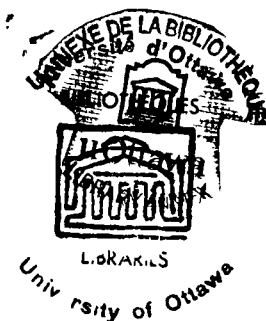


ECONOMIC GROWTH OF EASTERN ONTARIO  
- TREND AND STRUCTURAL ANALYSIS  
by R. C. SAUVÉ



Thesis presented to the  
Faculty of Social Sciences of the  
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CHAPTER I  
INTRODUCTION

Eastern Ontario is frequently called "The Golden Triangle". The object of this thesis is to examine whether the "Gold" is glittering or whether it has become tarnished over the years.

The above paragraph sets out the main preoccupation of this thesis which is concerned with a study of the economy of Eastern Ontario in a structural framework. It deals with the following three questions:

- (i) What has been the economic growth pattern of Eastern Ontario?
- (ii) What have been the main determinants of this growth pattern?
- (iii) What are the implications of this growth pattern for the future development of the region?

The time span of the study is 1950 to 1966. The county forms the basic geographical unit and comparisons are made as between counties and between Eastern Ontario and Ontario as a whole. Intra-county distinctions are also made for rural farm, rural non-farm and urban areas.

The analysis attempts to utilize regional growth theories and related techniques of measurement and apply them to the Eastern Ontario region where relevant.

The thesis is so constructed that each succeeding chapter builds on previous chapters so that the full significance of any statement must be taken in the context of the thesis as a whole.

Chapter II advances and analyzes three theories which have been advanced to explain regional economic growth namely, the staple base theory, the sector or stage theory, and the role of urban centres.

Chapter III discusses various simple techniques which can be used to measure trends and changes in structure in each county. These are made up of ratios, coefficients, and indexes which can be applied to the limited data available on the county level.

The remaining chapters IV to VIII analyze and attempt to explain the structural characteristics of each of the eleven counties. Chapter IV investigates the population characteristics such as the concentration and redistribution of population, urban and rural distributions, sex ratios, education, and age groups.

Chapter V is concerned with the economically productive element of the population i.e. the labour force. Factors which are considered are participation rates, unemployment rates, shifts in labour force, location

quotients, localization of industry, area type quotients, and industrial specialization.

Chapter VI is an endeavour to describe and explain the functional structure of the region. General inter-actance of regional centres with both inside and outside points is examined using telephone and highway traffic data as well as industrial classification and source of capital.

Chapter VII is concerned mainly with the measurement of the levels and changes in levels of incomes in Eastern Ontario and in each of the counties. Income data for urban, rural non-farm and rural farm are used to measure the prosperity or deprivation in the various counties. This section contains a county by county summary of the principal features which are influential in the attainment of the varying levels of income.

Chapter VIII summarizes the main findings and conclusions reached in earlier chapters. Each of the eleven counties is classified into one of three categories, i.e. prosperous, in-between, and disadvantaged. These three classifications are examined in more detail to distinguish the stage of development and the chief staple base of each type of county. The different type of urban centre associated with each county classification is also considered. Finally an approach to regional problem identification is outlined.

Introduction

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In general this thesis is concerned with the study of economic growth in Eastern Ontario both from a theoretical and empirical point of view and is not policy orientated in that few suggestions are made as to the manner in which specific problems should and could be solved.

CHAPTER II  
REGIONAL GROWTH THEORIES

Regional economic growth and development has occasioned much academic research and theorizing. John Friedmann and William Alonso believe that from a theoretical standpoint, two questions assume importance: (1) How is economic growth spatially differentiated, and (2) what accounts for differential patterns and sequences of growth?<sup>1</sup>

An attempt to answer both questions with respect to Eastern Ontario will be made in the next chapters. This chapter will elaborate and discuss three specific theories which have been advanced to answer the second question.

A The Staple Base

The staple base theory of regional economic growth is also known as the export base approach or the multiplier theory of growth.

The staple approach to the study of economic growth is primarily a Canadian innovation: indeed it is Canada's most distinctive contribution to political economy. The specific terminology - staple or staples

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<sup>1</sup>John Friedmann and William Alonso, eds., Regional Development and Planning, A Reader (Cambridge, the M.I.T. Press, 1964), p. 8.

approach, or theory, or thesis - is Canadian and the persistence with which the theory has been applied by Canadian social scientists and historians is unique.<sup>2</sup>

This approach in Canada is attributed to the work of Harold Innis. In its modern context, this theory has been developed further by Douglass North to explain regional economic growth.

The fundamental assumption of the staple theory is that staple exports are the leading sector of the economy and set the pace for economic growth. Economic development will be a process of diversification around an export base. The central concept of a staple theory, therefore, is the spread effects of the export sector, that is, the impact of export activity on domestic economy and society.<sup>3</sup>

The term "staple" refers to the chief commodity produced by a region. In the earlier work of Innis on staples, the staple was usually thought as describing a product of the extractive industry. In the modern North context, the export commodities of a region may include products of secondary or tertiary industry as well. North

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<sup>2</sup>M. H. Watkins, "A Staple Theory of Economic Growth" in Approaches to Canadian Economic History, edited by W. T. Easterbrook and M. H. Watkins, (Toronto, McClelland and Stewart Limited, 1967), p. 49.

<sup>3</sup>Walter Isard, Methods of Regional Analysis: An Introduction to Regional Science, (Cambridge, The M.I.T. Press, 1960), pp. 53-54.

uses the term "exportable commodities" (or services) to denote the individual items and the export base to denote collectively the exportable commodities (or services) of a region. In young regions, typically dependent on extractive industry, North's exportable commodities and Innis' export staples are synonymous.<sup>4</sup> In this thesis the staple or staples will refer to the modern denotation.<sup>4b</sup>

The measure which is used in this thesis to measure staples is the "location quotient". This location quotient is examined more closely in Chapter III but basically the quotient measures the relative concentration of employment in a given industry in one area (Eastern Ontario in this thesis) with another area (Ontario in this case). Industries which are staples are assumed to sell some of their output outside the region and will show values significantly above 1.00.

The staple base theory assumes the resource base of the region and the rest-of-the-world environment to be given as well as the rest-of-the-world demand for the supply of goods and factors, the rest-of-the-world transportation and communication networks, and the rest-of-the-world power structure. The staple base and its characteristics will therefore supply the basis for the makeup of the region.

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<sup>4</sup>Douglass C. North, "Location Theory and Regional Economic Growth" in Friedmann and Alonso, loc. cit., pp. 244-245.

<sup>4b</sup>In this thesis staple is used interchangeably with "an industry for which employment is relatively more important than for some larger area."

The question to be answered now is what is the role of the staple base in shaping the internal structure of the economy

The important determinant is the technology of the industry, that is, the production function, which defines the degree of factor substitutability and the nature of returns to scale. With the production function specified a number of things follow: (a) demand for factors; (b) demand for intermediate inputs; (c) possibility of further processing and (d) the distribution of income. These determine the range of investment opportunities in domestic markets, or the extent of diversification around the export base.<sup>5</sup>

The inducement to domestic investment resulting from the expansion of the staple sector can be classified into three linkage effects: backward linkage, forward linkage<sup>6</sup> and final demand linkage.

Backward linkage is a measure of the inducement to invest in the home-production of inputs, for the expanding staple sector. The staple goods production function and the relative prices of inputs will determine the types and quantities of input required. The greater the inputs which can be produced within the region, the greater will be internal growth of the region due to the backward linkage.

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<sup>5</sup>Watkins, loc. cit., p. 54.

<sup>6</sup>A. O. Hirschman, The Strategy of Economic Development, (New Haven, Yale University Press, 1958), Chapter 6.

The forward linkage is a measure of the inducement to invest in industries using the output of the staple industry as an input. Within a region industries may prosper which can use the output of the staple base as an input for a product and thus increase the growth of the region. Services such as transportation facilities may also develop to ship heavy staple goods out of the region. The staple base may contain goods and services which (a) are sold directly outside the region and/or (b) are used as an input for another commodity, within a region, which commodity is then sold outside the region.

Final demand linkage is a measure of the inducement to invest in domestic industries producing consumer goods for factors in the staple sector. The size of this final demand linkage depends mostly on the size of the domestic market which in turn depends on the aggregate and distribution of income within a region. The distribution of income of the staple base affects the size of the market as illustrated by the following:

A dramatic example here is the contrast between the nineteenth century plantation system in the Southeast with its highly unequal distribution of income from the production of cotton and tobacco--and the extremely limited local markets that developed-- compared with the independent farmer production system of the Midwest with its broad income base and its growing markets for local goods and services.<sup>7</sup>

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<sup>7</sup>Harvey S. Perloff, How a Region Grows (New York, Committee for Economic Development, 1963), p. 35.

The final demand linkage will tend to be higher, the higher the average level of income and the more equal its distribution.<sup>8</sup>

The staple sector also influences the character of the labour force. The types of skills required, the seasonality of employment, and the conditions of work will shape the social attitudes of the working force.<sup>9</sup>

The staple base also plays a role in the development of nodal areas or cities in a region. North states that nodes grow up because of special locational advantages that lower the transfer and processing costs of exportable commodities. Nodal centres become trading centres through which staples leave the region and imports enter for distribution throughout the area. Here special facilities develop to implement the production and distribution of the staples. Subsidiary industries to the staple industry, as well as specialized banking, brokerage, wholesaling and other business services, concentrate in these centres and act to improve the cost of the staple. North refers to the above as "external economies" to the region's staple industry.<sup>10</sup>

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<sup>8</sup>Watkins, loc. cit., p. 56.

<sup>9</sup>North, loc. cit., p. 248.

<sup>10</sup>Ibid., p. 248.

North also believes that the staple plays a vital role in the cyclical sensitivity of the region; it acts as the "carrier" in diffusing changes in the level of income from other regions to the subject region. Furthermore the sensitivity of the region to fluctuation depends on the income elasticities of the staples. Regions that specialize in a few products with high income elasticities will have more violent fluctuations in income than more diversified regions.<sup>11</sup>

According to this theory, therefore, the growth of a region is tied to the success of its staple base. Several factors are responsible for the growth, decline, and change in the staple base. The decline of one exportable commodity must be accompanied by the growth of others, or a region will be left "stranded".<sup>12</sup>

Many reasons may be cited for a decline in an existing exportable commodity in a region; changes in demand outside the region, exhaustion of natural resources, increasing costs of land or labour relative to those of a competing region, and technological changes that change the relative composition of inputs. Growth in new staples can be induced by: (a) major developments in transport to the

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<sup>11</sup> Ibid., p. 247.

<sup>12</sup> Ibid., p. 251.

advantage of the region; (b) growth in income and demand in other regions; (c) technological development; (d) role of government in building social overhead capital. Old staples can also grow due to changes in tastes or incomes, or an improvement in the processing or transfer cost position of the region's staples.

As the staple commodities grow in size and number, the internal structure of the region will also change bringing with it the industries attached to it by the three types of linkages.

Internal regional development takes the form both of internal structural changes (such as an increase in the proportion of the labour force employed in "advanced" manufacturing and service industries) and an expansion of the local market for all sorts of goods and services. As the regional market expands and region-serving activities proliferate, conditions may develop for self-reinforcing regional growth, and new internal factors may become important in determining the rates of regional growth. This happens when more and more industries are attracted by the external economies associated with social overhead capital and the agglomeration of industries, as well as by the desired internal economies of scale which can be achieved when producing through a branch plant on a large-enough scale.<sup>13</sup>

The effect of the above is to broaden the staple base and result in a region which is more diversified. As the region matures, the staple base will become less

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<sup>13</sup>Perloff, loc. cit., p. 35.

distinguishable, since its production will be so varied.<sup>14</sup>  
The basic tenet of this theory is that the export base or staples provide the necessary prerequisite for regional growth and give the region its internal structure.

#### B The Sector Theory

The economic sector theory has been advanced by such authors as Colin Clark, Allan Fisher and Simon Kuznets.

Kuznets examined the experience of growth of the forty-eight states in the United States for the year 1919-21 to 1955. He found that among regions (states) per capita income is: (1) negatively associated with the shares of agriculture and related industries in income and labour force; (2) positively associated with the shares of mining, manufacturing, and construction in income and labour force; (3) positively, but weakly associated with the shares of all service activities in income and labour force. Over time, in the majority of states there has been: (a) a decline in the share of agriculture and related industries in income and labour force; (b) an appreciable increase in the share of mining, manufacturing and construction in income and a slight increase in the share of this sector in

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<sup>14</sup>North, loc. cit., p. 253.

labour force; and (d) a slight increase in the share of all service activities in income but a fairly substantial increase in the share of this sector in labour force. Also, over time, the faster this change in the industrial structure of a state, the faster the rate of growth of its per capita income.<sup>15</sup>

The main reasons for this change over time in the relative importance of the different sectors are different elasticities of demand for their product and differential rates of change in labour productivity. The sector theory focuses on internal rather than external development: economic growth is seen as primarily an internal evolution of specialization and division of labour, although external shifts in demand are not ruled out as of no importance.<sup>16</sup>

Proponents of this sector or stages theory of regional economic growth see sector shifts as providing the main dynamics of economic advance both in terms of growth in the volume of economic activities and in terms of improvements in per capita income.

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<sup>15</sup>Simon Kuznets, "Quantitative Aspects of Economic Growth of Nations: III, Industrial Distribution of Income and Labour Force by States, United States, 1919-21 to 1955". Economic Development and Cultural Change, Vol. 6., Part II (July 1958).

<sup>16</sup>H. S. Perloff, E. S. Dunn, Jr., E. F. Lampard, and R. F. Muth, Regions, Resources and Economic Growth, (Baltimore, the John Hopkins Press, 1960), p. 59.

Regional Growth Theories

Both North and Perloff have summarized what is usually understood to be the normal sequence of stages through which a region advances.

- (i) A stage of self-sufficient subsistence economy.
- (ii) With improvements in transport, the region develops some local specialization in primary activities and develops interregional trade;
- (iii) There is an introduction of "secondary" industries (mining and manufacturing) -- which are called for because of the increased pressures from growing population and diminishing returns in the primary activities, as well as of the necessary social overhead facilities to support them;
- (iv) A shift from a concentration on processing of farm and forest products and the simpler branches of textile, leather and clothing industries as well as on mining and mineral reduction to more diversified industrialization based on internal linkages and rising incomes;

Regional Growth Theories

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- (v) A final stage of regional growth is reached when a region specializes in tertiary industries producing for export. Such a region exports to less advanced regions capital, skilled personnel and special services.<sup>17,18</sup>

The main implication of this theory is that the region can encourage growth by moving rapidly through the various stages by such methods as encouraging more social overhead in transportation, etc. Also the region can attempt to attract those industries which are considered the "growth" industries in each stage of development.

Both the staple-base and sector stages theory help the economist to understand regional economic growth. The export base theory is valuable in emphasizing the role which is played by external markets in developing a particular region while the sector theory shows the internal transformation which can occur and which may encourage further growth. In Eastern Ontario the various counties have reached different stages in the above scale of economic growth. As will be seen, those which are on the lower scale usually reveal lower levels of per capita income.

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<sup>17</sup> Ibid., p. 59.

<sup>18</sup> North, loc. cit., pp. 241-242.

Regional Growth Theories

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## C Role of Urban Areas

Periodically in the past century the location and distribution of cities and settlements have been studied. In Eastern Ontario cities and towns exist and have contributed to the economic growth and development of this region. This section sets out the main theories which have been advanced to explain the growth of urban areas and their influence within a region.

Wilbur R. Thompson, an urban economist, has tentatively advanced a time sequence of distinct stages of urban-regional growth.

- (i) "Stage of Export Specialization" in which the local economy is the lengthened shadow of a single dominant industry or even a single firm.
- (ii) "Stage of the Export Complex" in which local production broadens to other products and/or deepens by extending forward or backward in the stages of production, by adding local suppliers and/or consumers of intermediate products.
- (iii) "Stage of Economic Maturation" in which the principal expansion of local activity is in the direction of replacing imports with new "own use" production and where the local

economy fills out in range and quality of both business and consumer services.

(iv) "Stage of Regional Metropolis" when the local economy becomes a node connecting and controlling neighbouring cities, once rivals and satellites, and the export of services becomes a major economic function. As will be seen later, Ottawa plays the role of a regional capital for a wide region in Eastern Ontario.

(v) "Stage of Technical-Professional Virtuosity" in which national eminence in some specialized skill or economic function is achieved. This stage may succeed or precede the status of regional metropolis.<sup>19</sup>

Stage (i) emphasizes the close interdependence of city and region. In this stage the town or city size is usually considered to be directly proportionate to the food-producing capacity of its regional hinterland. The town or city plays the role of a central place for the transportation and distribution of the regional product.

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<sup>19</sup>W. R. Thompson, A Preface to Urban Economics, (Baltimore, The John Hopkins Press, 1965), pp. 15-16.

Hosse expressed it this way "As the region flourishes so does the town or the city".<sup>20</sup>

As the city advances through the various stages the centripetal forces of the city grow so strong that the expansion of the city no longer depends on the organic growth of the region. Rather, the region becomes a socio-economic annex of the city, and its growth depends largely on the growth of the city. The areal extent of the region now is measured in terms of the dominant influence of the central city. As the city flourishes so does now the region.<sup>21</sup>

Not all cities will be able to attain stage (iv) of the urban growth stages. This is so because not all cities have the same resource base, modes of transportation, and location to the various markets. Thompson believes that whichever city gets the jump on the others and achieves early economic dominance usually finds that success breeds success as external economies of service industry agglomeration pave the way for progressive, cumulative coups.<sup>22</sup>

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<sup>20</sup>H. H. Hosse, Projected Development Trends and Conceptual Structure of the Ottawa Region: A Treatise on Regional Planning, unpublished Ph.D. thesis, University of Ottawa, 1962, p. 2.

<sup>21</sup>Ibid., p. 3.

<sup>22</sup>Thompson, loc. cit., p. 17.

Many small cities and towns can disappear or become centres of stagnation if the original growth stimulus does not generate a sufficiently strong impulse to lift the economy to a level at which derivative growth forces can take over. This has occurred in many rural non-farm and smaller urban centres in Eastern Ontario. Numerous centres never draw the manufacturing plants which would have moved the local economy into the second stage of export diversification and into a state of general industrial enrichment before the preferred mode of transportation changed or the demand for the agricultural product changed.

The implication of the above theory of the growth of cities and their relation with their hinterland is stressed by Lithwick and Paquet;

Our analysis implies that whereas cities were largely dependent upon regional development for their initial growth, in Canada this process has reversed through the dynamic changes in industrial structure in the course of economic development. The industrial focal points of economic growth are found in an urban environment, and the economic health of a region is now a function of the viability of the city within it. To the extent that there are no cities, regions tend to be depressed, except where profitable resource activities persist such as in northern Ontario, the Prairies and British Columbia.<sup>23</sup>

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<sup>23</sup> N. H. Lithwick and G. Paquet, Urban Studies: A Canadian Perspective, (Toronto, Methuen Publications, 1968), p. 37.

Furthermore, the degree of remaining linkages between the city and the region serves to define the economic potential of the region. A further implication is that rural poverty is not caused by a lack of industries but by a lack of cities. In this thesis it is postulated that rural poverty in several counties of Eastern Ontario is partly the result of a lack of a strong urban centre in these counties. Lithwick believes that to thrive industries require the full range of urban amenities, such as convenient transportation, skilled labour and ready markets. An industry placed in a depressed area will function only at the level of its environment.<sup>24</sup>

No one theory can supply all "the" causes of economic growth and development. This was seen in the review of the staple base, stage, and urban theories advanced in this chapter. However, each theory brings an analyst a step closer to understanding the workings of a complex regional economy reduced to simplified terms. The three theories above, along with other empirical and theoretical hypothesis will be used to analyze the economic growth and development of Eastern Ontario in the succeeding chapters.

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<sup>24</sup>Ibid., p. 32

CHAPTER III  
MEASUREMENT OF ECONOMIC GROWTH AND DEVELOPMENT

Many techniques and measures have been developed by regional scientists, geographers and economists to measure trends and changes in structure in a space economy. The choice of such measures usually goes hand in hand with the available data on the unit of space which is to be studied. In this paper the space which forms the basic unit for analysis is the county. Also the analysis in this paper is subject to a time constraint, a financial resource constraint, and a limitation due to the experience of the author. All these factors must be borne in mind when the elaboration of techniques is undertaken.

This chapter will therefore elaborate only on those measures and techniques which can be used either directly or indirectly to study trends and structural changes, subject to the above constraints.

The chapter discusses techniques from two different time perspectives in attempting to answer the following two questions:

- (i) What change has occurred in the structure of the counties over time?
- (ii) What are the main features of the economy of the counties after the above change has taken place?

The chapter is therefore a study of techniques of measurement of economic growth and development of the counties as of a point of time and over time.

#### A Basic Structural Measures

The many measures which can be used to analyze structure can be classified as falling into five main categories. John W. Alexander, who is an American geographer, has summarized these methods in the study and mapping of the geographical location of manufacturing activities in the U.S. on a county basis.<sup>1</sup> Alexander believes that no single criterion or complex of criteria can give a map of total manufactural geography unless all the variables have a high correlation in their locational patterns, in which case mapping only one variable would do as well. But if the correlation of patterns is low, then each criterion reveals a distinctive aspect of areal differentiation of one characteristic of manufacturing. It is not "better than" or "inferior to" any other variable.<sup>2</sup> The challenge is, therefore, to use various measures and then to use each measure in furthering knowledge of the industrial structure and general regionalization of economic activity.

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<sup>1</sup>J. W. Alexander, "Location of Manufacturing: Methods of Measurement", Annals of the Association of American Geography, Vol. 63, (January 1968), pp. 21-26.

<sup>2</sup>Ibid., p. 21.

Alexander classifies the various methods, using the U.S. as the base and counties as the areal units. The bases for the classification are as follows: (a) number of units of measurement employed; those employing one unit at a time are distinguished from those employing two at a time; (b) number of areas involved; measures involving just one area are distinguished from those involving two areas simultaneously.

On these bases, five categories of methods can be distinguished.

(i) Methods involving one unit of measurement.

These include such quantities as: total labour force, total unemployed, number of establishments, number residing in rural areas, etc. Each criterion demonstrates the areal differentiation of one or another aspect of industrial location. Which one is best depends on the purpose of the analyst.

(ii) Methods involving ratios between two units of measurement in the same area. This is basically a comparison of one measurement of industrial activity with another such measure within the same area. Examples of such ratios are: number of agricultural workers/total labour force; number of self-employed/total population; value

added/labour force; etc. This method equates the measurement of one aspect of economic activity with another aspect of industrial or related phenomenon in the same area.

(iii) Methods involving ratios between one unit of measurement for two areal units. The amount of manufacturing employment in a county can be expressed as a percentage of the total amount of manufacturing in a larger area of which the county is a component. The resulting ratio for any one period of time would reveal exactly the same locational pattern as a measure based on the single value of the numerator only. However, when two or more periods of time are involved, the series of ratios could present a different story than the series of a single value, especially if the numerator values change at a markedly different rate than the denominator values.

(iv) Methods involving ratios between two units of measurement for two areal units. This more complex method compares a ratio within a county with a comparable ratio for a larger area of which the county is a component.

Quantification of the difference can be relative or absolute.

The relative method expresses a county ratio as a percentage of a larger area's ratio, e.g.:

$$\frac{\text{county employment in agriculture}}{\text{county population}}$$

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$$\frac{\text{larger area employment in agriculture}}{\text{larger area population}}$$

A coefficient of location, which will be discussed later, is of this type.

