	.15241	-.04326	-.04487
A31	-.29114	-.06606	.18658
A32	.29034	-.01593	-.03868
A33	.03403	.12693	-.17812
A34	.0620%	.05106	.04650
A35	.03613	.12675	-.11714
A36	-.01374	.01636	-.02008
A38	-.02798	.07491	.01962
A39	.10861	.12793	.07900
A4	.04989	-.00573	.03075
A40	.06260	.14061	.12410
A5	-.05182	-.09657	-.15059
A6	-.09373	-.13936	-.02280
A7	-.05719	.25383	-.13302
A%	-.09763	.44970	-.03421
A9	-.23786	.07364	-.05374

# Table A. 5. Correlation Matrix

	A1	A10	A11	A12	A13	A14
A1	1.00000					
A10	-.30203	1.00000				
A11	-.44486	.22766	1.00000			
A12	-.23306	.06336	.78982	1.00000		
A13	-.38052	.08684	.77611	.80236	1.00000	
A14	-.13027	-.65684	.08400	.32187	.33476	1.00000
A15	.79710	-.33493	-.29740	-.04891	-.22796	.08524
A16	-.33611	-.56736	.03454	.06314	.21792	.76157
A17	.10119	.69033	.09611	.00642	-.11826	-.76191
A18	.70261	-.64560	-.43006	-.24490	-.29565	.24745
A19	.68367	-.66546	-.47264	-.22948	-.26837	.34680
A2	.05585	.56043	-.15706	-.14294	-.06833	-.27916
A20	.09889	-.14631	-.18012	-.08671	.04494	.15277
A21	.40310	-.66675	-.42638	-.31116	-.18474	.34486
A22	-.43307	.79390	.00770	-.15003	-.09621	-.49597
A23	-.01275	-.12719	-.17902	-.09717	-.04212	.26024
A24	.54289	-.65433	-.35661	-.20128	-.25134	.29957
A25	.05195	.05943	.50766	.50133	.37386	-.03300
A26	-.21227	-.04055	.11609	.05341	.14645	-.00451
A27	.36207	-.65741	-.36245	-.34780	-.21582	.24649
A28	.26499	-.47646	-.34619	-.22903	-.13176	.42370
A29	.35755	-.38083	-.58332	-.49088	-.39645	.23376
A3	.15796	-.65908	-.21972	-.12146	-.00455	.60714
A30	.48998	-.49721	-.62432	-.54116	-.42517	.25199
A31	-.31693	.31171	.53189	.56534	.45828	-.10396
A32	.47478	-.32672	-.71254	-.63818	-.56057	.09519
A33	-.01037	.61426	-.21236	-.38733	-.43271	-.69254
A34	.50679	-.26302	-.45782	-.33448	-.44287	-.18798
A35	.04055	.61208	-.26689	-.39493	-.47404	-.71716
A36	.44342	-.17024	-.41050	-.32835	-.44055	-.26580
A37	-.00768	-.05176	-.10750	-.20573	-.10000	-.03594
A38	.49353	-.77367	-.45289	-.33643	-.25723	.39717
A39	.56150	-.56080	-.51990	-.37349	-.31059	.21778
A4	-.23855	.31674	.21422	.10559	-.01640	-.34551
A40	.55218	-.54855	-.48839	-.33673	-.25226	.22821
A5	.83636	-.34915	-.44371	-.21298	-.45244	-.10934
A6	.49635	-.70169	-.33535	-.19121	-.14922	.45072
A7	-.51714	-.18341	.59589	.57413	.64575	.57136
A8	-.32925	-.31379	.22808	.32356	.48966	.66695
A9	-.49346	-.21047	.42609	.38954	.57758	.54120

