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Canada

POPULATION REDISTRIBUTION AND "COUNTERURBANIZATION": A STUDY OF NINE URBAN REGIONS IN CANADA

by

David S. Ellenwood

B.A., Simon Fraser University, 1986

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Population Redistribution And Counterurbanization:

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ABSTRACT

POPULATION REDISTRIBUTION AND "COUNTERURBANIZATION": A STUDY OF NINE URBAN REGIONS IN CANADA.

Sometimes called 'rural resurgence' or 'rural renaissance', counterurbanization describes a trend in developed countries for less densely populated, non-urban areas to reverse, stabilize or recover from population loss. This thesis measures the changing distribution of growth of Canadian population with emphasis on the dynamics of metropolitan (metro) and non-metropolitan (non-metro) population change. The thesis also evaluates evidence for counterurbanization in nine selected regions across the country.

The thesis has three sections. In the first section, studies that deal with non-metro population change in developed countries are reviewed. Seminal work by researchers including Beale (1977), Morrison and Wheeler (1977), Bourne (1980), Hugo and Smailes (1985), and Joseph, Keddie and Smit (1988) is discussed. Some of the more common measurement approaches are assessed. The second section describes an analytical program designed to evaluate changes in Canadian regional population distribution between metro and non-metro areas. The third and last section discusses the results of the analytical program, and discusses possible causes of counterurbanization within the context of these findings.

Results suggest counterurbanization occurred in the late 1970s, particularly in the Montreal region. The study cautions, however, that the pervasiveness of population growth in non-metro areas adjacent to metro areas should not be misinterpreted as a broad-scale redistribution of people to more remote places. Further, growth in remote areas during the study period is not equivalent to the remote non-metro growth experienced in the United States during the 1970s. The results of a comparative growth rate analysis using a

metro/non-metro area type classification did not reveal a strong growth rate increase in the more remote non-metro area that could be called a long-term trend. Rather, non-metro population growth was strongest nation-wide in areas closest to the urban centres, and that this growth should mostly be attributed to spillover growth from expanding urban regions.

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CHAPTER 1: INTRODUCTION

The Topic

This thesis measures the changing distribution of growth of Canadian population with emphasis on the dynamics of metropolitan (metro) and non-metropolitan (non-metro) population change. Specifically, the phenomenon of "counterurbanization", and how it relates to Canadian population distribution recently, is studied in this research. Sometimes called 'rural resurgence' or 'rural renaissance', "counterurbanization" describes a trend in developed countries for less densely populated, non-urban areas to reverse, stabilize or recover from population loss. The phenomenon also involves a trend toward population loss or decreasing growth in some of the largest urban places in developed countries. The thesis evaluates the evidence for "counterurbanization" in Canada using a selection of regions across the country.

"Counterurbanization" represents a fundamental change in longstanding settlement trends, dominated as they have been by concentrating, centralizing forces. In Canada the phenomenon challenges the perception of ongoing and expansive urbanization and the durability of the non-metro to metro population flow characteristic of the last 100 years. To analyze the strength or even the existence of the phenomenon, population change must be compared within metro and non-metro

areas. This thesis attempts such an analysis, providing insight into trends within regional population distribution patterns.

While "counterurbanization" research has been common in the United States, particularly dealing with the 1970 to 1980 period, there has been little which offers a clear understanding of the phenomenon in a Canadian context. This thesis expands on the existing research base and evaluates the evidence of population redistribution between metro and non-metro areas.

The Thesis Structure

This thesis has three sections. In the first, studies that deal with non-metro population change in developed countries are reviewed. Some of the more common measurement approaches are assessed. The second section develops a test to evaluate changes in Canadian regional population distribution between metro and non-metro areas. This test constitutes the distinctive contribution of this work. Chapter 3, the research design, and Chapter 4, the report of the study results, are included in this second section. The third and last section discusses possible causes of "counterurbanization", within the context of the research findings. It is suggested that various factors, including economic change, infrastructural development, behavioural change, demographic change and other social and economic

variables have contributed to non-metro population change recently. These factors will be discussed, and a conclusion will be given in Chapter 5.

The Semantics of "Counterurbanization".

"Counterurbanization" must be clearly and specifically defined and distinguished from other processes such as urbanization and suburbanization. Urbanization is descriptive of the growth of towns and cities as population progressively concentrates. As a demographic phenomenon, it is the increase in the proportion of population living in the largest places (Johnson, 1986). If urban places are simply those which exceed a population size and/or density threshold, then urbanization describes the movement and concentration of people into central or primary places which surpass the threshold with time.

Suburbanization is linked to urbanization because it is an extension of the urban influence into areas within commuting distance of large cities. Suburbs are places that are dependent on the central city to provide jobs, services, and other amenities, but which maintain distinct social homogeneity (for a variety of social and economic reasons related to income, transportation pattern, lifestyle etc.). Suburban development and growth has been equated with the extension of commuting linkages between a city and surrounding regions, and thus can be seen as an outward extension of the

urban area.

"Counterurbanization" implies the opposite of urbanization. "Counterurbanization" describes an increasing proportion of non-urban or rural residents in a region, as compared with urban. Therefore, while urbanization and suburbanization both describe an increasing population in and adjacent to large concentrated centres, "counterurbanization" describes the increase of population in remote and smaller places. In this thesis, remote places are those most distance from major urban centres. A context is developed in which population growth is comparatively examined between metro places (major urban centres) and non-metro places (the surrounding non-urban area). The most remote non-metro places are those farthest away from the city centre. Therefore, in this context, when aggregate population growth in the remote places is greater than growth in metro places "counterurbanization" is occurring. Since non-urban places are smaller, less dense, less concentrated and more dispersed, population increase in these places ("counterurbanization") implies a general trend toward density reduction and deconcentration. In broad traditional terms, urbanization summarizes the centripetal processes of settlement concentration, while the new term, "counterurbanization", provides the appropriate term for centrifugal forces.

Definitions of "counterurbanization" from two different sources provide similar points of view. The first is Berry's

(1976) definition:

> 'Urbanization is a process of population concentration. It implies a movement from a state of less concentration to a state of more concentration' wrote Hope Tisdale (sic) in 1942. The process of counterurbanization therefore has as its essence decreasing size, decreasing density, and decreasing heterogeneity (i.e. settlements less varied in content, with a more consistent and less diverse social fabric). To mimic Tisdale (sic): Counterurbanization is a process of population deconcentration; it implies a movement from a state of more to a state of less concentration.

Fielding (1982) is more specific:

> Counterurbanization refers to the process of a spatial deglomeration of the population. This can be said to have come about when there is an inverse relationship between sizes of places (in terms of population) and their rates of population change (in which the principal component is net migration gain or loss).

These definitions are offered as an introduction to a term which has been used to describe recent shifts within long-standing migration and settlement patterns in many developed countries, including Canada. Is there a reversal underway, of the decades-long shift of populations from outlying areas to urban centres? The thesis will address this question.

Evidence for "Counterurbanization" in Canada

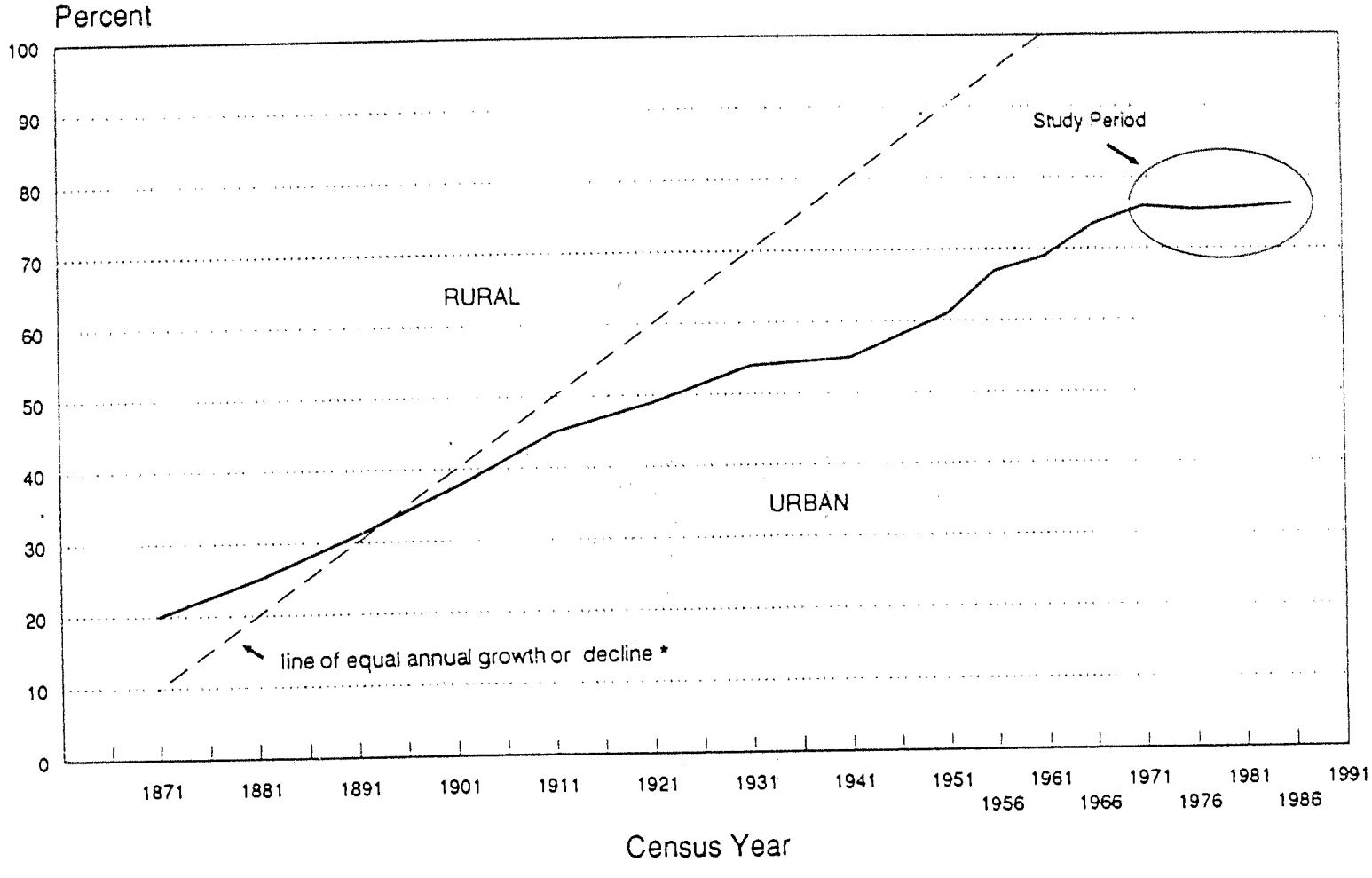
The population data for most of Canada has been available for what Statistics Canada defines as 'rural' and 'urban' areas since 1871. These two categories are calculated using an arbitrary classification scheme in which the labels 'urban' and 'rural' are used to represent areas conforming to specific

population densities - urban representing higher density concentrated settlements, and rural representing lower density dispersed settlements in Canada. Figure 1.1 describes the trend in the national population from 1871 to 1986 in terms of these two categories. Their shares have changed substantially over the 115 years the census has been taken.

Of particular interest to this study is first an almost constant increase in the urban share from 1871 to 1971. Also, two plateaus - one between 1931 and 1941 and the other following 1971 - interrupt the increase in urban share. More interesting is the slight decrease in urban share between 1971 and 1976 at the beginning of the second plateau. The figure introduces a phenomenon which shows a longtime concentrating trend that is briefly interrupted, or perhaps even exhausted. Although the period 1931 to 1941 is similar to 1971 to 1986 in terms of the levelling off of the urbanization trend, this thesis is concerned only with the more recent period for two reasons: one, because it contains the only census period in which an increase in the rural share is apparent; and two, it is similar to the non-urban growth trend noticed in the United States during the 1970s which generated a large body of comparable research work on the subject. This 15 year span is therefore called the study period throughout the thesis.

The slight increase in Canada's rural share between 1971 and 1976 has also been noticed recently in other countries which have declining population growth rates (along with the

FIGURE 1.1
Urban/Rural population composition
Canada, 1871-1986



Source: Mitchell, 1989

* The line of equal annual growth or decline assumes that in each period, the urban share increases and the rural share decreases by a constant factor.

United States). The phenomenon has been studied using a variety of approaches within a number of cultural and economic contexts throughout the developed world. Before the research questions and research design are proposed for this thesis, therefore, a selection of these studies is reviewed to get an understanding of existing "counterurbanization" research. This literature review comprises the next chapter.

CHAPTER 2: LITERATURE REVIEW

Introduction

"Counterurbanization" has received considerable attention in recent years from geographers and other social scientists. There is a rather large body of literature concerned with "counterurbanization" in developed countries, especially in the United States where the phenomenon was first described. This section draws from a wide-ranging group of sources to describe the extent and nature of "counterurbanization" in a variety of contexts and to review explanations for such an apparently pervasive movement.

The chapter begins with a description of census data reports which point to a rural resurgence trend in many parts of the developed world. Documentation of the trend is reviewed, starting from the discovery of rural population growth in the U.S., from county population and migration estimates in the early 70s. Next, analysis of county population changes in the U.S. in the mid- and late 70s using the 1980 census is described. Then, studies of rural resurgence in other developed countries around the world are reviewed. The chapter then focuses on this trend in a Canadian context. The next section of the chapter is a review of literature dealing with the concept of "counterurbanization" - or an interpretation of the meaning of the process according to a number of researchers familiar with

its study. That section also summarizes the literature speculating on the future of "counterurbanization" and various attempts to develop a 'theory of counterurbanization'. Lastly, studies addressing the apparent end of the trend are discussed.

The Discovery of a "Rural Renaissance" in the U.S.

U.S. population estimates for the beginning of the seventies startled many analysts. Of the many reports produced at that time documenting an apparent resurgence of population growth in rural areas, perhaps three were the most influential, or at least serve to summarize the situation most effectively.

One is the work of Calvin Beale, who in 1974 was the first to document evidence of a turnaround. Although data showing regrowth in non-metropolitan counties of both population and employment appear in 1968 estimates, the 1970 Census results still showed more metro counties growing faster than non-metropolitan counties. Beale's analyses from census population estimates in 1974 and 1975, and further work to 1977 reveal that from April of 1970 to July 1975, the non-metropolitan population increased by an annual average of 1.2 percent compared with a metro average of 0.8 percent, reversing the growth trend of 0.4 percent and 1.6 percent respectively for these area types from 1960-70. Further, he documented that non-metropolitan areas (counties) experienced

a net annual inflow of about 350,000 persons from 1970-75, which more than offset the annual net outflow of 300,000 observed in the previous decade. Despite using the expanded 1970 metro area boundaries (i.e. those counties within SMSA[1] boundaries in 1970) the annual rate of population change in metro areas was slower than non-metropolitan areas from 1970-75. Also, despite the fact that those non-metro counties that were adjacent to the SMSA boundary in 1970 grew fastest among all non-metro counties (which would indicate continued urban sprawl) Beale was most impressed by the fact that growth rates of adjacent and non-adjacent non-metro classes of counties converged significantly. Table 2.1 illustrates the differences in growth rates in 1960-70 and 1970-75 between these two classes of counties, and shows that while the adjacent class was growing faster at 1.3 percent from 1970-75, the acceleration of growth in non-adjacent counties between

---

[1] Density definitions for "urban" and "rural" areas used by the U.S. Bureau of the Census gradually became inadequate to describe the nation's patterns of urbanization. Population centres have decentralized so much in recent decades that "urban" boundaries long ago ceased to encompass the activities of "urban people". For example, many people defined by the Census as "rural" dwellers are in fact commuters to jobs in urbanized areas.

To remedy this ambiguity, a new spatial unit - the Standard Metropolitan Statistical Area (SMSA) - was officially adopted by the U.S. Federal Government in 1959. This unit recognizes a distinction between "metropolitan" and "non-metropolitan" population and is used to supplement the older urban-rural definition.

Basically, the urban-rural distinction refers to the spatial density of population alone, while the metropolitan - non-metropolitan distinction refers to the extent of an area's social and economic integration into city life. The criteria for measuring this integration are people's daily activity patterns - principally commuting (Morrison and Wheeler, 1977, p.6).

Table 2.1

Population Change by Metropolitan Status (United States, 1960-75)

	Number of Counties	Population Number (millions) 1975	1970	1960	Annual Change (a) 1970-75	1960-70
Total United States	3,097	213.1	203.3	179.3	0.9%	1.3%
Metropolitan Status (b)						
Metropolitan counties	628	155.0	148.9	127.2	0.8%	1.6%
Nonmetropolitan counties	2,469	58.0	54.4	52.1	1.2%	0.4%
Adjacent counties (c)	969	30.1	28.0	26.1	1.3%	0.7%
Nonadjacent counties	1,500	27.9	26.4	26.0	1.1%	0.1%

(a) Population change is expressed as an average annual percentage rate of change

(b) Metropolitan status as of 1974

(c) Metropolitan counties adjacent to Standard Metropolitan Statistical Areas.

Source: Beale, 1977

the two periods was greater (from .1 percent for 1960-70 to 1.1 percent for 1970-75). In summarizing this phenomenon, he claims "Thus, the revived growth pattern is not merely one of accentuated metro sprawl. It is both close-in growth of a quasi-metro nature and more remote growth not stimulated by metro proximity." (Beale, 1977 p. 116). He punctuated this statement by saying that the change in trend would be comparatively unremarkable were it not for the intensity of the reversal in those areas that seemed least likely to attract population because of their smallness, rurality and remoteness.

His further investigation of the nature of this new growth trend involved multiple regression analysis, providing a more concise appraisal of the associations between population change and 10 socioeconomic variables. Regression coefficients, and R^2 values were broken down by region (i.e. Northeast, West, Central) which gave a spatial differentiation of the importance of the associations. Retirement was the strongest explanatory factor in most areas. Beale's summary of both the regression analysis and the area growth rate analysis was that the revived population growth in rural and small town areas continued through 1975. How far the forces producing it will fuel the trend, he said, is unclear, whether one considers those forces attracting people to live in the smaller areas or those impelling people to leave or avoid the larger metro areas.

Brian Berry was bolder in his assertion that the reversal trend represented significant change in the distribution of population growth in the United States. He stated in a 1976 publication that "A turning point has been reached in the American urban experience. Counterurbanization has replaced urbanization as the dominant force shaping the nation's settlement patterns" (Berry, 1976 p.17). This assessment of the then current distribution patterns was based on provisional county population estimates from the Bureau of the Census for the first four years of the 1970s (also Beale's data source). Berry in fact documents much the same reversal trend as Beale, but for a more detailed regional breakdown of a lesser number of SMSAs. He lists some pertinent features of the new trend based on an analysis of these data, the most important of which are: there was a net loss of population from metro areas to non-metro areas, although foreign immigration to metro areas partially countered the loss; central cities of SMSAs grew by 0.6 percent annually between 1960-70 but at -0.4 percent after 1970 (annexations included); the rural farming population stabilized at 9.5 million persons; rapid growth took place in smaller metro areas, particularly in Florida, the South, and the West, and in exurban counties located outside SMSAs (but with substantial daily commuting to metro areas), and in peripheral counties not tied into metro labour markets.

Berry's investigation described how accessibility changes

brought amenity-rich outlying areas into daily interaction with other parts of metro America after 1970. He states: "Every public opinion survey has indicated that popular preferences are for smaller places and lower densities, with richer environmental amenities...leading unremittingly toward the reversal of the processes of population concentration unleashed by technologies of the Industrial Revolution, a reversal finally achieved after 1970" (Berry 1976, pg 24). His approach accounts for growth in areas proximal to large urban centres, rather than in peripheral counties not tied to metro labour markets or smaller remote urban regions.

Morrison and Wheeler also discuss reasons for remote non-metro growth, after documenting what they saw as an emerging new pattern of population distribution. They noted that, during the early 1970s, 75 percent of all non-metro counties registered population gains from either natural increase or immigration (or both), a proportion dramatically higher than the 50 percent in the 1960s and 40 percent in the 1950s. Even non-metro areas most distant from urban and metro centres were found to register net migration gains instead of perennial losses. Table 2.2 contains the county population data for 1970-74 used by Morrison and Wheeler. It breaks down the non-metro counties by commuter volume and shows the pronounced growth rate increase of "entirely rural" counties. These counties had a growth rate which was second only to non-metro counties from which 20 percent of the population

Table 2.2

Components of Population Change for Groups of Metropolitan and Nonmetropolitan Counties (United States, 1960-74)

County Category	1974 Population (000s)	Annual population growth rate 1960-70	1970-74
Total United States	211,390	1.3%	0.9%
Inside SMSAs (Metropolitan) (a)	154,934	1.6%	0.8%
Outside SMSAs (Nonmetropolitan)	56,457	0.4%	1.3%
Nonmetropolitan counties from which:			
more than 20% commute to SMSAs	4,372	0.9%	2.0%
10-19% commute to SMSAs	9,912	0.7%	1.4%
3-9% commute to SMSAs	14,263	0.5%	1.3%
less than 3% commute to SMSAs	27,909	0.2%	1.1%
Entirely rural (b) counties not adjacent to an SMSA	4,618	-0.4%	1.4%

(a) SMSAs as currently defined (1977).
(b) "Entirely rural" means the counties contain no town of 2,500 or more inhabitants.

Source: Morrison and Wheeler, 1977

commutes to work in an SMSA. Both outpaced metro counties and grew well above the U.S. average.

These results confirm that growth in remote rural areas in the early 1970s was not simply an extension of urban sprawl. Morrison and Wheeler argue that expansion of the suburbs could be responsible for the non-metro growth if growth were not occurring in areas well outside what they call the "metropolitan magnetic field" (Morrison and Wheeler, 1976, p.11).

These authors contend that possibilities for moving to (or remaining in) less accessible non-metro areas have increased. The reasons include: the proliferation of controlled access highways (an important determinant in small town growth); transportation and communication technology which further relax the constraints of distance and allow large numbers of people to locate with less regard for the location of their jobs; the development of new "growth industries" in rural areas, including increased retirement settlements, recreational facilities and resort settlements; and continued resource exploitation activities in non-metro areas. The study would seem to support Berry's contemporary observation that Americans wanted to live in rural and small town settings during the 1970s, but most Americans admitted that they would like to live within 30 miles of an SMSA. Wheeler and Morrison suggest, however, that with television and jet travel (among other things) the sense of isolation

from urban excitement which resulted from distance had begun to break down by the time of their study.