The second method quantifies the absolute difference between the two ratios as an "excess percentage", e.g.:

$$\frac{\text{county employment in agriculture}}{\text{county population}} - \frac{\text{larger area employment in agriculture}}{\text{larger area population}}$$

- (v) Methods involving a differential between an absolute value and a ratio. Each county can be expressed in terms of its excess above a selected value. This value is usually a ratio of some sort, e.g. county X has 20,000 agricultural workers and a population of 100,000 producing a ratio of agricultural employment to population of 20 per cent.

Suppose the nation as a whole has a ratio of 12 per cent. County X could therefore be quantified as having an excess of 8,000 agricultural employees as follows:

County agricultural employment excess =

$$\text{County AE} - \text{County P} \times \frac{\text{Nation AE}}{\text{Nation P}}$$

where AE = agricultural employment

and P = population

These five methods simply show various combinations of units of measurements and areal units. The next section shall elaborate meaningful economic concepts which can be built around these basic methods.

#### B Measures Based on Economic Concepts

This section elaborates on the conceptual basis and empirical applications of the basic structural measures outlined in Section A of this chapter. The above methods have been employed in various ways to develop numerous quotients and indexes which can be used to analyze and explain many of the theoretical foundations of regional economics as studied in Chapter II. The study of these quotients, coefficients and indexes shall consist of reviewing the concepts behind these measures and the study of their limitations in use.

Location Quotients

Location quotients have been widely used to measure the staple or export industry of a particular region or county. The underlying notion is simple. If a given community is highly specialized relative to the nation in the production of a particular commodity the product is presumed to be a staple or export item, e.g. automobiles from Detroit.<sup>3</sup>

The technique begins by recording employment or labour force by industry groups during some year in a given region. It is then assumed that the local residents have the same demand patterns that prevail on a national level. Taking the agriculture industry as an example, this assumption is explained. If the local community is self-sufficient in agriculture and neither exports nor imports agricultural products, how much local employment is expected in this industry relative to total population? The answer is the same proportion as for the nation as a whole. If 2 per cent are employed nationally, then expected employment locally in agricultural industries is 2 per cent. In other words, just enough local employment to service local needs.

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<sup>3</sup>Charles M. Thiebout, The Community Economic Base Study, Supplementary Paper No. 16 (New York, Committee for Economic Development, 1962), p. 47.

Suppose, however, that the agricultural industry occupies 10 per cent of total population in a given county, it is then presumed that the agricultural industry in this county keeps 20 per cent of its product for its own use and exports the remaining 80 per cent. If the county employs less than the national average, it is then assumed that the county imports some of these products.

The use of this technique reveals where, if at all, an industry is concentrated and to what degree, as compared to the general distribution of the population or labour force.<sup>4</sup>

The technique can also be used to reveal the relative importance in a county of employment in a particular industry with respect to total industrial employment. This relative importance may be measured by the size of the deviation in the county's employment pattern from the common pattern as exhibited in the larger region. Such a quotient could be computed as follows:

$$\frac{\frac{\text{Agricultural employment in county}}{\text{Total employment in county}}}{\frac{\text{Agricultural employment in larger region}}{\text{Total employment in larger region}}} = \text{Location quotient}$$

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<sup>4</sup>p. S. Florence, Economics and Sociology of Industry, (London, C. A. Watts & Co. Ltd., 1964), p. 60.

If the quotient is equal to 1, this means that the agricultural industry in this county has the same importance as it has for the larger region; if the quotient is less than 1, this industry has less importance in the county, and if the location quotient is greater than 1, then the importance of this industry for the given county is greater than for the larger region. This quotient relating total employment to employment in specific industries is used extensively in this thesis.

Several criticisms can be put forward against the use of the location quotient.

The first criticism challenges the assumption of uniform demand throughout the nation or the region to which it relates. It is argued that the residents of one community may have different tastes than in other communities.<sup>5</sup> People in Florida simply do not buy snowmobiles and swimsuits are not worn in the polar regions. According to Thiebout, these variations can be taken into account. Data on consumer expenditures are at times available and thus some adjustments can be made. Another remedy is to establish a base area (the denominator in the quotient) which is as comparable as possible to the

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<sup>5</sup>Thiebout, loc. cit., p. 48, Walter Isard, Methods of Regional Analysis: an Introduction to Regional Science, (Cambridge, Massachusetts, The M.I.T. Press, 1960), p. 125.

county examined i.e. it is more meaningful to compare a specific county in Eastern Ontario to the Eastern Ontario region than to Canada as a whole.

Another criticism is that income levels of households differ among regions<sup>6</sup> and that the higher income raises local consumption. The quotient should therefore be adjusted to take in this consideration.

Another drawback of using a location quotient based on employment is that it does not consider differences in productivity. With differences in productivity the same proportion of employment in an industry in two regions can represent different volumes of output. Therefore, one region could be only self-sufficient while another is exporting products of a given industry but both could have the same proportion of employment in this given industry.

A fourth criticism is more difficult to deal with and is labelled the "problem of product mix".<sup>7</sup> Industries are classified by various groupings, the larger the number of groups the finer the industrial detail. If the food industry is sub-classified into 10 food products, several of the sub-classifications may actually be classed as export industries but the aggregate food industry may show

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<sup>6</sup>Isard, loc. cit., p. 126.

<sup>7</sup>Thiebaut, loc. cit., p. 48.

an import location quotient. Industrial analysts using the location quotient should always be conscious of this drawback.

Another criticism is that the size of the location quotient will be affected by the size of the unit which is compared to the larger area. O. D. Duncan working with a similar index in the United States found that the index varied with the size of the areal unit. In general he found that the smaller the average size of the areal unit, the larger the index value.

More precisely, if one system of areal units is derived by subdivision of the units of another system, the index computed for the former can be no smaller than the index for the latter, and usually will be larger. Thus the index of . . . on a county basis will exceed the index on a state basis, because the county index takes into account interstate concentration.<sup>8</sup>

Even with these disadvantages the location quotient can serve as a useful tool for analysis of industrial structure.

The location quotient takes care of indirect as well as direct exports. A community with a large number of packing plants is also likely to have a large number of tin can manufacturers. Even though the cans are sold locally, they are indirectly tied to staples or exports.

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<sup>8</sup>O. D. Duncan, Statistical Geography, (The Free Press of Glencoe, Illinois, 1961), p. 84.

Location quotients will show tin cans as exports and, thus, they do measure indirect exports.<sup>9</sup>

Another advantage of the location quotient method which is important for this thesis, is that it is an inexpensive way to measure staple industries or exports and it can be applied to historical data to reveal trends. The quotient can therefore serve as a useful measure of the level and trends of various industries in a county or larger area.

#### Coefficient of Localization

The location quotient revealed in what county, if at all, an industry is concentrated and to what degree, as compared to the regional distribution of the population or some other base such as total labour force. Another problem is to measure, taking a region as a whole, what industries are thus concentrated or not concentrated and again to what degree.<sup>10</sup> This second problem can be resolved by using the coefficient of localization.

This coefficient will enable a comparison of the locational structure of a specific industry for the entire

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<sup>9</sup>Thiebout, loc. cit., p. 49.

<sup>10</sup>Florence, loc. cit., p. 62.

region (e.g. Eastern Ontario) with the regional structure of industry generally.<sup>11</sup> More generally it is a measure of relative regional concentration of a given industry compared to some national (or sub-national) magnitude such as population, land area, manufacturing employment or income.<sup>12</sup>

The coefficient of localization is computed as the sum of the positive or negative differences between the counties' percentages of workers in the given industrial group and the counties' percentages in all industrial activity compared to the regional area of which these counties are a component part. These differences are then divided by 100.

Table 1 shows the computation of this coefficient of localization.

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<sup>11</sup>National Resources Planning Board, Industrial Location and National Resources (Washington, U.S. Government Printing Office, 1943), p. 107.

<sup>12</sup>Isard, loc. cit., pp. 251-252.

Table 1Data for Computation of  
Coefficient of Localization

<u>Item</u>	<u>Counties</u>			
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
1. Per Cent of Employment of Industry "i" in Region by County	20	30	35	15
2. Per Cent of Total Regional Industrial Employment by County	15	20	30	35
Difference (row 1-row 2)	+5	+10	+5	-20
Coefficient of Localization =	$\frac{+20}{100} = 0.2$			

The limits to the value of the coefficient are 0 and 1. If a given industry is distributed exactly the same as total industrial employment in each county, the value will be 0. If the entire industry is concentrated in one county, the value will approach unity. This static analysis can be used to compare two different points of time, e.g. 1951 and 1961, to see whether or not the concentration of a given industry to the base magnitude has changed over time.

A regional planner, who is seeking a diversified economy, could find the coefficient of localization a handy tool. Industries with low coefficients are

relatively non-concentrated regionally and thus amenable to location in a region seeking industrial diversification.<sup>13</sup>

Coefficient of Concentration of Population

Another useful coefficient of the above type is the coefficient of concentration of population. The coefficient reveals whether the population of Eastern Ontario is evenly distributed over the land area. Table 2 elaborates on the computation of this coefficient:

Table 2

<u>1961</u>	<u>Counties</u>		
	<u>A</u>	<u>B</u>	<u>C</u>
Total Area of Eastern Ontario in County j	20	10	70
Total Population of Eastern Ontario in County j	15	7	78
Differences	+5	+3	-8

$$\therefore \text{Coefficient} = \frac{8}{100} = .08$$

The first row gives the percentage distribution of the land area between the counties while the second row gives the percentage distribution of the population between the

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<sup>13</sup>Isard, loc. cit., pp. 252-253.

counties. The value of the coefficient is found by summing the positive or negative differences and dividing by 100. The value of the coefficient will vary between 0 and 1, with a low coefficient revealing an even distribution of population over the land area and a high coefficient revealing an uneven distribution. If the above computation is done for 2 or more points of time this will reveal whether the distribution of population has become more equal or less equal for the region as a whole.

Possibly an illuminating way of interpreting this coefficient is to say that it indicates what percentage of the total population would have to move across state (county) lines in order to make the average density of population the same in all states (counties).<sup>14</sup>

Hoover, when using this coefficient found that between 1850 to 1940 for the United States the coefficient decreased from 65.7 per cent to 42.1 per cent which indicates that the distribution of population between states was becoming more and more equal in the United States.<sup>15</sup>

#### Coefficient of Redistribution of Population

The coefficient of redistribution of population is of the same type as the above except that the distributions compared are the percentage of population residing in the

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<sup>14</sup>Edgar M. Hoover, "Redistribution of Population 1850-1940", The Journal of Economic History, Vol. 1, (Nov. 1941).

<sup>15</sup>Ibid.

"i th" county in a given year and the percentage population residing in the "i th" county in some other year. The index, interpreted as a measure of displacement, shows the minimum percentage of persons who would have to change their areas of residence in a given year to produce the per cent distribution of an earlier year. The index does not measure solely the magnitude of migration between the two dates, even in net terms, since changes in distribution can be produced by areal differences in natality or mortality as well. However, migration is, no doubt, the major component in population redistribution.<sup>16</sup>

Table 3Coefficient of Redistribution

	<u>Counties</u>		
	<u>A</u>	<u>B</u>	<u>C</u>
		(%)	
Total Population of Eastern Ontario in County j - 1951	15	7	78
Total Population of Eastern Ontario in County j - 1961	19	8	73
Differences	-4	-1	+5
Coefficient of Redistribution of Population	= $\frac{5}{100} = .05$		

<sup>16</sup>Duncan, loc. cit., p. 88.

This coefficient reveals that five per cent of the population would have to be displaced in order to have the distribution in 1961 equal to the distribution in 1951. Both Hoover and Duncan found that the coefficient of redistribution decreased for various periods up to 1950 for the United States.<sup>17</sup> This implies that the rate of redistribution of population in the U.S. has been decreasing.

This coefficient can also be used to show redistribution of industrial location every decade by replacing population distributions by industrial distributions. This coefficient as well as those mentioned earlier all suffer from the same limitation as the location quotient in that they vary inversely with the size of the areal unit or fineness in the system of areal subdivision.

#### Area Type Quotient

The area type quotient was developed by this author from the more commonly known "urbanization quotient".<sup>18</sup> It is closely related in concept to the location quotient but the comparison is done as between

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<sup>17</sup> Duncan, loc. cit., p. 90 and Hoover, loc. cit.

<sup>18</sup> National Resources Planning Board, loc. cit., p. 105.

types of areas rather than between a county and a larger area. An area such as a county or a larger region is divided into: (a) urban, (b) rural-farm, and (c) rural non-farm.

The area type quotient can be expressed as the following ratio:

$$\text{ATQ} = \frac{\text{area type "j"s share of employment in industry "i" in region}}{\text{area type "j"s share of total employment in region}}$$

If in a region the percentage distribution of total employment by type of area is:

Urban	50%
Rural non-farm	30%
Rural farm	20%

while the distribution of manufacturing employment is:

Urban	80%
Rural non-farm	15%
Rural farm	5%

the manufacturing area type quotient for each type of area is:

Urban	$\frac{80}{50}$	=	1.60
Rural non-farm	$\frac{15}{30}$	=	.50
Rural farm	$\frac{5}{20}$	=	.25

This means that relative to the distribution of total employment the manufacturing industry is much more important to the urban sector than it is to the rural farm sector. A similar type of computation for each industry

by type of area furnishes an estimate of the importance of different industries to various types of areas.

A quotient of 1 indicates that there is no difference between the proportion of employees in a given industry in an area and the proportion of employees engaged in all industrial activity. This area type quotient will be used later to analyze the importance of the three types of areas for Eastern Ontario as a whole.

#### Coefficient of Specialization

Many localities and states (provinces) maintain that there is not a proper diversity of their economic activities and that such diversity is necessary to economic and social security.<sup>19</sup> An estimate of the degree of specialization is therefore required.

The first assumption which is made in the application of the coefficient of specialization technique is that the nation or the larger area is diversified. Therefore if a county is found to differ from the nation or area it can be said that the county is specialized and if the county has the same industrial structure then the county is assumed to be diversified. If a county contains all the economic activities that exist in the larger area and contains them

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<sup>19</sup>Ibid., p. 120.

in exactly the same proportion, its economy is as balanced and diversified as the larger area considered as a unit.

The coefficient of specialization gives a general indication of the deviation of the county's economic activity from those of the larger area and thus shows how far that county specializes in certain activities. The computation is as follows:

Table 4

<u>Industry</u>	<u>Larger Area Distribution (%)</u>	<u>County Distribution (%)</u>		
		<u>A</u>	<u>B</u>	<u>C</u>
1	40	50	41	28
2	20	22	23	18
3	40	28	36	54
	100	100	100	100

Differences of County from Larger Area

<u>Industry</u>	<u>County</u>		
	<u>A</u>	<u>B</u>	<u>C</u>
1	+10	+ 1	-12
2	+ 2	+ 3	- 2
3	-12	- 4	+14
Coefficient of Specialization = $\left[ \frac{\text{Diff.}}{100} \right]$	.12	.04	.14
Rank of Diversity	2	1	3

Table 4 reveals that county B is the most diversified (i.e. the most similar to larger area) followed by A and C.

The elaboration of this technique does not imply that diversification is necessarily better than specialization, or that perfect diversity is the only criterion.

The purpose of the tables is to summarize and compare the distribution of economic activities in the several states so that whatever policies are adopted can be effectively implemented.<sup>20</sup>

The greatest drawback in using this index for comparison within Eastern Ontario is that the industrial structure of the larger counties is given more weight in the calculation of the base and thus the larger counties are more likely to resemble this base and thus reveal diversified structures.

To overcome this John Britton has developed an alternative index of specialization which is computed without a comparison of industrial distribution between areas.<sup>21</sup> The index (I) is calculated as follows: if P represents the percentage share of the "i<sup>th</sup>" industry in an area's total industrial activity, and a total of "n"

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<sup>20</sup> Ibid., p. 120.

<sup>21</sup> John N. H. Britton, Regional Analysis and Economic Geography, (London, G. Bell and Sons, Ltd., 1967), p. 75.

industries is used to classify total industrial activity then

$$I = \sqrt{\sum p_i^2} \quad \text{where } i = 1 \text{ to } n$$

Applying this formula to the distribution of Table 4 the index of specialization can be computed and the results are as follows:

<u>Area</u>	<u>Index</u>
B	59.2
A	61.3
C	63.4

The index shows that the counties retain the same rank of diversification even though this does not necessarily have to occur, the order being B, A and C. An index of 100 is possible when only one industry is present in an area and in this case 53.0 is the lower limit, i.e. an even proportion of employment distributed over three industries. This index is not based on comparisons between industrial structures like those discussed above: it may be interpreted as measuring the degree to which employment is specialized in one or a few industries or diversified through a possible range of activities.

Most of the above coefficients and indexes are concerned with the structure of the economy at a point of time and only to a limited degree do they measure trends in

industrial activity. The section which now follows will be concerned primarily with measuring changes which have occurred over time.

#### Measurement of Change over Time

The regional economist attempts to determine the sources of differential regional growth by the measurement and analysis of changes in the distribution of economic activity. And although there is concern with absolute growth the major objective seems to be the explanation of state or regional differentials relative to given national economic growth.<sup>22</sup>

V. R. Fuchs<sup>23</sup> and the team of H. S. Perloff, F. Dunn, E. F. Lampard and R. F. Muth<sup>24</sup> have carried out two classic studies of changes of geographical differentials in rates of growth or comparative changes in location. The primary objective of the Fuchs study was not to describe and explain the past or current location of

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<sup>22</sup>Joseph Airov, "Some Regional Aspects of Accelerated National Growth", Journal of Farm Economics, Vol. 45, No. 5 (December, 1963), p. 1062.

<sup>23</sup>V. R. Fuchs, Changes in the Location of Manufacturing in the United States Since 1929, (New Haven, Yale University Press, 1962).

<sup>24</sup>H. S. Perloff, F. Dunn, E. E. Lampard and R. F. Muth, Regions, Resources and Economic Growth, (Baltimore, John Hopkins Press, 1960).

industries, but to analyze whether industries have changed location much or little and from where to where. No attempt was made to distinguish between actual physical movement of existing plants from one location to another and differential rates of growth of firms which remain in the original location. The important thing is that industry X used to be at A and is now at B.<sup>25</sup>

The shift in industry could be brought about by:

- (i) the dismantling of a plant in one locality and the shipment of its equipment to another;
- (ii) the development of a new establishment by an existing concern, with or without dismantlement of an old establishment;
- (iii) the development of a new establishment by a new concern;
- (iv) the expansion of productive capacity of a going establishment, or
- (v) merely differences in the degree of utilization of existing capacity.<sup>26</sup>

It should be clear that the analysis is concerned only with net change. If two firms of equal size in the

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<sup>25</sup>Fuchs, loc. cit., p. 32.

<sup>26</sup>National Resources Planning Board, loc. cit., Chapter 4.

same industry simply exchange locations, the Census data would not reveal any redistribution at all.

The analysis of Eastern Ontario which follows has an eleven industry distribution of labour force and uses the county as the basic geographical unit. The statistical unit utilized to measure shifts is the labour force classification for 1951 and 1961. However, due to the lack of comparability of industrial classifications on a county basis between 1951 and 1961, the method, though high in potential, is not applied in its entirety in this thesis.

The shift technique will now be developed. The type of economic change that occurs within a given region depends mainly on two things: (a) the economic activities that are subject to the most significant nation-wide changes and (b) the nature of the given region. In broad terms, then, what has to be done is to trace regional variations on the major national themes.<sup>27</sup> These two aspects shall be analyzed by combining the Fuchs and Perloff shift technique. The technique is developed by a series of six equations and a specific example.

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<sup>27</sup>Perloff, loc. cit., p. 68.

Primary Notations

$E_{ij}$  - employment in the  $i^{\text{th}}$  industry and  $j^{\text{th}}$  county in the initial time period (1951).

$E_{i.}$  - national employment in the  $i^{\text{th}}$  industry (1951).

$E_{.j}$  - total county employment (1951).

$E_{..}$  - total national employment (1951).

$E^*_{ij}$ ,  $E^*_{i.}$ ,  $E^*_{.j}$ ,  $E^*_{..}$  (1961)

Table 5

Example: Table for Computations

Canada - Employment by Industry  
(000)

<u>Industry</u>	<u>1951</u>	<u>1961</u>
Total	20 ( $E_{..}$ )	30 ( $E^*_{..}$ )
1	5 ( $E_{1.}$ )	6 ( $E^*_{1.}$ )
2	10 ( $E_{2.}$ )	15 ( $E^*_{2.}$ )
3	5 ( $E_{3.}$ )	9 ( $E^*_{3.}$ )

County  $j$  - Employment by Industry  
(000)

<u>Industry</u>	<u>1951</u>	<u>1961</u>
Total	7 ( $E_{.j}$ )	9 ( $E^*_{.j}$ )
1	3 ( $E_{1j}$ )	4 ( $E^*_{1j}$ )
2	2 ( $E_{2j}$ )	3 ( $E^*_{2j}$ )
3	2 ( $E_{3j}$ )	2 ( $E^*_{3j}$ )

Equations

$$(1) \quad S = E^* \cdot j - \left( \frac{E^* \cdot \cdot}{E \cdot \cdot} \right) E \cdot j$$

$$\text{From Table 5} \quad S = -\frac{3}{2} \text{ or } -1,500$$

This is the difference between the actual growth in total employment in 1961 in county j and what the value would have been if the county had grown at the Canadian rate. It can be said that 1,500 employees were lost from this county during the 1951-1961 period.

$$(2) \quad S (\%) = \frac{E^* \cdot j - \left( \frac{E^* \cdot \cdot}{E \cdot \cdot} \right) E \cdot j}{E^* \cdot j \text{ or } \left( \frac{E^* \cdot \cdot}{E \cdot \cdot} \right) E \cdot j}$$

$$S (\%) = -14.4 \text{ per cent}$$

Because counties differ greatly in absolute size, and because these results are to be compared with other variables, it is useful to have a measure of comparative gain or loss expressed as a percentage. The process is to use the larger of the two terms of the numerator as the denominator i.e. if the numerator is positive, the first term is used as the denominator. This method was chosen by Fuchs because it limits the range from plus 100 per cent to minus 100 per cent, it is easier to interpret and it

results in a distribution which is symmetrical if comparative growth is randomly distributed.<sup>28</sup> The - 14.4 per cent means that actual employment in county j is 14.4 per cent less than what it would have been if it had grown at the national rate.

$$(3) \quad S_{di} = E^*_{ij} - \left( \frac{E^*_{i.}}{E_{i.}} \right) E_{ij}$$

$$S_{d1} = 4 - \left( \frac{6}{5} \right) (3) = \frac{2}{5} \text{ or } 400 \text{ employees}$$

This is the difference between the actual growth in 1961 of industry i in county j and what the value would have been if the industry i in the county had grown at the national rate. In the example, industry 1 in county j gained 400 employees relative to the national rate.

$$(4) \quad S_{di}(\%) = \frac{E^*_{ij} - \left( \frac{E^*_{i.}}{E_{i.}} \right) E_{ij}}{E^*_{ij} \text{ or } \left( \frac{E^*_{i.}}{E_{i.}} \right) E_{ij}}$$

$$S_{d1}(\%) = 10 \text{ per cent}$$

This is the same as equation (3) but is expressed as a percentage. The 10 per cent means that employment in industry 1 in county j is 10 per cent greater than it

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<sup>28</sup>Fuchs, loc. cit.

would have been if it had grown at the national level. The greater than national growth can be attributed to greater locational advantages for the operation of this given industry.

Equation (1) measured the total shift or the difference between the actual total employment in the terminal period and the value that would have prevailed had the county grown at the national rate. In turn, shifts in total employment are generated by two distinct phenomena:

$$(5) \quad S_d = \sum_i \left[ E_{ij}^* - \left( \frac{E_{i.}^*}{E_{i.}} \right) E_{ij} \right]$$

is the net differential shift in employment for county j, and

$$(6) \quad S_p = \sum_i \left[ \frac{E_{i.}^*}{E_{i.}} - \frac{E_{..}^*}{E_{..}} \right] E_{ij}$$

is the net proportionality shift in employment for county j.