A16	A17	A18	A19	A2	A20	A21		
A16	1.00000							
A17	-.92922	1.00000						
A18	.15556	-.40200	1.00000					
A19	.19129	-.46348	.92529	1.00000				
A2	-.30493	.23122	-.24015	-.04598	1.00000			
A20	.07743	-.12213	.21373	.19866	-.17156	1.00000		
A21	.46363	-.64483	.70348	.77216	-.17666	.40922	1.00000	
A22	-.32233	.46258	-.59285	-.60795	.50232	-.13296	-.62898	
A23	.10548	-.16221	.24423	.28403	.16382	-.13778	.03590	
A24	.23124	-.48704	.81370	.81778	-.13335	.29828	.69544	
A25	-.22085	.28150	-.09574	-.20089	-.42264	-.02360	-.17723	
A26	.26564	-.14167	-.37525	-.29546	-.13052	.03346	.12852	
A27	.43661	-.58661	.60343	.64941	-.27496	.38342	.88558	
A28	.35917	-.57541	.49638	.67916	.39743	.05367	.59037	
A29	.27606	-.48579	.54400	.69306	.43693	.03834	.60168	
A3	.69939	-.82803	.46106	.59663	.10706	-.03742	.65880	
A30	.32646	-.54704	.68271	.77158	.24598	.08261	.69656	
A31	-.19711	.24753	-.45614	-.38282	.21692	-.14546	-.35093	
A32	.09596	-.30228	.58258	.67740	.35492	.06575	.50862	
A33	-.53654	.62948	-.28406	-.46739	.09053	-.02565	-.52316	
A34	-.31714	.17257	.45417	.37494	-.13692	.14536	.13494	
A35	-.60277	.67195	-.25341	-.42972	.16248	-.03171	-.50710	
A36	-.35320	.25663	.32056	.22448	-.16920	.09561	.00078	
A37	-.01468	.02946	.00953	-.02082	-.01678	.23746	.21935	
A38	.46128	-.67309	.81984	.87233	-.16805	.25194	.86060	
A39	.18568	-.45921	.81432	.91921	.14740	.24723	.79745	
A4	-.32906	.53005	-.34912	-.56830	-.53319	-.06466	-.52622	
A40	.18388	-.46553	.76308	.89247	.19987	.26286	.79672	
A5	-.31842	.13045	.60975	.55970	-.13165	.05156	.28540	
A6	.57596	-.70103	.70950	.72392	-.18515	.05407	.79545	
A7	.59619	-.47506	-.19067	-.22275	-.32986	.16520	-.06648	
A8	.65310	-.58683	-.00966	.07197	-.14423	.42386	.29327	
A9	.74508	-.63349	-.17698	-.12039	-.16515	.08104	.20197	

	A22	A23	A24	A25	A26	A27	
A22	1.00000						
A23	-.05286	1.00000					
A24	-.55882	.08673	1.00000				
A25	-.31433	-.41258	-.21811	1.00000			
A26	-.10930	-.68761	-.29781	.12165	1.00000		
A27	-.59140	-.18391	.61976	-.17970	.35390	1.00000	
A28	-.29054	.34112	.61303	-.54038	-.15789	.44777	1.
A29	-.17496	.45296	.58032	-.67906	-.25220	.45550	.
A3	-.46475	.24948	.54472	-.43148	.09489	.55448	.
A30	-.29185	.37252	.66212	-.58871	-.21939	.57071	.
A31	.11921	-.32369	-.28111	.34967	.23608	-.31619	-. .
A32	-.08518	.46438	.53710	-.67807	-.36668	.38347	.
A33	.64210	-.12032	-.40411	-.08274	-.13162	-.39877	-. .
A34	-.19518	.09273	.39891	-.25704	-.19825	.22484	.
A35	.64441	-.12685	-.34818	-.08098	-.17707	-.41012	-. .
A36	-.10415	.00993	.24287	-.21909	-.10558	.15362	-. .
A37	-.08071	.00886	.18342	-.02644	-.09485	.10160	.
A38	-.60166	.1a404	.80004	-.36357	-.04229	.84452	.
A39	-.44132	.29695	.79916	-.40781	-.25840	.67943	.
A4	.21573	-.18521	-.49222	.43546	.01100	-.39669	-. .
A40	-.44535	.25364	.79659	-.40203	-.21138	.67327	.
A5	-.38552	-.09232	.46722	.01716	-.12472	.31113	.
A6	-.64521	.13295	.60035	-.15646	.08563	.69430	.
A7	-.16498	-.14449	-.04524	.25313	.22617	-.00259	-. .
A8	-.24461	-.01618	.09111	-.06450	.29905	.29660	.
A9	-.23199	-.07261	-.06538	.06782	.45280	.21790	.