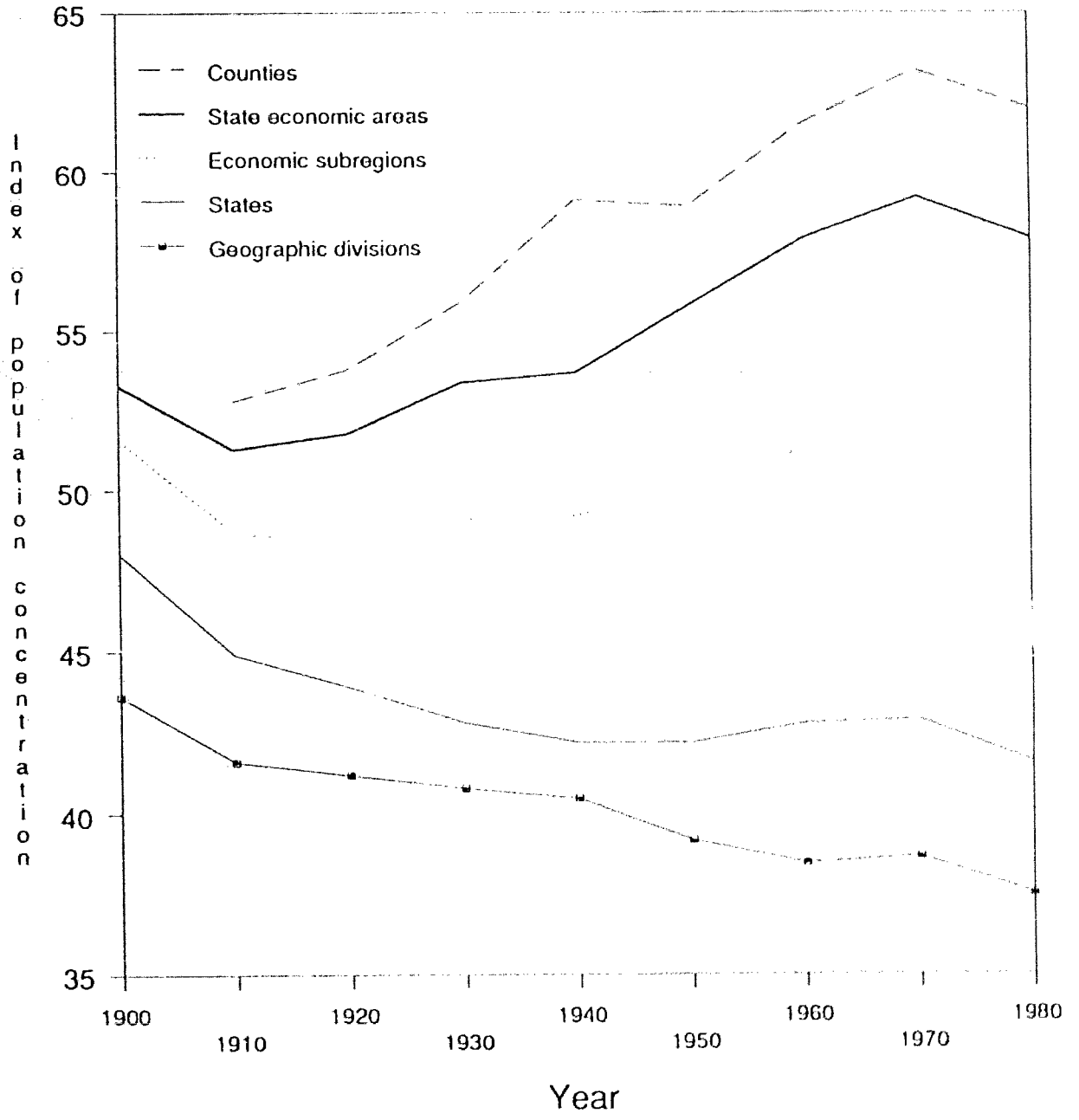
The apparent new trend fuelled a controversy in the mid-seventies among population analysts. One school of thought interpreted rural growth as a continuation of past trends of spillover from metro areas into their surrounding counties. The other school saw the new changes as a clean and wholly unprecedented break with past trends, where growth extends into non-metro counties most distant from SMSAs. Two articles summarize this 'clean break' debate effectively. The first is the work of Vining and Strauss (1977), who proposed that the non-metro growth of the seventies represented a 'clean break' with past distribution trends. They used the Hoover index of population concentration to illustrate that the concentration trend of the past few decades had changed since 1970, for various areal subdivisions of the U.S., ranging in scale from counties to "geographic divisions" based on groups of states as sub units. The Hoover index calculates the degree of concentration of population at a particular point in time. The scale ranges from 0, or perfectly even distribution of population in the subareas to 100 where population is totally concentrated in one subarea (Hoover, 1941, p.23). Vining and Strauss argue that this is an intuitively appealing way of quantifying the degree of population concentration across a number of subareas. Their support for the clean break hypothesis comes from the USA-wide

nature of deconcentration since it showed up for the first time at all five levels of regional disaggregation that were used to measure the index in 1970 (see figure 2.1).

Gordon (1977) on the other hand supported the "wave" theory as an alternative hypothesis for renewed rural growth. Growth takes place at the centres of smaller cities and is progressively removed from the centre as the city gets larger. He reported that the growth rate of counties re-classified from non-metro to metro was 10 percent greater from 1970 to 1974 than that of counties which retained their non-metro classification (Gordon 1977, p. 283). He also suggested that if the Hoover index is

calculated for only metro areas and adjacent non-metro counties, there may not be a downturn after all. Gordon recognized a problem in the US data that suggested to him the phenomenon was part of a continued wave effect. He argued that the metro and non-metro classifications were not 'functional'. SMSA boundaries use county boundaries which does not allow an adequate measurement of the limit of the commuting field. For a group of functional urban regions (core areas and their associated hinterlands, representing functional labour markets) a revised calculation of the Hoover index revealed the diminishing importance of the largest urban core areas and the increased importance of the large hinterland areas - strong evidence of an outward growth wave effect. Gordon makes the point that the Hoover index,

Figure 2.1
Indices of population concentration for various subdivisions of the U.S.



Source: Vining and Strauss, 1977

depending on the areal disaggregations used, can prove either case. He said that there was 'something going on' in the non-adjacent counties which demanded attention, and that these phenomena should be analysed as part of a wave effect rather than in favour of it.

The last article considered in this section is Zelinsky's (1978) case study of deconcentration. The research deals with Pennsylvania, and how the state conformed with the pattern of non-metro population growth throughout the United States in the early 1970s. The unique aspect of this paper was that while retaining the classifications of non-metro and metro area, Zelinsky relied on minor civil divisions (not the larger counties) as the basic areal unit of analysis. Also, he classified these divisions according to their distance from major urban centres in Pennsylvania, so that each division had been assigned to a particular "metropolitan region" and to a specific zone or "ring" within that region. Distance to the closest metro centre and the identity of that centre were important to the growth dynamics of a given division or group of divisions. His investigation revealed:

> Although the single dominant trend in any quantitative reckoning has been the rippling outward of a zone of predominantly dispersed repopulation, a phenomenon of great theoretical interest - and much practical importance for the future, if it intensifies - seems to have emerged in some relatively remote parts of the state. Certain places well beyond the normal daily commuting range of large cities have a much greater than random incidence of turnaround divisions, those which recently ceased losing population and have begun to gain (p.37).

He notes two other points of interest: that the dispersion of population from town to suburb or countryside may have prevailed quite generally during recent Pennsylvania history, not just for the larger metropolis but for smaller cities and villages as well; and that a low degree of accessibility had become less of a deterrent to population growth, through retention of residents or through increased immigration, than was true before 1970.

These studies document the discovery of an apparently significant reversal in non-metro growth patterns from provisional county population data available in the mid 1970s. This reversal seemed to have resulted from (or be due to) increased metro dispersal of population to the adjacent hinterland, or to a resurgence of growth in remote non-metro areas typically declining in previous decades. Although not summarized here in detail, sceptics could point to the fact that migration estimates based on provisional data from the late 1960s also revealed unprecedented growth in non-metro areas that was not supported by the 1970 census. Proponents of the turnaround argued that natural increase within metro areas was still sufficiently high in the 1960s to compensate for migration losses from large cities, and therefore did not reveal non-metro areas as a significant growth competitor before the 1970s. As the fertility and birth rates continued to decline in the US through the 1970s, supporters of the turnaround hypothesis predicted that the new trend of growth

in non-metro areas would be confirmed by the census of 1980, due to the increased impact of net migration relative to natural increase in the country.

U.S. Non-metropolitan growth patterns: 1970-1980

The Census of 1980 provided the population data base that researchers needed to verify the "counterurbanization" trend suggested by mid 1970 estimates. Several authors confirmed the trend with data from the Census of 1980 which updated or added to work done from those estimates.

Lichter and Fuguitt (1982) restated the opinion of other analysts that the 1970s was a decade characterized by an unprecedented pattern of population deconcentration within the non-metro sector. Their analysis, based on county population growth data for metro and non-metro area classifications similar to the earlier work of Beale (1974, 1975, 1977), Berry (1976), and Morrison and Wheeler (1976), and on a further breakdown of sub-units of urban[2] and rural[3] population within counties, reaffirmed that completely rural counties experienced a dramatic demographic change in the post 1970 period.

They found that rural resurgence was evident and that

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[2] Urban population in this article, following the U.S. Census, specifically meant those people residing in places of 2,500 people or more.

[3] Rural population meant those people residing outside places of 2,500 people or more.

proximity to an SMSA was not a determining factor in this. Their research revealed that in the 1970-80 period population dispersed not only from metro to non-metro areas, but also that population dispersed in a pattern of deconcentration within most non-metro counties. They suggested that suburbanization had occurred in many of the non-metro counties undergoing renewed growth. They noticed that preliminary 1980 census figures for counties suggested that the non-metro turnaround was neither an artifact of faulty estimation techniques nor limited to the first part of the decade of the 70s. They reported that non-metro counties grew by 15.4 percent during the 1970-80 period, compared to the 9.1 percent of metro counties. They postulated that the shift may have been due to industrial and governmental decentralization policies as well as a steady decline in the surplus of agricultural workers which had fuelled the rural to urban migration in previous decades. They felt the persistence of the trend depended on energy cost increases and energy availability. Should costs increase and energy become more difficult to procure, they felt future population dispersal in the US would be limited.

Conzen (1983) stressed that for the first time since the depression the population of metro areas was growing more slowly than the national total between 1970 and 1980. He comments on the "proliferation of exurbia" in the 1970s, or scattered residential developments set in agricultural

districts without urban amenities, and thus dependent for economic and social services on local but often distant villages and towns, as being the result of a new rural resurgence trend.

Conzen's focus is on the changing character of the metropolis through the 1970s. He discusses this change in terms of a shift of the U.S. service economy to the "Sunbelt" cities (i.e. Phoenix SMSA grew by 55% in the decade), progressive specialization of productive and service roles within metro areas, continued decentralization and fringe development both in industry and housing, central city decline, and problems inherent with a rapidly decentralizing urban area. He said that recent studies showed that gentrifiers and new downtown dwellers had overwhelmingly central city origins, and few suburbanites were actually returning to live in the urban core. Conzen saw traditional settlement processes in the US as persisting, such as continued functional specialization and geographical decentralization, which support continued expansive sprawl of urban areas.

Long and DeAre's 1982 study, based on 1980 Census data, confirmed that non-metropolitan growth rates in the 1970-80 period were high. They state that "the dispersion of population beyond the SMSA's suburban fringes entailed not so much a revival of small towns as a surge of growth outside of [them]". Table 2.3, taken from their study, shows growth rate

Table 2.3

Population Change in Metropolitan and Nonmetropolitan settings, 1960-1980

Populations	Change in Population 1960 to 1970	1970 to 1980	Population in 1980 (000s)
United States	13.4%	11.4%	226,505
Nonmetropolitan counties not adjacent to a metropolitan area			
Largest settlement:			
Under 2,500	-4.2%	4.6%	4,543
2,500 to 9,999	-2.1%	13.1%	10,255
10,000 to 24,999	5.3%	13.7%	7,120
25,000 or more	8.6%	15.0%	4,124
Nonmetropolitan counties adjacent to a metropolitan area			
Largest settlement:			
Under 2,500	-0.8%	19.1%	3,157
2,500 to 9,999	3.5%	17.0%	13,236
10,000 to 24,999	9.0%	17.8%	12,467
25,000 or more	10.9%	12.2%	5,610
Metropolitan areas (a)			
Under 100,000	14.8%	20.4%	3,611
100,000 to 249,000	16.2%	17.8%	18,461
250,000 to 499,000	17.0%	16.9%	24,883
500,000 to 999,999	17.0%	11.6%	28,640
1,000,000 to 2,999,999	23.8%	12.2%	50,524
3,000,000 or more	11.1%	-0.8%	39,875

(a) Metropolitan area boundaries as of Jan.1st, 1980

Source: Long and DeAre, 1982

comparisons for non-metro counties adjacent and non-adjacent to SMSAs with metro counties for 1960-70 and 1970-80, broken down by the size of the largest settlement. The analysis revealed:

> What was different about the 1970s was that the total population within the updated metropolitan areas boundaries grew less rapidly than the residual (non-metropolitan) territory, reversing an historic relation. Within metropolitan boundaries updated to January 1st, 1980, population grew by 10.0 percent between 1970 and 1980; in non-metropolitan territory the growth rate was 17.1 percent. In the 1960s (in 1970 census boundaries) the metropolitan growth rate was 2.4 times the non-metropolitan rate, and in the 1950s (in 1960 census boundaries) metropolitan areas collectively had a population growth rate 3.7 times the non-metropolitan rate (p.1111).

Long and DeAre's analysis also confirmed that collectively the non-metro counties not adjacent to a metro area grew by 13.8 percent from 1970-80 - more rapidly than metro areas, though somewhat less rapidly than the adjacent non-metro counties. The surge in the non-metro growth rate extended to counties not adjacent to a 1980 metro area and therefore probably beyond the limits of the outer suburbs. They note, however, the importance of extended suburbanization by mentioning that counties added to the fringes of "old" metro areas (i.e. counties reclassified from non-metro to metro in 1980) grew by 33.8 percent between 1970 and 1980.

In a further attempt to confirm earlier estimates of the extent of population deconcentration, the Hoover index was calculated for the same subareas used by Vining in 1977. The

decline in the index in the 1970s for each of the subareas indicated that population deconcentration occurred for the first time at each of these scales. The authors hypothesized that the pervasiveness of the deconcentrating trend may indicate that small towns are undergoing suburbanization, a process they say is usually associated with cities.

They noticed that localities experiencing severe population loss in the three decades prior to the 1970s were typically 'rural', whereas now they tend more often to be city core or urban counties with large populations. Central city decline is not a phenomenon specific to the 1970-80 decade, nor is suburban sprawl, but Long and DeAre contended that non-metro peripheral growth was a deconcentrating trend representing a "clean break" with past trends toward greater population concentration in large, dense settlements (Long and DeAre, 1982, p.1112).

They suggested the following reasons to explain population retention and increases in non-metro areas: more retirees moved to non-metro areas, especially in areas with better recreational amenities; improved transportation and communication linkages; extension of many municipal services; and the institutionalization of the 3 day weekend. In addition, from 1975 to 1979, the number of jobs in non-metro territories increased more rapidly than did jobs in metro areas. This apparent deconcentration of employment, they argued, does not necessarily imply a lengthening of commuting

distances as would be the case if extended suburban sprawl were the only cause of non-metro employment growth. They cite a 1975 national survey which found that on the average non-metro residents commuted somewhat shorter distances to work than did suburbanites (Long and DeAre, 1982, p. 1115).

These studies, using the 1980 census data, confirmed 1970-80 as a period of growth for non-metro counties beyond the extent of commuting networks of large metropolises, as well as the continued decentralization of population and employment into the adjacent non-metro hinterland. The analysis of the growth trends in the decade was characterised by attempts to justify the non-adjacent non-metro county growth as a clean break with the concentrating trend of past decades, as well as explain the growth in more remote counties combined with continued urban sprawl as a general and pervasive deconcentrating trend.

The Global Context of "Counterurbanization"

The interest in "counterurbanization" generated by the population data in the United States was not isolated. Analysts investigated whether or not a similar deconcentration was occurring in other countries. Population analysts wanted to know, for countries with large urban areas and a similar history of urban development as the U.S. (i.e. a tradition of urbanization and population concentration), if a reversal in the traditional growth patterns was occurring there.

A study by Vining and Kontuly (1978) provided an extensive investigation of the rural resurgence trend among a sample of eighteen different countries. Their work had the objective of documenting the breakdown of Clark's law of concentration of the modern industrial world: That the macro location of industry and population tends towards an ever increasing concentration in a limited number of areas; their micro location, on the other hand, towards an increasing diffusion, or sprawl. The analysis was conducted for metro and non-metro regions which were aggregations of the basic political subdivisions in each country. In designing their study, they intentionally over-bounded the metro regions to make sure that the decline of migration into the major metro regions could not simply be seen as an extension of their "functional fields" beyond their official boundaries. The data revealed that migration into the major conurbations of Europe and Japan had either fallen or remained steady.

Specifically, Japan and Sweden both exhibited a rapid pattern of urban expansion through the 1950s and 60s. In Japan many regions which were longtime destinations of population (e.g. the Tokkaido megalopolis centred on Tokyo), after 1974 experienced net losses of population to the peripheral islands, with exceptions being the less densely settled western pacific plains area of the megalopolis. In Sweden, population deconcentration was also evident in the 1970s. The northern regions are Sweden's periphery regions

and can be classified as the hinterlands of the metropolises of southern Sweden. Yet after two decades of net outflows averaging around 10,000 persons a year, there was a net inflow into these regions from the south from 1975 to 1978. Similarly, in Norway net flows into the Ostlandet urban core region, which includes the city of Oslo, remained in 1976 below their level of the 1950s and 1960s (despite having immigration less significant than in Japan and Sweden). For France, the migration data showed that the internal flow which made the Paris region's share of the national population more than triple over the last hundred years had largely dissipated, although around one in five Frenchmen currently live in the Paris urban area. For New Zealand, the 1974-75 figures appeared to represent a reversal of long-standing trends. The less urbanized south island had a net inflow of 10,000 for the period 1971-76, to be contrasted with a net outflow of 16,000 in the period 1966-71. The concentrating trend in West Germany grew progressively weaker during the post-World War II years whereas elsewhere in Western Europe and in Japan it only showed signs of slackening in the 1970s.

Having pointed to cases of population deconcentration (of the eighteen countries studied, eleven showed either a reversal in the direction of net population flow from periphery to core or a drastic reduction in the level of this net flow), Vining and Kontuly mentioned that in contrast to the more developed countries of Western Europe and Japan,

there has yet to be a downturn of any duration in the net migration of persons into the capital regions of Hungary, Finland, South Korea, and into the capital and other large metro regions of Poland and Spain. They suggest that the later industrialization of these nations (and their larger agriculturally active populations) might explain the difference.

The conclusions reached by Vining and Kontuly were developed as a development theory of deconcentration. They said that where development possibilities exist in regions remote to the capital and other major metro regions, the diseconomies of metro scale eventually express themselves in the emigration of persons from these core regions. When these diseconomies appear seems to be a function of the country's stage of economic development. This extensive study suggested that "counterurbanization" is an economically determined phenomenon.

Other analyses concentrated on explaining the changing settlement patterns in specific developed countries, and specific regions within these countries, with the objective (perhaps indirectly) of verifying Vining and Kontuly's evidence of a non-metro growth trend throughout the world.

Jones et. al. (1984) and Champion (1987) exemplify these for the U.K. Jones et. al., referring to the case of the highlands and islands of Scotland, state that the terms "counterurbanization" and population turnaround have been

widely used to describe the net flow of migrants from major conurbations, primarily to their hinterlands but also to remoter, peripheral and predominantly rural regions. This was a movement that had become accepted as a phenomenon common to developed countries. The highland and islands (defined as Orkney, Shetland and Western Isles and the Argyll and Bute District of Strathclyde region) comprise an archetypal marginal region which experienced almost continuous depopulation from the mid-nineteenth to the mid-twentieth century. But in common with other peripheries of the British Isles, the region saw significant population growth recently (1971-81). The increase (8.7 percent for the decade compared to the national rate of around 1 percent) was widely ascribed to North Sea oil-related developments, at least for the Orkney and Shetland portions, which were markedly time- and place-specific and had no universal role in rural peripheries. Yet their glance at the distribution of population change at census enumeration district level indicated that the substantial growth took place in many, often outlying, rural areas seemingly unaffected by oil developments.

Related to this point, some important conclusions regarding the economic and social structure of the study area were reached using census data and a survey of immigrants. The authors stated that while the positive role of such activity (oil related development) on regional population growth is unquestionable, it tended to mask the operation of

another positive force - the growing long distance essentially "counterurban" migration to the area from outside Scotland, for quality of life and environmental appreciation considerations, that were unrelated to oil developments and that promise to outlive them. They noted that there had not been a significant decentralization of industry to the field areas, but rather small scale business and work opportunities emerged that were linked to the local environment. For example, the major economic support for about half the working families was provided by a range of service industries, particularly related to tourism - hotels, restaurants, outdoor sports provision and instruction, adventure schools, etc. - to which access by outsiders was sometimes favoured by their possession of capital, expertise and a willingness to take entrepreneurial risks.

The dominant reasons given for migration by the respondents were the physical environmental attractions at destination coupled with the more socioeconomically defined "escape from the rat race". The range of adjustments involved in migrating to the periphery included three main elements, namely, a measure of financial independence, some informal provisioning of household needs, and a degree of frugality in commodity requirements. Thus, the authors said that the residential freedom of something like a new leisured class was gained through access to capital which largely flowed from metro core regions. The fact that negative associations were

discovered between immigrant growth and retired population, manufacturing, and agricultural employment in the study area suggested the elderly do not figure prominently in long distance migration to peripheral areas, and that whatever employment attractions there were in the destination areas were in the service industries. A key point made here was that the migration to the periphery was not only a move in physical and economic space; it also involved for most migrants a conscious social distancing from metro work structures, consumption patterns and lifestyles.

While the work of Jones et. al. revolved around the behavioural aspects of immigrants to a particular area of the non-metro United Kingdom, Champion sought to describe the changes in the settlement pattern of the U.K. in general terms. He highlighted the results of the 1981 census which showed the massive population losses which had been sustained by Greater London and the other major metro concentrations during the 1970s, and showed that the only broad category of settlements that increased its rate of population growth comprised 'remote, largely rural' districts. In summary:

> The pattern for 1971-74 is not far different from that for 1974-78 and thus, not surprisingly, is the one which had been made familiar by the analysis of 1971-81 trends from the census. They both provide striking evidence of the counterurban tendencies at work, with Greater London, the six English metropolitan counties and the Strathclyde region (Glasgow) featuring amongst the poorest performances, and with some of the highest growth rates being recorded towards the extremities of the southern England and in the Welsh borders and northern Scotland

(p.384).

As part of an explanation of the underlying processes of the new rural growth trend in the seventies, Champion mentioned the distribution of manufacturing away from the major conurbations towards small towns and remoter parts of Britain. Also counties specializing in energy resource development, agriculture and forestry were all found to have experienced significant upward shifts in population growth in the early 1970s, as were towns with colleges, places with defence establishments and other areas with amenities that attract tourists and retired people. Champion also mentioned the residential preference factors discussed by Berry (1976) for the United States and investigated by Jones et. al. for Northern Scotland. He noted that this peripheral growth phenomenon has been identified in relation to people of working age, particularly associated with self-employment and footloose industry.

With the rapid development made in micro-computing and telecommunications technology in the 1980s, one would expect that distance between a worker and a job would not be as important in influencing residential locations as it was in the past. These developments would, as Berry pointed out, allow residential preferences to be exercised with increased freedom, and those preferences would favour non-metro areas. It may be that the onset of recession conditions (since 1981), combined with the attempts by both government and business to

increase productivity and competitiveness, has reaffirmed the importance of contacts and concentration at the expense of permissive factors. This point Champion makes in reference to the apparent rebound of growth, as expressed in the patterns of early 1980s data toward the larger urban areas and the urbanized southeast of England (see last section below).

Kontuly et. al. (1986) and Kontuly and Vogelsang (1988) investigated the extent of non-metro population growth in West Germany using various tests. First, the Hoover index of population concentration was used to document a spatial deconcentration of population. Second, spatial distribution of growth rates were measured against the national average and indicated that population was deconcentrating. Third, the association between place size and growth rate was mapped, and showed a trend toward deconcentration and fourth, tests of the relationship between rates of demographic change and population density of areas indicated a counterurban trend. The tests showed that starting in the 1960-68 period there was a broader dispersion of regional growth. Less densely populated regions in the north and south grew faster than the national average. The pattern of regional growth was more widely distributed throughout the entire country during the 1970s.

In a test for deconcentration trends used in Kontuly's study, "counterurbanization" was evaluated as an inverse relationship between the net migration rate and population

size of functional urban regions. A positive relationship indicated urbanization. Correlation analysis tested the strength of the urbanization or "counterurbanization" associations. The study revealed that in 1970, the relationship between regional population size and the total net migration rate was in an urbanization direction. In 1982, however, the relationship changed to a counterurban association and remained in this direction through 1984. Negative correlations at this time indicated spatial demographic deconcentration, and the author noted that the trend toward a negative association started around 1980.

For France, Ogden (1985) noticed that between 1975 and 1982 for the first time in more than a century, rural France grew more quickly than urban France, and that the last two decades saw a slowing of the remarkable rate of growth achieved and sustained in the country after 1945. Ogden sees as more remarkable, however, the intensity of emigration from Paris and the inner ring of suburban "departements" and the reversal in migratory fortunes of many rural departements in all the areas of traditional emigration in the Alps, Pyrenees and Massif Central. This process began during the 1968-75 period and has firmly consolidated since. With the exception of one suburban Paris departement (Seine et Marne), the departements experiencing the highest rates of net immigration were located along the Mediterranean coast. Ogden goes on to document the extent of inner city decline in most French

cities since 1975, and the upturn in growth fortunes for many traditionally declining rural areas. Where rural areas were still declining, it was often natural decrease, which previous population loss and ageing had generated, which was responsible for overall decline rather than continued emigration. He notes that there was still a rural 'heartland' in decline, but it had been greatly reduced in recent years and there was a clear, geographically contiguous diffusion of urbanization from the established urban centres. His summary of the French population trends since 1975 states:

> It is scarcely a new age of the peasantry, but it is certainly an age when decentralizing urbanization allows population increase in Brittany, the Alps or even parts of the Massif Central, areas which have previously known only a century of rural depopulation and migration to the distant urban cores of Paris, Lyons, or Marseille (p.35).