The net differential shift in employment "arises out of the fact that some regions are expanding in certain employment sectors . . . more rapidly than other regions".<sup>29</sup> In equations (3) and (4) above it was shown that industry 1 achieved a comparative gain over the national economy, i.e. industry 1 grew faster in county j

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<sup>29</sup>Perloff, loc. cit., p. 71.

than in the nation as a whole. In the example of Table 5 the completed computation would reveal that:

$$(3) \quad S_{d2} = 0$$

$$S_{d3} = -1,600$$

$$\text{and } S_{d1} = +400$$

$$\therefore (5) \quad \sum_i^3 1_{di} = -1200$$

This means that in county  $j$ , if the three industries are aggregated, the county suffered a net differential loss of 700 employees due to the net differential shift.

Proportionality shifts are distinct from differential shifts. "They arise out of the fact that, nation-wide, some of the employment sectors or industries expand more rapidly than others" (that is, here the "growth industry" effect is recorded).<sup>30</sup> As a consequence those counties that tend to specialize in the slow-growth industries show net downward proportionality shifts in total employment, while those that tend to specialize in the rapid-growth sectors show net upward proportionality shifts.

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<sup>30</sup> Ibid., p. 71.

Perloff assumes that the net differential shift in total employment (5) and the net proportionality shift in total employment (6) add up to the net total employment shift (1). Thus net proportionality shift in total employment (6) can be computed by subtracting the net differential shift in total employment from the net total employment shift.

In the example therefore:

$$(6) \quad S_p = -\frac{3}{10} \text{ or } -300 \text{ employees}$$

The hypothetical example given reveals that the net total employment shift was -1,500 employees caused by a net differential shift of -1200 employees and a net proportionality shift of -300 employees. The relative shift technique is a way of setting forth at least a broad inter-relationship between regional and national economic growth.

In the empirical analysis which follows an attempt will be made to utilize the enumerated techniques as fully as possible to reveal the broad structural characteristics of the various counties in Eastern Ontario. The value of the techniques, especially over time, is diminished due to the incomparability of most industrial labour force classifications between 1951 and 1961.

## CHAPTER IV

ECONOMIC GROWTH OF EASTERN ONTARIO - POPULATION

The characteristics of the population of an area shape and are shaped by economic conditions within the area. Considered as human capital, people are an indispensable element in economic growth and development, and their energies, aspirations and abilities largely determine how and at what rates natural resources are exploited for human use. Undoubtedly, a thorough knowledge of the population characteristics existent within a region is a necessary step towards the understanding of a region.

This section examines the population of Eastern Ontario in the rural farm, rural non-farm and urban areas with respect to shifts in population in each area, sex ratios, educational attainment, and age groups. An attempt will also be made to examine the main determinants of the characteristics of the population. Further explanations will be forthcoming in Chapters V to VIII.

A Concentration and Redistribution  
of Population in Eastern Ontario

Eastern Ontario is composed of eleven counties each comprised of a land area and a population. A frequently asked question is whether or not there is an even distribution of the population over the land area and

to what degree this distribution has changed over time. The coefficient of concentration of population can supply an approximate answer. The value of the coefficient varies from 0 to 1 with a 0 value indicating an even distribution of population. The calculations below (computed from Table A-1 in Appendix A)

Coefficient of Concentration of  
Population - Eastern Ontario

1951	-	.358
1961	-	.392
1966	-	.433

reveal that the population of Eastern Ontario has become less evenly distributed over the land area between 1951 and 1966. The 1966 coefficient means that 43.3 per cent of the population would have to move across county lines in order to make the distribution of population the same in all counties compared to a 35.8 per cent movement for 1951.

This increased concentration is due to the fact that not all the counties of Eastern Ontario grew at the same rate during the 1951-1966 period.

The coefficient of redistribution affords an estimate of the rate at which the redistribution of population has been occurring.

Coefficient of Redistribution  
of Population - Eastern Ontario

1951-1961	-	.044
1961-1966	-	.031

In 1961, 4.4 per cent of the population would have to be displaced in order to have the distribution in 1961 equal to the distribution in 1951. The .031 coefficient for the five year period 1961-1966 means that 3.1 per cent of the population of Eastern Ontario would have had to be displaced in 1966 in order to have the distribution in 1966 equal to the distribution in 1961.

These two coefficients reveal two broad characteristics about the population of Eastern Ontario:

- (i) The population has become less evenly distributed over the land area. The way in which this redistribution occurred in favour of a few counties is examined in further detail in the next sections.
- (ii) The rate of redistribution increased between the five-year period 1961-1966 compared to the ten-year period 1951-1961. This phenomenon is due to the fact that the forces which are causing the emptying-out of some regions of Eastern Ontario have been gaining impetus.

## B County Analysis of Population

The next step in this study is the analysis of the comparative growth of the population of each of the counties relative to Eastern Ontario as a whole. Also the growth of Eastern Ontario is compared to the growth of the Province of Ontario. The method which is used is the shift technique adapted to the measurement of changes in population. The shift technique is used here to survey changes in total population between 1951 and 1961 and between 1961 and 1966. The shift is also used to study comparative growth of the rural farm, rural non-farm, and urban sectors of the counties between 1961 and 1966. The latter is done only for the 1961-1966 period because of a change in rural-urban classifications between 1951 and 1961.

Total Population

## (1) 1951-1961

The total population of Eastern Ontario grew by 190,751 people from 591,780 in 1951 to 782,531 in 1961. This represents a 32.2 per cent increase over the 1951-1961 period, while the province increased by 35.6 per cent during the same period.

Any given population grows or declines as a result of natural increase or natural decrease, i.e. the net difference between the number of births and the number of

deaths, and net migration, i.e. the net difference between the number of immigrants and the number of out-migrants.<sup>1</sup> In this paper the effects of each of the two factors is not examined individually. However due to the fact that Eastern Ontario had 28.2 per cent of its population which was rural in 1961 compared to 22.6 for Ontario, it is safe to assume that the natural increase in Eastern Ontario is larger or at least equal to the natural increase for Ontario as a whole.<sup>2</sup> Therefore the significant factor in the slower growth of Eastern Ontario is out-migration to other areas or of less migration to the area. This out-migration in turn can be the result of many factors such as low wages, high unemployment, declining industries, land endowment and many other socio-economic factors. These and other causes will be examined in more detail as this paper proceeds.

Within Eastern Ontario not all counties achieved the same growth of total population during the 1951-1961 period. The shift technique reveals the difference between the actual growth in total population in 1961 in each of

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<sup>1</sup>F. F. Sharp and G. A. Kristjanson, The People of Manitoba 1951-1961, ARDA Project #7030, (Department of Forestry and Rural Development, Canada, 1966), pp. 2-3.

<sup>2</sup>The assumption is based on the fact that researchers have found that rural areas have higher birth rates than urban areas.

the eleven counties and what the value would have been if the counties had grown at the same rate as Eastern Ontario as a whole. Table 6 expresses the shift in both absolute and percentage terms.

The main conclusions which can be drawn from this section are:

- (i) The population of Eastern Ontario grew at a rate inferior to the Province of Ontario;
- (ii) Carleton County made a large comparative gain in total population;
- (iii) Renfrew, Grenville, and Frontenac made small comparative gains;
- (iv) The remaining seven counties suffered comparative losses in population;
- (v) The five eastern-most counties all achieved large comparative losses in total population between 1951 and 1961.

Eastern Ontario therefore suffered population-wise relative to Ontario and within Eastern Ontario the distribution of population became more heavily concentrated in fewer counties as exhibited by the coefficient of concentration of population. This difference in growth patterns can be attributed to the different levels of out-migration from the various counties.

Table 6

Absolute and Percentage Shifts in Population by County Relative to Eastern Ontario

	<u>Total Population 1951-61</u>		<u>Total Population 1961-66</u>		<u>Urban Population 1961-66</u>		<u>Rural Non-Farm Population 1961-66</u>		<u>Rural Farm Population 1961-66</u>	
	<u>Abso- lute</u>	<u>Per Cent</u>	<u>Abso- lute</u>	<u>Per Cent</u>	<u>Abso- lute</u>	<u>Per Cent</u>	<u>Abso- lute</u>	<u>Per Cent</u>	<u>Abso- lute</u>	<u>Per Cent</u>
Carleton	32,609	+ 9.2	23,688	+ 5.8	8,935	+ 2.4	3,818	+17.3	255	+ 2.7
Dundas	-3,754	-18.0	-1,556	- 8.3	-574	- 9.0	131	+ 2.8	34	+ 0.5
Glengarry	-4,190	-17.9	-2,715	-13.0	- 68	- 2.3	-819	- 8.9	-100	- 1.4
Grenville	325	1.4	-1,433	- 5.8	-1,161	-11.1	402	+ 4.2	377	8.4
Frontenac	131	+ 0.1	1,954	+ 2.0	- 70	- 0.1	1,850	+ 9.7	- 56	- 0.9
Lanark	-6,762	-14.4	-2,624	- 6.0	-2,190	- 8.4	748	+ 7.6	-266	- 3.7
Leeds	-4,457	- 8.7	-1,858	- 3.7	-1,431	- 5.3	607	+ 3.9	384	4.7
Prescott	-6,593	-19.5	-2,450	- 8.3	-1,118	- 7.8	107	+ 1.6	-281	- 3.7
Renfrew	1,415	1.6	-8,015	- 8.2	1,425	+ 2.6	-7,138	-23.2	- 53	- 0.5
Russell	-2,468	-10.6	-1,611	- 7.1	-235	- 3.9	423	+ 5.2	-261	- 3.5
Stormont	-6,209	- 9.7	-3,374	- 5.4	-3,509	- 7.1	-178	- 2.2	39	+ 0.7

Computed from data in Table A-11 in Appendix A.

## (2) 1961-1966

The total population in Eastern Ontario in 1966 was 108.7 per cent of what it was in 1961. This increase was again less than the growth in Ontario of 11.6 per cent. The gap in growth of population between Ontario and Eastern Ontario was greater during this period than it was during the 1951-61 period. The factors which held Eastern Ontario back in the previous period were even more intense during this 1961-66 period.

Even within Eastern Ontario the trends which were apparent in the previous period were accentuated as only Carleton and Frontenac achieved comparative gains over Eastern Ontario as a whole. Table 6 also reveals that the five eastern-most counties again suffered large comparative losses except for Stormont which made a better showing. Renfrew and Grenville, counties which had achieved comparative gains in the previous period, suffered comparative losses due to the strong absolute comparative growth achieved by Carleton.

In both these periods there was a definite trend in that Carleton and Frontenac both achieved gains relative to the remaining counties. Carleton provided the main impetus to the growth of population in the region.

Urban Population Shifts 1961-1966

The urban population in Eastern Ontario grew by 72,682 or by 12.9 per cent between 1961 and 1966. The urban population of Ontario, however, grew by 16.0 per cent during this same period. In both Ontario and Eastern Ontario, the rate of urban growth surpassed the rate of growth of total population.

Table 6 reveals that Carleton County achieved a comparative gain of 8,935 individuals which means that Carleton had 8,935 more urban individuals in 1966 than it would have had if it had grown at the same rate as Eastern Ontario as a whole. Renfrew County also achieved a comparative gain with Frontenac suffering only a small comparative loss. The largest losses were in Grenville, Dundas, Lanark, Prescott, Stormont and Leeds. Glengarry County's comparative loss of -2.3 per cent in its urban population is surprising due to the fact that during this same period the total population of Glengarry County suffered a -13.0 per cent comparative loss and had ranked in eleventh position. For nine of the above counties the total population shift was in the same direction as urban population shift which implies that the urban population growth acts as a strong stimulus to total population growth. This in fact was the hypothesis advanced in the theoretical section in Chapter II.

Rural Non-Farm Population Shifts 1961-1966

The rural non-farm population of Eastern Ontario grew by only 733 individuals or by 0.5 per cent. However the rural non-farm sector formed 16.0 per cent of the total population in 1966 which was a decline from the 17.3 per cent in 1961. This small increase for the rural non-farm population is in contrast to Ontario as a whole in which the rural non-farm population was actually deflated -2.3 per cent. This decline or slow growth in rural non-farm population is due to three main factors (i) the rural farm population has decreased bringing with it consumer dollars which are needed to support the small village, (ii) the out-migration to cities of residents of rural non-farm settlements, and (iii) with advancement in modes of transportation fewer of these rural non-farm central places are necessary.

Table 6 shows the comparative shifts by counties relative to Eastern Ontario for the 1961-66 period. Most of the counties which had suffered large comparative losses in urban population achieved moderate comparative gains in the rural non-farm population. This implies that the pull of many urban centres is not strong enough to vacate the rural non-farm settlements. Another implication is that many potential emigrants, if unable to find employment in nearby urban centres are unwilling to move to more distant centres.

Renfrew County suffered a comparative loss of 7,138 or -23.2 per cent. This means that Renfrew had -23.2 per cent fewer rural non-farm inhabitants in 1966 than it would have had if it had grown at the same rate as Eastern Ontario as a whole. Glengarry's loss of -8.9 per cent was the second largest percentage loss. Stormont, which is adjacent to Glengarry, suffered a small -2.2 per cent loss. The remaining counties were gainers.

The main gain was made by Carleton with an absolute shift of 3,818 or 17.3 per cent, followed by Frontenac with a comparative gain of 9.7 per cent. Grenville, Dundas, Lanark, Prescott, Russell and Leeds gained in rural non-farm population which is in contrast to what occurred with respect to urban population growth within these counties during the same period.

The large comparative gains made by Carleton and Frontenac are probably due to the fact that since they are situated near large cities the rural non-farm villages serve as places of residence for people who work in the larger cities. This latter statement is partly supported by a study of highways made on the Eastern Ontario region.<sup>3</sup> This study illustrated by a traffic flow map the radial

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<sup>3</sup>Ontario, Eastern Ontario Highway Planning Study, (Toronto, Department of Highways, 1966).

pattern of heavy volumes of traffic on all roads approaching Ottawa with the volume increasing as the city is approached. This implies that many individuals who live in rural non-farm settlements travel to the cities to work.

#### Rural Farm Population Shifts 1961-1966

The rural farm population of Eastern Ontario actually decreased by 4,923 individuals from 85,074 in 1961 to 80,151 in 1966. The 1966 rural farm population was only 94.2 per cent of what it was in 1961. Therefore in the analysis which follows, a comparative gain means that the county in question either increased its rural farm population between 1961 and 1966 or decreased at a rate less than the rate of decrease in Eastern Ontario. The rate of decrease of farm population in Ontario was -4.7 per cent or less than for Eastern Ontario. The decline was greater in Eastern Ontario mainly due to (i) a larger proportion of farm dwellers in Eastern Ontario in 1951 and (ii) the large number of non-commercial and low productivity farms in Eastern Ontario which give small returns to the farmer.

In Eastern Ontario, Grenville was the only county in which the farm population actually increased. With respect to comparative shifts Table 6 reveals that Grenville, Leeds, Carleton, Stormont and Dundas all achieved comparative gains. However the range of percentage gains or losses was small (4.7 per cent to -3.7 per

cent) if Grenville is excluded. This implies that the degree of the decline in agriculture was similar in most Eastern Ontario counties.

#### Association Between Shifts

Five indicators relating to population have been computed and analyzed with respect to the eleven counties in Eastern Ontario. This section attempts to find possible associations between the various indicators. This association is done to see whether indicators are positively or negatively related. Two indicators which are positively related will both move in the same direction and those which are negatively related will move in opposite directions.

The direction of comparative shift of total population during the 1951-1961 period is positively related with the direction of total population comparative shift for 1961-1966 in nine out of eleven cases; positively related to urban comparative shifts in nine cases and possibly ten if the small differences in Frontenac county are assumed to be nil; positively related with both rural non-farm and rural farm is only six counties. This indicates that both the total population shifts in 1961-1966 and the urban shifts in this period are positively associated, with respect to direction, with comparative total population shifts in the previous period.

The direction of comparative gains or losses in total population for 1961-1966 is positively associated with urban comparative shifts in nine cases and possibly ten cases if the 0.1 per cent comparative loss in urban population for Frontenac County is assumed to be nil; positively associated with rural non-farm shifts in only five cases; positively related with rural farm shifts in six counties. This analysis reinforces the hypothesis that total population shifts are affected by urban population shifts and in the same direction.

The direction of comparative gains or losses for the urban sector was positively associated with rural non-farm population in only three counties but was positively associated with the rural farm population in eight counties. This indicates that the direction of rural non-farm percentage growth in Eastern Ontario is usually in the opposite direction from the urban sector. The rural farm population, however, will usually follow the same pattern as the urban comparative shift. This association between rural farm and urban centres reinforces the theory that in developed areas the rural district is highly dependent on the fortune of the urban centre for its growth.

The negative association between urban and rural non-farm is due to the fact that with advances in modes of transportation many of the services which were found in small villages have been transferred to larger urban areas.

The above phenomenon has been examined by Gerald Hodge and he came up with a similar conclusion.<sup>4</sup> Hodge classified each centre in Southeastern Ontario, of which Eastern Ontario is a part, according to its retail service level, i.e. by the variety of commercial activities found there. Table 7 reveals the changes which occurred in

Table 7

Changes in Spacing of Centres by Class  
in Southeastern Ontario, 1951-1961

<u>Type of Centre</u>	<u>1951 Miles Apart</u>	<u>1961 Miles Apart</u>	<u>% Change</u>
Hamlets	4.21	4.52	+ 7
Minimum Convenience	6.16	6.23	+ 1
Full Convenience	7.35	7.76	+ 6
Partial Shopping	9.05	9.17	+ 11
Complete Shopping	21.96	17.21	- 22
Secondary Wholesale-Retail	12.98	12.34	- 5

Source: Gerald Hodge, "Urban Systems and Regional Policy", Canadian Public Administration, Volume 9 (1966), p. 189.

Southeastern Ontario during the 1951-61 period. Hodge found that lower level centres were more widely spaced in 1961 due to rural depopulation and that higher order centres were more numerous and at a closer distance due to a rising demand for and accessibility to the services supplied by these centres.

<sup>4</sup>Gerald Hodge, "Urban Systems and Regional Policy", Canadian Public Administration, Volume 9, (1966), p. 189.

Population Sex Ratios

A sex ratio refers to the number of females per 100 males in a given population. A sex ratio of less than 100 means that there are fewer females than males. Table 8 shows the sex ratios for the urban, rural non-farm, and rural farm populations for Ontario and Eastern Ontario. Also Table A-2 (Appendix A) gives these ratios for each of the counties in Eastern Ontario.

Table 8

Sex Ratios: Urban, Rural Non-Farm, and Rural Farm,  
Ontario and Eastern Ontario, 1951 and 1966

		<u>1951</u>	<u>1966</u>	<u>Change</u>
Ontario	Urban	104.1	101.9	- 2.2
	Rural Non-Farm	88.3	92.0	+ 3.7
	Rural Farm	86.0	85.4	- 0.6
Eastern Ontario	Urban	110.1	104.3	- 5.8
	Rural Non-Farm	90.8	95.1	4.3
	Rural Farm	85.2	86.1	0.9

Computed from data in Table A-11 in Appendix A.

Eastern Ontario had more females relative to males than Ontario in all three categories in 1966. The urban sex ratio for Eastern Ontario decreased by more than the Ontario ratio during the 1951 to 1966 period. This can be partly explained by the greater diversification of the industrial base in Eastern Ontario away from female intensive government employment. In both Ontario and Eastern Ontario, the sex ratio increased for the rural non-farm

sectors indicating that more women choose to live in rural non-farm settlements. Probable reasons for this trend are that (i) the increase in the use of the automobile has enabled residents of smaller villages to travel to larger centres to work or shop; (ii) with the diversification of the urban areas, especially Ottawa, many males may have moved to urban areas thus increasing the sex ratio in rural non-farm areas; (iii) with the decrease in the number of rural non-farm places and the wider spacing of these centres the increased size of the remaining centres enables greater diversification in tertiary activities and probably more opportunities for female employment.

The farm population sex ratio remained relatively constant over this period with both the Ontario and Eastern Ontario ratios approximately equal.

Table A-2 which gives the sex ratios by counties reveals trends similar to Eastern Ontario as a whole with some slight modifications. Urban areas had a predominance of females over males in 1951 in all counties and this predominance also existed in 1966 in all but the three counties of Renfrew, Frontenac and Glengarry. This predominance of females in urban areas diminished in nine counties between 1951 and 1966 and increased only slightly in the two counties of Lanark and Russell.

In 1951 males outnumbered females in the rural non-farm population of six counties, males were outnumbered in Russell, Grenville and Leeds and approximately equal in Glengarry and Stormont. In 1966, however, in ten counties the males outnumbered the females in the rural non-farm sector and were approximately equal in number in Stormont.

In 1951 the rural farm sector had smaller female/male ratios in nine counties than for the rural non-farm sector. The exceptions to the above were in Renfrew and Frontenac. In 1966, however, the sex ratio was lower in the rural farm sector than in the rural non-farm sector in all counties.

The counties followed the same pattern as Ontario with the female/male ratio largest in urban areas, second in rural non-farm areas and smallest in rural areas, both in 1951 and 1966 with only three exceptions. Also there was a definite tendency for the urban sex ratio to diminish in nine counties with small increases in only two counties. For the rural non-farm and rural farm sectors however no pattern was set with approximately half the ratios increasing and half decreasing.

Since the probability of male and female births is virtually the same in all three types of areas, the disproportionate number of males in the rural sectors is a reflection of selective migration of females out of the rural communities. The propensity of females to migrate

to the city is thus responsible for the higher urban sex ratios. The interpretation of the sex ratio should however be done cautiously because as continually greater proportions of Eastern Ontario residents become urban dwellers, the urban area thereby represents more closely the total population in which the ratio of males and females is approximately 50-50.

Given that a fairly even distribution of population is desirable this analysis might serve as a starting point in the choice of industries to be placed in a certain area.

#### Education

Educational attainment can furnish insight into the structure and potential of a region. According to Dr. O. J. Firestone, education can be said to have a dual effect -- a demand and a supply effect.

By turning out more knowledgeable and more sophisticated consumers, demand for goods and services is raised both in quantitative and qualitative terms. By training workmen to do a better job, and bringing to the fore business leaders who are productivity conscious, innovation-oriented and risk-motivated, the capacity of the economy is expanded to produce more goods and services.<sup>5</sup>

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<sup>5</sup>O. J. Firestone, Education and Economic Development - The Canadian Case, paper given at the Tenth General Conference of the International Association for Research in Income and Wealth, Maynooth College, Ireland, August 20-26, 1967, p. 40.

Table 9 and Table A-3 in appendix reveal what proportion of the population five years of age and over who were not attending school in 1961 had attained at least grade nine education.

Table 9

Population Five Years of Age and Over  
Not Attending School, Having Attained  
at Least Grade 9 Education,  
Ontario and Eastern Ontario, 1961  
Urban, Rural Non-Farm and Rural Farm

	<u>T</u>	<u>U</u>	<u>RNF</u>	<u>RF</u>
Ontario	54.3	58.2	42.6	36.2
Eastern Ontario	56.7	63.4	42.9	33.6

Source: Canada, Dominion Bureau of Statistics,  
Census of Canada, 1961, unpublished data.

Eastern Ontario had a greater proportion than Ontario of its total population five years and over not attending school which had attained at least grade nine education. This advantage was also evident for both the urban and rural non-farm population. The farm population of Eastern Ontario, however, fared badly with respect to Ontario. In aggregate Eastern Ontario is therefore in a favourable position with respect to education relative to Ontario except for the farm population.

An examination by counties however reveals that there were wide discrepancies in educational attainment between counties. Table 3 shows that only Carleton,

Frontenac and Leeds had educational attainment in total population greater than the attainment for Ontario. The remaining counties were at a disadvantage with respect to Ontario with the worst disadvantage in the eastern-most counties of Glengarry, Prescott and Russell. Also in the counties, as with Ontario, the highest levels of educational attainment were in the urban population, second in the rural non-farm sector, and last in the rural farm population.