	A29	A3	A30	A31	A32	A33	
A29	1.00000						
A3	.75737	1.00000					
A30	.94077	.74898	1.00000				
A31	-.38791	-.16587	-.58613	1.00000			
A32	.92361	.54197	.93092	-.62024	1.00000		
A33	-.31437	-.70054	-.26776	-.24843	-.06085	1.00000	
A34	.23897	-.05768	.28185	-.29616	.38878	.22597	1.
A35	-.26459	-.68598	-.25301	-.16191	-.03053	.96589	.
A36	.10861	-.17197	.16387	-.28926	.28608	.36089	.
A37	.07190	.00206	.02804	.03121	.04375	-.03808	.
A38	.72605	.75041	.82699	-.46934	.67567	-.47852	.
A39	.a3703	.66896	.84826	-.32406	.77871	-.45916	.
A4	-.80016	-.81816	-.70468	-.07413	-.58131	.60275	.
A40	.83781	.69381	.83682	-.25634	.75470	-.50515	.
A5	.21873	.01615	.35215	-.32439	.38787	.13164	.
A6	.58463	.79133	.70515	-.40368	.48480	-.51670	.
A7	-.31804	.17924	-.32885	.32511	-.51522	-.39547	-. .
A8	.04389	.42741	.00133	.13390	-.14571	-.56839	-. .
A9	-.06434	.45935	-.06483	.17917	-.33511	-.52523	-. .

	A35	A36	A37	A38	A39	A4	A40
A35	1.00000						
A36	.37856	1.00000					
A37	.01348	.02971	1.00000				
A38	-.48570	.22173	.02455	1.00000			
A39	-.39990	.18466	.06348	.88369	1.00000		
A4	.53109	.17448	.03913	-.57370	-.71670	1.00000	
A40	-.44138	.15552	.11658	.86250	.98699	-.77208	1.00000
A5	.16898	.68266	-.01908	.40666	.38667	-.01869	.36364
A6	-.51722	-.02326	.03628	.81247	.66807	-.51065	.65061
A7	-.43065	-.40669	-.14995	-.08654	-.27854	-.03758	-.24589
A8	-.59183	-.46590	-.01913	.20646	.09433	-.30117	.12991
A9	-.60457	-.56403	-.10585	.11149	-.10019	-.24324	-.06196

	A5	A6	A7	A8	A9
A5	1.00000				
A6	.30407	1.00000			
A7	-.51134	.02492	1.00000		
A8	-.45002	.29158	.72672	1.00000	
A9	-.60487	.28621	.77392	.72037	1.00000

## Correlation matrix tests

Bartlett's test of sphericity was used to test the hypothesis that the correlation matrix is an identity matrix (with diagonal terms equal 1 and off-diagonal terms equal zero). The result of the test is reported below. The value of the Bartlett test is large and the associated significance level is small. Hence, it appears unlikely that the correlation matrix is an identity, and the hypothesis can be rejected. Also the **Kaiser-Meyer-Olkin** measure of sampling adequacy indicate an acceptable value in order to proceed with a factor analysis (minimum value suggested is 0.5)

Bartlett Test of **Sphericity** = 3641.6098, Significance = .00000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = **.63092**