Here Ogden defines "counterurbanization" as having two distinct aspects to it: loss of population from central cities to suburban zones; and movement down the urban hierarchy or out into wholly peripheral areas. His explanation of the French population pattern after 1975 is less concerned with a clean break, or a new trend, but with the continued and intensifying population losses from the cores of large cities in France, and the widening of suburban zones around them.

Dean (1986), similar to Jones et. al. in the case of the U.K., analyses one region separately to gain more insight into population distribution change in France. Using data

from the 1982 French census, Dean uses Brittany as an example of one aspect of "counterurbanization", namely population growth in a peripheral region primarily brought about by a turnaround in migration flows. His succinct documentation of recent changes in the pattern of settlement there described a continuing decentralization of the large urban areas, but also an immigration trend to a belt of some forty relatively remote cantons (spatial subdivisions of departements) located in the peripheral departements of Brittany, namely Finisterre, Morbihan and Cotes-du-Nord. He notes that almost all of these interior cantons lost population through emigration between 1968 and 1975 and during the most recent inter census period, about three quarters of them continued to lose population overall, due to continued natural decrease. In terms of migration, however, just over half of the interior cantons actually experienced net gains between 1975 and 1982. It seemed to Dean that "counterurbanization" was beginning to reach even some of the remotest parts of Britanny, implying something more was at work than increased urban decentralization from the largest places in France, as Ogden suggests.

Perhaps the most comprehensive of the regional studies reviewed here dealing with population deconcentration outside the United States is the research done by Hugo and Smailes (1985) on Australian non-metro population growth and the case of the Greater Adelaide region of South Australia. This study

provided a synopsis of various causal mechanisms that have been suggested to explain the turnaround effect during the 1970s and early 1980s in developed countries. These 8 points are listed in table 2.4, and summarize many of the reasons for non-metro population growth given in the literature above.

Related to these points, the authors provide three hypotheses which they think combine to explain why non-metro areas attracted migrants in the 1970s and early 1980s. The first is the expanding urban field approach, which "postulates a scaled up continuation of the same basic processes of suburbanization and extension of metro commuting hinterlands as occurred in the 1950s and 1960s, with the metropolis exerting a perhaps more tenuous but still dominant influence on the location of new employment opportunities and residential choices" (Hugo and Smailes, 1985 p.12). The second is the behavioural approach, which suggests that the turnaround was dominantly a 'people-driven' phenomenon, the result of changing lifestyle and residential preferences or actual residential choice behaviour, in response to new opportunities provided by economic security and new technology. Berry's (1976) explanation for non-metro growth is an example of this approach. The third is the structural change approach which suggested an 'employment-led' population turnaround, with people responding to changing spatial distributions of employment, and the changing importance of certain employment sectors within the general economy.

Table 2.4

1. The turnaround is only a temporary fluctuation in the general trend toward urban concentration in response to the economic recession of the 1970s.

2. The turnaround is a demographic effect caused by changes in the particular age and life cycle population mixes of metropolitan/nonmetropolitan populations.

3. The turnaround is a result of successful public regional development and decentralization policies, particularly those relating to deconcentration of manufacturing industry from large cities.

4. The turnaround is an area specific effect traceable to employment growth in particular, localized industries in favoured nonmetropolitan regions (e.g. mining, defence), rather than a general broad-scale phenomenon

5. The turnaround is a result of the gradual emergence of scale diseconomies in large urban areas, which combine with growing social problems to increase the push factor in migration streams from urban areas.

6. Reduced distance friction associated with new transport and communication technology has allowed a further rapid extension of urban commuting fields into widely dispersed but still metropolitan focussed economic networks.

7. There has been a basic change either in people's values and lifestyle preferences or in their ability to act on such preferences, acting in favour of residence in rural or small town environments and against large cities.

8. The turnaround is primarily a result of structural change in modern Western economies as the proportion of tertiary and quaternary employment increases relative to secondary employment, while the decline in primary employment has almost run its course.

Source: Hugo and Smailes, 1985

After providing this background, the authors proceed to describe the Australian situation at both national and regional scales. They say "suspicions that the supposed turnaround up to 1976 might have been a short lived fluctuation have been dispelled since the publication of the 1981 census results when, for the first time this century the rural population showed a slight increase in both numbers and proportion of the national total" (p.14). While Sydney and Melbourne together experienced a net migration gain of some 30,000 persons between 1961-71, they lost 93,000 through net migration from 1971 to 1981. Compared with the general net rural emigration in the 1960s (except in resource frontier areas and urban peripheries) actual net migration gains are now more widespread throughout the continent, and in terms of the nature of this change in the distribution of growth, many of the most rapidly growing towns (of 5,000 people or more) are quite distant from metro centres. Thus urban spillover cannot totally explain their rapid growth. They note that areas most affected by the turnaround in net migration were in the ecologically attractive and less densely settled coastal areas along the east coast and along the south coast of Western Australia (i.e. the hinterland area around the major conurbations of Sydney, Brisbane and Perth).

In seeking to explain these population dynamics, Hugo and Smailes analyzed job creation and loss. Between 1976 and 1981 there was a greater increase in the number of jobs in

non-metro locations (261,344) than in major cities with more than 100,000 inhabitants in 1981 (244,523). Indeed, the growth of jobs in the non-metro sector occurred despite a continued reduction in the numbers employed in agriculture (by 1981 only just over a third of workers residing in Australian rural areas were employed in agriculture). Thus Hugo and Smailes contend that the pattern of change in employment opportunities suggests an employment-led turnaround (i.e. population followed jobs, creating momentum for population growth). Between the two censuses non-metro areas of the six States experienced a job loss of 2,600 before 1971 to a gain of 172,000 after 1971. The structural change approach to explaining Australian non-urban population growth seemed persuasive in relation to the reduced growth and emigration which occurred in large cities, but did not explain the attraction of small urban centres and dispersed rural localities.

To address this problem, a regional scale analysis, based on Adelaide, addressed changing trends in population distribution. They summarize their findings by saying:

> ...the South Australia case study shows that the turnaround effect has been most marked in the area within 1-2 hours drive of Adelaide, but is certainly not restricted to this area. The actual importance of proximity to the city per se in promoting the turnaround effect is difficult to establish since a good proportion of the State's oldest settled, most densely populated and most physically attractive areas beyond this distance have also experienced marked net migration improvements....However the local level study certainly confirms the greater intensity of the

turnaround within the commuting belt (p.24).

They found that the net migration changes had been greatest in the most accessible areas and lowest in the most remote, showing a coincidence with the results of urban field analysis, and concluded that a significant part of the turnaround was not so much migration from metro to non-metro areas as a reduction in the propensity of particular groups to migrate from non-metro to metro areas.

The results of Hugo and Smailes' studies indicated that the structural change hypothesis provided the most suitable explanation for population growth within rural regions and adversely affected the largest and oldest and/or most specialized industrial cities, reducing rural to metro migration streams and increasing metro migration to the country centres. The behavioural hypothesis on the other hand served better to explain growth in the most remote and the smallest centres, particularly in the more attractive and densely settled rural areas and especially within the expanding commuting fields of metro areas like Adelaide.

These varied analyses of "counterurbanization" illustrate some common themes. One, that the incidence of non-metro growth was not specific to the United States, but rather a pervasive movement occurring in other developed countries. Two, the occurrence of non-metro growth was coincident in many countries in that it happened during the seventies, or

immediately after a rapid post-war suburbanization period. Three, reasons for the occurrence of immigration to non-metro areas vary between countries (and analysts), but continued expansion of the commuting range around cities is given in most cases as a major contributing factor. Four, recent growth in the most remote regions, which had generally suffered population loss during this century, signalled a new trend in the general settlement pattern, one which could not simply be explained by expanding urban sprawl.

Evidence of growth in non-metro regions of many developed countries, both in Vining and Strauss's broad scale analysis of 18 countries and in case studies of countries and regions suggested the non-metro growth trend in the U.S. was not a spatially isolated phenomenon. Evidence supporting a counterurban trend was also found for Canada, which suggested that this country's settlement pattern was affected by similar redistribution processes.

The Canadian Settlement Pattern and "Counterurbanization".

A description of Canada's changing settlement pattern was given briefly in the introductory chapter. A more detailed consideration is necessary, however, to put Canadian evidence for "counterurbanization" in its appropriate context. The seminal work of Bourne and Simmons on Canadian settlement trends spans three census periods (1971-76, 1976-81 and 1981-86) and effectively summarizes the Canadian settlement

context (Bourne and Simmons, 1979, 1985, 1988). Each of three period-based works detail the socioeconomic characteristics, trends, changes and emerging patterns within the Canadian settlement system on a country-wide scale.

For the 1971-76 period they summarize that:

> West of Saskatchewan virtually every city has grown to some extent. Ontario and Quebec have borne the brunt of urban decline, which appears to be linked to a shift of the national economy towards primary activities and away from manufacturing. The net effect at a national scale is one of decentralization - of population growth into the smaller, less industrialized and less urbanized provinces (p.11).

and:

> The trend toward a polarization of population growth around large metropolitan cores has continued throughout the country, but it is distributed farther and farther from the city centres, in some instances beyond the boundaries of the Census Metropolitan Area[4]. As a result the proportion of populations actually living within these boundaries has remained roughly constant. Within the older parts of the city, in fact, the rate of population loss is precipitate. Low birth rates and declining immigration levels have reduced the population density; while new housing construction occurs farther and farther away from the core of the city (pp.11-12).

They also point out that the most spatially variable component of growth at that time was net internal migration, and this emerged in their analysis as determining most of the differences in observed growth rates.

As for urban-rural differences, they note that during the

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[4] Canadian Census Metropolitan Areas are different in some aspects to the U.S. SMSAs. Both are established, however, according to commuting criteria from areas surrounding a large city.

1971-76 period the proportion of Canadian population resident in urban areas marginally declined, and that the main source of rural to urban growth was the process of administrative redefinition of places from a rural to an urban category. And, from as early as 1961, the rate of urbanization had moderated due to some key factors, including the lower rate of overall national population growth, the levelling off of a long trend in the rate of decline of agricultural employment, and the continuing improvements in transportation which have permitted wider and wider commuting fields to develop around metro centres. The specific examples given were of the Toronto and Montreal regions, which "... are surrounded by a widening ring of exurban growth, extending in some instances over 100 miles from the urban core, well beyond the boundaries of the census metropolitan area... Much of the apparent growth in the province of Quebec simply represents a redistribution of population from the core to the fringe of the Montreal metropolitan region" (Bourne and Simmons, 1979 p.66).

Bourne and Simmons use Hill's (1975) density gradient study of Canadian urban areas as an illustration of widespread deconcentration of population within urban regions. They mention that 1976 census results corroborated the studies of Freidmann and Miller (1965) and Hodge (1974) showing the emergence of extended urban areas.

In terms of the similarities between recent Canadian and American redistribution trends, they noticed a modest shift in

migration flows away from the very largest metro areas towards smaller cities and towns in Canada, although not approaching the scale evident in the United States. (Bourne and Simmons cite the evidence for non-metro growth from 1970-75 provided by Morrison and Wheeler, 1976, seen above). They give two possible reasons for this growth. One is that the outward expansion of large urban centres has continued more rapidly than changes in Statistics Canada definitions of the boundaries of metro areas, and the second is that the altered regional pattern of growth has tended to favour regions in which small and medium sized places are more important components of the settlement pattern.

For the 1976-81 period Bourne and Simmons note that the processes shaping the nation's settlement geography had maintained the same general trends as in the first half of the decade. They point to the remarkable growth of population and the economy in Alberta and B.C. in this period, while the rest of the country grew slowly or not at all. More than half of Canada's population growth between 1976-81 took place in Alberta and B.C., due for the most part to immigration. By the end of the decade, however, annual data indicated that this sharp contrast was muted if not disappearing. They attribute this regional variation in growth to decline in overall manufacturing activity, and the erratic growth of non-energy resources, compared to the boom in energy resource related activities.

In terms of growth in urban areas, the most rapid urban population growth took place in Alberta and the West generally. The authors say that east of Saskatchewan most urban places grew at only modest rates and almost one quarter of them registered absolute population declines. Expanding on this point they say:

> Places in Southern Ontario, for example, grew very little outside of the Toronto sphere of influence (the urban field), while in Quebec the opposite held true. Urban centres outside of the Montreal region did better on average than the metropolis itself. Whether this contrast reflects the relative isolation of smaller urban areas in Quebec from the rest of the country, or the growth of public sector employment in Quebec City and elsewhere in the province, or the considerable net outmigration of English-speaking population from Montreal, remains to be evaluated (p.26).

Concentrating specifically on the 24 census metropolitan areas across the country, only six had a net inflow of internal migrants; and all but one of these (Oshawa) were in the West. Even Oshawa, they say, is not a clear case because it receives considerable spillover population from metro Toronto. Thus the growth patterns in this period were seen as following the examples set five years earlier, with the western provinces benefiting from booming energy sector growth, and a continued emigration from large inner cities in the oldest of urban areas. Growth beyond the metro area boundaries continued to be the result of urban field expansion, and a willingness to commute longer distances, except in Quebec where an expression of different lifestyle

preferences has been responsible for the decline of the largest metro places in relation to the smaller ones.

Preliminary data from the 1981-1986 period according to these same authors revealed that within a relatively stable national growth trend since the previous period, significant shifts in growth patterns at different spatial scales has occurred. For example the flow of migrants westward, typical of the 1971-81 decade, reversed itself in favour of the larger metropolises of central Canada, particularly in southern Ontario. Larger cities grew more rapidly than smaller places although there was not as much variation in regional growth rates as in the 1970s. They hypothesize that this change was perhaps a result of the massive shift in the national economic pattern from primary resource based growth (B.C. and Alberta) to growth based upon tertiary activities (Ontario and Quebec). Inner city population declines were seen to be levelling off, resulting in the slowing of emigration from these areas. To illustrate, Toronto lost 70,000 people between 1976-81, despite a natural increase of 20,000. Reasons given for this reversal in inner cities, particularly the oldest ones, were that declining household sizes had levelled off, a trend perhaps associated with intensifying gentrification, lifestyle preference changes, demographic changes within the largest urban areas, and a renewed growth in foreign immigration that typically was responsible in past decades for growth in the largest places. Thus, decentralization in the previous decade

seemed in 1981-86 to be abating, or at least was matched by renewed concentration of population and employment in the largest metro areas.

Another important description of the settlement system in Canada is Yeates' (1984) study on the changing nature of the "Windsor-Quebec City axis", traditionally referred to as the dominant population and economic region in the country or, according to Yeates, Canada's "mainstreet". Referring to the period 1971-81, he noticed that since 1971, some decentralization of economic activities and population away from the axis occurred, and the patterns of urban growth with the area were quite varied, similar to what Bourne and Simmons described for that decade. He noted that over the past few five year periods (up to 1981) growth in the axis was characterized by above average (national) growth in areas outside built-up metropolises, or "ex-urban" areas. It was also noticeable that "exurbanization" was concurrent with population decline in the inner cities of Toronto, Montreal, Quebec City, Windsor, and Ottawa. He says, "...this [exurbanization] is partly related to a late phase of the surburbanization process (i.e. people trading off a longer journey-to-work for more "rural" space), which [can be interpreted] as a search by some people for small town... cultural values" (p.19).

Yeates suggests that the main reason for the weakening of urban areas in the "mainstreet" region and the region's

country-wide dominance was related to a boom in the economies of the Western provinces by energy and primary resource-related growth in the late 1970s. This boom, he suggests, in effect expressed the staple view of the Canadian economy and resulted in the rapid growth of Western cities. But also, he draws attention to the fact that during the 1980-83 period, when the prices for energy and other primary resources decreased, urban growth in the Western provinces diminished markedly, a fact also apparent in the 1981-86 data of Bourne and Simmons. Thus, he suggests that "... the most recent period of deconcentration of employment and economic activities away from the axis is an aberration, and that during the 1980s the population of the area will grow at least at the same pace as that of the country as a whole. Large-scale investments in resource activities, particularly oil and gas, are not likely to occur at the same magnitude as they did in the middle of the 1970s. A regeneration of consumer demand in Canada (and in the United States) primarily benefits manufacturing in the axis, and this has a multiplier effect on the many services related to business and government" (p.21).

These overviews of the Canadian settlement pattern since 1971 have described a dominant deconcentrating trend within the country at various spatial scales in the 1970s. This trend prompted investigation into the association between widespread decentralization and population growth taking place

beyond metro boundaries. Authors also sought to describe this trend as "counterurbanization".

One of the first to link the U.S. phenomenon of non-metro growth in the seventies to events in Canada was Parenteau (1982), who described the increase of 0.5% in the rural proportion of the population between 1971-1976 as "a landmark in the evolution of Canada's population", calling the rural growth trend a "back to the land" movement (Parenteau, 1982, p.29). He saw that the increase in the rural proportion during that period interrupted the tendency toward continuing urbanization noted since 1871 where the urban proportion increased from 19.6 percent in 1871 to 76.1 percent in 1971. He noticed that the rural population increase indicated the emergence of an urban to rural trend in migration, the extent of which could not as yet be confirmed. Also, he mentioned that the behavioural influence of the United States population on that of Canada, which seemed to be on the verge of a "post urban era", is known to be strong. The non-metropolitan growth trend was noted in American society at the beginning of the 1970s, and Parenteau argued, judging from the rural proportional increase in Canada, that it was reasonable to assume that the new trend was attempting to take root.

Parenteau noted that the possible causes of the changes in Canada's population distribution fall into two categories: definitional changes and changes due to migration. Between 1971 and 1976 the definition of an urban area changed, so that

an incorporated city, town or village with a population of 1,000 or over was no longer automatically considered urban, but was required to surpass the 1,000 people per square mile (386 per square kilometre) density threshold. Parenteau argued that a decrease in the urban proportion would be an understandable result of the definitional change, but not the sole reason, since pronounced urban losses through internal migration evidently reversed the concentrating flow seen in the 1950s and 60s. His contention was that despite the possible amplifying effects of definitional changes, a net migration was occurring toward non-metro areas marked by the increased proportion of rural population between 1971 and 1976. This signalled a new movement similar to the redistribution in the United States.

Hodge (1983) summarized previous research on rural resurgence both in Canada and other countries as describing novel shifts in the inter-regional distribution of population, a diminution of trends in the concentration of national population in metro areas, and further dispersal of metro populations, and he wondered if the "intellectual commotion" surrounding a perceived rural growth and regrowth was adequately captured by the term "counterurbanization". After looking at previous research into rural growth in the United States, mainly based on studies of comparative growth in metro and non-metro counties, he decided to use small centres (i.e. settlement clusters of 10,000 population or less in 1971) as a

fine-grained unit of analysis to assess population growth trends in non-urban areas. Where possible, his data were disaggregated and examined in groups of different population sizes, by regional location and by proximity to metro areas.

Hodge's data revealed that of approximately 9,500 small centres in his Canada-wide study, almost one sixth grew by more than 25 percent in the first half of the 1970s. He found that "... for 1971-76 among villages with fewer than 100 residents, more grew than declined; among places between 100 and 500 population, slightly less than one-half grew; and among those with more than 1,000 residents, over three-quarters added to their population" (Hodge, 1983, p.22). Table 2.5 taken from Hodge's paper shows that between 1971 and 1976, small town growth exceeded the overall national growth rate for five provinces, while in P.E.I., New Brunswick, Quebec, Alberta, and B.C. the small town aggregate annual growth rate was greater than the growth rate of metro areas (CMAs). In terms of the nature of growth, proximity of a small centre to a metropolis, often presumed to be the major independent variable explaining town and village growth, did not in reality have such a strong influence. Hodge pointed out that while the growth of about 800 small centres seemed to be accounted for by metro proximity (i.e. spillover) there were over 3,800 other small centres, well beyond the metropolis, for which another explanation was needed for their growth tendencies.

Table 2.5

Comparison of Population Growth Rates 1971-1976 for Provinces, Metropolitan areas Small Towns in Canada.

	Average Annual Growth, 1971-76 (a)		
Province	Province	CMAs (b)	Small Towns
Newfoundland	1.40	1.70	1.50
P.E.I.	1.10	-0.30	0.60
Nova Scotia	1.00	1.40	-0.02
New Brunswick	1.30	1.20	1.40
Quebec	0.70	0.60	1.20
Ontario	1.50	1.50	1.40
Manitoba	0.70	1.00	0.70
Saskatchewan	-0.01	1.30	-0.30
Alberta	2.60	2.80	3.30
British Columbia (d)	2.60	1.70	2.70
Canada	1.30	1.30	1.20

(a) Calculated as ((((1971-1976)/1971)*100)/5)
(b) Where there is more than one CMA, population change is calculated for the aggregate of all CMAs.
(c) Since there is no CMA in P.E.I. change in the Carlottetown Census Agglomeration is used
(d) Includes Yukon and Northwest Territories.

Source: Hodge, 1983

The thrust of Hodge's evidence pointed to a pervasive growth of Canadian small towns and centres. He argued that the convergence of town and village characteristics in recent census periods, both demographic and economic, with those of the largest urban places, illustrates the fact that the forces, processes and technology that make the big city possible also create the milieu in which towns and villages may be sustained. The evidence indicated to Hodge that a new rural spatial system in highly developed societies was forming in the early 1970s, one which implied a great deal of autonomy or independence for small town and rural residents.

Investigations (particularly in the Montreal and lower St. Lawrence areas) have also been carried out at a regional scale. Two of these address deconcentrating trends in Quebec. Termote and Mongeau (1983) illustrated that Quebec experienced the most rapid rural growth rate in the country between 1971-76, double the urban growth rate in the province. This difference in growth rate between area types was also accelerating into the 1980s, with a rural population growth rate of 14 percent between 1976 and 1981. The authors stress, however, that an increase in rural population does not mean an increase in farm population, rather that the rapid rural growth is seen in the non-farm component of rural population. Using census divisions as the unit of analysis, these authors tested the growth influence of urban proximity on rural areas and found that growth was concentrated mainly in those

divisions which were close to the metro area of Montreal. They point out that this pattern was stronger in the 1971-76 period than the 1976-81 period, for, in the latter period, accelerated rural population growth was seen over a much larger area, and in divisions not adjacent to the metro areas of Quebec. Thus they saw a case for the rural growth being something other than just urban sprawl, as might have been the case in the early 1970s. After analysing migration flows between census divisions, they also concluded that "... counterurbanization was due mainly to an increase of out-migration from urban counties (i.e. census divisions) to rural counties. Only in a few cases did counterurbanization seem to be related to changes in migration flows between rural counties" (p.84). Thus they related rural growth to an exodus from urban regions in Quebec.

Brunet's (1983) study was concerned with population distribution in Quebec, and specifically the Montreal region between 1966 and 1981. His findings, summarized in table 2.6, show the extent of non-metro growth in Quebec in general, and the changes in migration flow between rural and urban areas between 1966 and 1976. Since the proportion of out-migrants from the Montreal urban area represents half the Quebec total, distributional changes in this area significantly affect the provincial totals. He concluded that only 25% of rural growth variation could be explained by urban proximity, based on four categories of distance/city size relationships. In terms of

Table 2.6

Metropolitan and Nonmetropolitan population growth in Quebec, 1966 to 1981.

	1971	% Change 1966-1971	1976	% Change 1971-1976	1981	% Change 1976-1981
Metropolitan Areas (a)	3,744,785	7.0%	3,893,339	4.0%	3,932,483	1.8%
Nonmetropolitan Areas	2,282,979	0.2%	2,341,706	2.4%	2,505,920	5.7%
Total	6,027,764	4.3%	6,235,045	3.4%	6,438,403	3.3%

(a) The definition of Metropolitan areas was adjusted to be comparable with the US concept of SMSAs (i.e. all the agglomerations of over 50,000 population are included).