The high levels of educational attainment of Carleton and Frontenac are probably due to influence of universities in both of these counties. The associated large urban centres, and high levels of income probably contribute to the figures as well.<sup>6</sup> Another explanation for the low levels of education in the eastern-most part of the region is that this region has a predominance of French Canadians who have not had the opportunity to acquire an education in French and thus become discouraged studying in the English language.

Those counties which lagged the furthest behind had the lowest levels of income in 1965. This low level of incomes places a heavy burden on the community because much

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<sup>6</sup>Eastern Ontario Development Council, A Survey and Regional Development Plan for Eastern Ontario, 1969, p. 19.

of the costs of education are borne by the local community. This low income also militates against the acquiring of the more qualified and ambitious teachers. S. M. Lipset also recognizes certain "attitudinal" factors which may suppress aspirations for continued education. He suggests that the main attitudinal factors in rural areas are the few immediately visible occupational roles and relatively poor schools as well as the high fertility rates and the consequent larger than average size of families which virtually eliminates the prospect of prolonged schooling.<sup>7</sup>

#### Age Groups

Earlier in this chapter an analysis was made of total population changes for the years 1951 to 1961 and 1961 to 1966. This section examines changes in age groups in this total population.

The age groups chosen are 0-24, 25-44, 45-64 and 65 and over. The 0-24 age group represents the youth which can provide manpower needed in the future. The two groups 25-44 and 45-65 both represent the most productive elements in the economic sector. This fact is supported by the high labour force participation rates shown by these groups. A gain in the 25-44 age group in a region implies that this

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<sup>7</sup>S. M. Lipset, "Social Mobility and Urbanization", Rural Sociology, Vol. 20, pp. 220-228.

group sees enough potential in the region to encourage them to stay within this region. A comparative gain in the 45-64 age group possibly implies that the region had strong social and economic activities during the 1951-1966 period which made the region an advantageous place to live and work. The 65 and over group would generally achieve gains in those regions in which certain amenities which cater to the needs of this older group are found.

In Eastern Ontario the 0-24 age group achieved a substantial 60.8 per cent increase in 1966 over 1951 while Ontario surpassed this with an increase of 72.4 per cent (see Table 10). Eastern Ontario however retained a greater proportion of individuals in this age group relative to Ontario.

For the 25-44 age group Ontario's rate of growth in population was 140.4 per cent of the rate of growth exhibited in Eastern Ontario. The rate of increase in the 45-64 age group was larger in Eastern Ontario than in Ontario while the Ontario rate in the 65 and over group greatly surpassed the rate in Eastern Ontario.

The greatest loss suffered by Eastern Ontario was in the 25-44 age group which is the group which is most prone to migrate in search of better opportunities. This implies that many new entrants into the labour force moved out of Eastern Ontario to search for jobs. The rate of

Table 10

Age Groups, Ontario and Eastern Ontario  
1951 and 1966

		<u>% Distribution</u>		<u>% Growth</u>
		<u>1951</u>	<u>1966</u>	
Ontario	0-24	41.6	47.3	72.4
	25-44	30.0	26.2	32.0
	45-64	19.7	18.4	41.1
	65+	8.7	8.1	41.8
Eastern Ontario	0-24	43.6	48.7	60.8
	25-44	29.0	24.8	22.8
	45-64	18.5	18.3	42.3
	65+	8.9	8.2	32.3

Source: Canada, Dominion Bureau of Statistics,  
Census of Canada, 1951 and 1966.

growth in the 45-64 age group which is almost equal to the Ontario rate is due to the fact that this group is not as mobile being tied down by strong economic, social and cultural ties to their particular region. The loss in the 65 and over age group was the result of a movement of many of these individuals out of predominantly rural areas to urban areas within and outside Eastern Ontario.

Table A-4 in appendix reveals that not all counties in Eastern Ontario suffered losses to the same degree. The shift technique reveals that Carleton achieved the largest comparative gains in all age groups with Frontenac achieving moderate comparative gains in all but the 65 and over age group. Grenville achieved a comparative gain in the 0-24 age group only. The remaining counties all suffered comparative losses in both the 0-24 and 25-44 age groups with the largest losses in the eastern-most counties.

The above reveals that the slow growth in the crucial age groups in Eastern Ontario is the result not of the slow growth of the entire region but rather of the eastern-most counties in the region. This eastern portion represents the low education and low income counties which could help to explain the large out-migration of the young population.

## CHAPTER V

ECONOMIC GROWTH OF EASTERN ONTARIO - LABOUR FORCE

The 1951 Census of Canada defined the labour force as including all persons 14 years of age and over, who, during the week ending June 2, 1951:

- (a) worked for pay or profit or did unpaid work that contributed to the running of a farm or business operated by a member of the household;
- (b) had jobs but did not work because of illness, bad weather, vacation, industrial dispute, or temporary layoff with definite instructions to return to work within 30 days of being laid off;
- (c) were without jobs and were seeking work during the week.

The 1961 labour force included all persons, 15 years of age and over who were reported as having a job of any kind, either part time or full time (even if they were not at work) or were reported as looking for work, during the week prior to enumeration. In urban localities the major portion of the enumeration extended over the first two weeks in June, and in rural areas over the first three weeks.

The major difference between both years is that the 1961 Census included in the labour force Indians on reserves and excluded 14-year olds; the 1951 Census excluded the former and included the latter.

#### A Participation Rates

The labour force participation rate is a ratio which expresses the percentage of the potential labour force actively partaking in the economic process. In the 1951 Census, those participating included those individuals 14 years of age and over who were in the labour force while in 1961 those participating were those 15 years of age and over who were in the labour force.

Table 11 gives the participation rates for Ontario and Eastern Ontario while Table A-5 shows these rates for the counties within Eastern Ontario for 1951 and 1961.

Table 11 discloses two important trends for both Ontario and Eastern Ontario; (i) male participation rates have decreased and (ii) females participation rates have increased. Also the females increases are greater than the male decreases in all cases. S. Judek has attributed the male decrease in Canada to the declining participation rates of young men 14-19 years of age and of older workers together with a higher proportion of men 20-24 years of age

Table 11

Participation Rates, Ontario and Eastern Ontario  
Male and Female, 1951 and 1961

		<u>1951</u>		<u>1961</u>	
		<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>
Ontario	T	84.2	26.1	81.1	32.9
	RF	85.8	11.1	85.4	24.5
	RNF	79.1	16.1	74.7	22.5
	U	84.9	30.3	81.8	35.2
Eastern Ontario	T	82.2	25.9	79.3	32.8
	RF	85.7	9.4	84.4	24.4
	RNF	77.3	15.0	72.4	22.1
	U	82.4	32.0	80.1	36.0

Source: Canada, Dominion Bureau of Statistics, Census of Canada, 1951 and 1961, unpublished data.

seeking further education and training.<sup>1</sup> Female participation rate increases can be attributed to several factors including (i) the service sector of the economy has been expanding rather rapidly; (ii) the internal structure of manufacturing industries has been changing in such a way as to require the employment of increasing numbers of administrative and office personnel; (iii) there has been a widespread use of labour saving devices in the home, and of factory prepared foods; (iv) women have been acquiring more, better and the right kind of education; (v) improved working conditions; (vi) the general reduction in working hours per day and per week, enabling married women to work full time and also attend to their families; (vii) the longer life span, and (viii) the recognition and acceptance by society and by most employers of the right and ability of women to enter most fields of endeavour and perform their tasks as well as, and in some fields, better than men.<sup>2</sup>

Participation rates in Ontario were larger than for Eastern Ontario in both 1951 and 1961 except in the female urban sector of Eastern Ontario.

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<sup>1</sup>George E. Wilson, Scott Gordon and Stanislaw Judek, Canada: An Appraisal of Its Needs and Resources, (Toronto, University of Toronto Press, 1965), pp. 256-257.

<sup>2</sup>Stephen G. Peitchinis, The Economics of Labour, (Toronto, McGraw-Hill Company of Canada Limited, 1965), p. 71.

Peitchinis considers labour force participation rates to be inversely related with income and also inversely related with unemployment rates. The argument advanced is that the lower the real income of the family, the greater the number of family members who will partake in the economic process, or make themselves available for employment, and when family breadwinners are unemployed, it is natural to expect that other members of the family who are able to work will enter the labour force.<sup>3</sup>

In Eastern Ontario, the facts contradict this hypothesis. A more appropriate alternative to this hypothesis had been advanced for females by Mattila and Thompson who claim that the participation rate for females reflects the "discouragement effect" of a high rate of local unemployment, as females actively seek work when prospects are good in tight labour markets and drop out of the labour force when jobs are scarce.<sup>4</sup> In Eastern Ontario low participation rates are usually accompanied by high levels of unemployment. The low participation rates for both males and females in the lower income counties in Eastern Ontario are also due to the older age structure.

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<sup>3</sup>Ibid., p. 71.

<sup>4</sup>H. S. Perloff, L. Wingo, Issues in Urban Economics, (Baltimore, The John Hopkins Press, 1968), p. 71.

Another important element in Eastern Ontario is that the lower participation rates are found in those counties which have no large urban concentrations. This lack of urban concentration denies the county the ability to absorb excess rural labour and at the same time gives the region a different mentality in which the members of the community are less acquisitive and more content with things as they are and more likely to drop out of the labour force if economic conditions are not strong.

Table A-5 in appendix reveals that the counties followed the same basic trends as did Ontario with the males rates decreasing in most counties with female rates increasing over the period. The female increases were also larger than the male decreases. In most cases the participation rates were higher in the urban sector than in the rural non-farm sector for both males and females while the male participation rate was normally the highest in the rural farm sector. The direct relationship between income and participation rates and the direct relationship between low unemployment and high participation rates, held for the counties with Carleton having the highest participation rates in 1961 with Glengarry, Prescott and Russell generally having the lowest participation rates.

## B Unemployment Rates

Unemployment rates at the county level are difficult to obtain due to the small size of the counties and also due to the fact that counties have political and not functional boundaries. The only measure which can supply some idea of unemployment at the county level is the number of persons male and female, registered for employment expressed as a percentage of the labour force paid worker category gathered by National Employment Service Areas.<sup>5</sup> Eastern Ontario contains 13 NES areas.<sup>6</sup>

Table 12 gives this ratio for Canada and the 13 NES areas in Eastern Ontario. The areas have been ranked by their performance during the 1954-64 period. In each of the years there were only from 4 to 7 NES areas in Eastern Ontario with rates lower than the rate in Canada. The only NES areas which were consistently below the Canadian rate were Ottawa, Brockville, Kingston and Smiths Falls. Pembroke, Gananoque, Cornwall, Perth and Hawkesbury were consistently below the Canadian rate with Renfrew being erratic in rank. The position of Carleton Place gradually

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<sup>5</sup>National Employment Service, Economics and Research Branch, Canada Department of Labour.

<sup>6</sup>See Appendix B for comparison between NES and county areas.

Table 12

The Number of Persons, Male and Female, Registered for Employment  
As a Percentage of the Labour Force  
Paid Worker Category, by National Employment Service Areas  
Canada, and Eastern Ontario, 1954 to 1964

<u>N.E.S. Areas</u> <u>According to Rank</u> <u>Over 1954-64 Period</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>
Ottawa	3.4	3.4	3.4	4.1	5.2	4.8	5.6	5.3	4.8	5.6	4.3
Brockville	4.6	4.8	3.5	4.3	6.8	6.5	8.2	7.5	6.6	5.8	5.1
Kingston	5.2	5.0	4.4	5.6	7.0	7.5	8.3	8.3	8.0	7.6	6.7
Smiths Falls	7.0	6.3	6.2	6.7	8.5	7.2	8.0	8.3	7.7	7.1	6.5
Arnprior	7.5	7.7	6.9	9.9	12.1	8.3	10.3	9.5	8.6	8.1	7.7
Prescott	8.0	7.4	6.8	9.1	15.8	13.5	14.0	11.5	8.7	8.5	7.7
Carleton Place	13.4	7.8	8.8	10.5	11.8	11.5	11.6	10.1	8.8	11.5	9.1
Pembroke	8.3	8.1	6.6	8.8	12.6	11.5	12.9	12.2	10.9	9.8	8.4
Renfrew	12.9	12.4	6.7	10.6	18.2	14.1	13.0	10.7	10.1	9.7	9.7
Gananoque	8.5	8.2	8.2	10.6	13.4	10.9	12.3	12.1	10.6	8.3	8.7
Cornwall	12.3	11.0	8.7	10.9	17.3	14.6	16.1	12.7	10.9	9.9	9.7
Perth	10.6	9.7	9.4	12.5	16.3	15.0	15.6	13.4	12.9	13.1	11.3
Hawkesbury	11.4	12.2	13.4	16.2	19.9	18.5	17.8	14.5	13.0	13.0	12.0
Canada	8.3	7.9	6.7	8.8	12.1	10.1	11.1	10.4	9.1	9.0	8.0

Source: National Employment Service, Economics and Research Branch, Canada Department of Labour.

improved during the period but Pembroke, Perth and Hawkesbury have been moving generally downward over the period.

Many reasons have been advanced to explain high rates of unemployment.<sup>7</sup> Low levels of education are usually attributed as a cause of unemployment. This argument seems reasonable for Eastern Ontario because both the three NES areas of Ottawa, Brockville and Kingston are located in counties which had high educational attainment in 1961. On the other hand Hawkesbury and Cornwall which had high unemployment rates are situated in Prescott, and partly in Glengarry County, both of which had low levels of educational attainment.

Another frequently cited explanation of high unemployment rates is a disproportionate number of young people in the labour force in a given region. This is also probably at work in Eastern Ontario because as a rule those counties which had the greatest comparative losses in the 0-24 and 25-44 age groups also had the highest rates of unemployment. The comparative loss implies that these younger groups could not find jobs in their own counties and thus moved away.

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<sup>7</sup>Judek, loc. cit., pp. 278-293 and Peitchinis, loc. cit., pp. 207-222.

Unemployment rates are also assumed to vary by industries. This is so for two reasons: (i) some industries are affected by the seasons such as agriculture, logging and fishing, road building, inland navigation, construction, sports, tourist and out of door activities; (ii) some industries have been affected by strong structural influences which have caused general declines in their importance in the national economy such as for most primary industries and some secondary industries such as manufacturing. The seasonal and structural declines in some industries will in turn affect some of the secondary and tertiary activities such as transportation and food processing which thrive on the above industries.

The Ottawa NES area does not have much seasonal unemployment due to the stabilizing influence of government employment.<sup>8</sup> Also as will be seen in the examination of location quotients later in this section Carleton County does not specialize in any declining industries. Russell which is also in the Ottawa NES area has more unemployment due to its heavy reliance on agriculture and construction.

Kingston also does not have much seasonal unemployment except in construction and wholesale and retail trade.<sup>9</sup>

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<sup>8</sup> National Employment Service, Local Office Area Description - Ottawa, Canada Department of Labour.

<sup>9</sup> Ibid., Kingston Area.

Brockville is also relatively stable although there is increased activity in milk processing during the spring and summer as well as in the tourist industry.<sup>10</sup>

The Hawkesbury NES area which is mostly in Prescott county and partly in Glengarry suffers a high rate of unemployment. As location quotients will reveal later Prescott relies heavily on seasonal primary industries and manufacturing and construction with tertiary activities playing a smaller role in the labour force. The above points to both high seasonal and structural unemployment which is what in fact occurs. Cornwall is in much the same position with seasonal unemployment in cheese-making plants, water transportation, pleasure boat building and construction industry.<sup>11</sup> Cornwall NES area which is comprised of Stormont and parts of Glengarry and Dundas is highly dependent on primary and extractive activities as well as construction and transportation which are affected by both seasonal and structural unemployment.

The rank of the unemployment rates in the three NES areas of Arnprior, Pembroke and Renfrew in Renfrew County have been either steady or worsening over the period. Arnprior which is closest to Ottawa has held

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<sup>10</sup> Ibid., Brockville Area.

<sup>11</sup> Ibid., Cornwall Area.

fairly steady but the other two centres have been declining in rank. Renfrew County is heavily dependent on primary activities and also on manufacturing. Since much of the manufacturing in this area is dependent on primary activities it thus fluctuates as the fluctuations in the primary industries.

In Lanark County, Smiths Falls and Perth have exhibited widely different ranks in rates of unemployment. This is probably due to the fact that Smiths Falls is more functionally located with respect to the low unemployment NES areas of Brockville and Ottawa. As will be shown later there is a strong affinity between Smiths Falls and Ottawa.

The rank of the NES area of Prescott in Grenville County was fifth to seventh during the 1954 to 1957 and 1962 to 1964 period but rose substantially during the 1958 to 1961 period. This can be attributed to the construction of the St. Lawrence Seaway which was completed and officially opened in 1959.

## C Labour Force Localization by Industry

Localization Coefficients

This section attempts to answer the question "What industries relative to total labour force taking Eastern Ontario as a whole are concentrated or non-concentrated and to what degree". The coefficient of localization which is used enables a comparison of the locational structure of each industry in Eastern Ontario relative to general industrial structure of Eastern Ontario.<sup>12</sup> The limits to the value of the coefficient are 0 and 1. If a given industry in Eastern Ontario is distributed in exactly the same way in each county as total industrial labour force in each county, the value will be 0. If the entire industry is concentrated in one county the value will approach unity.

Table 13 gives the localization coefficients for the various industries in Eastern Ontario in 1951 and 1961. The labour force classifications for both years are comparable for agriculture, forestry, fishing and trapping, mining, and finance, insurance and real estate. The remaining industries are not comparable and the comparability of the county data could only be achieved with much difficulty and at a high cost. When using the coefficient

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<sup>12</sup>See Chapter III.

Table 13Coefficients of Localization, of Labour Force  
Eastern Ontario, 1951 and 1961

	<u>1951</u>	<u>1961</u>
Agriculture*	.303	.408
Forestry*	.579	.551
Fishing and Trapping*	.372	.237
Mining*	.319	.192
Manufacturing	.209	.227
Construction	.073	.049
Transportation, Communication and other Utilities	.070	.067
Trade	.061	.057
Finance, Insurance* and Real Estate	.265	.204
Community, Business and Personal Service Industries	.201	.059
Public Administration and Defence	N/A	.258
Industry not stated	.126	.038

\*Comparable Classifications 1951 and 1961.

Computed from Table A-12 in Appendix A.

of localization it is assumed that even though the classifications are not all comparable they do, in some instances, give a general indication of the industrial structure over time.

Table 13 reveals the following features of the industrial localization of the labour force for Eastern Ontario:

- (i) The primary industries were the most unevenly distributed in both years. This is explained by the fact that primary industries such as agriculture, mining, forestry and fishing are largely oriented to natural resources inputs.<sup>13</sup> These activities can usually occur only where the natural resources are located and not all the counties have the same amount of natural resources.
- (ii) Construction, trade and transportation, communication and other utilities were the most evenly distributed with respect to total industrial activity. This is explained by the fact that these activities are largely market oriented, i.e. these activities will

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<sup>13</sup> Harvey S. Perloff, How a Region Grows, (New York, Committee for Economic Development, 1963), p. 24.

be needed where people live. These activities can be considered as lower order functions as they are existent to some extent in all types of areas.

- (iii) Manufacturing and finance, insurance and real estate both had intermediate levels of localization. Manufacturing can be either resource orientated or market orientated and can also be affected by agglomeration economies. Resource orientated manufacturing or primary manufacturing involves operations where relatively minor processing of domestic resources is required and production is from natural resource materials for sale mainly to export markets. Primary manufacturing industries can be regarded as absorbing the output of staple industries or simply as the final step in staple production.<sup>14</sup> Secondary manufacturing industries are characterized by a higher degree of processing, greater dependence upon domestic markets and reliance on both foreign and domestic inputs. Since

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<sup>14</sup>W. T. Easterbrook, M. H. Watkins, eds., Approaches to Canadian Economic History, (Toronto, McClelland and Stewart Limited, 1967), p. 80.

secondary manufacturing has a much greater reliance on the domestic market it tends to be located close to the centre of the market with the primary industries one usually found at or near the resource on which they are based.<sup>15</sup> These two countervailing forces will decide whether or not manufacturing will or will not be localized. The small increase in the coefficient of localization in manufacturing is probably due to the fact that more industries are of the secondary type because of the increasing population of Eastern Ontario and its gradual movement away from reliance on primary activities and thus primary manufacturing. Finance, insurance and real estate tend to be found to some degree in all places where people reside but are more heavily clustered in larger central urban areas where they are closer to the market and can also serve the region outside the urban area.

- (iv) Community, business and personal service industries have similar lower order central

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<sup>15</sup> Ibid., p. 80.

place functions as do trade and transportation. This is seen by the .059 coefficient attributed to this industry in 1961. The .201 coefficient in 1951 is due mainly to the change in classification in this industry group.

- (v) In 1961 public administration and defence had an uneven distribution with a .258 coefficient due mainly to the capital of Canada being located at Ottawa and the location of military bases at Pettawawa in Renfrew County and Kingston in Frontenac County.

#### Location Quotients of Labour Force

The localization quotient revealed whether or not and to what degree industries were concentrated in a few counties or were evenly distributed throughout Eastern Ontario relative to total labour force. The next step discovers in which counties specific industries are concentrated and to what degree, as compared to the general distribution of total labour force. This is done using a location quotient of the labour force by industries in each county taking Eastern Ontario as the base. This relative concentration is measured by the size of the deviation in the counties labour force from the common pattern as exhibited in the Eastern Ontario region.

The location quotient which is used here can be calculated as follows for the agricultural industry in Glengarry for the year 1961.

$$\frac{\frac{\text{Agricultural labour force in Glengarry}}{\text{Total labour force in Glengarry}}}{\frac{\text{Agricultural labour force in Eastern Ontario}}{\text{Total labour force in Eastern Ontario}}} = 4.61$$

In this case a location quotient of 4.61 reveals that for Glengarry, the agricultural labour force in 1961 was 4.61 times more important relative to this county's total labour force than it was for Eastern Ontario as a whole.<sup>16</sup>

In the discussion of the staple theory of economic growth in Chapter II and the location quotient in Chapter III it was seen that the location quotient is commonly used to reveal the staple or export industries in a given area. A quotient of less than 1 implies that the area is importing goods or services produced in that particular industrial division while a quotient of more than 1 implies the area is selling part of these goods and services outside the region.

The location quotient is also used to link the provincial forces of economic growth to the labour force

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<sup>16</sup>Chapter III discusses the assumptions, use and limitations of the location quotient.

in each of the eleven counties in Eastern Ontario. This is done by classifying each industrial labour force group as either rapid, slow, or declining. The classification is based on Ontario labour force growth between 1951 and 1961. Industries in Ontario which grew more quickly than the provincial total labour force are classified as rapid growth while those industries which were reduced in absolute size are classified as declining industries. The remaining industries are slow growth (see Table A-6 in Appendix).

#### Classification of Industries

Rapid Growth:	Mining Construction Trade Finance, Insurance and Real Estate Community, Business and Personal Service Public Administration and Defence
Slow Growth:	Manufacturing Transportation, Communication, Utilities
Declining Growth:	Agriculture Forestry Fishing and Trapping

Using this classification plus the industrial location quotients for each county it is assumed that a county which has several rapid growth industries is likely to have grown rapidly during this same period. On the other hand a county specializing in slow or declining growth industries is likely to have had a slower rate of growth of labour force.

Table 14 gives the location quotients of the various industries for Eastern Ontario using Ontario as the base.