## Table A.7. Factor Scores, Factor 5 to Factor 8

<i>code Census Division</i>	Factor 5	Factor 6	Factor 7	Factor 8
40 <b>Huron County</b>	-0.21	0.16	0.34	-0.98
01 Stormont, Dundas and Glengarry	0.30	0.68	0.75	-0.22
02 Prescott and Russell	2.16	-0.94	-0.85	-0.33
06 Ottawa-Carleton Regional Municip.	0.45	-2.93	0.16	-0.03
07 Leeds and Grenville	1.06	-0.26	-0.64	1.61
09 Lanark County	1.20	-0.52	-0.16	1.24
10 Frontenac County	0.18	-2.27	-0.25	0.34
11 Lennox and Addington County	2.02	-0.41	0.08	-0.45
12 Hastings County	0.79	0.29	-0.34	0.32
13 Prince Edward County	1.35	-0.14	0.90	-0.59
14 Northumberland County	1.02	0.52	-0.79	0.30
15 Peterborough County	-0.56	0.16	0.53	0.66
16 Victoria County	0.98	0.61	0.27	-1.15
18 Durham Regional Municipality	1.06	0.46	-0.17	0.74
19 York Regional Municipality	-0.02	-0.38	2.06	-1.28
20 Toronto Metropolitan Municipality	1.09	0.48	0.10	-0.05
21 Peel Regional Municipality	-0.13	1.12	-0.29	-0.68
22 Dufferin County	0.79	0.74	-0.46	-0.68
23 Wellington County	-0.47	0.21	-0.29	0.26
24 Halton Regional Municipality	-0.16	0.04	0.97	1.08
25 Hamilton-Wentworth Reg. Munic.	0.11	0.90	0.06	-0.19
26 Niagara Regional Municipality	-0.58	0.90	0.36	0.31
28 Haldimand-Norfolk Reg. Municipality	-0.03	0.78	0.36	-0.27
29 Brant County	-0.68	1.37	-0.22	-0.38
30 Waterloo Regional Municipality	-0.58	1.18	-1.05	-0.61
31 Perth County	-1.16	1.22	-0.84	-0.47
32 Oxford County	-0.27	1.42	-0.49	-0.68
34 Elgin County	0.58	1.40	-0.29	-0.58
36 Kent County	-0.38	1.18	0.24	-0.61
37 Essex County	-0.25	1.21	0.24	0.91
38 Lambton County	-0.39	0.63	0.96	3.99
39 Middlesex County	-2.00	-0.21	-0.39	0.28
41 Bruce County	0.47	-0.12	1.82	3.16
42 Grey County	0.00	0.36	0.09	-1.18
43 Simcoe County	0.43	0.31	-1.02	-0.25
44 Muskoka District Municipality	-1.79	0.10	-1.15	0.41
46 Haliburton County	0.12	-0.08	-1.74	0.12
47 Renfrew County	1.65	-1.18	-1.34	-0.08
48 Nipissing District	-1.01	-1.07	1.09	-1.06
49 Parry Sound District	0.76	-0.50	0.33	-0.95
51 Manitoulin District	-1.25	-2.16	2.01	-1.14
52 Sudbury District	0.45	0.08	0.06	0.02
53 Sudbury Regional Municipality	-0.64	-0.90	1.61	-0.47
54 Timiskaming District	0.61	-0.59	1.37	-0.67
56 Cochrane District	-1.18	-0.13	-0.08	-0.42
57 Algoma District	-1.47	0.16	1.14	-0.53
58 Thunder Bay District	-2.05	-0.65	-0.57	0.79
59 Rainy River District	-1.36	-1.19	-1.01	0.37
60 Kenora District	-1.01	-2.03	-3.46	0.07