Internal Migration Change in Quebec, 1966 to 1981

Migration (*)	1966-71	1966-71	% increase between periods
From an Urban area to a Rural area	88,919	152,605	72%
From a Rural area to an Urban area	130,278	153,450	18%
From a rural to a rural area	39,879	53,970	35%

(*) The definition of Urban and Rural areas is based on Statistics Canada criteria, with the exception of 91 subdivisions classed 'mixed', which were classed according to the dominant population character in the subdivision.

Source: Brunet, 1983

the regional distribution of growth around Montreal, he noticed that the north side of the St. Lawrence received a greater number of urban-rural migrants than did the south side. This was due to the recreational amenities offered in the north, compared with the agriculture dominated south, where an inverse relationship was revealed between size of farm population and non-farm rural population growth. In fact Brunet saw the absence of a large farm population, coupled with low property taxes as two of the most influential 'pull' factors associated with rural growth in Quebec, regardless of the influence of proximal urban areas (although these factors could not be considered independent of each other). As for the future Brunet saw agricultural zoning (in place since 1978) as a possible constraint on the urban exodus from metro Quebec. He notes, however, that these measures may only shift the growth from dispersed areas to small towns where lots are already available.

Russwurm, Bryant, and McLellan (1982(a)) dealt with rural population increase, but mainly with respect to changing land uses around expanding cities, loss of prime agricultural land in the rural fringe, and changing values of agricultural land due to the influx of non-farm rural residents in recent decades. Of particular interest to these authors was the prime agricultural areas of south western Ontario (i.e. the fringes of Kitchener/Waterloo and London), and the fruitbelt of the Niagara region - areas of considerable rural non-farm

population growth at the expense of both agricultural land and agricultural employment. Although their research was mainly oriented toward explaining patterns of land use changes in the rural-urban fringe, they explain rural population growth mainly as a function of immigration by non-farm population into previously farmed areas.

The most recent study dealing with "counterurbanization" in Canada comes from Joseph et. al. (1988), who analysed population change across Canada for different areal disaggregations and area types. They argued that although evidence suggests that rural growth outpaced urban growth in the 1970s, the extent of the phenomenon was undoubtedly exaggerated in the census data, because of definitional and reclassification effects (similar to what Parenteau noted above).

They noted that empirical evidence from many developed countries suggests that a core/periphery migration reversal took place, and that this may be a consistent feature of the recent demographic evolution of developed countries. They say that although Bryant, Russwurm and McLellan (1982(a)) had undertaken analysis of population change in specific urban fields, no precedents exist in Canada for developing spatially comprehensive area types to facilitate investigation of the turnaround hypothesis. They opted for a threefold division of Census Divisions base on "urban proximity" (i.e. urban core, rural hinterland, and rural remote), and measured the growth

of farm and non-farm population growth within these classifications. They mention that further spatial separation of the rural classifications on a finer scale than Census Divisions would be difficult given the data availability for certain regions and variables. For the classifications of CDs, they calculated aggregate percentage change, and a mean rate of change, which opened up the possibility for the structured comparison of within and between region variation. They noticed that if the aggregate regional percentage change exceeded the mean rate of change, then growth (in absolute terms) was occurring disproportionately in divisions that had a larger base population of the type in question. Formal assessment of the mean rates of change from CD groupings involved the application of analysis of variance tests.

The results suggested that in view of the fact that decline of the farm population was almost universal in the study period (1961-81), and of similar magnitude across all regions and area types, the non-farm component of change provided the essential impetus for rural population shifts within Canada in the 1960s and 70s. For both decades the aggregate growth of non-farm population was greatest in percentage terms in the urban core areas and progressively but only modestly less in the rural hinterland and rural remote areas. This is consistent with the turnaround in Canada being in part an urban spillover phenomenon. They say:

> Ontario and especially Quebec are distinguished

> by high rates of rural non-farm growth, not only in urban core CDs but also across the rural hinterland areas, with only modest rates of urban growth (11 and 3 percent respectively). We suspect that in large part this growth is an urban spillover effect, affecting not only the areally restricted urban core CDs but also the rural hinterland areas encompassed in the 'Main Street' region (p.28).

also:

> ...the substantial growth in 1971-81 of rural population in B.C. and Alberta presumably reflects the resource boom that both provinces experienced in the decade, which translated into rates of population growth well in excess of the national average (p.29).

The analysis of variance results suggested that for urban core, rural hinterland and rural remote area type categories, between type differences were weak relative to within type differences for 1961-71. Between type differences, however, were much stronger in the 1971-81 decade. Also, when the nation was broken into five regional subdivisions (i.e. Atlantic, Ontario, Quebec, Prairies, and B.C.), between region differences were notable in all cases, which underlined the importance of considering sub-national variation in the turnaround trend.

Joseph et. al. concluded by saying that while the magnitude of differences in rates of rural population change by decade is questionable, the rate of rural growth 1971-81 did in all likelihood exceed the urban rate. However, the size of the departure of the 1971-81 rate, and more particularly of the rate of rural non-farm growth, compared to 1961-71, is undoubtedly exaggerated. They use the effective

example of the Niagara region of Ontario, where rural non-farm population went from 44,293 in 1961, to only 7,740 in 1971, back up to 35,936 in 1981. Changes of this magnitude can be accounted for only through a massive reclassification of rural non-farm population to urban as density criteria are progressively met in fringe areas. They note that not only was the rural non-farm rate more significantly depressed by reclassification to urban in 1961-71 than in 1971-81, but in 1971-81 changes in the definition of a farm presumably further inflated the rural non-farm figures. Before 1976, a census farm was any agricultural holding of one acre or more with sales of agricultural products of $50 or more during the 12 month period prior to the census. In contrast, after 1976 a census farm was defined as any agricultural holding of one acre or more with sales of agricultural products of $1,200 or more.

Urban core CDs, according to the authors' classification scheme, experienced rural non-farm growth rates well in excess of those experienced across the other two area types in the study. It seems reasonable to speculate that with a more finely differentiated spatial system (not constrained by the artificiality of the CD boundaries) this characteristic would be even more pronounced. Their work pointed to the need for further investigation of comparative population growth and redistribution within Canada's rural hinterlands and urban places on a sub-national or regional scale.

This selection of research has outlined the traditional and changing settlement pattern in Canada, and provided a review of studies concerned with "counterurbanization" and its existence in Canada. The mainly descriptive summaries of changes in urban/rural proportions and population growth by area classification are not directly comparable to the U.S. or other developed countries, but they do point to growth in rural areas as being a significant component of population redistribution in recent decades, and that this growth reversed a longtime concentrating trend.

This reversal was often explained in the preceding pages as "counterurbanization". Although other terms such as urban sprawl, exurbanization , extended suburbanization, spillover growth, deconcentration, decentralization, fringe growth and other terms are used to explain aspects of both rural population growth increase and urban population growth decrease, "counterurbanization" has been used to describe overlapping processes and explain redistribution phenomena such as those seen above using a single process term. The concept of "counterurbanization" must therefore be clarified in order to justify its use in various contexts.

The Concept of "Counterurbanization".

In 1976 Berry coined the term "counterurbanization" to describe what he saw as a fundamental reversal in the settlement pattern of the U.S. His term has been used often

since to describe similar redistribution phenomena around the developed world. Beyond his introduction, however, various authors have tried to understand such a provocative and perhaps misleading word (misleading in that it attempts to interpret a new phenomenon in one word and may subject it to oversimplification). In this section, views on the concept of "counterurbanization" will be offered as a sample of the variety of attempts to clarify the term, and the problems it presents.

The first is the work of Dean et. al. (1984). The popularization of the term is seen as the result of a recognition that traditional patterns of metro expansion and rural depopulation in certain developed countries are changing fundamentally. Although they see "counterurbanization" raising problems in terms of its theoretical and epistemological setting, they offer Fielding's (1982) definition - that "counterurbanization" is the logical opposite of urbanization - as the most exact. The authors note, however, that the above mentioned problems arise when they try to reconcile this definition with the idea that the phenomenon is different from other redistribution processes.

They mention Randolph's (1980) work on rural population growth in Britain in the 1970s as an example of the incorporation of the term where it involves two prerequisites: decentralization and deconcentration. They go on to describe these two processes: "... decentralization describes movement

out from a central city but not beyond the functional urban system", and "deconcentration refers to 'movement down the urban hierarchy, but between city regions or into rural areas'" (p.10). The combined effect of these processes works to reverse the effect of urbanization, that is, it runs counter to it. Thus the new term can be justified.

They argue that the study of "counterurbanization", or even the use of the term requires caution, not so much because of the confusion that surrounds it but rather because of the narrowness of its meaning. This narrowness stems from the two-fold problem of reification (where an abstract concept must be converted into material or tangible things) and parochialism (where the concept is confined by the predispositions of researchers rather than processes acting in the real world). Having offered "counterurbanization" as a concept describing the opposite of urbanization, these authors warn that researchers must be careful to "... [examine] the relationships between aggregate patterns and structures on the one hand and human experiences and social interaction on the other" (p.14). Thus they identify the concept as a marriage of the empirical study of decentralization and deconcentration with the notion that a clean break comes in the form of human behavioural and psychological change (in terms of peoples' lifestyle and environment).

Bourne (1980), takes a somewhat different approach to describe the term and its usage. He argues that it is tempting

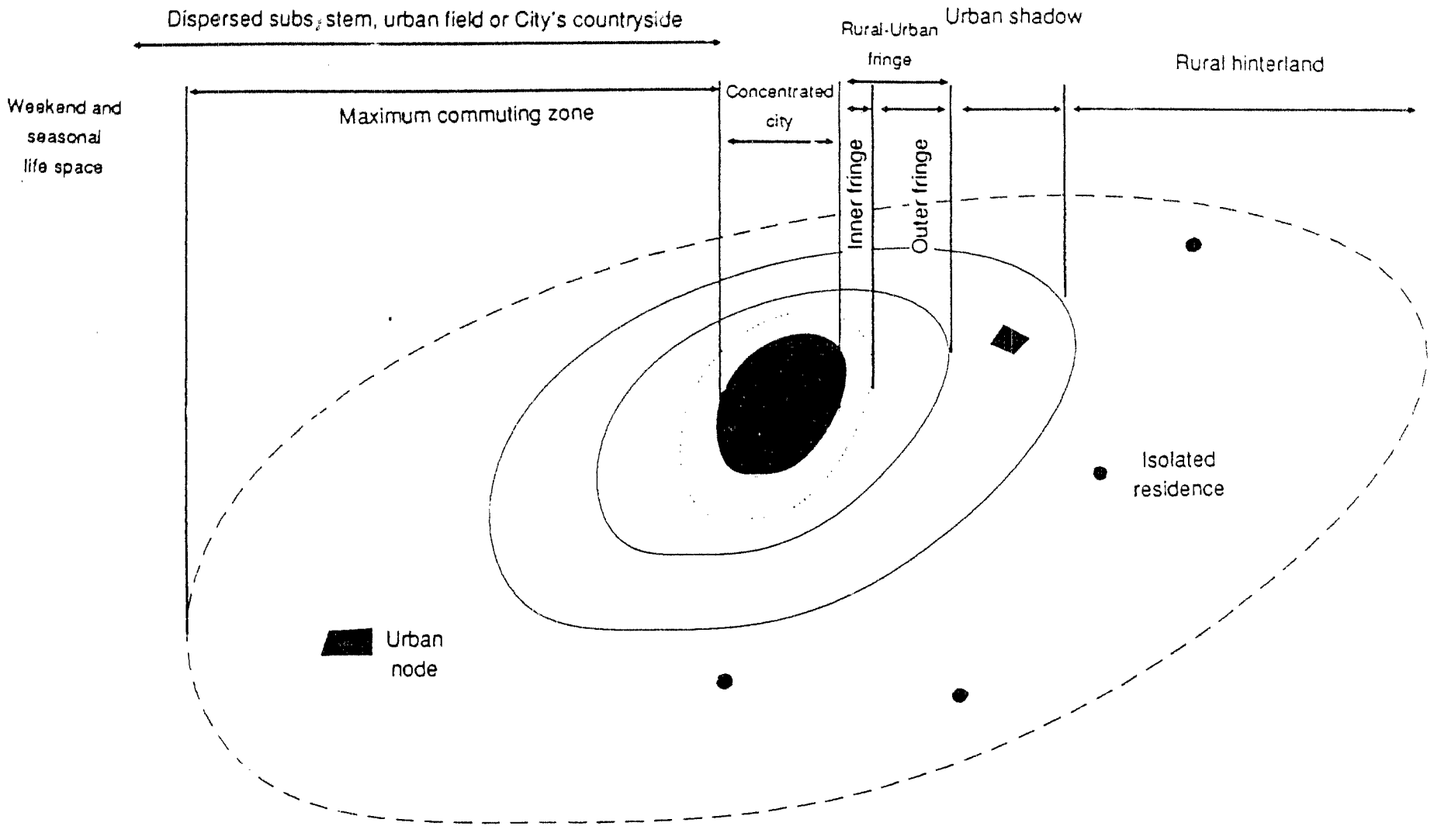
to look for a single all-embracing framework or paradigm for an explanation, but that the complexity of the issues and experiences in developed countries are too diverse to submit to a singular logic. He offers five models in the body of his paper with the purpose of explaining the decentralizing / deconcentrating trends of the 1970s not as simply a continuation of past trends of an increasingly dispersed pattern of suburbanization and exurban development, or a 'clean break' with these past trends, but as a complex array of interrelated socioeconomic, cultural, and political changes.

Bourne recognizes three processes involved in an explanation of the concept of "counterurbanization", namely: there is a shift in the net balance of migration flow toward smaller areas; more people are leaving the larger centres; and fewer people are arriving from the countryside into these larger centres. He cautions strongly though, that these processes work in varying combinations with each other at the same time in different regions and no undue emphasis on the influence of any of them should be given. Similar to the previous point made by Dean et. al., Bourne cautions that different analysts have very different, and often implicit images of the processes of urbanization (and for that matter, "counterurbanization") and more generally of how urban systems change: images which in turn shape the kinds of explanatory hypotheses put forward (p.40). Thus the paper points out that

the relationships between urbanization and spatial development patterns are unlikely to submit to any single set of explanatory variable or to a unitary theoretical paradigm.

Also important in a discussion of the concept of "counterurbanization" is research on the concept of the "urban field", and its relevance to the changing distribution of population from urban to rural areas. Bryant, Russwurm and McLellan's (1982(a)) description of the "regional city" depicts some of the spatial elements involved in rural-urban interaction and population redistribution. Their spatial model of the regional city is shown in figure 2.2. This categorization of the landscape suggests the existence of two definable elements in which concentration declines outward from the centre (except for isolated nodal centres). The space labelled "dispersed subsystem, urban field or city's countryside" encompasses a broad area with no apparent end point. It is this region, or at least that area beyond the rural-urban fringe, which has traditionally been losing population to the cities. At the same time it is the "dispersed subsystem" into which the city will inevitably expand if decentralization continues. Therefore, Bryant, Russwurm, and McLellan's illustration confuses attempts to label growth outside urban limits as "counterurbanization", since the urban field has become so expansive through improved communication and transportation technology that it has spread over most settlements in Canada. This argument is based on

Figure 2.2



Source: Bryant, Russwurm, McLellan, 1982(a)

the concept of the urban field as a highly complex pattern of functional interaction in which daily commuting from the periphery to the central city is only one of many forces that structure the territorial sub-system. Gertler's (1985) analogy shows that an outlying (rural) conference centre, that draws its patronage and some of its services from the city and its employees from the immediately surrounding communities, is part of the same settlement system as a downtown bank. This perspective has led some commentators (Mercer and Goldberg, 1980; Smit et. al., 1988, Conzen, 1983) to express some caution concerning the "counterurbanization" thesis, viewing it only as the continued and increased expansion of the urban fields around major cities. Evenden also makes the point that a central city implies an urban fringe, and that we are witnessing the transition of urban areas from those which are relatively centralized to expanded sprawling giants. He notes that the central city continues to express the general identity of everyone in the region, regardless of the magnitude of sprawl (Evenden, 1974).

Hodge (1985) argues, however, that structural distinctions can be seen between core areas, fringe areas around the core which represent immediate sprawl and core expansion, and remote hinterland regions in terms of land use patterns, population density, economic diversity and other factors that have distinguished rural from urban places in the past. Hodge sees the urban field concept as a city-centred

concept which is constrained by having a single focal point. He contends that it is better to view the growth of the urban field not so much "... as a tidal wave of expansion going inexorably outwards, but rather as a mosaic of spatial modules grafted onto the old central city and its immediate suburbs..." (p.70). Hodge's image tells of independent growth of peripheral places, gradually assimilated into one regional identity.

The sum of these comments on the concept of "counterurbanization" indicates some common themes. One is that studying "counterurbanization" involves looking at many complex and interrelated factors not always conceptually distinguishable, and that one all-encompassing term, although tempting, cannot adequately describe a situation where many distributional forces are acting simultaneously. Therefore, the term is offered to describe a new process, although the process in itself may be a summation and an interaction of several old ones. Also, the notion of "counterurbanization" as a process is unavoidably shaped by the implicit presuppositions of researchers.

Explanatory Theories and the Most Recent U.S. Research.

Some studies have focused on trying to develop a theory of "counterurbanization", or link the process with other social science theory. Vining and Strauss (1978, see above) have offered a development theory of "counterurbanization",

pointing to the fact that in their sample of 18 countries, the 11 most economically advanced and industrialized countries showed signs of rural population rejuvenation, and a migration reversal from urban to rural areas. Those countries in the study not showing signs of a widespread deconcentration instead showed the signs of rapid suburbanization and rapid urban area growth typical of the early twentieth century in North America.

Wardwell (1980) offered a more complete theory to explain the "counterurbanization" process evident in developed countries. His model employs the paradigm of rural/urban convergence. It rests on the proposition that the turnaround has taken place because of the recent technological and economic transformation of rural areas and the subsequent diminishing of urban-rural differences which had previously impeded urban-to-rural migration. The key element in this explanation is the changing role of distance in determining the social organization of space. The constraint of distance, the prime ordering element in traditional theories of location, is relaxed by improvements in transport and communications technologies. Therefore Wardwell said the question that must be asked to explain the reasons behind a turnaround trend is: what evidence suggests that post-war technological changes are major factors underlying recent immigration to remote rural areas?

Related to these ideas is Jarvie's structural change

theory, used by Hugo and Smailes (1985) to try to explain the rural growth trend in Australia. This approach suggests that the basic spatial organization of employment has changed, and the rapid increase in service employment has benefited non-metro areas disproportionately, reversing the pattern of concentration associated with a manufacturing economy. Therefore, the reversal trend is seen as an employment-led phenomenon, rather than a population-led phenomenon. Evidence for a continuing decentralization of employment in the United States, as documented by Lonsdale and Seyler, (1979) and Kale, (1986) provide support for this theory. Despite these efforts, extensive empirical research investigating change in many countries has been difficult, due to the extreme variation in demographic, economic, and cultural structures, and the data available to study them.

Coincident with efforts to explain the occurrence of the turnaround trend in developed countries during the seventies and early eighties has been the increasing documentation of a possible reversal of the rural regrowth in some places recently, particularly the United States. Table 2.7 from Richter (1985) reveals the downturn in growth rates for non-metro counties in the U.S. Although the non-metro growth rate still exceeded the metro rate in the 1977-80 period, growth rates for both non-metro area types declined from the previous period, particularly in non-adjacent counties. He analysed changes using county population estimates of annual

Table 2.7

Annual Growth Rates by Metropolitan Status.

	1960 -1970	1970 -1974	1974 -1977	1977 -1980
U.S. Total	1.25	1.14	1.00	1.11
		1980 metropolitan definition		
Metropolitan	1.57	1.04	0.85	1.07
Nonmetropolitan	0.30	1.46	1.47	1.23
Adjacent	0.52	1.61	1.49	1.43
Nonadjacent	-0.04	1.23	1.43	0.90
Ratio nonmetropolitan/ metropolitan	0.19	1.40	1.73	1.15
		1974 metropolitan definition		
Metropolitan	1.57	1.00	0.80	1.04
Nonmetropolitan	0.42	1.53	1.51	1.30
Adjacent	0.70	1.70	1.52	1.52
Nonadjacent	0.14	1.34	1.50	1.06
Ratio nonmetropolitan/ metropolitan	0.27	1.53	1.89	1.25

Source: Richter, 1985

population growth (the source Beale originally used to discover the turnaround ten years earlier). He says:

> The evidence presented here indicates a slowdown in the growth of non-metropolitan areas in the late 1970s. An even sharper decline was found for non-metropolitan net migration rates, as natural increase returned to its traditional position as the most important component of non-metropolitan growth... There is much evidence that areas identified as "turnaround regions",... may have experienced a shortlived migration boom which has now passed. The appeal of the most remote rural areas including those with small population centres appears to have ebbed by 1977, at the same time that non-metropolitan counties adjacent to a metropolitan area showed the highest net migration rates (pp. 260-61).

Confirming this evidence, Agresta (1985) indicated that for the United States as a whole metro annual growth rates rose from 1% during 1970 to 80, to 1.04% during 1980-82, while the non-metro rates fell from 1.34% to 0.83% for the same periods. These estimates were also based on aggregate county population growth by type.

Champion noticed that the rate of population loss in London and several other large cities has diminished markedly since the mid-1970s. He documents that the five largest upward shifts in population growth between 1971-78 and 1978-84 were all Inner London boroughs and that representatives of two other major cities (Manchester and Glasgow) also appeared amongst the top 15. He cited evidence that a switch back in favour of metro areas has also occurred in Canada, Norway, Sweden and France, and that the differential between the two types of areas is now substantially narrower in several other

countries. He says further that "... these studies clearly suggest that a hiccough has taken place in the process of counterurbanization, even if it would be premature to conclude that the rapid decentralization of the previous decade was a spent force" (Champion, 1987, p.381).

Thus, evidence suggesting that the rural growth surge in the 1970s did not continue into the 1980s, and which supported the notion that the trend was a temporary irregularity in the settlement pattern has emerged recently. The present study comes at a time of the new decade's censuses but before their results are available. Thus it may be taken to be a work which consolidates our understanding of "counterurbanization", and an application of that understanding in Canada. So far as can be determined, this work is the only one to set the stage for renewed and comprehensive research to be based on 1990s data yet to be published.

Summary

This chapter has reviewed literature concerning "counterurbanization", and its study in various contexts. The first section described documentation of the "turnaround trend" in the United States based on intercensal estimates of county population. The second section reviewed studies based on the 1980 United States census, which supported earlier estimates of non-metro population growth. In the third section the literature describing "counterurbanization" in a

group of developed countries was discussed, starting with Vining and Strauss' seminal study of population redistribution within 18 countries, and then focused on a selection of country and regional case studies. In section four, the Canadian context of "counterurbanization" was examined in the literature, starting with research on the past and present settlement structure and moving to the most recent discussion of the impact of rural population growth on a national and regional scale. Section five discussed the concept of "counterurbanization". Lastly, section six provided a brief review of theoretical explanations that have been offered to explain "counterurbanization", along with new evidence which indicates that an abatement of the non-metro growth seen in the 1970s occurred after 1980, and that "counterurbanization" was not continuing in the United States.

The volume of literature concerning "counterurbanization" testifies to the intriguing nature of the perceived break in the long-term settlement trends of developed countries. Analyses of the trends, and the settings in which they occurred, took many forms. The research design for this thesis has drawn mainly from this prior research, but original ideas are introduced by building on the previous approaches. In particular I have found useful the work of Beale and Joseph et. al. emphasizing the regional approach to studying population distribution in the U.S. and Canada. In what follows these influences and how I have worked with them will

be apparent in direct application to Canadian cities.