Table 14

Location Quotients of Labour Force, Eastern Ontario  
1951 and 1961, Using Ontario as Base

	<u>1951</u>	<u>1961</u>
Agriculture*	1.38	1.23
Forestry*	.42	.63
Fishing and Trapping*	.40	.20
Mining	.13	.06
Manufacturing	.56	.54
Construction	.99	1.05
Transportation, Communications and Other Utilities	.86	.88
Trade	.85	.83
Finance, Insurance and Real Estate*	.85	.83
Community, Business and Personal Service	1.80	1.03
Public Administration and Defence	N/A	3.09

\*Comparable 1951 and 1961.

Computed from Table A-12 in Appendix A.

Agriculture, construction, community, business and personal service industries and public administration and defence are relatively more important for Eastern Ontario than for Ontario. These industries can be considered as export industries or staples for Eastern Ontario.

The remaining industries which all have quotients of less than 1 are assumed to produce insufficiently to satisfy local demands and thus some of these goods and

services need to be imported from outside the Eastern Ontario region. The degree of imports is assumed to be inversely related to the size of the location quotient for each particular industry. This statement must be taken in the context of the limitations imposed on this quotient in Chapter III.

The localization coefficient showed that the relatively important agricultural industry in Eastern Ontario was unevenly distributed throughout the region relative to total labour force. Table A-7 in appendix reveals that in 1951, Glengarry, Dundas, Russell, Prescott and Grenville all had large agricultural location quotients of 3.47, 3.28, 3.26 and 2.57, and 1.92 respectively. Lanark and Leeds had location quotients of 1.50 and 1.47 respectively; Stormont had an agricultural quotient of approximately 1 at .93 and Frontenac had a quotient of .74. Agricultural labour force in Carleton played a small part in total employment with a .33 quotient.

During the 1951-1961 period, the coefficient of localization of agriculture increased from .303 to .408 which means that the agricultural labour force became less evenly distributed. Table A-7 reveals that the agricultural location quotients increased for all counties except Carleton, Frontenac and Grenville where the quotients decreased.

Forestry is also concentrated in a few counties relative to total labour force. Forestry is most important to Renfrew which had large quotients of 5.40 and 5.00 in 1951 and 1961 respectively. Forestry is also relatively important in Glengarry and Grenville and somewhat less important for Lanark and Prescott.

Fishing and trapping employed only 110 people in 1951 in Eastern Ontario and 64 in 1961. In 1951 Glengarry had the highest fishing and trapping location quotient of 7.50 followed by Leeds with a 5.00 quotient. Prescott, Renfrew and Frontenac all had quotients of 2.50. In 1961 the distribution became more even with only Dundas and Renfrew with quotients of more than 1.

Mining also became more evenly distributed between 1951 and 1961 with the localization coefficient decreasing from .319 to .192. In 1961 this industry was most concentrated relative to total labour force in Prescott and Renfrew with quotients of 5.00 in both counties. In Frontenac, Grenville and Leeds this industry was twice as important to these counties than it was for Eastern Ontario as a whole. In Carleton and Stormont it had the same importance as in Eastern Ontario while in Dundas, Glengarry, Lanark and Russell it played a less important role.

The only remaining industry which is comparable in both 1951 and 1961 is the finance, insurance and real estate industry. This group is not as important in total

labour force in Eastern Ontario as for Ontario but nevertheless had a stable location quotient of .85 in 1951 and .83 in 1961. As was seen earlier the coefficient of localization fell from .265 in 1951 to .204 in 1961. The high concentration of this industry in Carleton County as revealed by the location quotient decreased from 1.61 in 1951 to 1.42 in 1961. For the remainder of the counties this coefficient was less than 1 in both years but either increased or remained the same over the period. In 1961 and 1951 Frontenac and Leeds had the second and third highest quotients of .79 and .68 respectively. Russell achieved a large gain in this quotient increasing from .39 in 1951 to .65 in 1961. Lanark also had a quotient of .65 while Stormont had a quotient of .59 in 1961. Prescott, Grenville and Dundas all had identical quotients of .47 in 1961 followed by Renfrew with .44. In Glengarry this industry was only .38 times as important relative to the total labour force of Glengarry as for Eastern Ontario as a whole. For the finance, insurance and real estate industry those counties which generally had small quotients in 1951 increased their quotients the most over the 1951-61 period while the quotient in the counties of Carleton, Frontenac and Leeds which were already large either decreased or remained constant. This can probably be best explained by the sector theory which states that as economic development occurs tertiary activities will

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grow in relative importance. Those counties which had the lowest coefficients in 1951 therefore became more "mature" advancing further along the primary-secondary-tertiary stages of development while the other counties were already somewhat mature.

Since the remaining industries are not comparable for both years only the 1961 figures are examined.

Manufacturing was only one-half as important for Eastern Ontario relative to total labour force as for Ontario as a whole with a location quotient of .54 in 1961. When each of the counties is compared to Eastern Ontario, it can be seen that Stormont, Grenville and Leeds all placed much importance on this industry with coefficients of 2.06, 1.99 and 1.84 respectively. Lanark, Frontenac and Prescott had quotients of 1.41, 1.33 and 1.41 respectively. Dundas, Renfrew and Glengarry had coefficients which were close to the 1 mark. In both Carleton and Russell manufacturing played a smaller part in total labour force than manufacturing did for Eastern Ontario as a whole with quotients of .53 in Carleton and .45 in Russell.

Construction which had the lowest coefficient of localization of .049 for Eastern Ontario in 1961 had approximately the same importance for Eastern Ontario as for Ontario. Within Eastern Ontario the construction location quotient had a range with a high of 1.73 in Russell and a low of .87 in Glengarry. Prescott and Grenville both had

quotients of 1.39 while the remaining counties had quotients close to the Eastern Ontario average.

Trade had a location quotient of .83 for Eastern Ontario compared to Ontario. This less than 1 quotient is due mainly to the fact that none of the cities in Eastern Ontario have large wholesale distribution functions<sup>17</sup> and are dependent on Toronto and Montreal for many wholesaling functions. For the region trade was the second most evenly distributed industry with a coefficient of .057 in 1961. The range between the largest and smallest quotients was only .29 which is the smallest range for all the industries. The highest quotients were 1.09 and 1.08 in Stormont and Leeds respectively and the lowest quotients were in Glengarry, Dundas and Renfrew with .80, .82 and .87 respectively.

The community, business and personal service industry was slightly more important relative to total labour force for Eastern Ontario with a location quotient of 1.03 relative to Ontario. Within Eastern Ontario, this group was fairly evenly distributed with a coefficient of .059 in 1961. The counties of Frontenac, Leeds, Lanark had quotients of 1.34, 1.13 and 1.10 respectively with Carleton

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<sup>17</sup> J. W. Maxwell, "The Functional Structure of Canadian Cities, A Classification of Cities", Geographical Bulletin, Vol. 7, No. 2, (1965), pp. 79-104.

and Stormont having quotients of 1.02 and .98. The remaining counties had quotients of less than 1 with the lowest of .74 in Russell County.

Public administration is Eastern Ontario's most important industry relative to Ontario with a quotient of 3.09. This group is most vital for Ottawa in Carleton County which is the capital of Canada and which also contains defence force bases. Renfrew had the second highest quotient of 1.15 relative to Eastern Ontario because of the army base at Pettawawa. Frontenac's military base at Kingston enabled it to attain a .76 quotient. The remaining seven counties had quotients within the .23 and .10 range.

#### Labour Force Shift 1951-1961

This section analyzes the shift which has occurred in the various industries over the 1951-1961 period. This is done using the shift technique and can be done only for those industries which are comparable both in 1951 and 1961.

The total labour force in all industries grew by 26.3 per cent in Eastern Ontario from 229,339 in 1951 to 289,749 in 1961. Ontario's growth was slightly larger at 27.1 per cent over the 1951-61 period.

Using the shift technique in Table A-8 in the appendix, it can be seen that not all counties achieved

the same rate of growth of total labour force. The County of Carleton had 12,826 or 9.1 per cent more members in its labour force in 1961 than if it had grown at the same rate as Eastern Ontario. Grenville was the only county other than Carleton to achieve a comparative gain with a gain of 3.3 per cent or 269 individuals. Frontenac ranked third with a comparative loss of -2.9 per cent followed by Leeds and Renfrew with comparative percentage losses of -4.2 per cent and -4.4 per cent respectively. The eastern counties of Russell, Dundas, Glengarry, Stormont and Prescott ranked sixth, seventh, eighth, ninth and eleventh with comparative percentage losses of -6.5 per cent, - 11.3 per cent, -14.4 per cent, -15.1 per cent and -17.4 per cent respectively. Lanark ranked tenth with a comparative loss of 2,591 or -15.7 per cent. Stormont suffered the largest absolute comparative loss of 3,339 members of the labour force.

In total labour force, as with population, there is a definite trend which is set in which Carleton is the main growth centre reinforced by most of the counties to the south and to the west of Carleton except Lanark. The remaining eastern-most counties all suffered large comparative losses relative to Eastern Ontario. The implication is that there is possibly a strong functional link between the more progressive counties. As will be seen in the next chapter, this functional link does exist for some

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of these counties while the eastern-most counties are linked more directly to Montreal rather than to the remainder of the region.

The agricultural labour force in Eastern Ontario decreased by 26.1 per cent between 1951 and 1961 from 33,979 in 1951 to 25,107 in 1961. This decrease was larger than the decrease of 16.2 per cent for Ontario. This was seen in the examination of location quotient where the agricultural quotient of the region relative to Ontario decreased from 1.38 in 1951 to 1.23 in 1961.

For agriculture, comparative percentage gains were however made by the eastern-most counties of Glengarry, Dundas, Russell, Stormont and Prescott with gains of 12.4 per cent, 12.2 per cent, 10.7 per cent, 9.6 per cent and 6.1 per cent respectively. Grenville also had a comparative gain of 5.9 per cent over the period. The counties of Renfrew and Leeds had small comparative losses of -0.2 per cent and -0.4 per cent. Lanark and Carleton both decreased at a rate greater than the decrease in Eastern Ontario and had comparative losses of -5.6 per cent and -13.8 per cent respectively. Frontenac had the largest comparative loss of -33.9 per cent or 712 individuals.

The counties which achieved the largest comparative gains in agriculture were generally the counties (except Lanark) which suffered the greatest comparative losses in total labour force. This suggests that since total

employment opportunities were not rising quickly as measured by total labour force those occupied in agriculture were less prone to move.

The group "other primary" includes forestry, fishing and trapping, and mining. This group in Eastern Ontario increased by 6.4 per cent from 1,675 in 1951 to 1,782 in 1961. This increase was surpassed by Ontario with a rate of growth of 12.2 per cent. This group achieved comparative gains in Grenville, Carleton and Russell. The remaining counties suffered comparative losses with greatest comparative percentage losses in Lanark, Stormont, and Frontenac.

The finance, insurance and real estate industry grew by 51.1 per cent over the period increasing from 6,443 in 1951 to 9,732 in 1961 compared to a 59.5 per cent increase for Ontario. This industry which became more evenly distributed over the period as seen in the analysis of the coefficients of localization decreased comparatively by 141 individuals or -2.1 per cent in Carleton. Stormont, Leeds and Lanark suffered comparative percentage losses of -0.3 per cent, -2.3 per cent and -3.2 per cent respectively. The remaining counties all achieved comparative percentage gains with the largest gain of 34.3 per cent in Russell. Grenville and Renfrew also had large gains of 15.8 per cent and 11.0 per cent respectively while Frontenac gained 2.8 per cent. The remaining counties of Prescott, Dundas,

Glengarry all achieved moderate gains of 8.5 per cent, 2.9 per cent and 1.3 per cent respectively.

#### Area Type Quotients

Up to this point in the analysis of labour force, two questions have been answered: (i) what industries are evenly or unevenly distributed as between counties and to what degree; and (ii) in what counties and to what degree are the unevenly or evenly distributed industries most important to the county relative to total labour force. Another question which will be answered is what industries are most important to the three types of areas, namely rural farm, rural non-farm and urban. This analysis is done by using the "area type quotient". A quotient of 1 for any type of area means that there is no difference between the proportion of employees in the given industry in that type of area and the proportion engaged in all industrial activity in that type of area.

Table 15 discloses that 74.8 per cent of all the labour force in Eastern Ontario is in the urban areas. The rural non-farm sector has 13.9 per cent while the rural farm sector occupies 11.3 per cent of the labour force.

Table 15

Percentage Distribution of Industry and Area Type Quotient By Type of Area  
Eastern Ontario, 1961

	Rural Farm		Rural Non-Farm		Urban	
	<u>% Distri- bution</u>	<u>Area Type Quotient</u>	<u>% Distri- bution</u>	<u>Area Type Quotient</u>	<u>% Distri- bution</u>	<u>Area Type Quotient</u>
All Industries	11.3	-	13.9	-	74.8	-
Agriculture	87.2	7.72	8.5	.61	4.3	.06
Forestry	15.6	1.38	48.5	3.49	35.8	.48
Fishing and Trapping	9.3	.82	37.5	2.70	53.1	.71
Mining	59.7	5.28	12.4	.89	28.0	.37
Manufacturing	6.2	.55	17.4	1.25	76.5	1.02
Construction	8.7	.77	22.8	1.64	68.3	.91
Transportation, Communications and Other Utilities	5.3	.47	19.5	1.40	75.1	1.00
Trade	3.1	.27	15.2	1.09	81.6	1.09
Finance, Insurance and Real Estate	3.9	.35	7.3	.53	88.7	1.18
Community, Business and Personal Service	4.1	.36	17.8	1.28	78.0	1.04
Public Administration and Defence	1.4	.12	10.7	.77	87.7	1.17

Economic Growth of Eastern Ontario - Labour Force

Computed from Table A-13 in Appendix A.

The industries which are the most important for the rural farm labour force are the primary and extractive industries which are resource orientated and which locate mostly at the source of the resource.

The area type quotient for the rural non-farm labour force reveals that the village or rural non-farm residence is an important place of residence for people who work directly in the primary and extractive industries. Manufacturing also plays a significant role in these areas with particular emphasis on primary manufacturing, i.e. the processing of the primary products. Lower order central place functions such as construction, transportation, communications, and utilities, trade and community, business and personal service industries are also vital to the rural non-farm labour force.

The urban areas supply many of the lower central place functions such as trade, transportation, communications, and other utilities and construction as well as higher order functions of finance, insurance and real estate, and public administration and defence. The lower order functions in the urban areas are not as instrumental to the economy of the area as they are for the rural non-farm areas.

Industrial Specialization by Counties

The previous sections revealed those industries which were not evenly distributed, the degree of this concentration, and in which counties and what type of area these unevenly distributed industries were most important relative to total labour force.

This section goes one step further and attempts to measure the degree to which each of the eleven counties of Eastern Ontario are specialized in a few industries or diversified in many industries. This specialization or diversity will be examined from two different perspectives. The first measure called the coefficient of specialization assumes that the Eastern Ontario region is diversified and if a specific county contains all the economic activities that exist in Eastern Ontario and contains them in exactly the same proportion, the economy of this county is as balanced and diversified as is Eastern Ontario economy and the coefficient is equal to 0. The second measure developed by John Britton is an index of specialization which is computed without a comparison of industrial distribution between areas.<sup>18</sup>

The coefficient of specialization is useful in that it helps to reveal to what extent the industrial structure

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<sup>18</sup>See Chapter III.

of each county differs from the industrial structure of Eastern Ontario taken as a whole. This coefficient suffers from the fact that the industrial structure of Eastern Ontario is the summation of the industrial structures of the individual counties and this structure will therefore be influenced to a greater degree by the larger counties. The index of specialization on the other hand is independent of the industrial structure of Eastern Ontario as a whole.

Table 16 gives the coefficient of specialization and the index of specialization for the eleven counties of Eastern Ontario for 1951 and 1961. Glengarry County had the highest coefficient of specialization of .330 in 1961. This means that Glengarry County had the industrial structure which was the least similar to the industrial structure of Eastern Ontario. Dundas was the county with the second largest coefficient of .315 followed by Russell, Prescott, Grenville, Stormont, Leeds and Lanark with coefficients of .308, .269, .254, .215, .210 and .196 respectively. Renfrew with a coefficient of .104 was the county with the industrial structure which was the most similar to the industrial structure of Eastern Ontario as a whole. Using this measure, Frontenac with a coefficient of .117 was the second most diversified county with respect to industrial structure. Carleton was the third most diversified with a .139 coefficient of specialization.

Table 16Coefficient of Specialization  
and Index of Specialization  
Eastern Ontario, 1951 and 1961

	<u>Coefficient of Specialization</u>		<u>Index of Specialization</u>	
	<u>1951</u>	<u>1961</u>	<u>1951</u>	<u>1961</u>
Carleton	.192	.139	56.2	44.8
Dundas	.456	.315	54.3	44.9
Glengarry	.397	.330	54.2	47.3
Grenville	.202	.254	44.0	40.7
Frontenac	.065	.117	47.5	41.0
Lanark	.223	.196	42.3	39.0
Leeds	.167	.210	43.4	39.0
Prescott	.301	.269	47.5	41.6
Renfrew	.097	.104	44.8	40.0
Russell	.400	.308	53.6	42.7
Stormont	.253	.215	50.3	41.9
Eastern Ontario	-	-	46.0	39.0

Computed from Table A-12 in Appendix A.

Another interesting feature of this coefficient is that the coefficient decreased in all counties except Renfrew, Leeds and Grenville. This means that the industrial structure of most counties became more similar during the 1951-61 decade. Also the three coefficients which decreased the most, occurred in those counties where the specialization had been the greatest in 1951.

Using this coefficient there seems to be a definite tendency for the eastern counties to differ the most from the structure of Eastern Ontario as a whole. This is due to the prominence in these counties of the primary industries as well as manufacturing. However possibly the major reason for this specialization is statistical in nature in that the counties of Carleton, Renfrew and Frontenac which are most similar to Eastern Ontario are also the three largest counties in size of labour force and thus influence greatly the overall structure in statistical terms.

The index of specialization though different in concept to the coefficient of specialization revealed that Glengarry was again the county with the highest degree of specialization with an index of 47.3 in 1961. Dundas and Russell with indexes of 44.9 and 42.7 were again one of the most specialized counties in industrial structure. Using this index Carleton can be seen to be highly specialized in contrast to the diversity shown with the previous

coefficient. Lanark and Leeds are the most diversified counties with an identical 39.0 index. The remaining counties in order of diversity were Renfrew, Grenville, Frontenac, Prescott and Stormont. Eastern Ontario as a whole also became less specialized with a decrease of the index from 46.0 in 1951 to 39.0 in 1961.

All the indexes decreased in size between 1951 and 1961 indicating industrial structures which have a more even distribution of industries within each county and within Eastern Ontario. The largest decrease was in Carleton which was the most specialized county in 1951 while the smallest decreases was in Lanark which had the smallest index of specialization in 1951.

The industries in which various counties specialized or were lacking relative to Eastern Ontario were seen in the examination of location quotients. This section is an attempt to summarize the structure of each county into an index or coefficient. As will be seen in the next section, specialization need not mean that a county will have low levels of income. The important factor is what type of industries the county is specialized as this affects unemployment rates, participation rates, labour force growth, age groups, sex ratios, education, and levels of income. All of the above effects except income have been examined either directly through labour force statistics or indirectly through the examination of the population.

The next two chapters are an endeavour to group the above factors with the functional structure in Eastern Ontario and then to relate these to the levels of income in each county.

## CHAPTER VI

FUNCTIONAL STRUCTURE OF EASTERN ONTARIO

What is a region?

Any definition of a region is arbitrary and depends upon the purpose of a particular study.<sup>1</sup>

The purpose of this study is to examine the geographic area covered by the eleven counties of Eastern Ontario. This is done to attain an understanding of the economic growth pattern of the aggregate region as well as for each county. Regional economists have usually defined regions according to three main approaches.

The first stresses homogeneity with respect to some one or combination of physical, economic, social, or other characteristics; the second emphasizes so-called nodality or polarization, usually around some central urban place; and the third is programming - or policy-oriented, concerned mainly with administrative coherence or identity between the area being studied and available political institutions for effectuating policy decisions.<sup>2</sup>

This paper is not policy-orientated and thus is not concerned with the third approach. The homogeneity approach has already been used in the analysis of population

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<sup>1</sup> Hugh D. Nourse, Regional Economics, (New York, McGraw-Hill, 1968), p. 145.

<sup>2</sup> John R. Meyer, "Regional Economics: A Survey" in Surveys of Economic Theory, Volume II, American Economic Association ed., (New York, St. Martin's Press, 1966), p. 243.

and labour force characteristics. The data showed that several counties had similar characteristics (e.g. the eastern-most counties) which set them apart from the remainder of the region. This chapter will attempt to pursue this type of examination further as well as considering how the second type of approach can be utilized to estimate the functional relationships within the region.

One of the better attempts to measure the functional structure of Eastern Ontario was made by Pierre Houde in his study of Western Quebec.<sup>3</sup> Eastern Ontario and Western Quebec are separated by the Ottawa River.

Houde's analysis was based on the assumption that interurban telephone calls, by their number, their direction and their cost can reveal a meaningful regional functional structure. On the basis of calls to and from thirty-seven centres over a period of 10-24 hour days, in the month of August 1967, the following conclusions were arrived at:

1. The region made 68% of its metropolitan calls to Montreal and 32% to Toronto.
2. The intermediate centre of Kingston is dominated by Toronto, with the remainder of Eastern

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<sup>3</sup>Pierre Houde, Structure Regionale de l'Outaouais, paper presented to l'Association Canadienne Francaise pour l'Avancement des Sciences, University of Ottawa, Ottawa, 1969.

Ontario under the predominant influence of Montreal.

3. The effect of the border clearly appears in the portioning of calls between Montreal and Toronto. If a centre in Ontario is at the same distance from Toronto as a centre in Quebec, the Ontario centre will place proportionately more calls to Toronto than to Montreal while the reverse is true of the Quebec centre.
4. The propensity of inter and extra-regional calls varies directly with the size of the centre.
5. The intermediate centres of Smiths Falls and Pembroke are attached to the Ottawa-Hull metropolitan area which in turn is under the predominant influence of Montreal. The intermediate centres of Hawkesbury and Cornwall are attached directly to the city of Montreal.<sup>4</sup>
6. The zone of influence (50% or more of the calls towards one centre) and the maximum

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<sup>4</sup>A centre is classified as under the dominant influence of another centre if the majority of its calls are made to this centre.

calls from one centre to another, reveals that in Eastern Ontario, several centres are not totally integrated neither to the intermediate centres nor to the regional capital of Ottawa-Hull or the metropolitan areas.

From this analysis it can be seen that the city of Ottawa is the regional capital but that its influence does not encompass the entirety of Eastern Ontario. The influence which Ottawa exerts on some parts of the region can also be estimated using the 1963 Eastern Ontario Highway Planning Study.<sup>5</sup> This study revealed that traffic between Toronto, Montreal and Ottawa and the traffic attraction to each of these large urban municipalities determined the major traffic attraction in the study area.

The most heavily travelled corridor in 1963 was the MacDonald-Cartier which links Montreal and Toronto. Highway 17 between Ottawa and Montreal was the second most travelled road. This is the most direct route between Ottawa and Montreal which is also designated as the Trans-Canada Highway. Another corridor was evident between Ottawa and the MacDonald-Cartier, split between Highway 16 and Highway 31. Highway 16 runs through Grenville County

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<sup>5</sup> Highway Planning Study - Eastern Ontario,  
(Toronto, Ontario Department of Highways, 1968).

to terminate in Prescott while Highway 31 runs through Dundas County to Morrisburg.

Both Highway 43 and 34 which lead to the Eastern part of the area had low volume traffic. County Road 16 however, linking Highway 43 with Cornwall had a slightly greater volume of traffic.

The Houde and Highway Study seem to indicate that the counties of Carleton, Renfrew, Grenville, and Dundas are all under the strong influence of the city of Ottawa. The remainder of the region is rather independent of Ottawa being more strongly influenced by the more distant urban aggregations of Toronto and Montreal. The counties of Prescott and Stormont and probably Glengarry have only a weak affinity to Ottawa and are under the predominant influence of Montreal.