**Table A.6. Factor Scores, Factor 1 to Factor 4**

<i>code</i>	<i>Census Division</i>	<i>Factor 1</i>	<i>Factor 2*</i>	<i>Factor 3</i>	<i>Factor 4</i>
<b>40</b>	<b>Huron County</b>	<b>-1.39</b>	-1.20	<b>-0.12</b>	<b>2.11</b>
01	Stormont, Dundas and Glengarry	<b>-0.97</b>	0.66	-0.26	0.41
02	Prescott and Russell	-0.62	-0.02	1.37	0.26
06	Ottawa-Carleton Regional Municip.	1.14	2.04	0.20	<b>1.59</b>
07	Leeds and Grenville	-0.29	0.11	-0.61	0.68
09	Lanark County	-0.21	0.07	-0.26	0.52
10	Frontenac County	0.59	1.50	-0.65	0.97
11	Lennox and Addington County	-0.39	-0.15	0.22	-0.43
12	Hastings County	-0.10	0.68	-0.66	-0.90
13	Prince Edward County	-0.44	-0.46	-1.13	<b>1.01</b>
14	Northumberland County	0.13	-0.51	-0.46	0.14
15	Peterborough County	0.57	0.02	-1.32	-0.32
16	Victoria County	0.35	-0.91	-1.03	-0.50
18	Durham Regional Municipality	1.39	-0.35	1.66	-0.62
19	York Regional Municipality	3.30	-1.92	1.75	-0.09
20	Toronto Metropolitan Municipality	1.06	3.25	-0.95	0.11
21	Peel Regional Municipality	1.97	0.30	1.59	0.04
22	Dufferin County	0.83	-1.23	1.42	0.30
23	Wellington County	0.43	0.11	0.60	1.11
24	Halton Regional Municipality	<b>1.97</b>	-0.55	0.94	0.69
25	Hamilton-Wentworth Reg Munic.	0.08	1.78	-0.40	-0.62
26	Niagara Regional Municipality	0.17	0.43	-0.72	-0.69
28	Haldimand-Norfolk Reg Municipality	-0.90	-0.75	0.45	1.10
29	Brant County	-0.13	0.72	-0.31	-0.02
30	Waterloo Regional Municipality	0.54	1.04	0.47	0.37
31	Perth County	-0.93	-0.38	-0.02	2.56
32	Oxford County	-0.75	-0.01	0.08	1.32
34	Elgin County	-0.96	-0.00	0.36	0.25
36	Kent County	-1.08	0.39	0.18	0.34
37	Essex County	-0.30	0.84	0.10	-1.38
38	Lambton County	-0.46	-0.38	0.38	-0.27
39	Middlesex County	0.81	1.25	-0.50	1.18
41	Bruce County	-0.64	-1.48	0.01	0.63
42	Grey County	-0.23	-0.57	-0.86	0.68
43	Simcoe County	1.02	-0.45	-0.04	-0.30
44	Muskoka District Municipality	1.46	-1.14	-2.01	-0.23
46	Haliburton County	1.17	-1.63	-3.01	-1.84
47	Renfrew County	-0.89	0.30	0.15	-0.52
48	Nipissing District	0.12	0.65	-0.14	-1.21
49	Parry Sound District	0.17	-0.95	-1.82	-1.04
51	Manitoulin District	-1.01	-1.37	-1.19	0.66
52	Sudbury District	-1.30	-0.50	0.91	-1.85
53	Sudbury Regional Municipality	-0.25	0.79	0.60	-0.49
54	Timiskaming District	-1.52	0.40	0.27	-1.08
56	Cochrane District	-1.06	0.31	1.69	-2.09
57	Algoma District	-0.63	0.64	0.34	-1.82
58	Thunder Bay District	-0.18	0.47	0.50	-0.01
59	Rainy River District	-0.99	-0.82	0.58	-0.30
60	Kenora District	-0.63	-1.03	1.61	-0.45

\*Factor scores inverted for leading/lagging status, i.e. York R.M. (19) has highest positive leading score.

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# Commentaries

## Part 1

Leading and Lagging Areas in Ontario: Huron County in the Provincial Context, *Alessandro Alasia*

The Demographic, Social and Economic Diversity of Rural Small Town Southern Ontario, *Phil Keddie*

### John Gillespie:

**Research Utility-In** my experience there are several reasons for supporting and conducting labour market research. Firstly, new information can be brought to light. For example, we learn that manufacturing employment is increasing again, when until recently it was generally understood that employment in the manufacturing sector was on the decline. This information is very useful for counsellors and others who assist the unemployed in job searches.

Another use is confirming commonly held beliefs and assumptions. "Facts" are frequently developed based on opinion and anecdotal experiences. These views are sometimes unsupported by analysis and their validity can be the focal point of disagreement. If methodology is not disputed, research can eliminate disagreements that focus on the validity of underlying values, assumptions and beliefs. Further analysis/interventions can be developed with assurances that the basic components of the issue under review are correct.

Conclusions and recommendations frequently point to possible interventions. The process of labour market adjustment is based on identifying areas where the labour market is not functioning in an appropriate manner. The identification of issues can also lead or point to interventions that will address the issues.