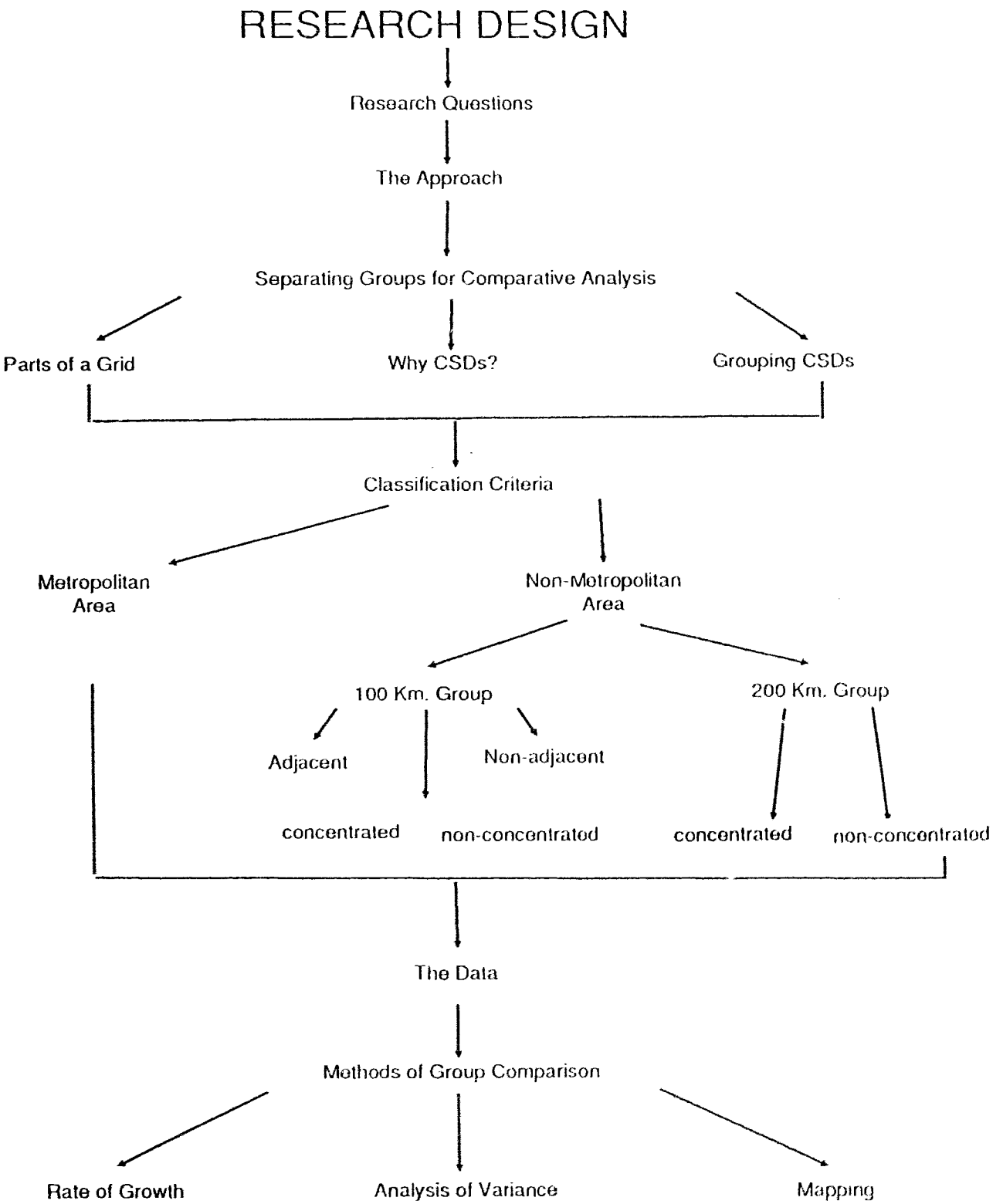
CHAPTER 3: RESEARCH DESIGN

Introduction

The studies reviewed in Chapter 2 are designed to answer one or more specific questions about changes in population distribution. A similar approach is taken in this thesis. Several research questions are asked in this chapter as part of a study of "counterurbanization" and a number of tests are performed to answer them. More specifically each question is posed with a general objective in mind, namely, to better understand the process of population redistribution in Canada between 1971-1986 through examination of selected regional growth characteristics.

The chapter outlines the steps taken to answer six separate questions. The list of questions is followed by a description of the approach used in the study. Within a discussion of that approach, it is necessary to describe the data that are used, their form and limitations within the research design. This is followed by a detailed discussion of the analytical methods that are employed to answer the research questions, including a description of the techniques used, and the justification for using them. Figure 3.1 illustrates the progression of chapter three.

Figure 3.1


RESEARCH DESIGN
Research Questions
The Approach
Separating Groups for Comparative Analysis
Parts of a Grid
Why CSDs?
Grouping CSDs
Classification Criteria
Metropolitan Area
Non-Metropolitan Area
100 Km. Group
200 Km. Group
Adjacent
Non-adjacent
concentrated
non-concentrated
concentrated
non-concentrated
The Data
Methods of Group Comparison
Rate of Growth
Analysis of Variance
Mapping

Research Questions

Six research questions are posed to investigate non-metro/metro population distributional change over the study period. These are:

1. Was population in non-metro areas growing at a faster rate than in metro areas during any of the census periods between 1971-1986? This question is examined with reference to 9 regions chosen from across Canada.

2. When each region is analyzed separately over the same time span, are the growth characteristics similar or different than the patterns revealed in the collective analysis?

3. Were those non-metro areas adjacent to metro areas growing at a faster rate than those not adjacent in any of the 3 census periods?

4. Did metro expansion (spillover growth) have a greater influence on the total non-metro growth rate in any of the three census periods than more remote non-metro areas?

5. Were small towns and villages growing faster or slower than non-concentrated settlements[5] in non-metro areas between 1971

---

[5] Non-concentrated settlements in non-metro areas refer to non-metro places that do not contain a town or village as classified by Statistics Canada.

and 1986?

6. What were the characteristics of growth rate change in terms of settlement type in non-metro areas between 1971 and 1986?

Questions 1 and 2 address the issue of the changing growth rate characteristics of non-metro and metro population at two different spatial scales; the first representing a Canada-wide scale and the second representing a more localized, regional scale. The second also suggests sub-regional distinctions and inter-regional comparisons. Questions 3, 4, 5 and 6 address the nature of non-metro growth by dissaggregating the area classifications.

The Technique

Separating Area Types for Comparative Analysis

a. Parts of a Grid

One way to study regional growth is to use a grid overlay to divide the country's area into smaller units, and separate these units into groups according to classification criteria. To use an hypothetical example, an area could be overlain by a grid consisting of 10 kilometre by 10 kilometre squares. Squares could be allocated into groups using classification criteria established according to the questions being asked in the research. For instance, if the study were to call for a

comparison of the characteristics of mountainous areas with non-mountainous areas, or, analogously, areas of high and low population growth rates, those grid squares having high 'topographic' values would be grouped separately from those with low values. Once each grid square had been assigned to a group, comparisons between the characteristics of the two groups could be made.

This study employs the approach outlined above. A group comparison is possible by substituting Statistics Canada geographic units for grid squares. Since Statistics Canada has, as part of its mandate, the responsibility for collecting and publishing demographic data for all parts of Canada, and it tabulates the data collected in the census for various sizes of geographic units. It is the most appropriate data source. These geographical units range in size from the country as a whole, to provinces, to Census Divisions (CDs) within provinces, to Census Subdivisions (CSDs) which are component parts of CDs, to Enumeration Areas (EAs) which are the smallest census geographic units and the building blocks of CSDs. The sum of all smaller units within a larger one will equal the total of the larger one. Thus, the surface of the whole country is effectively divided into smaller parts in a nested spatial system.

The difference between the grid squares of the hypothetical example and Statistics Canada units used in this study is that the Statistics Canada units are not uniform in

shape and size. This fact, however, does not alter the ability to classify the individual geographic units. By using CSDs instead of grid squares, two groups for comparison can be produced. CSDs are appropriate because they provide complete coverage of the study area, they are small enough to effectively group without substantial overlap, and population data are available for all CSDs for a sufficient time period to provide a basis for a retrospective analysis. CSDs are self-contained, allowing for aggregation into larger units as the study requires. Therefore, regions built of groups of CSDs were identified, as questions 2, 3, 4, 5 and 6 of the research questions call for.

The purpose here is to compare metro areas with non-metro areas. This is a complex classification process, because it involves more than merely observing one physical property of the surface. It involves an examination of various interrelated physical, economic and demographic properties. Classification criteria were, however, adopted to effectively group the CSDs according to the objectives of this study. These criteria are discussed below.

b. Group Classification Criteria

CSDs are grouped according to the study objectives so that meaningful comparisons can be made. The study requires a comparison of growth rates between two groups of CSDs: a 'metro' group and a 'non-metro' group. It is useful, however,

to divide the non-metro group into two distinct parts, to distinguish those CSDs nearest to the metro area from those more remote. This separation, seen in studies of United States population change mentioned in Chapter 2 (i.e. Beale, 1977; Morrison and Wheeler, 1977; Richter, 1985), has been used to demonstrate that non-metro growth is influenced by adjacency to a metro area. Questions 3 and 4 require the creation of two new groups based on a division of one of the non-metro groups, and Questions 5 and 6 require divisions of both of the non-metro groups into 4 separate new groups. The investigation of each question requires specific groupings of CSDs for comparison. Question by question these are:

Question 1. a.'metro' group
b.'100 km' group[6]
c.'200 km' group[7]
for the collective analysis

Question 2. a. regional 'metro' group
b. a regional '100 km' group
c. a regional '200 km' group
for the 9 regional analyses.

---

[6] The 100 kilometer distance limit was chosen as the outer boundary of the first non-metro group because many analysts consider this distance to be the near the maximum commuting distance from the periphery to the core of large cities (Bryant, Russwurm, and McLellan, 1982; Hugo and Smailes, 1985).

[7] The 200 kilometer distance limit was arbitrarily chosen as an outer boundary for the second non-metro group. The implications of the boundary limits will be explained later in the chapter.

Questions 3 and 4. a. 'New metro' group
b.'100 km non-adjacent' group
c.'100 km adjacent' group
for the collective analysis

Questions 5 and 6. a.'100 km concentrated' group
b.'100 km non-concentrated' group
c.'200 km concentrated' group
d.'200 km non-concentrated' group
for the collective analysis.

The Metropolitan Group.

'Metro' area in this study refers specifically to the area classified by Statistics Canada in the census as Census Metropolitan Areas (CMAs). The general concept of a CMA is one of a large urban core, together with adjacent 'urban' and 'rural' areas which have a high degree of economic and social integration with that core. CMAs are defined as the main labour market of an urban area (the urban core) of at least 100,000 population. Once an area becomes a CMA, it is retained as such even if its population subsequently declines.

CMAs comprise one or more Census Subdivisions which meet at least one of the following criteria as outlined by Statistics Canada (1986):

1. The CSD falls completely or partly inside the urban core

2. at least 50% of the employed labour force living in the CSD works in the urban core.

3. at least 25% of the employed labour force working in the CSD lives in the urban core.

Thus, CMAs are not only central cities, but central cities taken together with their labour sheds which, as part of a regional urban system are linked together by commuting routes. The terms 'urban' and 'rural' are defined in the census dictionary according to density levels. Because it is possible for both urban and rural to coexist within a CMA the emphasis is shifted away from density thresholds toward the labour shed as the definitive criterion for CMA status. Therefore, the terms 'urban' and 'metro' in this thesis are not interchangeable, nor are the terms 'rural' and 'non-metro'. The Metro classification in this thesis includes some rural and/or partly rural CSDs. This is because a CSD's inclusion within a city's labour shed is not dependent on density criteria. Low density settlements can be included in a city's labour shed providing the majority of the population commutes to work daily in the city core. The 'metro' group comprises all CSDs included within the boundaries of CMAs.

Boundaries of some CMAs have changed since 1971, due to the expansion of commuting fields around cities. This expansion has resulted in the addition of CSDs to the labour

sheds of some cities. Since it is necessary to keep the number of CSDs in each group consistent over time, CMA boundaries are set at the 1986 level. By setting the boundaries there, it ensures that the metro area includes the most recent non-metro to metro area type conversions. Therefore, the study employs the most liberal estimate of metro area, since most of the growth influenced by the expansion of the commuting range around large city cores is captured by the 1986 boundaries.

There are a total of 25 CMAs across Canada. From these, the following 9 were chosen for the study: Calgary, Halifax, Montreal, Quebec City, Saskatoon, Thunder Bay, Toronto, Vancouver and Winnipeg. The CMAs chosen include a variety of CMA sizes (from the largest, Toronto, to one of the smallest, Thunder Bay), CMAs from most regions across Canada (the Maritimes, Quebec and Ontario, the Prairies, and the West Coast), and both fast- and slow-growing CMAs among the 25 in the country. The selection of these CMAs provides a reasonable national cross-section, and still keeps the study manageable. A collective analysis of the metro group includes all the CSDs within the CMA boundaries of the 9 chosen CMAs. In a regional analysis, one of the 9 chosen CMAs is specified and only those CSDs within the particular CMA will be included.

The Non-Metropolitan Groups

The non-metro groups include CSDs in the area outside the

CMA boundaries. Since the study calls for various subdivisions of this area type to answer different questions about the nature of non-metro population growth, the criteria for establishing the sub-groups must now be given.

a. The 100 km Group

This group is made up of CSDs outside the CMA boundaries but within 100 kilometres of the centre point of the CMA's core[8]. For each of the 9 CMAs, a circle with a radius of 100 kilometres from the CMA's central point was drawn. All CSDs between the CMA boundary and this circle were included in the 100 km group. If the 100 km circle cut through a particular CSD (as often was the case) it was only included in the group if over 50 percent of its land area appeared within the circle. Therefore, a collective analysis of CSDs in the 100 km group includes all CSDs between the CMA boundary and the 100 km boundary in the 9 study regions. Regional analyses of the 100 km group include those CSDs between the CMA boundary and the 100 km boundary in one specific region.

If another CMA is within the 100 km radius of one of the study CMAs (regardless of whether it is one of the 9 study CMAs or not) those CSDs within its boundaries are not included

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[8] The centre point of a CMA's core is defined as the centre of its core city's central business district. The centre of the central business district is defined as the area (in this case census tract) having the highest concentration of employment. For instance the Vancouver region's centre point is the centre of census tract 59.01.

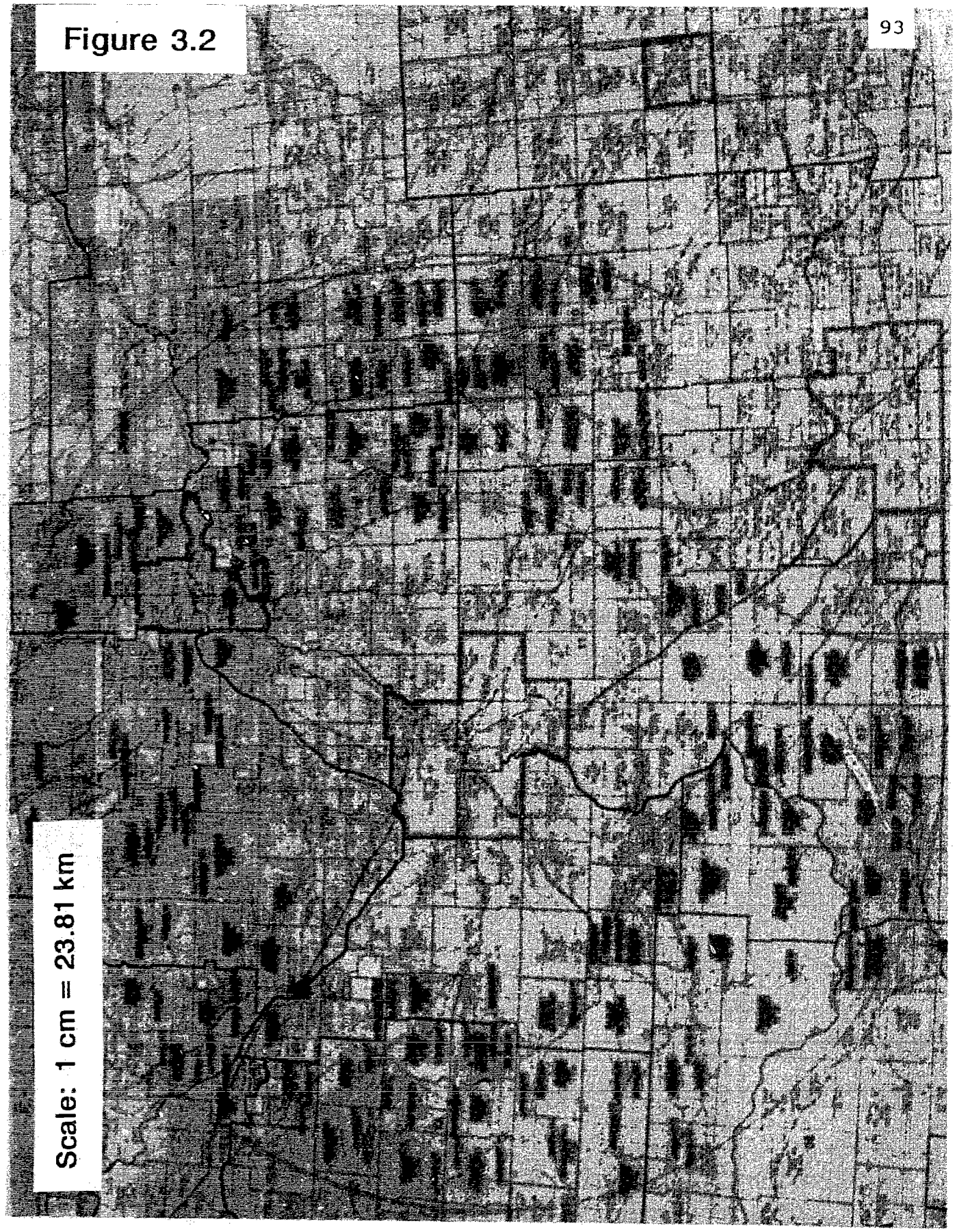
in the 100 km group in both the collective and regional analyses. Likewise, CSDs include in small scale metro places (called Census Agglomerations [CAs]) are excluded from the non-metro group.

b. The 200 km Group

Those CSDs which lie between the 100 km radius around a CMA's centre point and the 200 km radius are included in the 200 km group. Again, only those CSDs whose land area is over 50 percent inside the 200 km radius will be included in this group. Also, CSDs are excluded from this group if they are included in a CMA or CA, and if they fall within 100 kilometres of another CMA. This group is represents the most remote non-metro component in the analysis.

The map in figure 3.2 clarifies by example the spatial relationships involved in the group classification process. This map of the Saskatoon CMA and surrounding area shows distinctly the three separate groups described above. The 'metro' group consists of all the CSDs within the grey boundary line of the CMA, with the City of Saskatoon at the core. Each CSD has a separate name, as well as a type name which reflects its status. For example, the Corman Park CSD enclosing Saskatoon is classified as a "Rural Municipality" [RM], while the Martensville CSD, due north of the city is classified as a "Town" [T]. Statistics Canada identifies 35

Figure 3.2



separate CSD types. CSDs belonging to the '100 km group', which include those lying between the CMA boundary and the 100 km circle, are highlighted in yellow. CSDs lying between the 100 km circle and the 200 km circle (the outer circle) are highlighted in blue. This is the Saskatoon 200 km group. Notice that the city of Prince Albert to the northeast of Saskatoon, and the surrounding CSDs making up its labour shed, as well as North Battleford and Battleford to the northwest are not included in the 200 km group. These moderate sized metro places are excluded from the non-metro groups. Notice also that the 100 km circle around the CMA of Regina (drawn to the southeast of Saskatoon) encroaches into the 200 km area of Saskatoon, disqualifying a portion of the CSDs from the 200 km group which would otherwise be included.

The same classification process was used to allocate CSDs into groups in the 8 other study regions, for use in the collective and regional analyses required to answer research questions 1 and 2..

Research questions 3, 4, 5 and 6 required slightly different CSD groupings. For questions 3 and 4, the criteria for grouping CSDs in the '100 km adjacent' and '100 km non-adjacent' groups can also be clarified by looking at figure 3.2. The area of concern is the 100 km area (yellow highlight). The CSDs in this area need to be separated into two new groups according to their proximity to the CMA boundary (grey line) in order to measure the impact of

possible 'metro' spillover growth, or metro growth influences. To do this, those CSDs immediately adjacent to the CMA boundary are included in the '100 km adjacent group'. Those CSDs further distant become part of the '100 km non-adjacent group'. The same sub-classification process of the '100 km group' was done for all 9 study regions.

The groupings required for questions 5 and 6 use the CSD type (i.e. "Town" [T], "Rural Municipality" [RM], etc.) to sub-classify both non-metro groups into concentrated or non-concentrated settlements for comparison. Of the 35 CSD types, the following types represented concentrated settlements: DM (District Municipality - for Whistler, B.C. only); RV (Resort Village); SV (Summer Village); T (Town); V (Ville - Quebec); VL (Village). Non-concentrated settlements were: CM (County/Municipality); COM (Community); CT (Canton/ Municipalite de - Quebec); CU (Cantons Unis - Municipalite de - Quebec); DM (District Municipality); ID (Improvement District); LGD (Local Government District); MD (Municipal District); P (Paroisse - Quebec); RM (Rural Municipality); SA (Special Area); SCM (Subdivision of County Municipality); SD (Sans Designation/ Municipalite - Quebec); SRD (Subdivision of Regional District); TP (Township); UNO (Unorganized). By dividing these types of CSDs into two groups, comparisons can be made between two settlement forms in non-metro areas: concentrated (generally towns and villages) and non-concentrated (generally municipalities and unorganized

territory).

By using a classification approach to separate different area types within regions, as described above, comparisons between area types can be made. Before describing the techniques that were used to do the comparative analysis, the data source and some of its limitations will be discussed briefly.

The Data

The study required population counts for each individual CSD in every group in all of the 9 regions under investigation, for the years 1971, 1976, 1981, 1986. These data were available from the census tables of population. Specifically, the publications used in the study were: Census Divisions and Subdivisions, Statistics Canada catalogue number 92-101 and Census Metropolitan Areas and Census Agglomerations: Part 1, catalogue number 94-127.

Although the census data conformed to many of the study requirements, some problems had to be resolved. 1986 Census Subdivision boundaries were used, but certain situations involved combining some CSDs to maintain consistent boundaries throughout the 25 year study period. The large unorganized territories within non-metro areas of Quebec and Ontario presented problems because in many cases over 50 percent of these CSDs were outside the 200 km circle, while at the same

time they occupied significantly large portions of the area inside it. Some unorganized territories which had populations below 50 persons in all the census years were excluded. Some CSDs were renamed between 1971-86, while the boundaries of others changed. Renamed CSDs were identified by comparing maps of CSDs for each census year. Boundary changes also affected the population counts for some CSDs. Where boundaries in these CSDs were changed from one census period to the next, adjustments were made to maintain consistency.

Methods of Group Comparison

To better understand trends in population distribution over the study period, the growth characteristics of groups identified above must be compared. Three methods were used, spatially and temporally to compare growth trends among groups of CSDs in this study: 1. Comparison of growth rates in three census periods, 2. Analysis of Variance to measure variation between and within groups over three census periods, 3. Mapping the distribution of growth rates in selected regions over three census periods.

1. Rates of Population Change

Rate of change analysis describes trends which occur in a population during a specified period. From 1971 to 1986, there were four censuses, and three census periods. For each CSD in the study, rates of change were calculated to reveal

the extent of growth or decline in the starting year's population in each of these census periods. The growth (or decline) in each census period is expressed as a percentage of the starting year's population. In addition to calculating the rate of change in individual CSDs, the collective rate of change was calculated for each CSD group (metro, 100 km, 200 km) in each period. This was done for comparison of both intra- and inter-regional growth patterns.

Using rate of change analysis reveals valuable information about population change in relation to past characteristics. For instance, the CMA of Saskatoon grew by 25,963 people between 1976-81 while the CMA of Toronto in the same time grew by 211,199, just over 8 times as many people. The rate measurement shows, however, that Saskatoon grew by 17.4 percent while Toronto grew by just 7.2 percent. Saskatoon was growing at over twice Toronto's rate in this period. Rates of growth show the impact of growth in relation to the previous base population.

2. Analysis of Variance

Analysis of Variance is useful in determining comparative differences between groups. This technique also reveals information about the degree of variation within groups that are being compared. In this study it was used to compare groups according to their collective growth behaviour by evaluating the magnitude of differences between the mean

growth rates of the groups. Analysis of variance is a technique which permits the comparison of groups by a statistically more rigorous procedure than that provided by the visual comparison of growth rates.