This affinity to Montreal may indicate that the smaller urban centres of Hawkesbury and Cornwall have relatively weak links with outside points. This conclusion is deduced from a study by J. R. Mackay. Mackay in studying an interactance model came to the following conclusion:

The drop in (telephone) traffic from Montreal, Quebec and Sherbrooke to the largest English speaking cities in Canada is about a fifth to a tenth that of Quebec cities; . . . Thus the

English speaking Canadian cities behave as if they were 5 to 10 times as far away as Quebec cities of the same size and separation. . .<sup>6</sup>

This conclusion implies that since Eastern Ontario is made up of cities in which business is done basically in English the link between such cities as Ottawa, Cornwall, and Hawkesbury with Montreal is not of the same intensity as it would be if these cities were at the same distances from Toronto. This in fact may tend to isolate the region from healthy influences from outside. This isolation may however be decreased if consideration is given to the fact that the counties of Russell, Prescott, Glengarry, and Stormont have a high proportion of their population which is French speaking.

Further insight towards an understanding of the functional structure is given by J. A. Maxwell.<sup>7</sup> Maxwell classified various Canadian cities according to dominant activity. His analysis shows that the cities of Kingston, Brockville and Cornwall which are located along the Toronto-Montreal transportation route all had manufacturing as their dominant function. These cities can be considered

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<sup>6</sup>J. Ross Mackay, "The Interactance Hypothesis and Boundaries in Canada: A Preliminary Study", Canadian Geographer, No. 11, (1958), p. 8.

<sup>7</sup>S. W. Maxwell, "The Functional Structure of Canadian Cities; A classification of Cities", Geographical Bulletin, Vol. 7, No. 2, pp. 79-104.

as part of the manufacturing heart of Canada running along the development axis between Montreal and Toronto.

Maxwell also discovered that none of the five urban centres he examined in Eastern Ontario had wholesale trade as a dominant or distinctive function. This trading function is done through the cities of Montreal and Toronto.

A region may also be functionally differentiated by its source of capital, i.e. domestic capital or capital from outside the region. Michael Ray attempted this differentiation using the concept of the "economic shadow".

Primary element of economic shadow is sectoral affinity which states that branch plants tend to be located in the section lying between the head office and the primary market centre within a region. Industrial interactance between a part of a region and a city beyond is impeded wherever the primary market centre of a region becomes an intervening opportunity.

An "economic shadow" is thus cast over the area lying beyond the spatial section linking a head office to the primary regional market. Urban growth may be retarded in areas of high economic shadow, irrespective of their market potential and accessibility to the national market.

Applying the economic shadow concept to Eastern Ontario Ray came to the conclusion that most of Eastern Ontario is in a zone of high economic shadow cast by

Toronto, even though its geographic location, as measured by market potential, is otherwise favourable.<sup>8</sup> A wedge of less pronounced economic shadow extends northward from Kingston to Renfrew. Another such area of moderate economic shadow runs along the development axis between Kingston and Cornwall. Elsewhere in Eastern Ontario, economic shadow remains high. Ottawa is in the economic shadow but government investment keeps the economy buoyant. The failure of Eastern Ontario to attract manufacturing has stunted the area's urban growth and restricted with a few notable exceptions their economic base to central place functions.<sup>9</sup> This lack of manufacturing in Eastern Ontario was seen earlier in Table 14 where the Eastern Ontario manufacturing location quotient relative to Ontario was only .54 in 1961.

A statistical study by Spartan Air Services revealed that U.S. subsidiaries tend to locate in Toronto or south and west of Toronto.<sup>10</sup> Of the 210 subsidiaries of New York companies in Ontario 145 are located in Toronto and only 31 north or east of it. Pairs of cities with about

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<sup>8</sup>Michael Ray, "Urban Growth and the Concept of Functional Region" in N. H. Lithwick and G. Paquet, Urban Studies: A Canadian Perspective, (Toronto, Methuen, 1968), p. 91.

<sup>9</sup>Ibid., p. 77.

<sup>10</sup>"Increase exports, use own resources", in Daily Commercial News and Building Record, April 10, 1968, p. S-29.

equal population, one in Eastern Ontario and another in Southwestern Ontario, indicate the relative failure of Eastern Ontario to attract U.S. subsidiaries: Ottawa attracted 14 as against Hamilton's 89, Kingston 3 against Sarnia's 8 and Cornwall 5 against Guelph's 18.

The several functional features of Eastern Ontario which were examined can be summed up in 3 main points:

- (i) Ottawa in Carleton County is the regional capital extending a strong influence over the counties of Renfrew, Lanark, Grenville and Dundas with a weaker influence on remaining counties.
- (ii) The existing links to points outside the region are relatively weak both as to source of capital and general interaction.
- (iii) The Eastern counties are generally the most isolated both to points inside and outside the region. These counties have no strong attraction to Ottawa and are in a geographical location of high economic shadow.

The conclusions reached in this chapter shall be used in the next section to explain the change in and the levels of income in each of the counties in Eastern Ontario.

## CHAPTER VII

ECONOMIC GROWTH OF EASTERN ONTARIO - INCOME

The many forces such as changes in population and labour force characteristics and the functional structure, which are operating within a specific region will ultimately affect and be affected by changes in levels of income.

Each county is now examined for changes in and levels of income. A short summary of each county, based on findings provided in earlier chapters is inserted to help explain the present state of the economy of the counties considered.

Income is analyzed using two different measures. The first measure uses taxation statistics published each year by the Department of National Revenue. The second uses the Census data of distribution of earnings by wage earners. These measurements are used for two reasons: (1) they include data on rural farm, rural non-farm and urban classifications and (2) they are available on a county basis.

Average income per taxpayer in Ontario advanced from \$2,971 to \$5,137 or 72.9 per cent between 1950 and 1965 as compared to an advance from \$2,876 to \$4,941 or 71.7 per cent for Eastern Ontario as a whole. In 1965 the average income per taxpayer in Eastern Ontario was

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96.2 per cent of the Ontario average compared to 96.8 per cent in 1950. Thus the gap in average income levels between Ontario as a whole and Eastern Ontario increased only slightly over this 15 year period (see Table 17).

Table 17

Average Income Per Taxpayer  
Eastern Ontario Region and Ontario  
1950 and 1965

	<u>1950</u>	<u>1965</u>
Ontario	\$2,971	\$5,137
Eastern Ontario	\$2,876	\$4,941
Eastern Ontario as percent of Ontario	96.8	96.2

Source: Canada, Department of National Revenue, Taxation Statistics, 1952 and 1967.

The percentage distribution of wage-earners in 1961 for rural farm, rural non-farm and urban is given in Table 18. In 1961 wage-earners in Ontario were in a slightly better position than in Eastern Ontario with fewer individuals in the less than \$3,000 category but with fewer in the over \$6,000 category. Closer scrutiny of the data however, reveals that Eastern Ontario was in a better position with regard to the urban wage-earner than was Ontario. The lower wage-earnings in Eastern Ontario in aggregate are therefore the result of the poorer showing of the rural farm and rural non-farm wage-earners.

Table 18

Distribution (%) of Earnings of Wage-Earners  
Ontario and Eastern Ontario, 1961

		less than \$3000 %	\$3000- 5999 %	\$6000 and over %	Wage Earners as Per Cent of Labour Force
Ontario	T	41.0	44.8	10.4	86.0
	RF	66.2	23.5	2.1	37.5
	RNF	48.7	42.6	5.9	85.0
	U	38.9	45.9	11.3	91.1
Eastern Ontario	T	41.6	41.9	11.2	85.6
	RF	69.0	23.9	1.6	37.1
	RNF	52.8	37.7	4.9	85.8
	U	38.1	43.7	12.9	92.9

Source: Canada, Dominion Bureau of Statistics, Census of Canada, 1961, unpublished data.

County income data are found in Tables A-9 and A-10 in appendix. The counties of Russell, Carleton, Stormont, Frontenac and Leeds provided the main impetus for the increase in average incomes per taxpayer with the remaining counties suffering rates of increase less than the Eastern Ontario rate.

The relative positions among the eleven counties also changed over the period. The gap in average income between Carleton and all the other counties widened with the exception of Russell. Taking the average income in Carleton as 100 it can be seen that the difference in average income between Carleton and the county with the

lowest average income decreased to 24.5% in 1965 compared to 31.5% in 1950. Using this same index the difference between the ten counties excluding Carleton decreased even more from 28.4 per cent in 1950 to 17.2 per cent in 1965. Carleton therefore gained relative to the remaining counties but at the same time the average income gap in the remaining counties decreased.

The county by county analysis which follows examines the individual counties in order of rank, from high to low, in average income per taxpayer in 1965. These short summaries of each county are not intended to be all inclusive but they do consider the main factors which are at work within each county which affect average income. This is in contrast to the earlier chapters where the analysis was basically sectoral.

#### Carleton

Carleton County is the most favoured of the counties in Eastern Ontario. Carleton's average income per taxpayer of \$2,998 in 1950 rose 76 per cent to \$5,283 in 1965. In both 1950 and 1965 average income in Carleton surpassed the average income for Ontario. Carleton also had the smallest percentage of individuals (35 per cent) with earnings of less than \$3,000 which was also less than the percentage (41 per cent) for the whole of Ontario.

This county has several features which are conducive to growth such as an initially large, rapidly growing, young and well-educated population. The population has a high participation rate for both males and females and the unemployment rate is low in a labour force which is increasing rapidly. Using the classification of industries in Table A-6, six industries which have location quotients of 1 or more in Carleton County (see Table A-7) namely trade, finance, insurance and real estate, community business and personal service industries and public administration are all classified as rapid growth industries.

The entire county is under the sphere of influence of Ottawa which is linked to the city of Montreal. Carleton has experienced strong economic growth due mainly to the fairly steady growth of the federal government. The nature of government employment has sheltered Carleton from the many adverse effects of economic growth and development. Growth in the future will retain this healthy influence.

#### Frontenac

Frontenac County ranked second in average income per taxpayer of \$4,793 in 1965, a rise of 74 per cent over the 1950 average income of \$2,761. Frontenac also ranked second in average wage-earnings with only 42 per cent of

wage-earners with less than \$3,000. Frontenac, however, had a more diversified economy relative to Carleton with subsequent variations in economic activity.

The rural-farm sector, which is decreasing in importance, has lower wage-earnings relative to the remainder of the county due to the fact that many of the farms are at a long distance from the city of Kingston and the resource base is weak.<sup>1</sup>

Participation rates for males are low in both urban and rural non-farm areas, but, high female rates are evident in the urban areas due to the low female/male sex ratio. Labour force growth has been rapid but unemployment is considerably greater than in Carleton. Rapid growth industries are not as predominant in Frontenac where manufacturing which is a slow-growth employment industry assuming much importance. A rapid-growth industry in Frontenac is the community, business, and personal service sector.

In general, Frontenac County is economically healthy with the city of Kingston, linked to Toronto, providing the main impetus for continued growth.

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<sup>1</sup>B. J. L. Berry "Identification of Declining Regions: An Empirical Study of the Dimensions of Rural Poverty", in W. D. Wood and R. S. Thoman ed., Areas of Economic Stress in Canada, (Kingston, Queen's University, Industrial Relations Centres, 1965), p. 35.

Stormont

Stormont retained its high income per taxpayer during the period advancing 75 per cent from \$2,705 in 1950 to \$4,743 in 1965. Stormont also had a high rank in the distribution of earnings by wage earners in all three categories of urban, rural non-farm and rural farm.

High income levels do not, however, give a proper measure of the economic health of the county. Population growth has been slow in both urban and rural non-farm areas accompanied by a slow movement away from the farm. The population which remains is relatively old and not well educated and has a low labour force participation rate. The slow growth of the labour force, and the second highest level of unemployment in Eastern Ontario can be attributed in great part to the industrial structure in the county. Of the six industries with location quotients equal or greater than 1 in Stormont only trade, which is associated with population growth, and construction are classified as rapid growth. Agriculture is a declining industry while transportation, communication and other utilities and the important manufacturing industry are slow growth industries.

In summary, Stormont provides handsome returns for those who can find jobs, especially in the manufacturing industry, but lacks new opportunities to absorb a large part of the manpower supply which is gradually moving to other areas.

Leeds

The prosperity of Leeds is due basically to the stimulus provided by the city of Brockville. Average income per taxpayer in Leeds grew from \$2,667 in 1950 to \$4,609 in 1965. This 73 per cent gain in average income surpassed the rate of growth in Eastern Ontario as a whole and was equal to the rate of growth in Ontario. While Leeds ranked fourth in average increase, its rank in urban wage-earnings ranked second only to Carleton.

Relative to the rest of the region, the rural non-farm wage-earners were in a somewhat inferior position. Population shifts out of rural non-farm areas were also high and participation rates, especially for males, were low in these areas.

Both population and labour force growth has been rapid. The population is relatively young, well-educated but has an uneven distribution by sex in favour of females, especially in urban areas. The unemployment rate is also low due to the favourable industrial structure in the county with three of the six dominant industries classified as rapid growth and with two industries including manufacturing classified as slow growth industries.

Under the stimulus of the city of Brockville which runs along the Montreal-Toronto development axis the county of Leeds has grown rapidly with a restructuring of the economy which is conducive to further growth in the future.

Renfrew

Renfrew County is in the process of a slow restructuring of its economy away from heavy reliance on primary and extractive industries towards urban centered activities. Renfrew's average income per taxpayer of \$4,410 in 1965 ranked fifth in Eastern Ontario, with a rank of sixth in rate of growth in this measure of income. The non-urban sectors were the weakest areas in the county, with both the rural farm and rural non-farm sectors ranking in eighth position in wage-earnings, accompanied by rapid shifts of population out of these areas. The rate of urban population growth in Renfrew was the most rapid of all the eleven counties.

The population of the county is young with high labour force participation rates for males in contrast to lower rates for females. The relatively high unemployment rate and a relatively slow labour force growth is due in part to the heavy importance of the seasonally affected and slow growing primary industries as well as manufacturing. Public administration and defence give some stability to the county.

The rapid growth of urban centres is illustrated by the growing importance of such rapid growth industries of finance, insurance, and real estate.

Renfrew County's restructuring is proceeding at a rapid rate and the county has a strong potential for rapid economic growth. This growth is however producing short-term undesirable consequences such as a high unemployment rate.

#### Grenville

Grenville County ranked sixth in average income per taxpayer in 1965 with \$4,402, a drop in rank from the position it occupied in 1950 when it had a \$2,707 average. The rank in wage-earnings was slightly better than the above. During the 1951-61 period Grenville grew rapidly in both population and labour force but experienced a definite slowdown in population growth in the 1961-66 period, with the urban population comparative growth being the slowest of all the counties. The construction and completion of the St. Lawrence Seaway in 1959 influenced growth in population and labour force having a favourable effect in the 1951-61 period and a negative effect in the 1961-66 period.

By 1961, however, Grenville was still in a favourable position with respect to manpower supply and product demand within Eastern Ontario, for it had a relatively young, well-educated population with high labour force participation rates and generally moderate levels of unemployment.

However, the industrial structure in existence in the county in 1961 was not conducive to rapid labour force growth in the future. Agriculture was still important but declining, while the slow growth employment industries of manufacturing and transportation, communications and other utilities still played a major role in the county's economy. The urban type activities such as trade, finance, insurance, and real estate and the community business and personal service industries were weak in the urban centres.

The economy of Grenville is still healthy within Eastern Ontario but the present industrial structure of the county implies a period of slow growth in labour force and population for the future, possibly leading the way towards an economic situation similar to that in the county of Stormont.

#### Lanark

Average income per taxpayer grew by 61 per cent between 1950 and 1965 from \$2,669 to \$4,291 respectively. This average income was approximately \$1,000 less than in Carleton. Lanark also had a low rank in wage-earnings in both the urban and rural non-farm areas. The population and labour force of the county has grown slowly especially in the urban and rural farm centres, accompanied by the rapid movement of population away from the farm.

The county has been losing much of its younger population. The remaining population is relatively old, not well-educated and the males have low labour force participation rates in both urban and rural non-farm areas. This is probably due to the fact fewer male job opportunities exist in the county which had sex ratios weighted on the side of females. The larger number of females also have high labour force participation rates.

Unemployment rates in the Perth area are substantially larger than in both Carleton Place and Smiths Falls which are linked more directly to the city of Ottawa.

Lanark County has six important industries which can be classified as staples using the location quotient approach. Of these agriculture is a declining growth industry while manufacturing and transportation, communications and other utilities are classified as slow growth industries. The county, however, has some potential for rapid urban growth in the future with trade and community, business, and personal service industries playing an important role in the county.

In aggregate the county is not economically strong within Eastern Ontario but reveals some signs of strength in the urban areas of Carleton Place and Smiths Falls which benefit from strong interaction with the regional capital of Ottawa.

Dundas

The average income per taxpayer in Dundas grew by only 57 per cent between 1950 and 1965 from \$2,663 to \$4,186 respectively. Dundas also had low ranks in wage-earners, especially in urban areas where 65 per cent of the wage-earners earned less than \$3,000 in 1961.

Dundas reveals few features which are conducive to sustained growth with slow growth of labour force and population, especially in urban areas. The rank of total population growth was tenth during the 1951-61 period and ninth during the 1961-66 period. The remaining population is small in size, is predominantly female in urban areas and the level of schooling is not high. The county also has a low urban labour force participation rate and is afflicted by high levels of unemployment.

The county has only one of its five dominant industries which is classified as rapid growth, namely construction. Both manufacturing and transportation, communications, and other utilities are slow growth employment industries, while agriculture holds no promise for growth in labour force.

Dundas has performed poorly in the past and the present population and labour force characteristics point to a continuation of this trend into the future.

Prescott

Prescott County had the second highest average income per taxpayer of \$2,866 in 1950 but suffered the smallest increase of only 46 per cent during the 1950-65 period to culminate with a \$4,181 average income in 1965. In 1961 urban, rural non-farm, and rural farm earnings ranked eighth, ninth and eleventh respectively among the eleven counties.

Prescott is suffering most of the characteristics of a region of population outflow. Among these are the slow growth of population and labour force. The county has the highest levels of unemployment and the lowest level of educational attainment coupled with low labour force participation rates, especially in urban areas. Prescott also experienced the slowest growth in population in the 0-24 year age category so this younger generation have been unable to find jobs and have thus moved away.

The industries with location quotients of one or more in the county are comprised of two declining growth industries of agriculture and forestry, one slow growth industry which is manufacturing, and two rapid growth industries of which only construction is significant in size. Also, as seen in the previous chapter, Hawkesbury has no strong links to other large metropolitan centres due to the effect of the Ontario-Quebec border which

reduces a link with Montreal which otherwise might be stronger.

Prescott County has gone from a prosperous to a weak position within Eastern Ontario even though it is located in a geographical area of high market potential between the cities of Ottawa and Montreal. The recent choice of the new airport site in Ste. Scholastique might however help to reverse the above unfavourable trend.

#### Russell

Russell experienced the most rapid rate of growth in average income, more than doubling from \$2,053 in 1950 to \$4,132 in 1965. In 1961 the rank in wage-earnings was tenth in urban areas, ninth in rural farms, and fifth in rural non-farm.

Total population growth ranked seventh in both the 1951-61 and 1961-66 periods but it had a slightly better growth in the rural non-farm and urban centres. The county has the second lowest level of schooling, has an aging population with low levels of labour force participation rates for both males and females. Labour force growth has been moderate throughout the period.

The economic base of the county is predominantly agriculture with construction also classified as a staple or dominant industry. The urban and rural non-farm centres are basically performing lower order central place

functions such as trade, and transportation, communications and other utilities. Russell serves partly as a labour pool for the Federal Government in Ottawa as exemplified by the .55 location quotient for public administration and defence. Of the dominant industries in Russell only construction is classified as rapid growth.

Russell has experienced rapid growth in income during the period due to the influence of Ottawa but has maintained an industrial structure which is not conducive to sustained population and labour force growth.

#### Glengarry

Average income per taxpayer in Glengarry grew by 58 per cent between 1950 and 1965 from \$2,489 to \$3,938 respectively. In 1950 the average income in Glengarry was 87 per cent of the Eastern Ontario average, declining to 80 per cent in 1965. Urban wage-earnings in 1961 ranked last in Eastern Ontario, with rural farm and rural non-farm ranking tenth and seventh respectively. In 1961, of the 57 per cent of the labour force which were wage earners, 64 per cent had earnings of less than \$3,000.

Total population growth in the 1951-61 period ranked ninth, declining to the eleventh rank during the 1961-66 period. The only rapid population growth point was concentrated in the urban centre of Alexandria which ranked fourth in relative urban population shifts during the 1961-

66 period. Glengarry has other characteristics indicative of a county of outmigration. The population does not have a high level of education associated with the slow growth of population in the most productive 0-24 and 25-44 age groups. The county has extremely low participation rates in both rural non-farm and urban areas as well as high levels of unemployment.

The slow growth in the size of the labour force is due basically to the importance of declining growth primary industries in the county. Also the transportation, communication and other utilities which is a dominant industry is classified as slow growth. Stronger signs of growth are evident in the urban centre of the county where manufacturing and lower central place functions such as trade are growing in importance.

Glengarry County is in a disadvantaged position within Eastern Ontario and its future holds no great promise for rapid population and labour force growth or high levels of income without government assistance.

CHAPTER VIII  
SUMMARY AND CONCLUSIONS

The previous chapters have brought to the fore the wide divergences in economic and social conditions which exist within Eastern Ontario. Social and economic disadvantage has revealed a striking regional pattern. General prosperity and economic health has also exhibited a pattern which is selectively located. The remainder of the area is situated between the two extremes.

The eleven counties can be classified in three groups - prosperous, disadvantaged, and in-between as follows:

Prosperous

Carleton  
Frontenac  
Leeds

In-between

Grenville  
Lanark  
Renfrew  
Stormont

Disadvantaged

Dundas  
Glengarry  
Prescott  
Russell

The prosperous counties generally reveal a strong combination of the following conditions: (i) high levels

and significant improvements in levels of income, (ii) rapid growth of population, (iii) high levels of educational attainment, (iv) retention of population in the most productive age groups, (v) rapid growth of labour force, (vi) generally high labour force participation rates, especially in urban areas, (vii) comparatively low levels of unemployment, (viii) general prominence of rapid growth industries as well as industries which are of higher order central place function such as finance, insurance, and real estate and community business, and personal service industries.

The "disadvantaged" counties, which are all located in the eastern-most section of Eastern Ontario, generally disclose characteristics which are the opposite of those found in the "prosperous" counties. The only exception is Russell County which had a rapid increase in income during the period but still retained a low ranking level of income. In all of these counties agriculture employed at least 34 per cent of the total labour force in 1961 compared to an average of 9 per cent for Eastern Ontario as a whole.

The "in-between" counties are grouped together because each of the counties reveals some of the characteristics which are conducive to sustained economic growth but also impart indications similar to that found in the "disadvantaged" counties. The counties in this group have more important industries which are either rapid or slow

growth rather than declining growth as in the disadvantaged counties. Manufacturing also plays a decidedly more important role in these counties than in the disadvantaged counties. The role of service orientated industries is, however, much less important than in the "prosperous" counties.

The three classifications of counties are in distinctively different stages of economic growth and have different staple or dominant industries.

The prosperous counties have reached a stage of near self-sustaining growth. These counties have moved through the stages of primary and secondary economic activity and have attained specialization in tertiary activities producing in excess of local demands. These tertiary or service industries are mainly situated in the large urban centres of Ottawa, Kingston and Brockville. These urban centres have become the dominant influence in the counties and have been able to absorb an increasingly large population and expanding labour force.