Research investigates and frequently tests specific issues. In so doing a methodology is developed which can point to a useful indicator. Indicators (i.e. rate of unemployment, number of people employed) are very useful in ongoing monitoring of progress but tend to be difficult to develop. Frequently useful research provides new ideas on potential indicators.

Finally while most research is designed to answer specific questions, it also can identify areas requiring further analysis. This tends to broaden the understanding the labour market. "More is better": different perspectives provide different insights and ways of looking at situations.

Based partly on this book of research papers, the Huron Business Development Corporation has initiated a review of the New Rural Economy in Huron, using indicators drawn from the census as well as locally. In fact what we are seeing will develop into a model that will be used to monitor on an ongoing basis the performance of the Huron economy. While a reasonable assessment of Huron's economic performance can be obtained every five years through an analysis of census data, an accurate and more timely (annually?) analysis would be very useful in identifying trends as they emerge and measuring the effectiveness of the economy in achieving desired results.

The introduction of **concepts**—sustainability, drivers of the local economy, how healthy is the Huron economy, how to monitor and how should communities respond to this **information**—raises what I believe is an issue requiring further investigation. Is there a consensus in the community as to the goals expected of the economy? It appears that, generally, employment and the development of greater employment opportunities are common expectations. But at the same time there appears to be a desire to keep things the way they are: that is to say, a very slowly growing population with an economy being driven by a single dominant industry, agriculture. Further **information** on the **outcome** of this HBDC initiative can be found in the Final Comments.

**The Demographic, Social and Economic Diversity of Rural and Small Town Southern Ontario (Phil Keddie)-While** Keddie's work is extensive, covering an area larger than Huron County and looking at as many as fifteen variables, one conclusion is very evident. There is a high degree of diversity focusing on urban and rural issues in rural southern Ontario. This concept challenges a commonly held assumption of social economic uniformity in rural Ontario. Traditional **labour** market intervention design assumed uniformity. Future design will have to consider the possibility that employment related issues might not be the same for all rural residence. The needs of people living in towns and villages may be different than those living in rural areas. This would suggest that intervention design should consider these differences. As an example, the issue of overcoming transportation problems may require two different types of solutions.

Two interesting conclusions are (1) that most people in rural communities live in urban settings and (2) a confirmation of a commonly held belief that there is a net out migration of youth in rural areas.

**Leading and Lagging Areas in Ontario: Huron County in the Provincial Context (Alessandro Alasia)-This** study, like Keddie's work, uses census data to draw conclusions about the nature of communities in Ontario. It groups 40+ variables into four main factors or groups and compares Huron and other census divisions in Ontario to the provincial mean or average. A community is considered leading if it is above the provincial average in a factor, neutral if around the average, and lagging if below the average. Huron leads in social-economic stress and employment levels, is neutral in **labour** force participation, and lags in economic dynamics. This study will be criticized by some who will point out that the four groupings or factors are arbitrary and in fact reflect a subjective bias in the groupings. Huron lags in economic dynamics largely as a result of the assumption that it is not desirable for a community to have a reliance on a single industrial sector for a large portion of its economic activity. Everyone in the Huron community may not hold this value. Is there a broadly based consensus in the community on this issue? If the community desires increased economic activity, does it understand the implications in terms of change away from the current situation that would occur as a result? As mentioned earlier, a community-based discussion on this topic would be an interesting undertaking.

This study offers a model for monitoring development and allows for a means to make judgements on the desirability of changes in the community over time. A review of Huron's position using 1996 census data would identify changes that have occurred over the first five years of the 1990s. Using this mode, a review of Huron by census subdivision may indicate if there are areas within the county that leading and/or lagging and in what factors.

# Paul Nichol:

Understanding the health of your local economy is as much about knowing what to look for, as it is about actually measuring what is going on. Often, economic activity has been measured solely in over-simplistic units (e.g., the unemployment rate) that do not give an accurate representation of what is happening in the local economic system. It's a bit like determining the overall efficiency of your car's engine by looking only at the speedometer.