In order to use this technique most effectively in the study, certain transformations of the data had to be made in order to meet the assumptions underlying analysis of variance. One of the most important of these assumptions is that the data be normally distributed. In some regional CSD groups, growth rates were positively skewed. To evaluate skew, a skewness test was performed as part of the growth rate analysis. If the distribution was skewed, a logarithmic transformation was employed to reduce the effect of extreme growth rates (outliers) on the analysis of variance test. Figure 3.3 demonstrates the data. Histograms a, b, and c use the untransformed original data, and d, e, and f use the log transformation. Histograms d and e, and less so f, show that the effect of the outliers has been reduced. Although not all groups in each comparison needed transformation, the transformation helped in many cases to make the data conform to the assumptions of analysis of variance testing.

Analysis of variance tests were performed for all questions in the study, for each of the three census periods. Results were generated showing between and within group variation, degrees of freedom for each test, and the F ratio (which is the measure of difference of between group and

A.

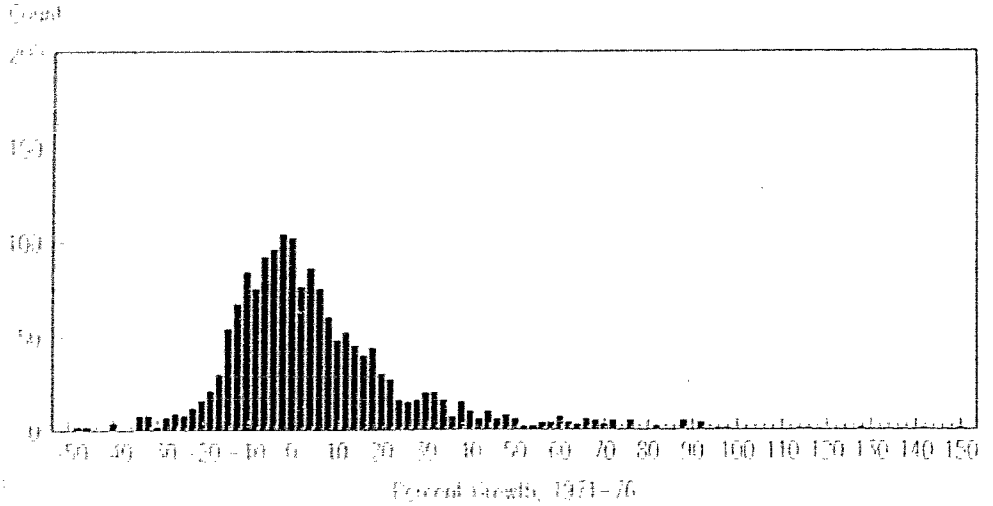
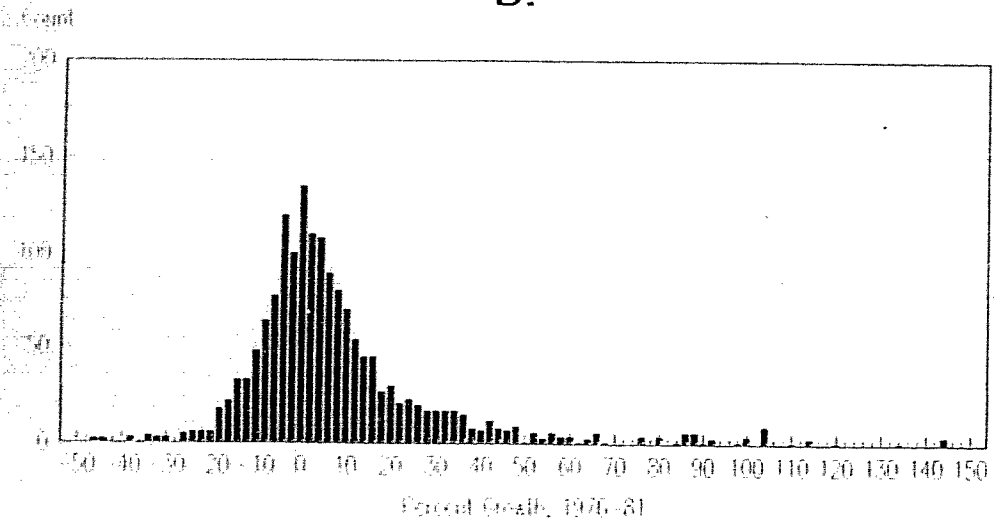
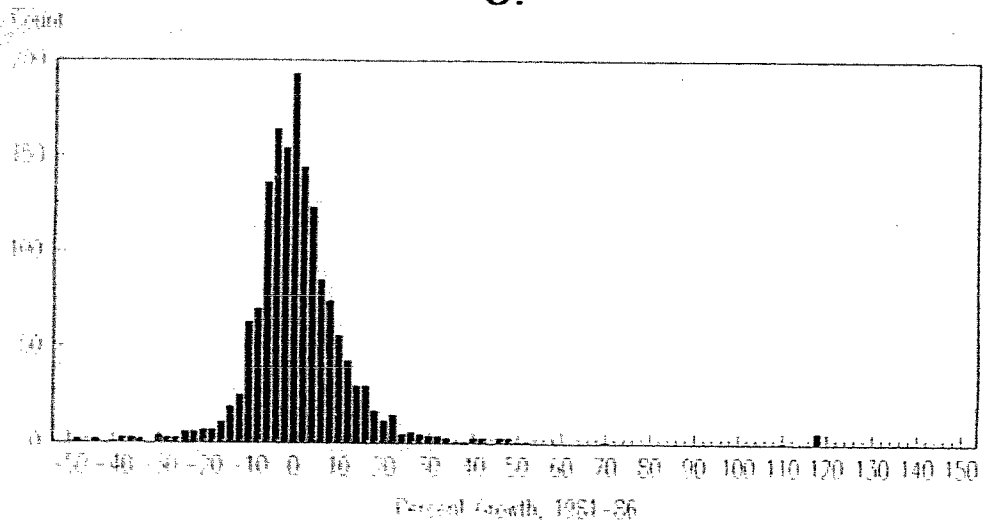


Figure 3.3
Histograms of CSD Growth Rates—Unadjusted and Log Distributions

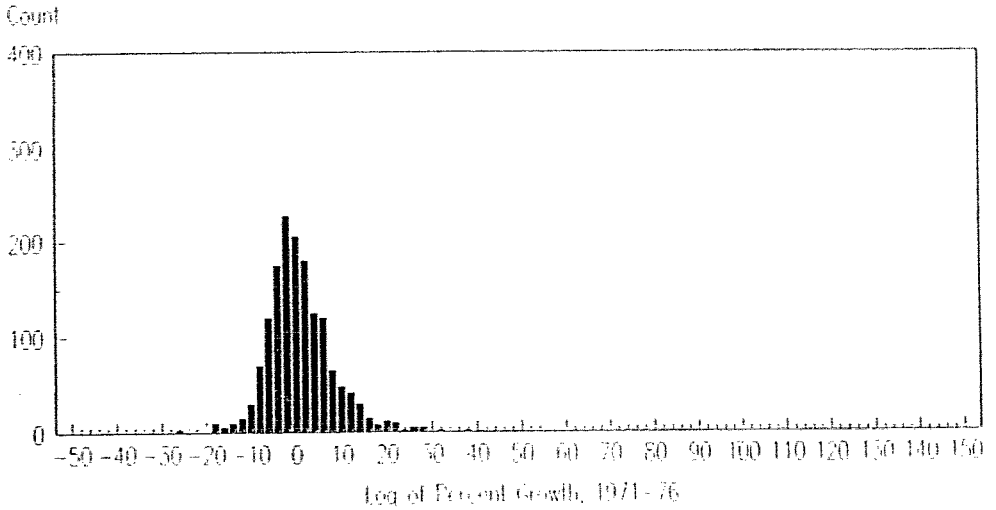
B.



C.



D.


Count
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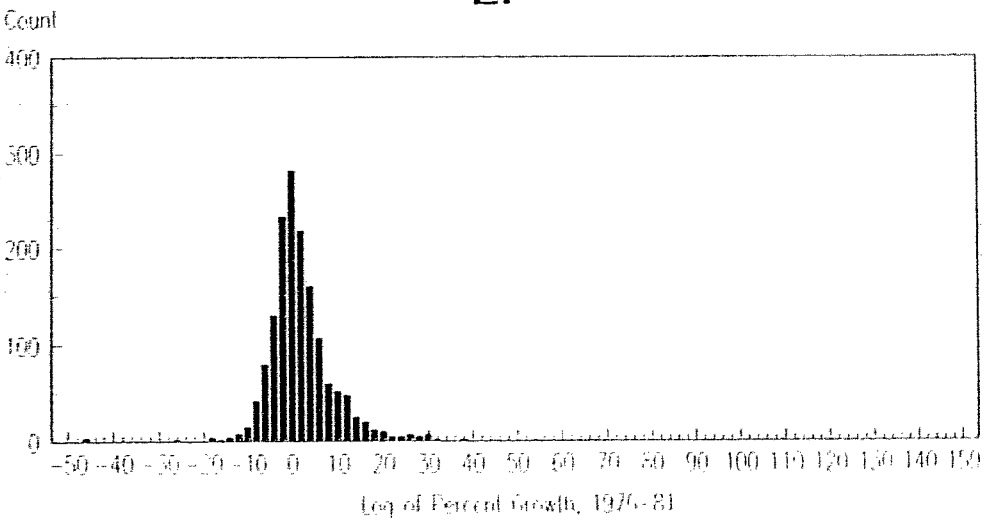
0
-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
Log of Percent Growth, 1971-76

E.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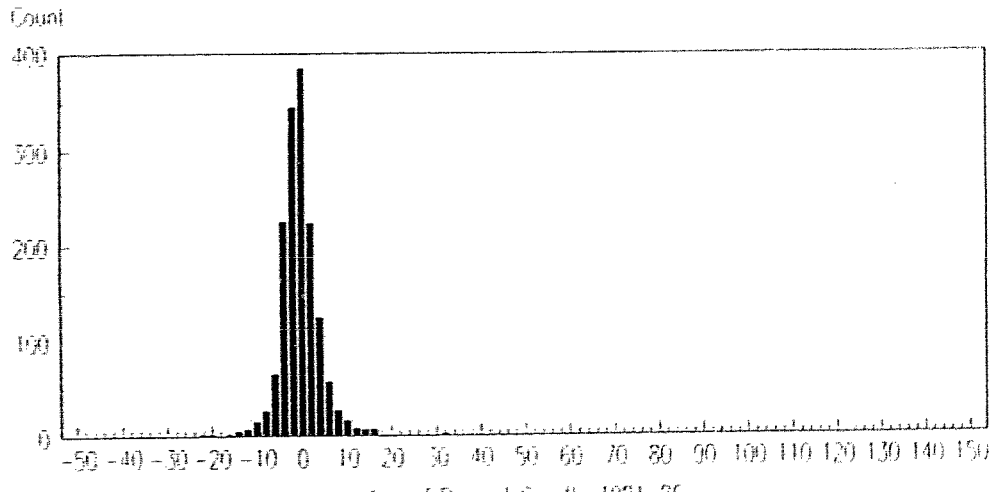
Log of Percent Growth, 1976-81

F.


Count
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-50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
Log of Percent Growth, 1981-86

within group variance for each test). Therefore, analysis of variance in this study compares group growth rates by measuring the differences in mean growth rates and the variation between and within CSD groups. Differences between groups are measured by the F-Ratio's value.

A refinement of the F ratio test, called the Sheffe F-Test, is employed to test for differences or similarities between specific groups. The simple F ratio reveals whether or not there are substantial differences between any or all of the groups in the analysis of variance. The Sheffe F test, however, can test for variation between each possible combination of groups (i.e. one group versus another). Also, the Sheffe F value is a measure of the magnitude of difference between the two groups (i.e. the higher the F value in the test, the greater the degree of difference between the groups).

3. Mapping the Distribution of Growth

The last comparative technique used was to map the distribution of fast and slow growing CSDs over the study period in three of the nine regions. Maps were produced to show the distribution of growth and its relationship to the landscape features present in the regions. This was done by assigning each CSD to a particular growth category - high, medium or low.

The values for each category were determined separately

for each region. High, medium and low categories were calculated relative to the region's average growth rate. The high growth category includes CSDs which grew at a rate one standard deviation above the regional average. The medium growth category includes those CSDs which grew within one standard deviation above and below the average. Low growth CSDs grew at a rate less than one standard deviation below the regional average.

By mapping the fastest and slowest growing CSDs only, areas of extremely good and extremely poor growth performance can be identified in relation to the other landscape features in the region (i.e. transportation network, physical barriers, boundaries, etc.).

These three techniques provide the basis for the comparative analysis of the nature of growth among groups of CSDs, and by extension the identification of trends in the changing distribution of population. This chapter has discussed the approach taken in answering six research questions, in relation to the general objective of better understanding the process of population redistribution and decentralization in Canada. It also outlined the techniques used in comparing different groups of geographical units classified according to area type. The results of these comparisons are now discussed in Chapter 4.

CHAPTER 4: RESULTS

Introduction

This chapter presents results of the analysis of Canadian CMAs, following the research program outlined in chapter 3. It compares the growth performance of groups of CSDs in the 9 CMA based study regions, collectively and separately, and between and within individual regions, over 15 years and for 5 year periods between 1971-86. In association with the growth rate comparisons, analysis of variance tests between groups provide a more rigorous test of comparative growth characteristics. Two important measurements are used in ANOVA tests. One is the average growth rate, in percent, of all CSDs in a group, and the other is the Scheffe F-Ratio, which measures significant differences based on the degree of variation within and between area type groups.

The Collective Analysis.

The total number of CSDs used in the study (i.e. from all area type groups in all 9 regions) is almost 1,600 or just over 25 percent of all CSDs in the country. These contain, however, about 50 percent of Canada's total population. Many of the most densely populated CSDs in the country are included in the study, which explains the proportional difference. The population in all of these CSDs grew by 19.3 percent (1.3 percent annually) between 1971-86 compared to 17.3 percent for

Canada's total population (or 1.2 percent annually). Table 4.1 lists these figures and growth rates for the sample and the Canadian population for census periods as well. The table also includes the aggregate population growth rate for all CMAs in Canada. This is for comparison with the study CMAs, and although the rates are not exactly alike, the trends are similar in terms of the comparison between census periods.

The difference in population growth rate between the study CSDs and the Canadian total can be explained by the fact that the study population has a metropolitan bias (meaning approximately 80 percent of the study population is classified metro compared to only 60 percent in the Canadian population, according to this study's classification criteria). During the 1980s metro areas grew faster as a group than non-metro areas. Therefore, the growth rate difference between the population in the study's CSDs and the Canadian population is explained by the strong performance of metro areas in the 1980s (or the concurrent slowdown of non-metro areas) since metro areas make up a greater share of the sample population than the Canadian population.

244 CSDs are classified as metropolitan from the 9 regions considered in the study. Of the remaining 1,344 CSDs, 786 are classified in the 100 km group and 558 are classified in the 200 km group. Population in these two groups make up approximately 12 percent and 8 percent respectively of the study population in all periods considered.

Figure 4.1
Growth Rates by Area Type: Collective Analysis

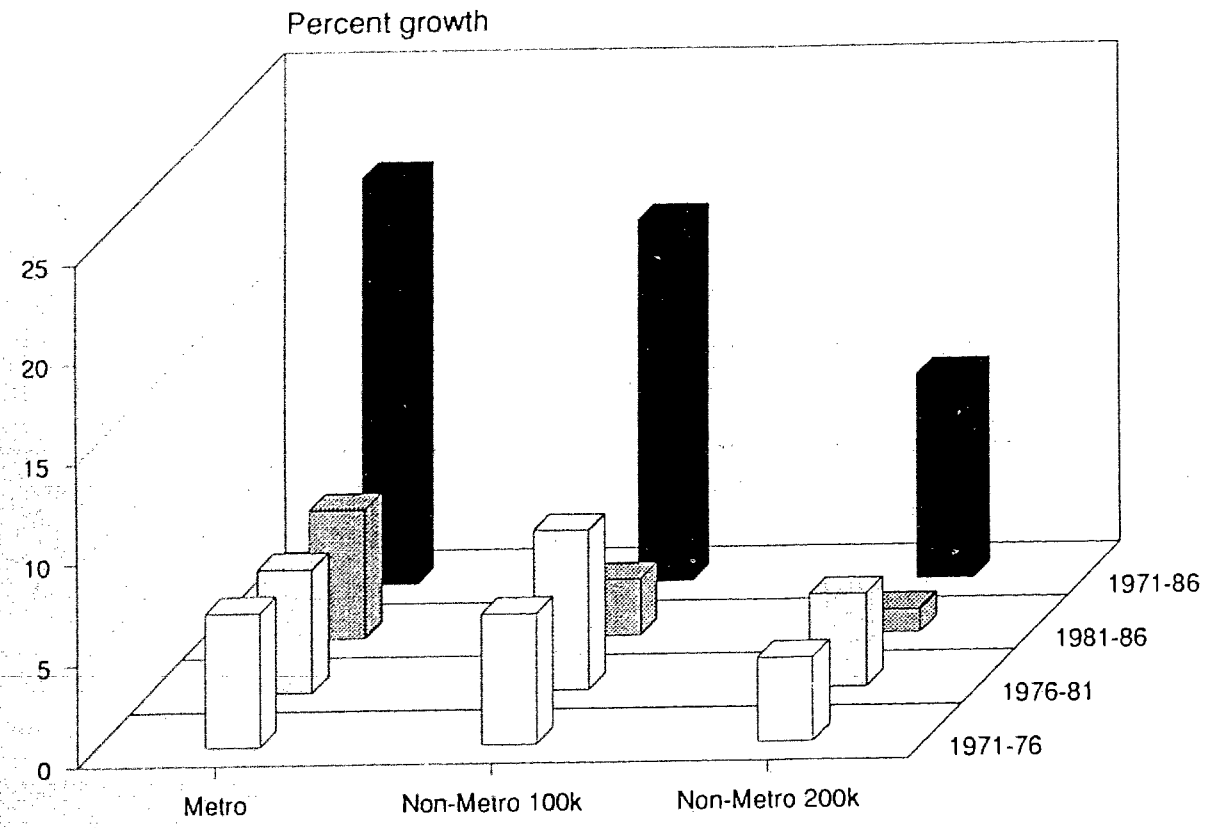


Table 4.1
Population Growth Rates for Canada and the Study Population by Area Type, 1971–86

	Growth Rate				Population Growth
	1971–76	1976–81	1981–86	1971–86	1971–86
Canada	6.60%	5.87%	3.97%	17.30%	3,741,000
Study Population	6.39%	6.19%	5.60%	19.30%	2,034,842
All CMAs	6.75%	5.81%	5.88%	19.44%	2,367,753
Collective Analysis: Area Types					
Metropolitan	6.61%	6.11%	6.41%	20.40%	1,732,908
Non–metropolitan	5.50%	6.57%	2.16%	14.90%	303,010
100 kilometre	6.44%	7.89%	2.80%	18.10%	219,160
200 kilometre	4.11%	4.58%	1.17%	10.20%	83,850

a. Collective Growth Pattern of Metro and Non-Metro Groups.

Figure 4.1 shows the growth rates for groups in the collective analysis. Metro areas experienced a clearly higher growth rate from 1971-86 than the non-metro CSD group classifications. These results suggest that a group's growth rate performance over the 15 year period is related to distance from the city core. There is a distance decay relationship associated with a group's growth based on these area type classifications. This means that there is a negative relationship between distance from the city and the growth rate of the population in an area (or area type group). In a distance decay relationship, as distance from the city centre increases, growth rate decreases.

This relationship does not persist when the data are separated into census periods, which suggests that fluctuations exist in the long-term distance decay trend. For instance, between 1976-81 the 100 kilometre non-metro group grew almost 2 percent faster than the metro group. Although that census period was the only one where either of the non-metro groups outpaced metro growth, the growth registered by the 100 km group during the late seventies was the strongest of any group over any five year period in the study. This fact suggests that non-metro areas (or at least less remote non-metro areas), during 1976-81, experienced a significant population growth surge. This upturn was seems to be the result of momentum from the previous period (early

seventies) since growth rates in both non-metro groups were only slightly lower at that time than in the next period, and only slightly below the metro rates.

The surge of non-metro growth in the late seventies does not continue into the next decade. Metro growth increases between 1981-86 and again dominates among area types as it did in the 1971-76 period. The renewed metro growth rate in this period is important because it increased despite a Canadian population growth rate decrease (during 1981-86 metro areas grew by 6.41 percent while Canada's population only grew by 3.97 percent). Also, the growth rate increase in metro areas coincides with a sharp drop in growth rate for both non-metro area type groups in the period. The sharp drop occurs after a period of pronounced growth throughout the seventies in non-metro areas, and was responsible for the decrease seen in the Canadian population total growth rate in the early 1980s.

Growth in non-metro areas was strong in the 1970s relative to metro areas especially in the 100 km area. "Counterurbanization" during the seventies is suggest by the fact that between 1976-1981 increases in the 100 km and 200 km groups' growth rate occurred simultaneously with decline in the metro group growth rate. The dominance of the 100 km group during the late seventies, however, suggests non-metro areas less distant from city cores benefitted more than those farther away. Decentralization of population into peripheral CSDs appears to be responsible for the non-metro growth surge

in the late seventies rather than universal non-metro growth. Remote non-metro areas, while growing in the 1970s, never outpace metro areas nor do they increase as much as the 100 km group in any period.

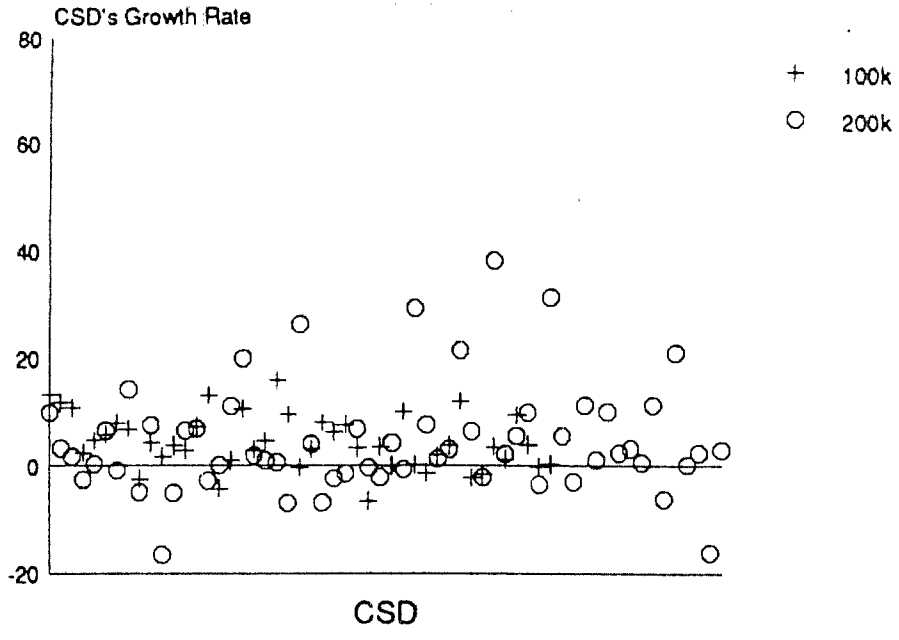
Metro areas regain growth dominance in the early 1980s from the non-metro areas. Growth of non-metro CSDs declines sharply, and there is renewed urbanization. Between 1976 and 1986 metro and non-metro growth trends reversed within the context of continuing Canadian population growth rate decline.