The "in-between" counties have not been able to totally penetrate the advanced stage of development achieved by the "prosperous" counties. These counties have lessened their attachment to agriculture and have acquired manufacturing as the prime staple industry. The urban centres are lower order central places acting as transportation points and suppliers of general community,

business and personal needs. Given this type of industrial structure the expansion of labour force requirements has not proceeded rapidly thus bringing about some of the less favourable population and labour force characteristics which are found in these counties. Due to high productivity in manufacturing these counties have however been able to maintain relatively high income per taxpayer in the face of considerable outmigration of the younger better educated population.

The "disadvantaged" counties are still in an early stage of economic development, dependent mainly on agriculture and other primary industries. These counties attained some prominence in primary manufacturing as well as construction and to some extent transportation, communication and other utilities. None of these counties have large urban centres. Trade, finance, insurance and real estate and community, business and personal services, and public administration and defence are not dominant industries in any of these counties. Due to the fact that the present industrial structure is unable to absorb much of the natural increase in population, a steady outmigration has resulted. The rate of outmigration has not been rapid enough relative to the slow growth of capital and this has led to a situation of underemployment, unemployment, and low labour force participation rates. These counties are in an awkward position with respect to

future economic growth with an overabundance of an aging population with low levels of educational attainment.

In the above the combination of the staple or export base, the stage of economic development and the role of the urban centre were all involved in the explanation and end result of the process of economic growth in the various counties.

The particular staples or export industries in each of the counties had a definite bearing on the stage of economic development attained in the county and on the strength of the urban centre. Counties in which tertiary activities were the main staples or exports had attained a high level of economic development as well as being under the strong influence of a growing urban centre. Lower order service functions such as trade, and transportation, communication and other utilities and manufacturing were the chief staple industries in the counties which had smaller urban centres and were at an intermediate stage of economic development. Small urban centres and a low level of economic development were associated with primary staples.

The vital and growing influence of the urban centre in economic growth was evidenced in Eastern Ontario. During the period rural farm population declined, rural non-farm remained stable, while urban population growth advanced rapidly. The location of the more dynamic urban centres

was a major factor in the redistribution and greater concentration of total population in a few counties. The counties which lacked a rapidly growing urban area lost much of their younger better educated population and labour force to those urban centres which could absorb increasing numbers of people. This outmigration has probably increased the productivity of the emigrant to the benefit of the entire region even though it may have also limited the future growth potential of the smaller community. This strong attraction of the larger urban communities will likely continue in the future and thus it can be expected that as time advances the present trend in the redistribution of population and labour force will be perpetuated.

The conclusions reached in this thesis on the economic growth process and its after-effects seem to imply a possible approach in regional problem solving. The free market economic forces have redistributed both people and capital within the region to the benefit of the entire region as a whole and a few counties or urban centres within these and other counties. The end result has been a creation of 3 types of counties. Each type has its specific problems. The main problems in the "prosperous" counties are mainly urban while in the "in-between" counties the problem is one of insuring that the growth points, if they have potential, are able to grow at

a rate sufficient to absorb many of the migrants from agriculture. If these growth points do not expand the end result may be undesirable population and labour force characteristics as are found in the disadvantaged counties. The problems in the disadvantaged counties are probably the most pressing from a "Just Society" point of view. Many individuals who remain in these areas cannot or will not be able to find jobs in their county. This implies that smaller urban centres in each county should be maintained to absorb that portion of the local population who will not for many reasons emigrate to other more distant centres.

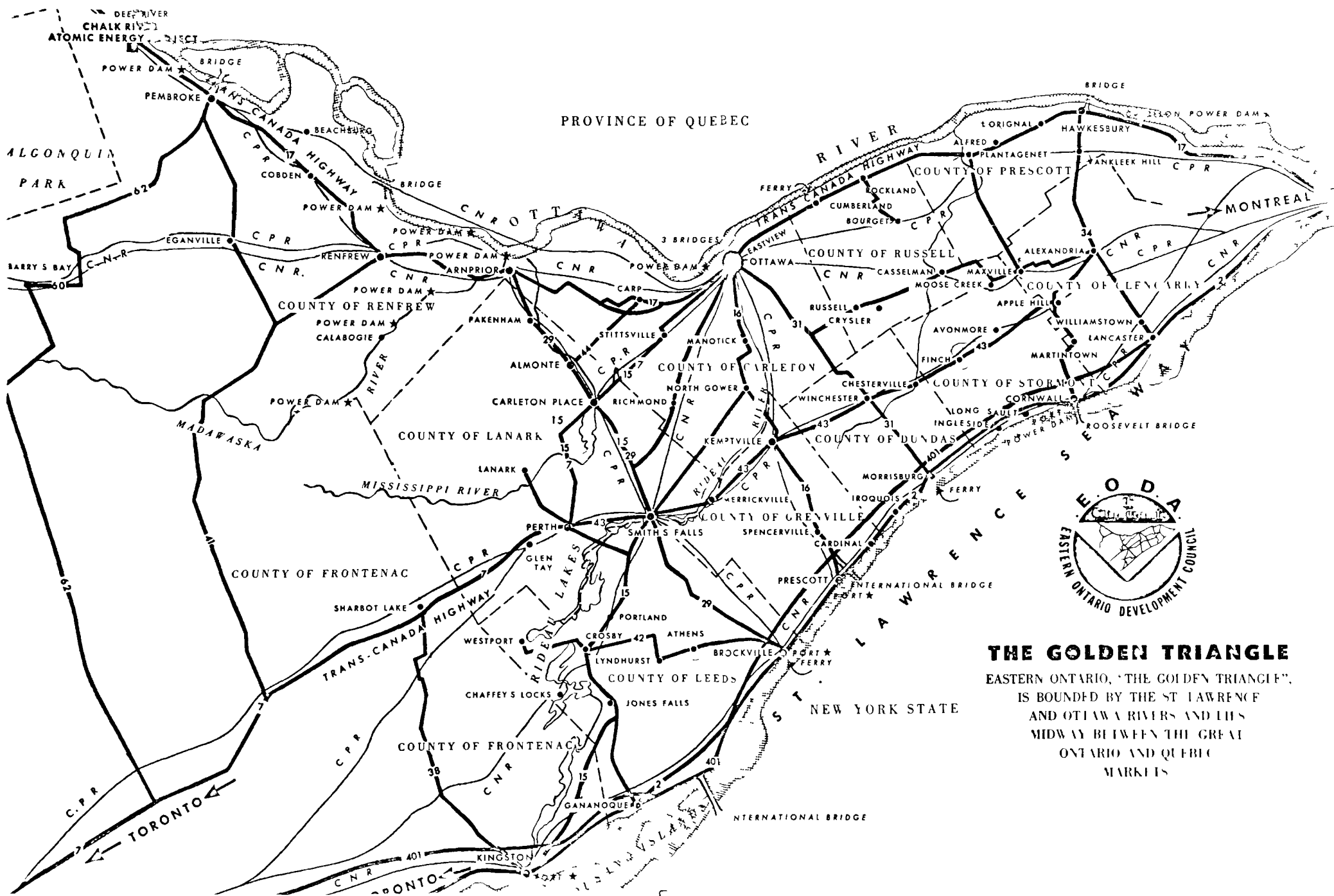
This thesis has attempted to answer three main questions as they relate to the economic development of Eastern Ontario: (i) What has been the economic growth pattern of Eastern Ontario? (ii) What have been the main determinants of this growth pattern? (iii) What are the main implications of this growth pattern for the future development of the region?

The complexity of economic growth as well as a lack of sufficient data especially over time have placed several limitations on the analytical endeavour in this thesis. It is, however, hoped that a certain degree of enlightenment will be acquired by the readers of this study and will spurn others to further studying the process of regional development with emphasis on both economic and non-economic

aspects of the subject matter. A note is included in the appendix which suggests possible avenues of research into the regional development of Eastern Ontario.

It is imperative that regional analysts consider the individual not merely as a population and labour force statistic but rather as a complete person with particular cultural, political, social, psychological, and economic characteristics.

APPENDIX A



PROVINCE OF QUEBEC



**THE GOLDEN TRIANGLE**  
 EASTERN ONTARIO, 'THE GOLDEN TRIANGLE',  
 IS BOUNDED BY THE ST. LAWRENCE  
 AND OTTAWA RIVERS AND THE  
 MIDWAY BETWEEN THE GREAT  
 ONTARIO AND QUEBEC  
 MARKETS

Table A-1

Total Population and Land Area for Eastern Ontario and Counties  
1951, 1961 and 1966

	<u>1951</u>	<u>1961</u>	<u>1966</u>	<u>County as % of Eastern Ontario 1966</u>	<u>Acres Land Area</u>
Eastern Ontario	591,780	782,531	850,923	100.0	6,547,840
Carleton	242,247	352,932	407,463	47.9	606,080
Dundas	15,818	17,162	17,106	2.0	245,760
Glengarry	17,702	19,217	18,181	2.1	305,920
Grenville	17,045	22,864	23,429	2.8	296,320
Frontenac	66,099	87,534	97,138	11.4	1,023,360
Lanark	35,601	40,313	41,212	4.9	728,320
Leeds	38,831	46,889	49,129	5.8	576,000
Prescott	25,576	27,226	27,155	3.2	316,320
Renfrew	66,717	89,635	89,453	10.5	1,925,760
Russell	17,666	20,892	21,107	2.5	260,480
Stormont	48,458	57,867	59,550	7.0	263,680

Source: Canada, Dominion Bureau of Statistics, Census of Canada, 1951, 1961 and 1966.

Table A-2Sex Ratios: Urban, Rural Non-Farm, and Rural Farm  
Eastern Ontario and Counties, 1951 and 1966

		<u>1951</u>	<u>1966</u>	<u>Change</u>
Carleton	Urban	112.4	106.0	- 6.4
	Rural Non-Farm	99.2	94.0	- 5.2
	Rural Farm	79.8	85.3	5.5
Dundas	Urban	117.4	108.2	- 9.2
	Rural Non-Farm	97.8	99.5	1.7
	Rural Farm	90.6	89.6	- 1.0
Glengarry	Urban	108.3	98.8	- 9.5
	Rural Non-Farm	100.5	99.8	- 0.7
	Rural Farm	86.9	84.3	- 2.6
Grenville	Urban	108.9	103.8	- 5.1
	Rural Non-Farm	103.7	95.8	- 7.9
	Rural Farm	90.8	88.2	- 2.6
Frontenac	Urban	107.1	97.6	- 9.5
	Rural Non-Farm	78.0	90.4	12.4
	Rural Farm	82.9	86.2	3.3
Lanark	Urban	109.2	111.0	1.8
	Rural Non-Farm	91.6	89.4	- 2.2
	Rural Farm	84.2	84.8	0.6
Leeds	Urban	112.0	106.6	- 5.4
	Rural Non-Farm	104.0	99.4	- 5.0
	Rural Farm	88.4	87.6	- 0.8
Prescott	Urban	105.5	102.0	- 3.5
	Rural Non-Farm	94.6	95.7	1.1
	Rural Farm	86.0	84.3	- 1.7
Renfrew	Urban	104.2	99.0	- 5.2
	Rural Non-Farm	76.0	93.1	17.1
	Rural Farm	81.1	84.2	3.1
Russell	Urban	102.7	103.8	1.1
	Rural Non-Farm	104.4	98.9	- 5.5
	Rural Farm	89.0	87.3	- 1.7
Stormont	Urban	104.3	104.2	- 0.1
	Rural Non-Farm	100.4	100.5	0.1
	Rural Farm	86.5	88.0	1.5

Computed from data in Table A-11 Appendix A.

Table A-3

Population 5 Years of Age and Over Not Attending School  
 By Years of Schooling, Eastern Ontario and Counties  
 Urban, Rural Non-Farm and Rural Farm 1961  
 Having Attained at least Grade 9 Education

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	<u>Total</u>	<u>Urban</u>	<u>Rural Non-Farm</u>	<u>Rural Farm</u>
Eastern Ontario	56.7	63.4	42.9	33.6
Carleton	67.5	68.9	54.7	43.9
Dundas	46.2	58.2	41.4	39.1
Glengarry	34.3	39.1	35.3	31.0
Grenville	50.3	59.7	47.8	36.8
Frontenac	58.1	63.4	46.6	35.7
Lanark	45.7	56.7	27.3	36.9
Leeds	54.4	64.7	45.7	39.5
Prescott	31.7	37.3	29.2	24.9
Renfrew	46.0	53.0	44.0	25.6
Russell	32.6	35.8	37.5	25.3
Stormont	47.6	50.7	42.4	33.5

Source: Canada, Dominion Bureau of Statistics, Census of  
 Canada, 1961, unpublished data.

Table A-4  
Population Shifts by Age Groups, Counties in Eastern Ontario, 1951-1966

	<u>0-24</u>		<u>25-44</u>		<u>45-64</u>		<u>65+</u>	
	<u>Absolute Shift</u>	<u>Per Cent Shift</u>	<u>Absolute Shift</u>	<u>Per Cent Shift</u>	<u>Absolute Shift</u>	<u>Per Cent Shift</u>	<u>Absolute Shift</u>	<u>Per Cent Shift</u>
Eastern Ontario	156,816*	160.76#	39,164*	122.79#	46,200*	142.32#	16,983*	132.26#
Carleton	35,245	+18.0	13,764	12.7	8,624	11.6	3,678	12.7
Dundas	- 2,572	-24.2	- 1,299	-26.8	- 1,107	-24.3	- 704	-25.8
Glengarry	- 4,443	-32.8	- 1,520	-31.0	- 50	- 1.1	- 570	-21.3
Grenville	+ 238	+ 2.2	- 218	- 4.0	- 559	-10.8	- 434	-14.7
Frontenac	+ 2,001	+ 4.2	429	1.7	- 4	0.0	- 5	- 0.1
Lanark	- 4,051	-17.2	- 3,009	-26.2	- 2,209	-21.3	- 631	-11.2
Leeds	- 2,817	-11.3	- 1,494	-11.6	- 1,253	-10.9	- 908	-14.5
Prescott	- 7,096	-33.1	- 1,879	-24.8	- 911	-16.0	- 404	-14.7
Renfrew	- 5,327	-10.4	- 1,331	- 5.9	- 713	- 4.6	126	1.8
Russell	- 3,487	-23.1	- 625	-12.4	- 505	-13.1	- 331	-17.1
Stormont	- 7,694	-20.2	- 2,850	-17.3	- 315	- 2.8	57	1.2

\*Absolute Growth

#1966 as Per Cent of 1951.

Source: Canada, Dominion Bureau of Statistics, Census of Canada, 1951 and 1966.

Table A-5

Labour Force Participation Rates, Eastern Ontario and Counties  
Male and Female, 1951 and 1961

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		1951		1961		Change	
		Male	Female	Male	Female	Male	Female
Eastern Ontario	Total	82.2	25.9	79.3	32.8	- 2.9	+ 6.9
	Rural Farm	85.7	9.4	84.4	24.4	- 1.3	+15.0
	Rural Non-Farm	77.3	15.0	72.4	22.1	- 5.0	+ 7.1
	Urban	82.4	32.0	80.1	36.0	- 2.3	+ 4.0
Carleton	Total	83.5	33.3	82.6	38.4	- 0.9	+ 5.1
	Rural Farm	85.3	9.6	84.2	21.8	- 1.1	+12.2
	Rural Non-Farm	80.8	15.3	79.1	24.4	- 1.7	+ 9.1
	Urban	83.4	35.1	82.8	39.4	- 0.6	+ 4.3
Dundas	Total	82.2	17.1	82.3	28.3	+ 0.1	+11.2
	Rural Farm	88.0	13.3	89.5	33.8	+ 1.5	+20.5
	Rural Non-Farm	71.0	14.1	75.9	24.0	+ 4.9	+ 9.9
	Urban	77.7	23.0	77.8	25.7	+ 0.1	+ 2.7
Glengarry	Total	77.5	12.7	73.2	21.9	- 4.3	+ 9.2
	Rural Farm	83.8	8.3	84.0	22.7	+ 0.2	+14.4
	Rural Non-Farm	70.0	14.4	65.7	19.7	- 4.3	+ 5.3
	Urban	69.8	23.2	65.2	27.4	- 4.6	+ 4.2
Grenville	Total	82.0	18.7	78.7	28.0	- 3.3	+ 9.3
	Rural Farm	85.6	11.1	84.2	28.4	- 1.4	+17.3
	Rural Non-Farm	76.1	17.5	75.0	25.2	- 1.1	+ 7.7
	Urban	81.4	25.5	79.4	30.4	- 2.0	+ 4.9

Table A-5 (Cont'd)

Labour Force Participation Rates, Eastern Ontario and Counties  
Male and Female, 1951 and 1961

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		1951		1961		Change	
		Male	Female	Male	Female	Male	Female
Frontenac	Total	78.8	25.7	74.3	31.6	- 4.5	+ 5.9
	Rural Farm	85.5	12.6	80.0	17.4	- 5.5	+ 4.8
	Rural Non-Farm	80.2	19.6	70.0	21.0	-10.2	+ 1.4
	Urban	76.6	30.7	74.8	35.4	- 1.8	+ 4.7
Lanark	Total	80.3	19.7	73.3	29.0	- 0.7	+ 9.3
	Rural Farm	86.7	10.9	83.2	21.3	- 3.5	+10.4
	Rural Non-Farm	68.8	17.4	56.8	23.1	-12.0	+ 5.7
	Urban	79.9	23.4	76.3	32.9	- 6.5	+ 9.5
Leeds	Total	78.5	19.9	75.6	28.7	- 2.9	+ 8.8
	Rural Farm	84.7	8.5	84.6	23.3	- 0.1	+14.8
	Rural Non-Farm	65.2	14.1	62.8	21.9	- 2.4	+ 7.8
	Urban	83.1	29.5	80.2	34.2	- 2.9	+ 4.7
Prescott	Total	79.1	13.5	74.5	21.5	- 4.6	+ 8.0
	Rural Farm	84.2	6.2	84.1	21.1	- 0.1	+14.9
	Rural Non-Farm	68.3	14.5	68.0	19.7	- 0.3	+ 5.2
	Urban	81.2	20.5	71.2	22.6	-10.0	+ 2.1
Renfrew	Total	86.5	18.3	81.3	26.6	- 5.2	+ 8.3
	Rural Farm	87.1	7.6	83.3	25.0	- 3.8	+17.4
	Rural Non-Farm	88.0	13.6	81.6	22.6	- 6.4	+ 9.0
	Urban	84.7	26.0	80.6	29.1	- 4.1	+ 3.1

Table A-5 (Cont'd)

Labour Force Participation Rates, Eastern Ontario and Counties  
Male and Female, 1951 and 1961

		<u>1951</u>		<u>1961</u>		<u>Change</u>	
		<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
Russell	Total	80.5	13.8	76.4	23.2	- 4.1	+ 9.4
	Rural Farm	86.7	11.1	85.0	27.5	- 1.7	+16.4
	Rural Non-Farm	69.7	14.0	72.8	19.0	+ 3.1	+ 5.0
	Urban	78.7	19.6	68.9	23.6	- 9.8	+ 4.0
Stormont	Total	82.4	24.1	76.8	27.0	- 5.6	+ 2.9
	Rural Farm	83.7	6.4	87.4	29.7	+ 3.7	+23.3
	Rural Non-Farm	76.7	16.2	69.4	19.5	- 7.3	+ 3.3
	Urban	84.4	31.8	76.5	28.1	- 7.9	- 3.7

Source: Canada, Dominion Bureau of Statistics, Census of Canada, 1951 and 1961, unpublished data.

Table A-6

Classification of Industries: Rapid Growth, Slow Growth  
and Declining Industries 1951-1961, Ontario  
1961 Labour Force Classification

	<u>1951</u>	<u>1961</u>	<u>% Change</u> <u>1961/1951</u>
Total Labour Force Growth	1,882,508	2,393,015	27.1
<u>Rapid Growth</u> <sup>(1)</sup>			
Mining	30,651	42,660	39.1
Construction	118,413	153,866	29.9
Trade	272,327	370,540	36.0
Finance, Insurance and Real Estate	61,722	98,454	59.5
Community, Business and Personal Service	267,260	467,127	74.8
Public Administration and Defence	115,666	181,263	56.7
<u>Slow Growth</u> <sup>(2)</sup>			
Manufacturing	603,704	643,284	6.6
Transportation, Communication, Utilities	168,009	195,223	16.1
<u>Declining</u> <sup>(3)</sup>			
Agriculture	201,115	168,775	-16.1
Forestry	23,010	17,935	-22.1
Fishing and Trapping	2,258	2,185	- 3.2

(1) Labour force growth of 27.1% or more.

(2) Labour force growth from 0 to 27.0%.

(3) Labour force growth of less than 0.

Source: Canada, Dominion Bureau of Statistics, Census of Canada, 1961.

Table A-7

Location Quotients of Labour Force, By Counties, 1951 and 1961, Counties of Eastern Ontario

	<u>Agriculture*</u>	<u>Forestry*</u>	<u>Fishing and Trapping*</u>	<u>Mining*</u>	<u>Manufacturing</u>	<u>Construction</u>	<u>Transportation Communication and other Utilities</u>	<u>Trade</u>	<u>Finance Insurance and Real Estate*</u>	<u>Community Business and Personal Service Industries</u>	<u>Public Administration and Defence</u>
1951											
Carleton	.33	.20	.75	.50	.58	.88	.97	1.12	1.61	1.45	N/A
Dundas	3.28	.20	.50	.10	.94	.64	.92	.74	.43	.33	N/A
Glengarry	3.47	1.60	7.50	.50	.61	1.03	.83	.65	.32	.34	N/A
Grenville	1.92	1.60	.50	.50	1.33	1.11	1.32	.93	.43	.44	N/A
Frontenac	.74	.40	2.50	1.50	1.26	1.08	.81	1.04	.79	1.02	N/A
Lanark	1.50	1.20	.25	1.50	1.41	1.12	1.81	1.04	.57	.42	N/A
Leeds	1.47	.08	5.00	1.00	1.44	1.06	1.15	1.00	.68	.58	N/A
Prescott	2.57	.40	2.50	2.50	1.16	1.22	.76	.76	.36	.34	N/A
Renfrew	1.24	5.40	2.50	2.50	1.09	1.21	1.06	.77	.39	.88	N/A
Russell	3.26	.40	.50	1.00	.41	1.90	.54	.74	.39	.42	N/A
Stormont	.93	.20	-	1.00	2.36	.93	.88	.98	.50	.42	N/A

Table A-7 (Cont'd)

Location Quotients of Labour Force, By Counties, 1951 and 1961, Counties of Eastern Ontario

		Agriculture*	Forestry*	Fishing and Trapping*	Mining*	Manufacturing	Construction	Transportation Communication and Other Utilities	Trade	Finance Insurance and Real Estate*	Community Business and Personal Service Industries	Public Administration and Defence
1961	Carleton	.25	.20	1.00	1.00	.53	.96	.94	1.03	1.42	1.02	1.49
	Dundas	4.18	.20	2.00	.20	1.15	1.03	1.18	.82	.47	.66	.17
	Glengarry	4.61	2.40	1.00	.30	.95	.87	1.11	.80	.38	.75	.10
	Grenville	1.74	2.20	1.00	2.00	1.99	1.39	1.17	.95	.47	.78	.22
	Frontenac	.61	.40	-	2.00	1.33	.94	.84	.98	.79	1.34	.76
	Lanark	1.68	1.00	-	.40	1.41	1.15	1.61	1.02	.65	1.10	.23
	Leeds	1.53	.20	.50	2.00	1.84	.97	1.14	1.08	.68	1.13	.17
	Prescott	3.30	1.20	-	5.00	1.28	1.39	.88	.95	.47	.82	.15
	Renfrew	2.12	5.00	1.50	5.00	1.14	.90	.84	.87	.44	.76	1.15
	Russell	3.89	.80	1.00	.50	.45	1.73	.74	.90	.65	.63	.55
	Stormont	1.21	.40	-	1.00	2.06	1.05	1.28	1.09	.59	.98	.19

\*Comparable 1951 and 1961.