This initial set of papers makes the argument that rural communities, including Huron, are diverse, and made up of economic elements that work independently of one another or move in opposing directions. For example, this research confirms that Huron's low unemployment rate does not suggest a booming economy. In this case, it means that we tend to export our social problems to the next closest metropolitan area where our unemployed can find work. Failure to acknowledge this type of dynamic can lead to a denial of the problem, and a denial of the need for intervention.

In the past, policy-makers often considered Huron County to be a relatively strong economic area. In the early years of this decade, efforts to bring in employment creation programs like "Community Futures" were hindered by lack of an established need based solely on low unemployment rates. Once the economic analysis was taken to deeper levels and the weaknesses of the local economy highlighted, this misperception was altered. As a result, the Community Futures Program is now in its sixth year of operation in Huron County.

The work carried out by Keddie and Alasia has now been integrated into a Huron County **Labour** Market Information Program or (**LMI**). As a result of these findings, both the variables of analysis and conclusions about what is happening to the Huron County economy have taken on new dimensions.

One most recent product of this approach has been a quarterly **labour** market review distributed to over 200 community, business and political organizations throughout the County. The review disseminates findings on current economic activity with the aim of improving awareness of local trends and their potential impacts.

The second product is a "State of the Huron County Economy" report prepared by local researchers. This reports follows upon the work of Keddie and Alasia to outline changes in the local economy for the 1991-96 period. This information is being shared at board meetings and town hall forums throughout Huron County as a means of generating discussion on alternatives for the future.

On a cautionary note, practitioners in the field of community economic development must distinguish between variables that they can influence, and those that they cannot. Presumably, high levels of out-migration might be addressed by initiatives that create career opportunities closer to home. Workforce participation rates, on the other hand, are affected by factors such as attitude, disposition and family circumstances. This distinction becomes increasingly important as organizations like Community Futures Development Corporations or Municipal Economic Development Departments attempt to measure the impact of their interventions, as opposed to measuring the economic climate in which they operate.

## Keith Roulston:

For an amateur involved in community development in Huron County for 25 years, the seven studies in the Dynamics of the New Rural Economy series statistically confirm observations on the nature of the local economy rather than present any surprises.

As participants in Susan Welke's and David Douglas' study (New Rural Enterprises in Huron County) pointed out, the New Rural Economy is an extension of, or continuation of, the Old Rural Economy. Huron has **always** been an exporting county: exporting its plentiful agricultural production for others to process and exporting its young people to be educated for the kinds of jobs they won't find in their home community.

In his study (The Demographic, Social and Economic Diversity of Rural and Small Town Southern Ontario), Philip Keddie confirms that Huron and the other counties of the old Huron Tract have essentially been exporting young people since late in the past century. This has often led to the perception that Huron is populated by old people, but the surprise in Keddie's report is that the six-county area studied has a higher proportion of its population in the under-nineteen age group than the province as a whole, the result mostly of farm families which tend to have more children. Not surprising was the other end of the spectrum where the area had more people over 65 than the provincial average. The greatest discrepancy between the local population and the provincial average was in the 20-39 age group where there are more than 5 per cent fewer people in the study area. Looking specifically at Huron County, Keddie observes that by the time the group that was 15- 19 years of age in the 1986 census reached the 20-24 age group for the 1991 census, there was only 76.6 per cent of the number in the county.

Otherwise, Keddie confirms general observations: income levels and levels of education are highest in the portion of the study area where people can commute to a city-Kitchener, Waterloo, Guelph, Toronto, Stratford or Owen Sound-and in the area where the Bruce Nuclear Power Development provides high-skilled, high-paying jobs. His statistics show that the areas of fastest growth are in Dufferin and Wellington counties, where people can commute to good jobs while having the amenities of a rural life, indicating that many people would like to live in a place like Huron County if only they could **find** jobs that let them use their skills and provide suitable remuneration (one wonders how many of the people who seek the lifestyles of these areas originally came from places like Huron County before they went off to school).