ANOVA Between Groups

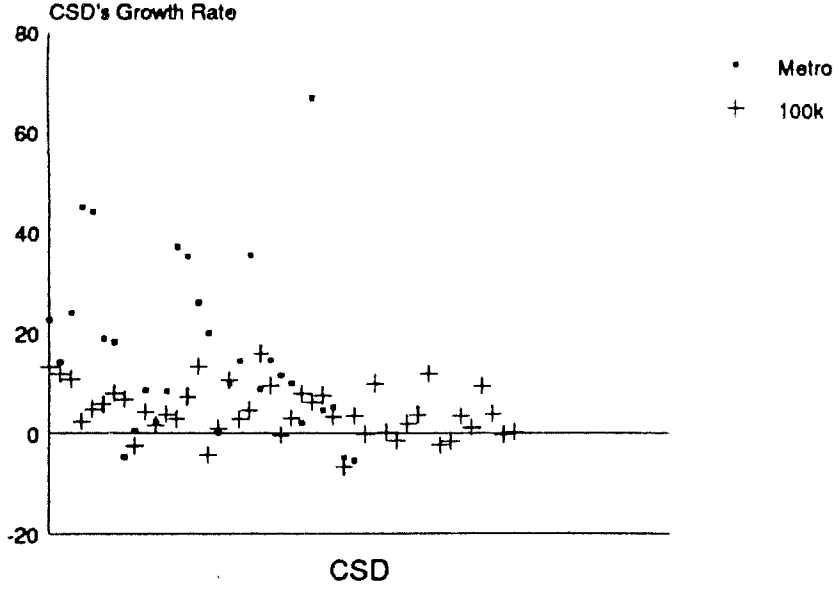
While a group's collective or aggregate growth rate can be biased by a single large CSD, ANOVA treats each CSD's absolute growth with equal weight when making group comparisons. Individual growth rates among constituent CSDs are compared between and within groups to analyse for differences. ANOVA considers the amount of variation between a groups average growth rate and individual CSD growth rates as a comparative measurement. This can be clarified with the help of figure 4.2. A, B, and C are scattergrams comparing CSD growth rates for each combination of the three groups. Growth rates for each CSD in both groups are plotted on the graph's Y axis. The CSDs are arranged on the X axis in no particular order since the key variables are the comparative variation of CSD growth rates around each group's average rate (within group variation) and the comparative relationship

Figure 4.2

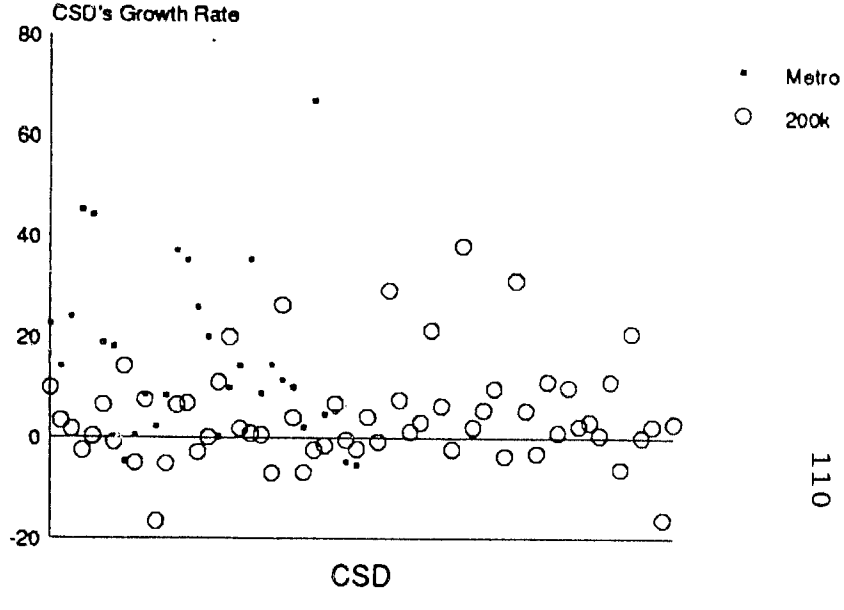
C.



A.



B.



between the two groups' average growth rates (between group variation). These two variables determine the degree of similarity or difference between two groups in an ANOVA test.

In graphs A and B, the group's average growth rates are quite different from each other. The variation of the two group's CSD growth rates around the average is also quite different, as seen by the different dispersal pattern of the plotted growth rates. The variation of the metro group's CSDs is quite wide in comparison to both the 100k and 200k groups in this example. The average growth rates of the metro - 100k and the metro - 200k groups are quite different as well. In graph C, however, the dispersal pattern, and average growth rates are quite similar. The Scheffe F-value reveals the degree of difference between groups according to these variables. Tests between groups plotted on graphs A and B would have high F-values, and a test of the groups in graph C would reveal a comparatively low value.

Since the Scheffe F-ratio is a measurement of the degree of difference between groups, assumptions can be made about trends in the comparative relationship between group growth rates by analysing changes in the ratio over time and space. Changes are expressed in this analysis using the terms 'convergence' and 'divergence' of F-values. Converging F-values from one census period to the next indicate that group growth patterns are more alike among each of the area types in the analysis if the convergence takes place at a low

value. Convergence at high values indicates dissimilarity between all area types in the analysis. If F-values converge at a low value (which is most often the case) it indicates increased similarity in growth patterns over time between all area types. Divergence of F-values over time indicates diversity of growth patterns between group comparisons in the test. For example, one group may develop a similar growth pattern to another over time, when it had originally been similar to a third in its growth pattern. Convergence and divergence of F-values illustrate changing relationships between non-metro and metro growth patterns over both space and time.

F-ratios for group comparisons by census period are tabulated for the collective analysis in table 4.2. The results show that there are differences between groups in most cases, suggesting that the classification criteria effectively separate groups according to growth rate characteristics. A graph of the F-ratios for each census period (figure 4.3) reveals some important trends. First, the comparisons between the 100 km and 200 km groups consistently produce the lowest F-ratio in each period, which means the differences between these groups, at least in the collective analysis, are not as severe as when they are compared with the metro group.

Second, the 200 km versus metro test result consistently reveals a larger degree of difference than the 100 km versus metro comparison. This suggests that a relationship exists in

Figure 4.3
ANOVA–Collective Analysis

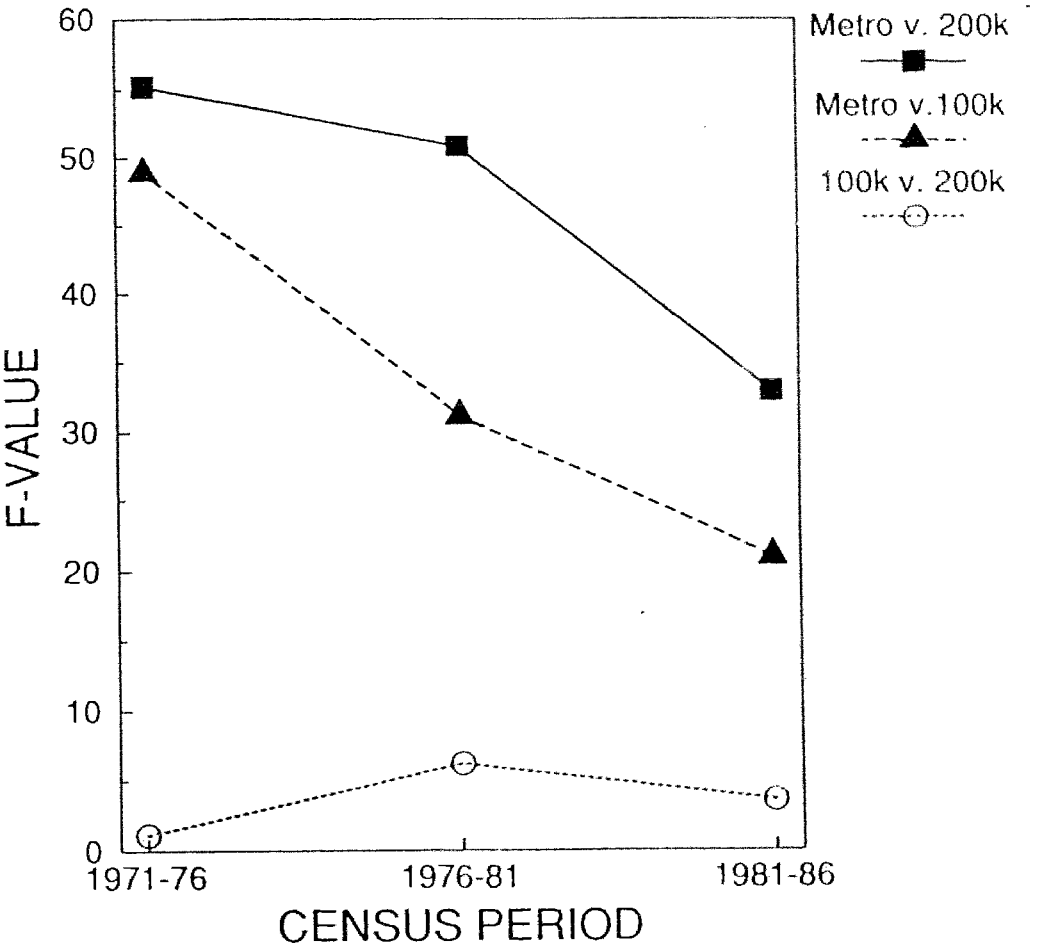


Table 4.2
F–Ratios for the Collective Analysis

	F–Ratio		
Groups Compared	1971–76	1976–81	1981–86
Metro vs. 200 k	55.2	50.8	32.9
Metro vs. 100 k	48.9	31.1	21.0
100 k vs. 200 k	1.1	6.2	3.6
Average CSD Growth Rate			
Metropolitan	26.00%	24.70%	8.30%
Non–metro 100 k	6.10%	8.10%	2.40%
Non–metro 200 k	2.80%	4.20%	0.00%

the area type growth pattern (also noticed in the growth rate data for 1971-86) where less remote non-metro areas exhibit less severe differences than the remote 200 km group when compared with the metro group.

Third, over the three periods, F-ratio differences between the metro and non-metro groups lessen. F-values decline over time, as average growth rate of CSDs and variation between and within CSD groups become progressively similar. However, while this trend points to increased similarity in growth pattern between non-metro and metro areas, it is clear in the latest census period (1981-86) that metro areas are still growing significantly stronger than both groups of non-metro CSDs in both the ANOVA and rate of change analyses.

What does not show up clearly in the ANOVA results is the growth surge of non-metro CSDs in the late seventies. There is, however, a decrease in the metro versus 100 km F-value (from 48.9 percent in 1971-76 to 31.1 in 1976-81). While the average growth rate did increase in non-metro CSDs during 1976-81 (especially in the 100 km area type), this increase only slightly diminished the differences between them and the metro CSDs as a group in the ANOVA comparison, because of sustained strong suburban (and therefore metro) growth in the period.

The Regional Analyses

Regional growth patterns for area type groups do not, in many cases, follow the trends in the collective analysis. The relationship noticed in the 15 year growth analysis does not always appear in either 5 year or 15 year periods in the regional analyses. Also, the non-metro growth surge in 1976-81 does not appear in all regions. Growth rate data for regions is shown in table 4.3, and graphed in figure 4.4.

Patterns of growth for area types in regions generally followed 3 types. In the first (type 1), strong growth occurs in the whole region, although still dominated by metro areas. Growth rates for groups decrease steadily as distance increases from the city centre. The prime example of this growth distribution is Calgary, which experienced strong regional growth in the 1970s but did not show the surge in non-metro growth (relative to metro) characterized in the collective analysis. Rather, Calgary's non-metro growth was linked to the growth performance of the metro area. The non-metro rate mimicked the metro rate at a consistently lower level over 15 years. Also characteristic of this pattern was that the 200 km group performed consistently at a lesser rate than the 100 km group, reinforcing the idea that growth in non-metro areas was related to distance to the metro centre. Thus, in type 1, while regional growth was pronounced, areas farther from the city fared less well than those close to it in all census periods.

Table 4.3

Regional Growth Rates by Area Type, 1971-86

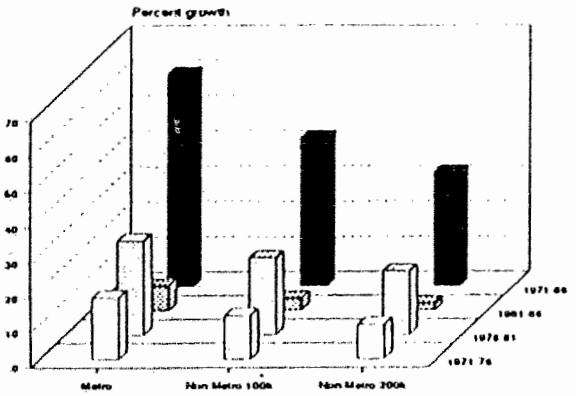
	Growth Rate				Population Growth
	1971-76	1976-81	1981-86	1971-86	1971-86
TYPE 1					
Calgary					
Metropolitan	17.60%	27.20%	7.40%	60.80%	253,730
Non-metropolitan					
100 kilometre	12.40%	22.30%	3.70%	42.50%	21,456
200 kilometre	9.80%	18.40%	2.20%	32.70%	46,739
TYPE 2					
Quebec City					
Metropolitan	8.20%	6.40%	3.40%	19.00%	96,079
Non-metropolitan					
100 kilometre	-0.50%	5.00%	-0.70%	3.70%	10,391
200 kilometre	-3.70%	1.20%	-1.60%	-4.20%	-3,505
Saskatoon					
Metropolitan	6.90%	17.40%	14.60%	44.30%	61,232
Non-metropolitan					
100 kilometre	-6.20%	-1.00%	-1.80%	-8.40%	-4,014
200 kilometre	-5.90%	-0.80%	-0.30%	-6.90%	-9,418

TYPE 3

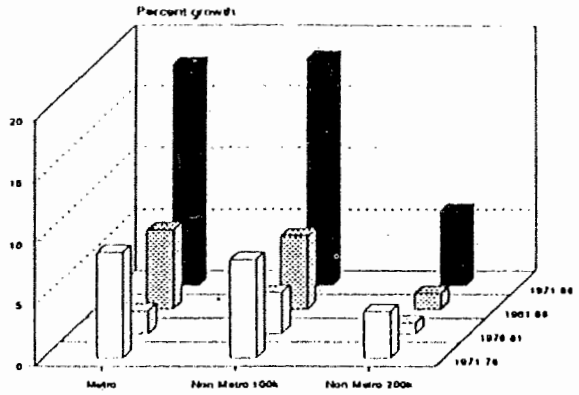
Thunder Bay						
	Metropolitan	4.10%	1.80%	0.20%	6.10%	6,989
	Non-metropolitan					
	100 kilometre	1.50%	0.70%	0.80%	3.10%	399
	200 kilometre	5.20%	-1.00%	4.40%	8.80%	2,131
Toronto						
	Metropolitan	8.40%	7.20%	9.50%	27.20%	733,587
	Non-metropolitan					
	100 kilometre	16.40%	4.30%	5.00%	27.60%	43,678
	200 kilometre	16.20%	4.20%	2.70%	24.40%	35,036
Vancouver						
	Metropolitan	7.60%	8.80%	8.80%	21.80%	235,963
	Non-metropolitan					
	100 kilometre	28.10%	17.00%	3.60%	55.20%	24,660
	200 kilometre	7.10%	3.90%	-5.90%	4.70%	998
Winnipeg						
	Metropolitan	5.30%	1.40%	5.60%	12.70%	70,576
	Non-metropolitan					
	100 kilometre	3.40%	4.80%	5.00%	13.80%	16,019
	200 kilometre	-1.90%	-2.70%	1.50%	-3.10%	-2,511
Halifax						
	Metropolitan	8.70%	1.90%	6.60%	18.10%	45,404
	Non-metropolitan					
	100 kilometre	8.10%	3.40%	6.10%	18.60%	23,714
	200 kilometre	3.80%	0.90%	1.40%	6.20%	10,166
Montreal						
	Metropolitan	2.70%	1.10%	2.30%	6.10%	168,988
	Non-metropolitan					
	100 kilometre	6.20%	10.90%	2.70%	22.10%	82,857
	200 kilometre	1.70%	11.10%	0.60%	13.60%	4,214

Figure 4.4
Regional Aggregate Growth Rates

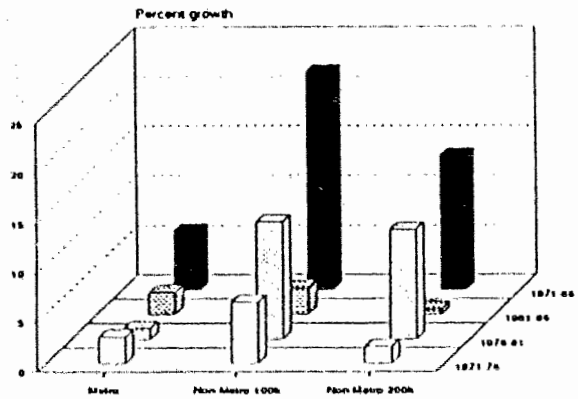
CALGARY



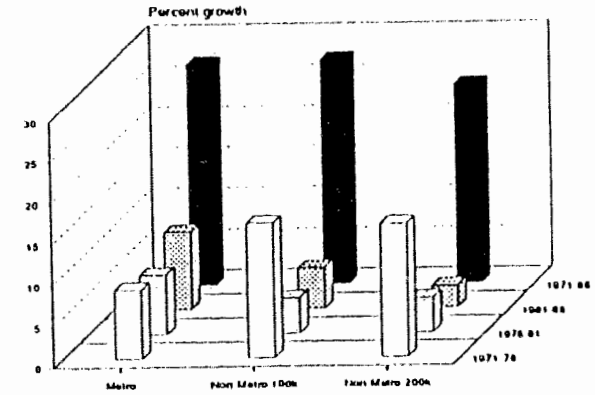
HALIFAX



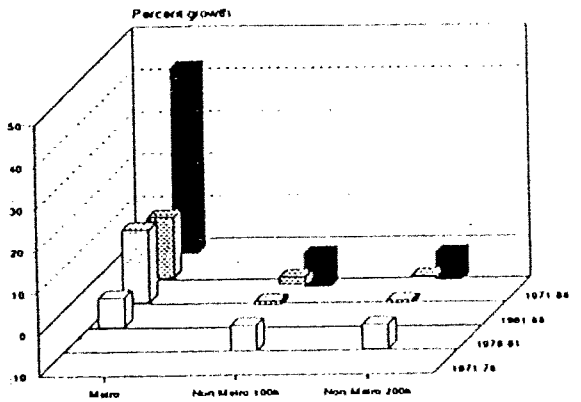
MONTREAL



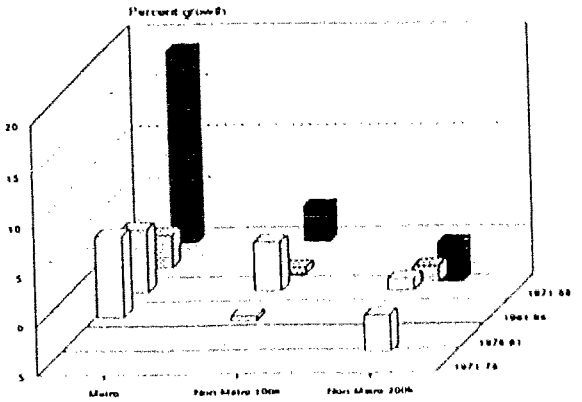
TORONTO



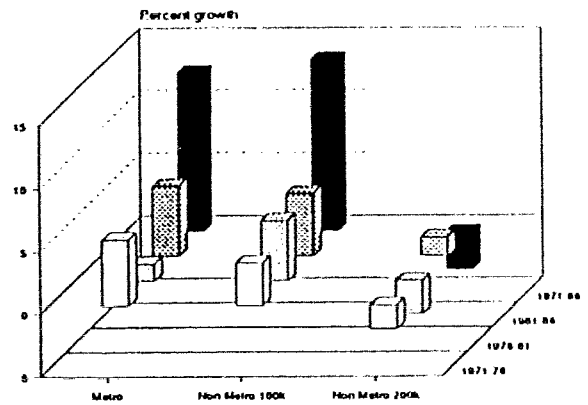
SASKATOON



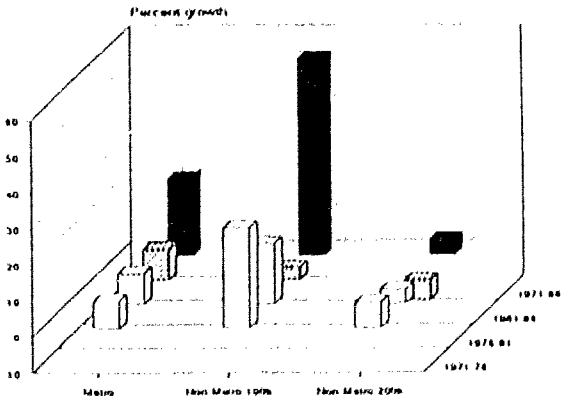
QUEBEC CITY



WINNIPEG



VANCOUVER



The second type of regional growth distribution (type 2) is reflected in the Saskatoon and Quebec City regional growth patterns. The pattern is similar to type 1 in that metro areas grow strongly relative to non-metro areas. In sharp contrast, however, these regions show non-metro population decline as opposed to slower growth. Saskatoon and Quebec City both have strong growth in the metro area through the seventies relative to other regions, but show absolute non-metro decline which is not apparent in most other regions throughout the study period. Interestingly, Quebec City only shows growth in its non-metro area in 1976-81 which coincides with the non-metro growth surge in the collective analysis. Saskatoon also is distinguished by the fact that non-metro decline is consistently more severe in the less remote non-metro area in all periods. This indicates that growth forces are weak and that there is little inducement for centripetal growth. This suggests that non-metro to metro migration pull factors are stronger in areas closest to the city. Population decline lessens in the Saskatoon region as distance from the CMA increases, while with Quebec City the opposite is true.

The third type of growth distribution among area type groups (type 3) is indicative of "counterurbanization". The pattern shows strong non-metro growth, either over the whole study period or at some point during the 1970s in either or both non-metro areas. The Montreal region characterizes this

pattern. The 100 km growth rate consistently outpaced the metro rate and the region is one of only three which at some time had a higher 200 km growth rate than their metro rate. While most regions showing the type 3 pattern in the 1970s (i.e. Winnipeg, Halifax, Vancouver, Toronto, Thunder Bay) reverted to metro dominance in the early eighties, Montreal continued to have a stronger growth rate for the 100 km group at that time.

Of all the regions, it is important to note that the three largest in the study (Toronto, Montreal, Vancouver) all showed a type 3 pattern at some time during the 1970s, and that these three regions registered a larger 100 km growth rate than the metro rate for the 15 year period of analysis. Also, Toronto and Montreal, during the seventies, had stronger 200 km growth than their metro growth (Toronto in the 1971-76 period and Montreal in the 1976-81 period).

With type 3 regions, 1976-81 in general was a boom period for non-metro growth, and the 100 km area accounted for most of this surge. In Winnipeg and Halifax for example, non-metro growth in the 100 km area was superior to the metro rate while the 200 km rate was close to or below zero. Vancouver, Toronto and Montreal also during the seventies generally showed much superior growth in their less remote non-metro CSD groups, indicating a growth bias toward non-metro areas closer to the city. Given the fixed boundaries of the CMA in this study, and the continuing population expansion within them,

the population growth in the closest non-metro areas is not surprising, especially around larger cities.

Thus a number of identifiable patterns of population growth and redistribution exist in the regional analyses, in which the first two types discussed seem to be the result of urbanization and the third type indicates the presence of an alternate distributional process. "Counterurbanization" is suggested by the fact that during the study period the largest of these regions experienced faster non-metro growth than metro growth, a trend which at times extended to the more remote non-metro areas. However, 100 km growth was more pervasive since in most type 3 regions, only 100 km groups grew faster collectively than the metro area while the 200 km areas' growth remained low. Significantly, in no census period did a region's 200 km group have a higher growth rate than the 100 km group when the 100 km rate was higher than the metro rate (except for Montreal in 1976-81). Therefore, no 200 km group was the source of collective non-metro growth superiority - it was in almost all cases the 100 km group.