Computed from Table A-12 in Appendix A.

Table A-8

Labour Force Shifts, By County and Comparable Industries  
Eastern Ontario Counties, Relative to Eastern Ontario

	<u>All Industries</u>		<u>Agriculture</u>		<u>Other Primary</u>		<u>Finance, Insurance and Real Estate</u>	
	<u>Absolute Shift</u>	<u>% Shift</u>	<u>Absolute Shift</u>	<u>% Shift</u>	<u>Absolute Shift</u>	<u>% Shift</u>	<u>Absolute Shift</u>	<u>% Shift</u>
Carleton	12,826	9.1	- 506	-13.8	98	29.8	- 141	- 2.1
Dundas	- 816	-11.3	284	12.2	0	0	3	2.9
Glengarry	-1,009	-14.4	299	12.4	- 7	- 9.2	1	1.3
Grenville	269	3.3	78	5.9	45	42.5	21	15.8
Frontenac	- 955	- 2.9	- 712	-33.9	- 40	-23.7	214	2.8
Lanark	-2,591	-15.7	- 121	- 5.6	- 47	-37.0	- 10	- 3.2
Leeds	- 748	- 4.2	- 9	- 0.4	- 9	-14.3	- 9	- 2.3
Prescott	-1,749	-17.4	145	+ 6.1	- 2	- 3.5	11	8.5
Renfrew	-1,446	- 4.4	- 6	- 0.2	- 32	- 3.5	51	11.0
Russell	- 440	- 6.5	228	10.7	7	25.0	48	34.3
Stormont	-3,339	-15.1	191	9.6	- 25	-36.8	- 1	- 0.3

Computed from Table A-13 in Appendix A.

Table A-9  
Average Income Per Taxpayer  
Eastern Ontario Region, 1950 and 1965

	<u>1950</u>	<u>1965</u>	<u>Change</u>
	\$	\$	%
Carleton	2,998	5,283	76.2
Dundas	2,663	4,186	57.2
Glengarry	2,489	3,938	58.2
Grenville	2,707	4,402	62.6
Frontenac	2,761	4,793	73.6
Lanark	2,669	4,291	60.8
Leeds	2,667	4,609	72.8
Prescott	2,866	4,181	45.9
Renfrew	2,681	4,410	64.5
Russell	2,053	4,132	101.3
Stormont	2,705	4,743	75.3

Source: Canada, Department of National Revenue,  
Taxation Statistics, 1952 and 1967.

Table A-10

Distribution (%) of Earnings of Wage Earners  
Rural Farm, Rural Non-Farm and Urban  
Eastern Ontario and Counties, 1961

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		<u>less than \$3,000</u>	<u>\$3,000- 5,999</u>	<u>\$6,000 and over</u>	<u>Wage Earners as % of Labour Force</u>
Eastern Ontario	Total	41.6	41.9	11.2	85.6
	Rural Farm	69.0	23.9	1.6	37.1
	Rural Non-Farm	52.8	37.7	4.9	85.8
	Urban	38.1	43.7	12.9	92.9
Carleton	Total	35.0	43.9	15.7	92.5
	Rural Farm	58.6	30.1	2.9	47.1
	Rural Non-Farm	39.6	45.5	10.3	87.6
	Urban	34.5	44.1	16.1	94.0
Dundas	Total	60.1	31.6	4.2	60.1
	Rural Farm	72.9	21.9	0.9	33.4
	Rural Non-Farm	64.6	28.3	2.5	81.7
	Urban	49.2	39.8	7.3	83.7
Glengarry	Total	63.6	27.3	2.8	57.1
	Rural Farm	76.7	16.5	2.0	28.8
	Rural Non-Farm	58.3	31.4	3.1	79.8
	Urban	62.3	28.2	2.7	82.1
Grenville	Total	49.0	41.6	6.0	78.2
	Rural Farm	68.0	19.5	2.4	43.6
	Rural Non-Farm	49.8	42.2	4.6	87.9
	Urban	43.5	45.1	8.1	88.0

Table A-10 (Cont'd)

Distribution (%) of Earnings of Wage Earners  
Rural Farm, Rural Non-Farm and Urban  
Eastern Ontario and Counties, 1961

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		<u>less than \$3,000</u>	<u>\$3,000- 5,999</u>	<u>\$6,000 and over</u>	<u>Wage Earners as % of Labour Force</u>
Frontenac	Total	42.4	44.2	8.3	88.6
	Rural Farm	63.0	33.1	1.8	46.1
	Rural Non-Farm	43.7	48.3	5.1	86.0
	Urban	41.1	44.1	9.3	93.4
Lanark	Total	55.3	35.0	5.7	78.0
	Rural Farm	68.5	24.3	1.8	40.9
	Rural Non-Farm	64.0	29.2	2.9	83.6
	Urban	50.9	38.2	7.0	89.0
Leeds	Total	46.5	42.4	6.2	80.0
	Rural Farm	67.1	25.8	1.5	43.8
	Rural Non-Farm	53.9	37.7	3.6	82.8
	Urban	40.1	47.2	8.0	90.9
Prescott	Total	57.6	32.7	4.5	65.8
	Rural Farm	79.4	16.1	0.4	28.0
	Rural Non-Farm	62.4	26.5	4.2	78.6
	Urban	50.6	39.3	5.6	87.5
Renfrew	Total	51.4	37.8	6.0	82.7
	Rural Farm	75.9	20.4	0.9	33.8
	Rural Non-Farm	59.6	33.5	3.5	89.7
	Urban	43.9	42.2	8.0	92.0

Table A-10 (Cont'd)

Distribution (%) of Earnings of Wage Earners  
Rural Farm, Rural Non-Farm and Urban  
Eastern Ontario and Counties, 1961

		<u>less than \$3,000</u>	<u>\$3,000- 5,999</u>	<u>\$6,000 and over</u>	<u>Wage Earners as % of Labour Force</u>
Russell	Total	59.2	31.3	2.5	62.2
	Rural Farm	76.1	18.5	0.7	31.4
	Rural Non-Farm	51.7	35.4	3.7	85.2
	Urban	58.8	33.6	2.0	84.1
Stormont	Total	43.6	42.9	6.5	83.2
	Rural Farm	62.6	28.0	1.6	30.8
	Rural Non-Farm	47.8	40.0	5.9	84.7
	Urban	41.9	44.3	7.4	91.8

Source: Canada, Dominion Bureau of Statistics, Census of Canada, 1961, unpublished data.

Table A-11

Population By Sex, Ontario, Eastern Ontario and Counties, Rural Non-Farm, Rural Farm, and Urban  
1951, 1961, and 1966

		1951				1961				1966			
		Total	Rural Non-Farm	Rural Farm	Urban	Total	Rural Non-Farm	Rural Farm	Urban	Total	Rural Non-Farm	Rural Farm	Urban
		Ontario	Male	2,314,170	354,765	365,539	1,593,866	3,134,528	472,275	272,790	2,389,463	3,479,149	456,169
	Female	2,283,372	313,635	312,504	1,657,233	3,101,554	434,589	232,709	2,434,066	3,481,721	429,566	225,600	2,826,555
Eastern Ontario	Male	293,634	51,112	61,367	181,155	391,531	70,291	46,089	275,151	423,447	69,845	43,069	311,533
	Female	298,146	46,412	52,219	199,515	391,000	65,243	38,985	286,772	427,476	66,422	37,062	324,002
Carleton	Male	115,514	4,901	7,675	102,938	172,518	9,444	5,298	157,776	198,959	11,414	5,046	182,505
	Female	126,733	4,860	6,127	115,746	180,414	8,779	4,361	167,274	208,504	10,725	4,361	203,423
Dundas	Male	7,914	1,204	4,300	2,410	8,718	2,341	3,662	2,715	8,624	2,391	3,453	2,780
	Female	7,904	1,178	3,897	2,829	8,444	2,274	3,252	2,918	8,482	2,380	3,095	3,017
Glengarry	Male	9,155	3,066	5,031	1,058	9,974	4,566	4,125	1,283	9,400	4,191	3,661	1,548
	Female	8,547	3,081	4,320	1,146	9,243	4,577	3,352	1,314	8,781	4,182	3,176	1,423
Greenville	Male	8,510	1,860	3,401	3,249	11,619	4,645	2,368	4,606	11,871	4,919	1,361	5,591
	Female	8,535	1,929	3,087	3,539	11,245	4,534	2,048	4,663	11,558	4,712	1,106	5,740
Frontenac	Male	33,732	8,175	5,710	19,847	44,747	8,940	3,769	32,038	49,730	10,014	1,110	38,606
	Female	32,367	6,375	4,735	21,257	42,787	8,185	3,221	31,381	47,408	9,054	2,027	36,327
Lennox	Male	17,871	2,622	5,273	9,976	20,216	5,116	4,107	10,993	20,560	5,566	3,711	11,283
	Female	17,730	2,402	4,432	10,896	20,097	4,576	3,488	12,033	20,657	4,976	3,148	12,533
Leeds	Male	19,171	5,360	5,853	7,958	23,446	7,448	4,474	11,524	24,453	7,774	4,383	12,296
	Female	19,660	5,572	5,173	8,915	23,443	7,268	3,844	12,331	24,676	7,619	3,638	13,419
Prescott	Male	13,512	3,371	5,561	4,220	14,004	3,295	4,384	6,325	13,848	3,293	3,460	7,095
	Female	12,424	3,190	4,780	4,454	13,222	3,108	3,659	6,455	13,707	3,152	3,371	7,184
Renfrew	Male	35,362	11,919	9,227	14,216	46,741	16,564	6,482	23,695	45,161	12,257	5,974	26,930
	Female	31,355	9,057	7,482	14,816	42,894	14,070	5,290	23,534	43,642	11,409	5,044	27,189
Russell	Male	9,031	2,420	4,881	1,730	10,752	3,862	4,192	2,678	10,763	4,063	3,809	2,891
	Female	8,635	2,527	4,332	1,776	10,140	3,733	3,659	2,748	10,344	4,016	3,327	2,991
Stormont	Male	24,222	6,214	4,455	13,553	28,796	4,050	3,228	21,518	29,478	4,018	3,048	22,412
	Female	24,236	6,241	3,854	14,141	29,071	4,139	2,811	22,121	30,072	4,037	2,681	23,354

Source: Census of Canada, 1951, 1961 and 1966.

Table A-12

Experienced Labour Force, Counties, Eastern Ontario, 1951 and 1961

	<u>Eastern Ontario</u>		<u>Carleton</u>		<u>Dundas</u>	
	<u>1951</u>	<u>1961</u>	<u>1951</u>	<u>1961</u>	<u>1951</u>	<u>1961</u>
All Industries*	229,339	289,749	102,024	141,723	5,723	6,414
Agriculture*	33,979	25,107	4,957	3,157	2,779	2,337
Forestry*	1,098	1,346	97	149	4	5
Fishing and Trapping*	110	64	30	27	1	0
Mining*	467	372	90	153	1	1
Manufacturing	42,134	42,256	10,941	11,616	983	1,077
Construction	15,459	19,503	6,011	9,088	248	443
Transportation, Communica- tions and Other Utilities	16,527	20,853	7,143	9,703	375	543
Trade	27,833	37,012	13,880	18,693	512	674
Finance, Insurance * and Real Estate	6,443	9,732	4,558	6,744	67	104
Community, Business and Personal Service	82,708	57,930	53,206	28,976	688	844
Public Administration and Defence	N/A	67,984	N/A	49,725	N/A	252

\*industries comparable 1951 and 1961.

Source: Canada, Dominion Bureau of Statistics, Census of Canada, 1951 and 1961.

Table A-12 (Cont'd)

Experienced Labour Force, Counties, Eastern Ontario, 1951 and 1961

	<u>Glengarry</u>		<u>Grenville</u>		<u>Frontenac</u>	
	<u>1951</u>	<u>1961</u>	<u>1951</u>	<u>1961</u>	<u>1951</u>	<u>1961</u>
All Industries*	5,565	6,022	6,324	8,259	25,993	31,885
Agriculture*	2,862	2,414	1,795	1,248	2,846	1,675
Forestry*	46	73	51	91	63	62
Fishing and Trapping*	15	1	1	2	21	14
Mining*	4	2	5	13	75	53
Manufacturing	631	834	1,545	2,395	6,017	6,200
Construction	386	351	471	764	1,859	2,001
Transportation, Communications and Other Utilities	332	483	602	695	1,511	1,934
Trade	439	613	712	1,003	3,284	4,033
Finance, Insurance* and Real Estate	51	78	74	133	560	870
Community, Business and Personal Service	681	900	1,009	1,292	9,540	8,526
Public Administration and Defence	N/A	147	N/A	430	N/A	5,691

Table A-12 (Cont'd)

Experienced Labour Force, Counties, Eastern Ontario, 1951 and 1961

	<u>Lanark</u>		<u>Leeds</u>		<u>Prescott</u>	
	<u>1951</u>	<u>1961</u>	<u>1951</u>	<u>1961</u>	<u>1951</u>	<u>1961</u>
All Industries*	13,064	13,914	14,028	16,975	7,969	8,319
Agriculture*	2,905	2,026	3,057	2,250	3,037	2,389
Forestry*	77	74	7	12	17	46
Fishing and Trapping*	1	0	26	10	1	0
Mining*	42	6	26	30	36	10
Manufacturing	3,394	2,868	3,713	4,543	1,703	1,555
Construction	976	1,078	997	1,096	652	776
Transportation, Communications and Other Utilities	1,693	1,610	1,168	1,388	435	527
Trade	1,643	1,817	1,693	2,347	736	1,017
Finance Insurance* and Real Estate	209	306	262	387	79	130
Community, Business and Personal Service	2,001	3,056	2,921	3,815	979	1,359
Public Administration and Defence	N/A	767	N/A	670	N/A	292

Table A-12 (Cont'd)

Experienced Labour Force, Counties, Eastern Ontario, 1951 and 1961

	<u>Renfrew</u>		<u>Russell</u>		<u>Stormont</u>	
	<u>1951</u>	<u>1961</u>	<u>1951</u>	<u>1961</u>	<u>1951</u>	<u>1961</u>
All Industries*	25,751	31,088	5,361	6,333	17,537	18,817
Agriculture*	4,729	3,488	2,586	2,139	2,426	1,984
Forestry*	703	777	10	24	23	33
Fishing and Trapping*	13	9	1	1	0	0
Mining*	138	91	9	3	41	10
Manufacturing	5,177	5,198	403	409	7,627	5,561
Construction	2,095	1,850	682	731	1,082	1,325
Transportation, Communications and Other Utilities	1,947	1,911	210	333	1,111	1,726
Trade	2,385	3,450	483	726	2,066	2,639
Finance, Insurance* and Real Estate	271	462	61	140	251	378
Community, Business and Personal Service	8,178	4,701	825	795	2,680	3,666
Public Administration and Defence	N/A	8,380	N/A	808	N/A	822

Table A-13

Experienced Labour Force By Industry Divisions, Rural and Urban,  
Counties, Eastern Ontario Region, 1961

	Eastern Ontario				Carleton			
	<u>Total</u>	<u>Rural Farm</u>	<u>Rural Non-Farm</u>	<u>Urban</u>	<u>Total</u>	<u>Rural Farm</u>	<u>Rural Non-Farm</u>	<u>Urban</u>
All Industries	289,749	32,877	40,179	216,693	141,723	3,637	5,905	132,181
Agriculture	25,107	21,897	2,123	1,087	3,157	2,130	367	487
Forestry	1,346	210	654	482	149	14	17	118
Fishing and Trapping	64	6	24	34	27	1	1	25
Mining	372	222	46	104	153	6	16	131
Manufacturing	42,256	2,605	7,340	32,311	11,616	107	518	10,991
Construction	19,503	1,709	4,460	13,334	9,088	232	824	8,032
Transportation, Communications and Other Utilities	20,853	1,115	4,068	15,670	9,703	126	537	9,040
Trade	37,012	1,157	5,638	30,217	18,693	146	845	16,702
Finance, Insurance and Real Estate	9,732	380	712	8,640	6,744	67	167	6,510
Community, Business and Personal Service	57,930	2,399	10,342	45,189	28,976	328	837	27,811
Public Administration and Defence	67,984	1,003	7,331	59,650	49,725	313	1,594	47,818

Table A-13 (Cont'd)

Experienced Labour Force By Industry Divisions, Rural and Urban,  
Counties, Eastern Ontario Region, 1961

	Dundas				Glengarry			
	<u>Total</u>	<u>Rural Farm</u>	<u>Rural Non-Farm</u>	<u>Urban</u>	<u>Total</u>	<u>Rural Farm</u>	<u>Rural Non-Farm</u>	<u>Urban</u>
All Industries	6,414	2,953	1,479	1,982	6,022	2,721	2,481	820
Agriculture	2,337	2,131	167	39	2,414	2,134	259	21
Forestry	5	3	1	1	73	27	38	8
Fishing and Trapping	0	0	0	0	1	0	1	0
Mining	1	1	0	0	2	1	1	0
Manufacturing	1,077	207	309	561	834	131	452	251
Construction	443	129	185	129	351	75	231	45
Transportation, Communications and Other Utilities	543	91	162	290	483	79	330	74
Trade	674	80	249	345	613	66	395	152
Finance, Insurance and Real Estate	104	30	25	49	78	14	38	26
Community, Business and Personal Service	844	195	222	427	900	140	559	201
Public Administration and Defence	252	60	107	85	147	24	87	35

Table A-13 (Cont'd)

Experienced Labour Force By Industry Divisions, Rural and Urban,  
Counties, Eastern Ontario Region, 1961

	Grenville				Frontenac			
	Total	Rural Farm	Rural Non-Farm	Urban	Total	Rural Farm	Rural Non-Farm	Urban
All Industries	8,259	1,814	3,023	3,422	31,885	2,463	4,989	24,433
Agriculture	1,248	1,073	142	33	1,675	1,440	165	70
Forestry	91	11	41	39	62	7	54	1
Fishing and Trapping	2	0	2	0	14	3	8	3
Mining	13	2	11	0	53	8	21	24
Manufacturing	2,395	211	887	1,297	6,200	242	1,072	4,886
Construction	764	103	339	322	2,001	325	554	1,322
Transportation, Communications and Other Utilities	695	109	297	289	1,934	100	527	1,307
Trade	1,003	98	416	489	4,033	95	749	3,189
Finance, Insurance and Real Estate	133	13	44	76	870	117	95	758
Community, Business and Personal Service	1,292	142	581	569	8,526	290	1,074	7,162
Public Administration and Defence	430	42	177	211	5,691	105	569	5,017

Table A-13 (Cont'd)

Experienced Labour Force By Industry Divisions, Rural and Urban,  
Counties, Eastern Ontario Region, 1961

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	Lanark				Leeds			
	<u>Total</u>	<u>Rural Farm</u>	<u>Rural Non-Farm</u>	<u>Urban</u>	<u>Total</u>	<u>Rural Farm</u>	<u>Rural Non-Farm</u>	<u>Urban</u>
All Industries	13,914	2,900	2,402	8,612	16,975	3,209	4,327	9,439
Agriculture	2,026	1,802	135	89	2,250	1,955	237	58
Forestry	74	27	33	14	12	1	9	2
Fishing and Trapping	0	0	0	0	10	2	5	3
Mining	6	1	1	4	30	8	10	12
Manufacturing	2,868	255	618	1,995	4,543	252	948	3,343
Construction	1,078	177	339	562	1,096	176	461	459
Transportation, Communications and Other Utilities	1,610	138	269	1,203	1,388	148	480	760
Trade	1,817	103	322	1,392	2,347	168	726	1,453
Finance, Insurance and Real Estate	306	25	27	254	387	23	85	279
Community, Business and Personal Service	3,056	261	483	2,312	3,815	367	1,028	2,420
Public Administration and Defence	767	70	110	587	670	55	180	435

Table A-13 (Cont'd)

Experienced Labour Force By Industry Divisions, Rural and Urban,  
Counties, Eastern Ontario Region, 1961

	Prescott				Renfrew			
	Total	Rural Farm	Rural Non-Farm	Urban	Total	Rural Farm	Rural Non-Farm	Urban
All Industries	8,319	3,558	1,028	3,733	31,088	4,564	10,209	16,315
Agriculture	2,389	2,174	164	51	3,488	3,156	227	105
Forestry	46	5	28	13	777	119	412	246
Fishing and Trapping	0	0	0	0	9	0	7	2
Mining	10	1	6	3	91	16	34	41
Manufacturing	1,555	98	302	1,155	5,198	398	1,550	3,250
Construction	776	116	278	383	1,850	132	719	999
Transportation, Communications and Other Utilities	527	42	206	279	1,911	126	758	1,027
Trade	1,017	84	263	670	3,450	156	966	2,328
Finance, Insurance and Real Estate	130	18	36	76	462	25	91	346
Community, Business and Personal Service	1,359	180	380	799	4,701	247	1,336	3,118
Public Administration and Defence	292	34	79	179	8,380	138	3,882	4,360

Table A-13 (Cont'd)

Experienced Labour Force By Industry Divisions, Rural and Urban,  
Counties, Eastern Ontario Region, 1961

	Russell				Stormont			
	Total	Rural Farm	Rural Non-Farm	Urban	Total	Rural Farm	Non-Farm	Urban
All Industries	6,333	2,669	2,095	1,569	18,817	2,389	2,241	14,187
Agriculture	2,139	1,956	120	63	1,984	1,773	140	71
Forestry	24	7	7	10	33	2	14	17
Fishing and Trapping	1	0	0	1	0	0	0	0
Mining	3	1	2	0	10	1	2	7
Manufacturing	409	30	186	153	5,561	174	498	4,889
Construction	731	169	329	233	1,325	75	201	1,049
Transportation, Communications and Other Utilities	333	56	175	102	1,726	100	327	1,299
Trade	726	89	338	299	2,639	72	369	2,208
Finance, Insurance and Real Estate	140	38	54	48	378	10	50	318
Community, Business and Personal Service	795	142	318	335	3,666	107	406	3,153
Public Administration and Defence	808	116	425	267	822	46	121	655

Source: Canada, Dominion Bureau of Statistics, Census of Canada, 1961.

APPENDIX B

Counties or Parts of Counties Included in National  
Employment Service Areas

Arnprior	- Renfrew, Lanark, Carleton
Brockville	- Leeds
Carleton Place	- Lanark
Cornwall	- Glengarry, Stormont, Dundas
Gananoque	- Leeds
Hawkesbury	- Prescott, Glengarry
Kingston	- Frontenac, Lennox-Addington
Ottawa	- Carleton, Russell
Pembroke	- Renfrew, Nippissing District
Perth	- Frontenac, Lanark, Leeds
Prescott	- Dundas, Grenville
Renfrew	- Renfrew
Smith Falls	- Lanark, Leeds, Grenville

Possible Research Projects

This thesis has examined only a small portion of the process of economic growth in Eastern Ontario. Listed below are suggestions for further research into the development pattern of the region.

1. Extension of time period examined.
2. Detailed analysis into the locational factors important to the various industries.
3. Study of industrial growth based on output rather than labour force classifications.
4. Analysis of relationship between employment, output, and productivity in each industry.
5. Study of linkages between various industries in area.
6. Application of "area type quotient" to county level.
7. Classification of communities with respect to future output and employment potential.
8. More detailed study of the functional structure of the region.
9. Examination of source of capital investment in region.
10. Role of past government aid and incentives in the region and its effects.
11. Adjustment pattern of migrants.
12. Effects of migration on areas of emmigration and areas of immigration.
13. Post formal school training.

14. Study of attitudes of individuals relating to migration, training and economic development.
15. Effects of language on the development of the eastern-most counties.
16. Study of public awareness of present economic situation in each county. Is the public aware of its own situation and is it satisfied with it?
17. Relative costs of living in various counties.
18. Study of future growth of government employment in region.
19. Examination of potential markets for products that could be produced in Eastern Ontario.
20. Policy implications.

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