The attractive lifestyle offered by Huron County is documented by Alessandro **Alasia** (in Leading and Lagging Areas in Ontario: Huron County in the Provincial Context). Studying four factors, **Alasia** found Huron a leading area in two, socio-economic stress and unemployment levels. In the first factor, the rural trends of owning your own home and below-average levels of poverty give the county the sixth highest ranking in the province. Meanwhile, in the unemployment factor, Huron has the second-highest score in the province in providing jobs for those who live here, perhaps due to the fact it has, ironically, the lowest level of youth unemployment in the province. Perhaps that is because young people left, probably because, as **Alasia** also finds, Huron is near the bottom of the rankings in economic dynamics. Interesting is **Alasia's** rating of variables which gives a negative value to high fertility rates (which farm households have) and to the percentage of population employed in the primary sector, including farming. In other words, just being a farming area defines the county as not having a high ranking in economic dynamics, despite the fact that Huron is the leading agricultural county east of Manitoba.

## Tony Fuller:

It is both easy and hazardous to learn about one's own area from a contextual set of studies like the ones here. It is easy to see where Huron County stands in relation to several other standard indicators for counties across the province. For example, unemployment is noticeably low compared to other places. Both Keddie and Alasia observe this from the secondary (published) data, as it stands out as one of the distinguishing features of the county. However, although this is an important observation, there is very little one can derive from the statistics that **explains** why the county has low unemployment, although both authors offer some plausible explanations (for example, unemployed youth leave the county to find jobs-unemployment is exported away from the county). The fact remains, contextual studies generate more questions than answers and it is unwise to press them too far to support foregone conclusions.

Notwithstanding this caution, the first section illustrates rural research at its best, highlighting many interesting and important characteristic features of the county vis à vis the surrounding counties and the southern part of the province as a whole. Keddie points out the not inconsiderable differences between towns and townships, what he refers to as places (towns) and spaces (townships). The demographic differences are the strongest. For example, the town populations comprise more than 20 per cent elderly (more than 65 years of age) and townships less than the provincial average (8 per cent). This difference is compounded by economic specialization in the townships (agriculture) and diversity in the towns. Although these differences are obvious when you think about them, they are demonstrated clearly from the statistics and are consistent across the region as a whole. Such work falls into the category of "confirming suspicions."

It is interesting to note, however, that many of these single characterizing features load together when analyzed in a factor analysis. Alasia's work calls **economic dynamics** a factor containing demographic and economic variables which load **as** opposites in the mix. Areas (census sub-divisions) which have high average incomes, high rents, and high education levels load together with low employment in agriculture (i.e., low farm incomes as reported). This is an indicator of areas with good economic dynamics, but doesn't include Huron County. The county, in fact, is next to the bottom census sub-division in all of southern Ontario in terms of economic dynamics, presumably because the economic strengths of townships (spaces) and towns (places) are diluted by being joined together and because Huron includes large tracts of agriculture and (economically speaking only) large, unproductive age groups of people (the elderly). Keddie also points out that this is because Huron is a long way from any direct urban influence such as that which would affect housing prices, etc.

Engaging in this speculative discussion based on comparative research findings provides an important community payoff. It is useful to be able to use these statistics in imaginative ways to stimulate discussion among local residents, taxpayers, business people and the like, so that awareness of how and why their community compares vis à vis other places and spaces becomes more apparent. Agencies promoting the county for business investment or tourism development for example can choose those combined statistics that best assist their purpose.

The main conclusion is that both reports illustrate the vast breadth of information that can be generated for local areas from statistics that are in the public domain. In the era of the information society where information has increasing "power," the more familiar local agencies are with what is available and how to interpret it, the better off and more confident they will be, especially in making strategic **planning** decisions. **Interpreting** the data is **up** to the individual **groups** and

organizations. Is the fact that Huron County has low economic dynamism a bad or good thing? Arguments can be made either way. A mixed economy, based significantly on agriculture, is bound to produce only average results economically, but may be considered to be relatively stable and therefore socially more desirable. Low unemployment seems like a good thing, but does it mask an area in which fragmented, part-time, poorly paying jobs are the norm (characterized as the working poor) or is it more likely that low unemployment indicates high levels of income and job security? Clearly much more research has to be done to answer these more searching questions. From my reading of the papers in section one, the obvious question that arises is whether low unemployment is in fact associated with low economic dynamism