ANOVA Results of Regional Group Comparisons

The series of charts that make up figure 4.5, and the data in table 4.4 summarize the ANOVA results of comparisons between regional area type groups. Thunder Bay has been excluded from the regional ANOVA analysis because the number of CSDs in each area group is too small to perform a

Table 4.4

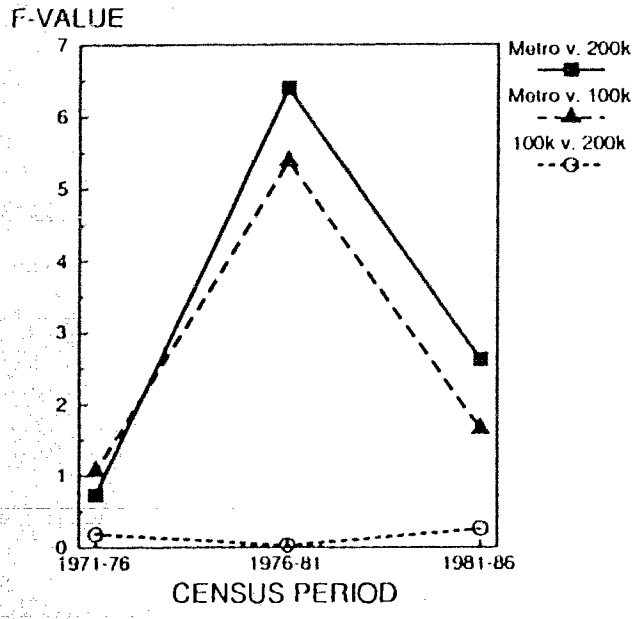
F–Ratios for regional ANOVA comparisons

		F–Ratios			Average Growth Rate			
		1971–76	1976–81	1981–86		1971–76	1976–81	1981–86
TYPE 1								
Calgary								
	Metro v. 200 km.	0.73	6.39	2.62	Metro	35.60%	124.40%	10.30%
	Metro v. 100 km.	1.06	5.37	1.65	100 km.	14.90%	27.70%	2.00%
	100 km. v. 200 km.	0.18	0.03	0.26	200 km.	28.90%	30.90%	0.20%
TYPE 2								
Quebec City								
	Metro v. 200 km.	33.65	34.42	15.30	Metro	37.60%	37.60%	7.60%
	Metro v. 100 km.	25.15	31.14	13.23	100 km.	6.00%	7.70%	1.10%
	100 km. v. 200 km.	4.54	2.47	1.31	200 km.	−7.60%	−2.00%	−2.20%
Saskatoon								
	Metro v. 200 km.	13.09	31.83	4.60	Metro	17.70%	41.90%	8.90%
	Metro v. 100 km.	13.62	28.68	6.90	100 km.	−4.60%	3.00%	−3.30%
	100 km. v. 200 km.	0.26	0.00	1.44	200 km.	−6.50%	−2.50%	−1.40%
TYPE 3								
Toronto								
	Metro v. 200 km.	2.60	15.27	18.94	Metro	23.60%	16.40%	16.70%
	Metro v. 100 km.	3.02	11.00	10.03	100 km.	17.90%	4.90%	5.00%
	100 km. v. 200 km.	0.12	0.09	0.99	200 km.	15.80%	4.00%	2.30%
Vancouver								
	Metro v. 200 km.	2.18	0.79	3.93	Metro	27.90%	15.80%	9.80%
	Metro v. 100 km.	0.08	0.00	1.59	100 km.	24.60%	18.40%	2.80%
	100 km. v. 200 km.	1.11	0.59	0.45	200 km.	15.90%	27.50%	2.20%
Winnipeg								
	Metro v. 200 km.	9.60	3.93	1.94	Metro	14.80%	13.30%	9.50%
	Metro v. 100 km.	6.11	1.50	1.17	100 km.	2.00%	3.80%	4.70%
	100 km. v. 200 km.	1.43	2.10	0.36	200 km.	−2.50%	−0.70%	1.60%
Halifax								
	Metro v. 200 km.	6.29	1.63	5.64	Metro	20.40%	6.20%	11.10%
	Metro v. 100 km.	3.14	1.10	1.45	100 km.	6.90%	1.10%	5.90%
	100 km. v. 200 km.	0.86	0.06	2.62	200 km.	2.80%	−0.10%	0.90%
Montreal								
	Metro v. 200 km.	8.21	0.01	3.29	Metro	23.00%	15.60%	5.40%
	Metro v. 100 km.	14.04	1.13	0.53	100 km.	7.20%	10.20%	5.00%
	100 km. v. 200 km.	0.84	0.28	2.32	200 km.	−2.00%	7.00%	2.40%

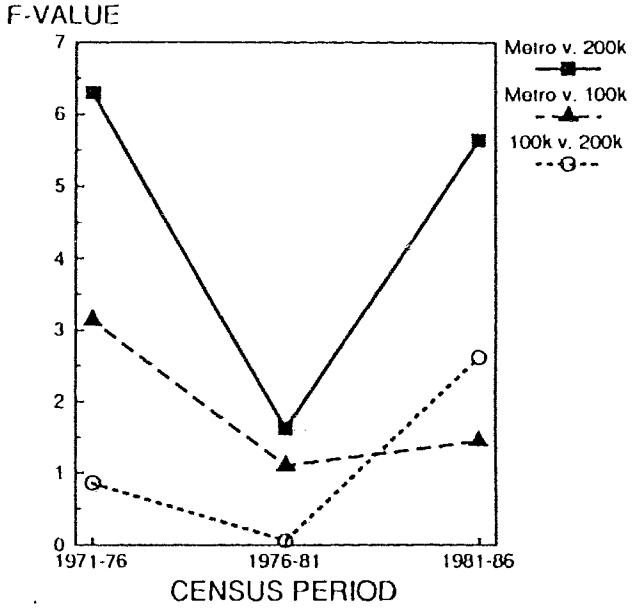
Figure 4.5

F-Ratios for Regional ANOVA tests

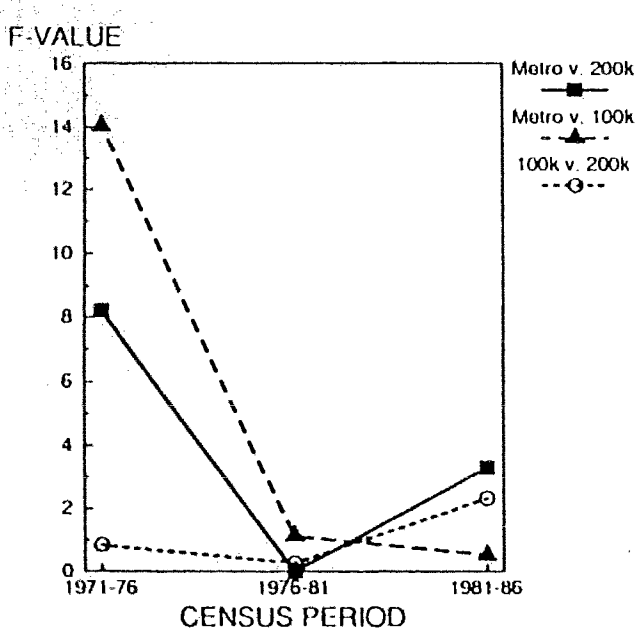
CALGARY



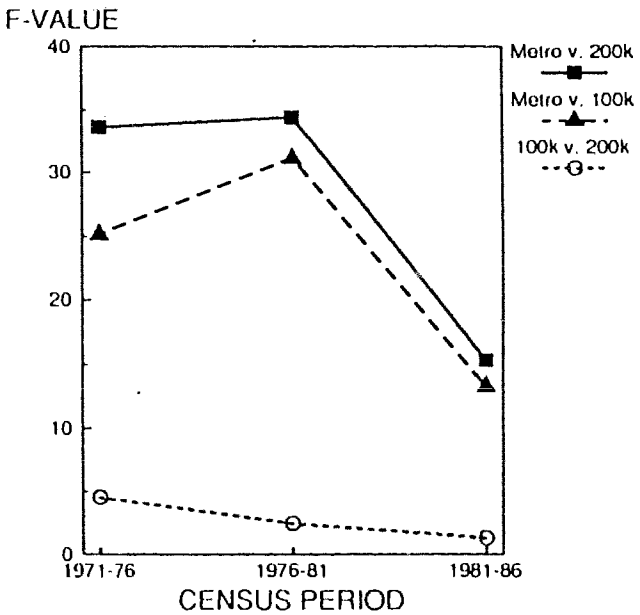
HALIFAX



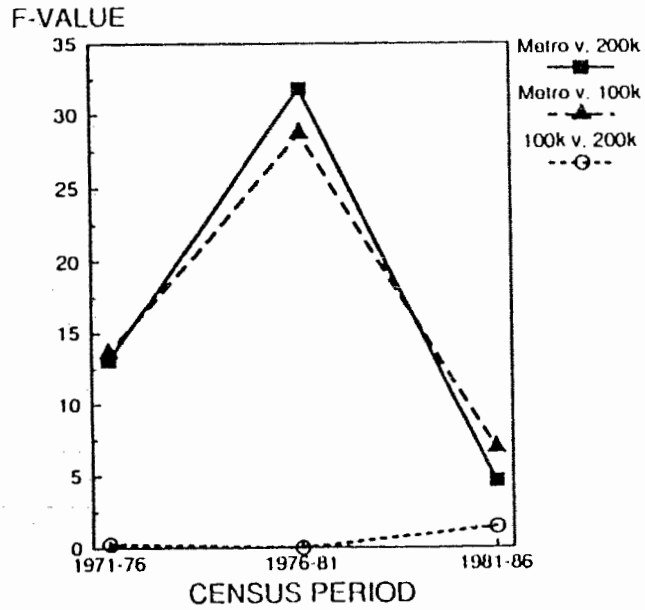
MONTREAL



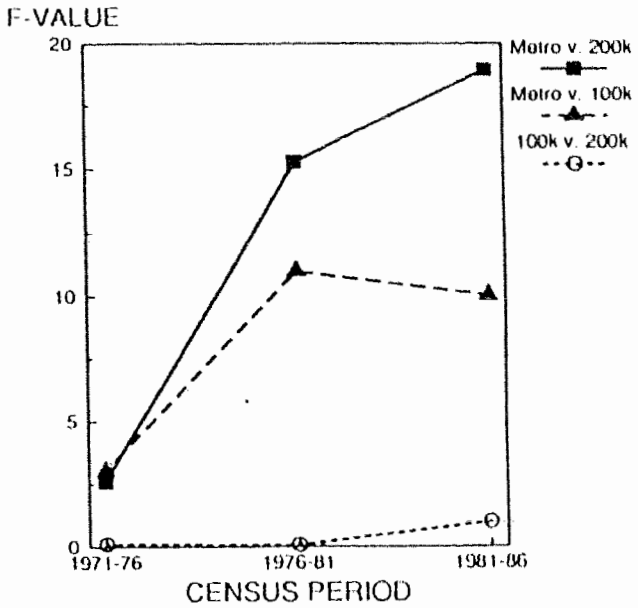
QUEBEC CITY



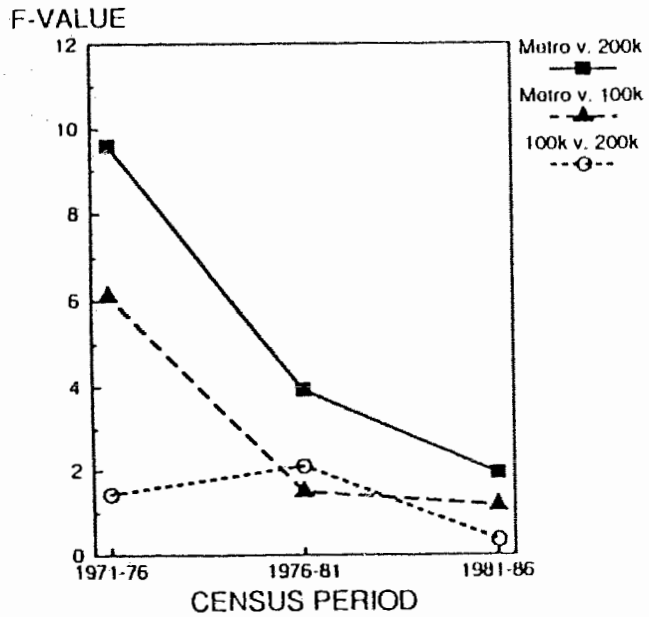
SASKATOON



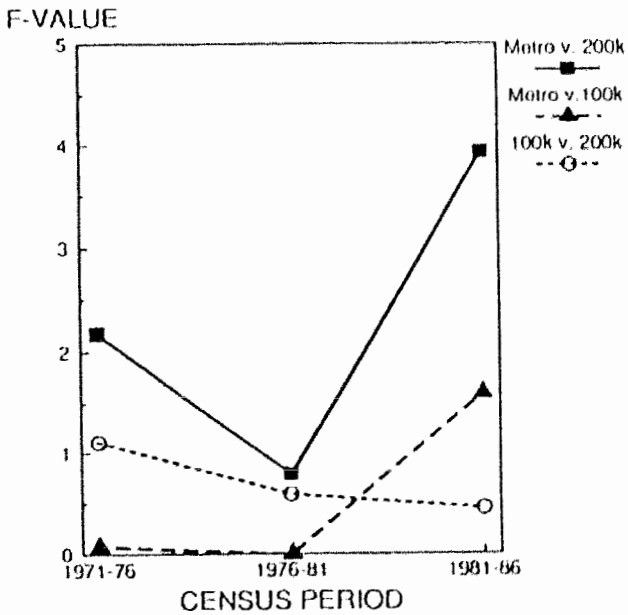
TORONTO



WINNIPEG



VANCOUVER



meaningful test. Therefore, only eight regions are discussed here. The growth distribution typology apparent in the growth rate data is also apparent in the ANOVA results for regional area type comparisons. For example the ANOVA results for Calgary indicate similarities between non-metro and metro groups in two of the three census periods. While metro growth rates are generally higher than the non-metro groups in these periods, low F-ratios indicate that similarities exist between the both groups. This follows the type 1 pattern, since each group has a high growth rate in most of their CSDs, although in the non-metro groups the rates are slightly lower. In the Calgary region during 1976-81, extremely high metro growth produced significant F-values for both non-metro vs. metro comparisons. The growth of the metro area population in Calgary in the late seventies was strong enough to produce a pronounced difference in both ANOVA comparisons with the non-metro groups. Other regions exhibit this pattern periodically where metro CSD growth rates on average are very high and produce a large difference between groups despite relatively strong growth in the non-metro area.

F-ratios for type 2 regions are large for metro vs. non-metro groups. Metro growth occurs concurrently with non-metro decline, and this is reflected in the difference between average group growth rates and the magnitude of the F-ratios for virtually all census periods. Saskatoon and Quebec City are type 2 regions in which F-values for both

non-metro vs. metro comparisons are high in all periods, and the comparison between the two non-metro groups is very close, indicating a slow growth pattern in the periphery.

Significant differences between metro and non-metro groups (dispersed F-values) are typical of the first two types of growth distribution, particularly in periods of booming metro growth (i.e. Calgary 1976-81). This growth distribution suggests that the dominant settlement process is towards urbanization in these regions. In type 3 regions in which growth is greater in one of the non-metro groups than the metro group, however, ANOVA tests reveal low and converging F-values indicating more similar patterns of growth between all area types. Notice for example the converging low F-values in 1976-81 for the Montreal regional analysis. In this situation, non-metro and metro groups experience similarly high average growth rates, but the non-metro groups' growth rate is much higher than the metro rate. Here the large slow growing core CSD exerts a strong downward influence on the collective growth rate despite the strong growth of smaller suburban metro CSDs. The average CSD growth rate for metro Montreal reflects the strong growth of suburban areas. While this reflects the continuation of a traditional trend (suburbanization) the insignificant difference between the metro group and the two groups of non-metro groups in 1976-81 indicates that comparable growth occurred at this time in more remote areas removed from the city. Particularly important is

the metro vs. 200 km group result which shows a smaller F-ratio than the metro vs. 100 km comparison. This pattern of convergence (where low F-values occur in all area type comparisons) also shows up for Toronto in the early seventies, and for Vancouver between 1976-81. In fact the average growth rate in Vancouver's 200 km CSDs during 1976-81 was highest among groups in that period. Thus type 3 distributions suggest that the traditionally strongest growing places (i.e. the suburbs) are being rivalled or at least mimicked by more remote places outside the traditional commuting range of the metropolis.

Further Investigation of Non-metropolitan Growth Distribution

Type 1 and Type 3 growth distributions both indicate that non-metro growth occurs throughout the study period in varying degrees among regions. Table 4.5 and figure 4.6 show the results of a further subdivision of the 100 km group into groups based on distance from the metro area. New Metro areas (the outer-most suburban metro areas) display significantly stronger growth than the two classifications of 100 km CSDs. The adjacent group of CSDs into which the metro area will eventually expand shows strong growth relative to the whole 100 km group. Importantly the growth pattern displayed in the 1971-76 and 1976-81 growth rate data is interrupted in the 1981-86 census period. This suggests that the adjacent non-metro CSDs are just beginning to be influenced by the same

Figure 4.6
Growth Rates by Proximity to Metro Area

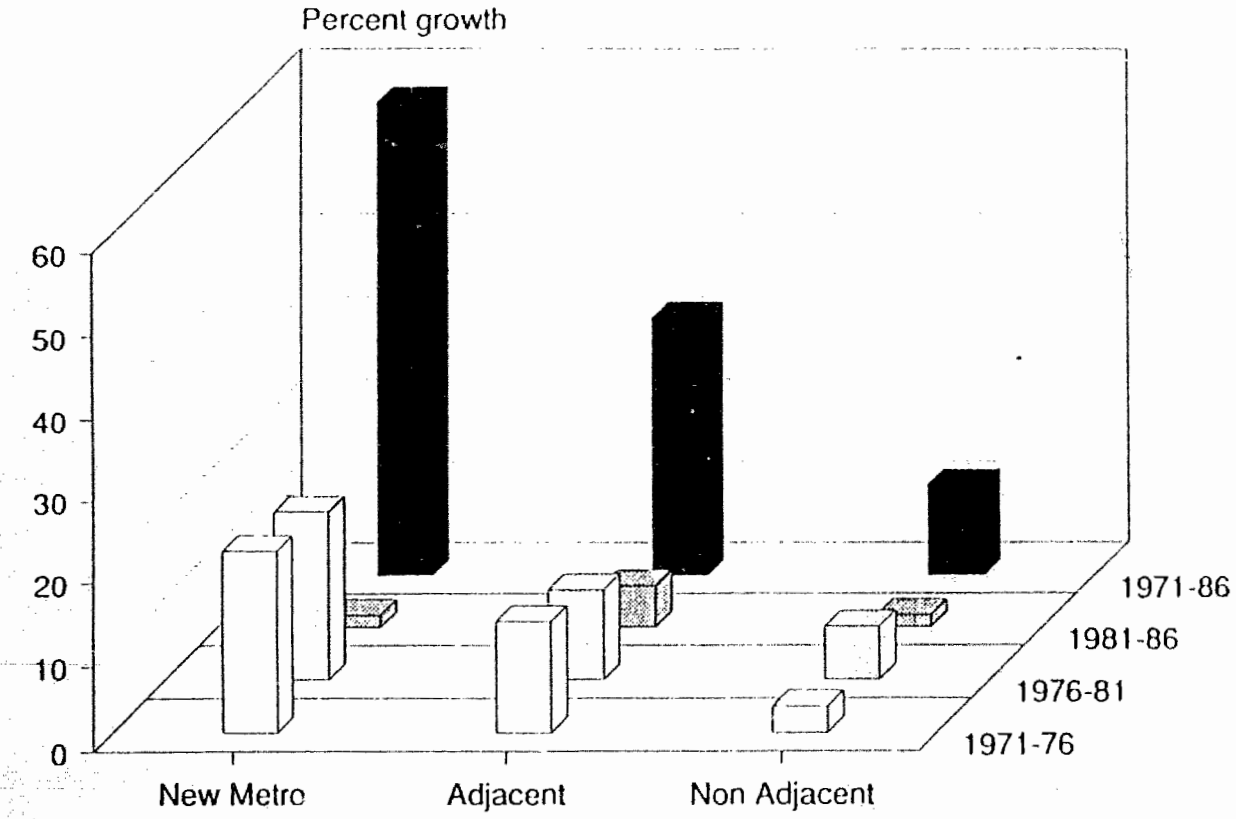


Table 4.5
Growth rates for subdivisions of the 100 km. non-metropolitan area.

	Growth Rate				Population Growth
Area Type	1971-76	1976-81	1981-86	1971-86	1971-86
Non-adjacent	3.06%	6.33%	1.52%	11.25%	90,637
Adjacent *	13.50%	10.75%	5.02%	31.61%	128,833
New Metropolitan **	21.72%	20.34%	7.58%	57.59%	90,432

* The closest towns and villages within adjacent dispersed CSDs are included as adjacent

** CSDs which became part of CMAs in the 1986 census.

forces of decentralization that fuelled New metro growth in the two previous census periods. While non-adjacent CSDs as a group showed increased growth in the 1976-81 census period, the group did not outperform the other classes of CSDs in any period.

ANOVA results confirm the growth hierarchy displayed in the growth rate data. These data are shown in table 4.6 and graphed in figure 4.7. Significant differences occur between all groups in the first two census periods studied. F-values are greater for the new metro vs. non-adjacent 100 km comparison than for the new metro vs. adjacent 100 km comparison. In the early 1980s, the significant difference between new metro and adjacent CSD groups is no longer apparent, which supports evidence from the collective growth analysis suggesting that these CSDs are being influence by urban expansion.

While the growth rate data shows stronger growth more often in the 100 km group than the 200 km group, this analysis suggests that the bulk of the 100 km growth occurs in areas closest to the metro boundary, particularly in the latest census period. Therefore proximity to a metro area is shown to be a significant upward influence on the growth performance of a non-metro CSD.

Non-Metropolitan Growth by CSD Type

While the previous analysis focuses on non-metro CSDs and

FIGURE 4.7

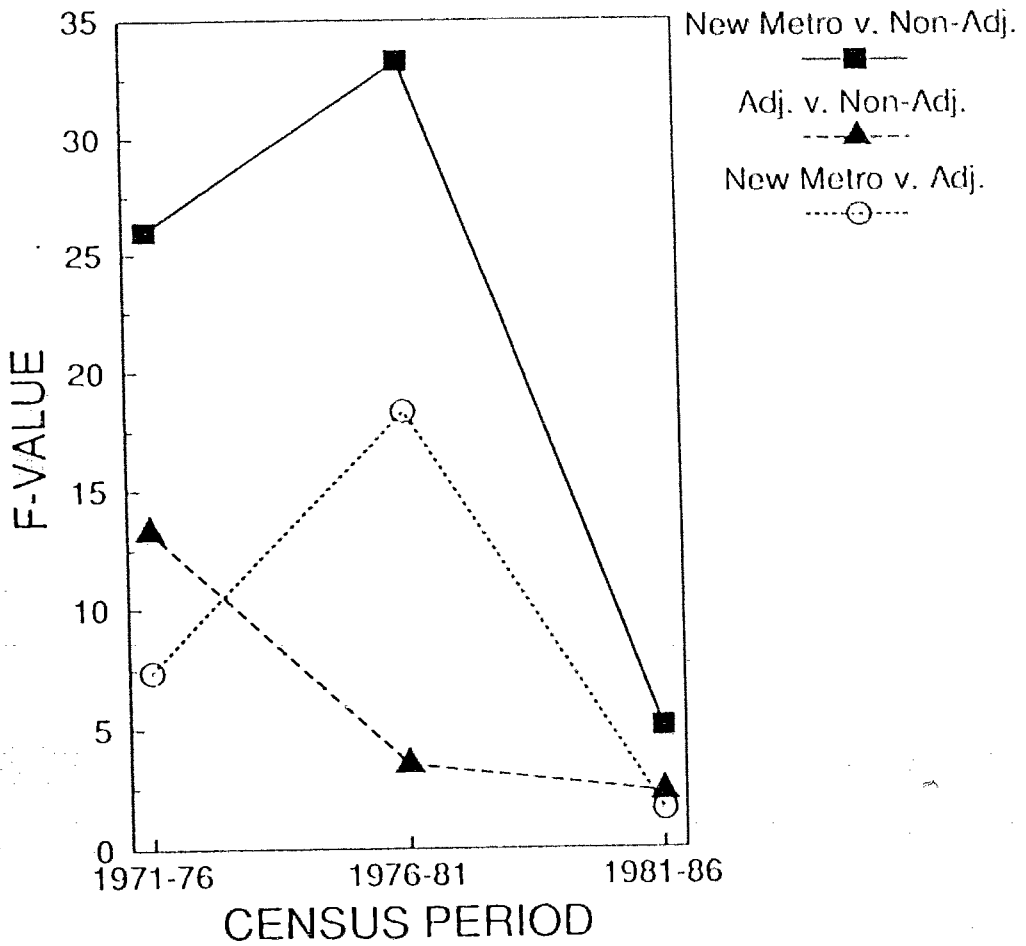


Table 4.6

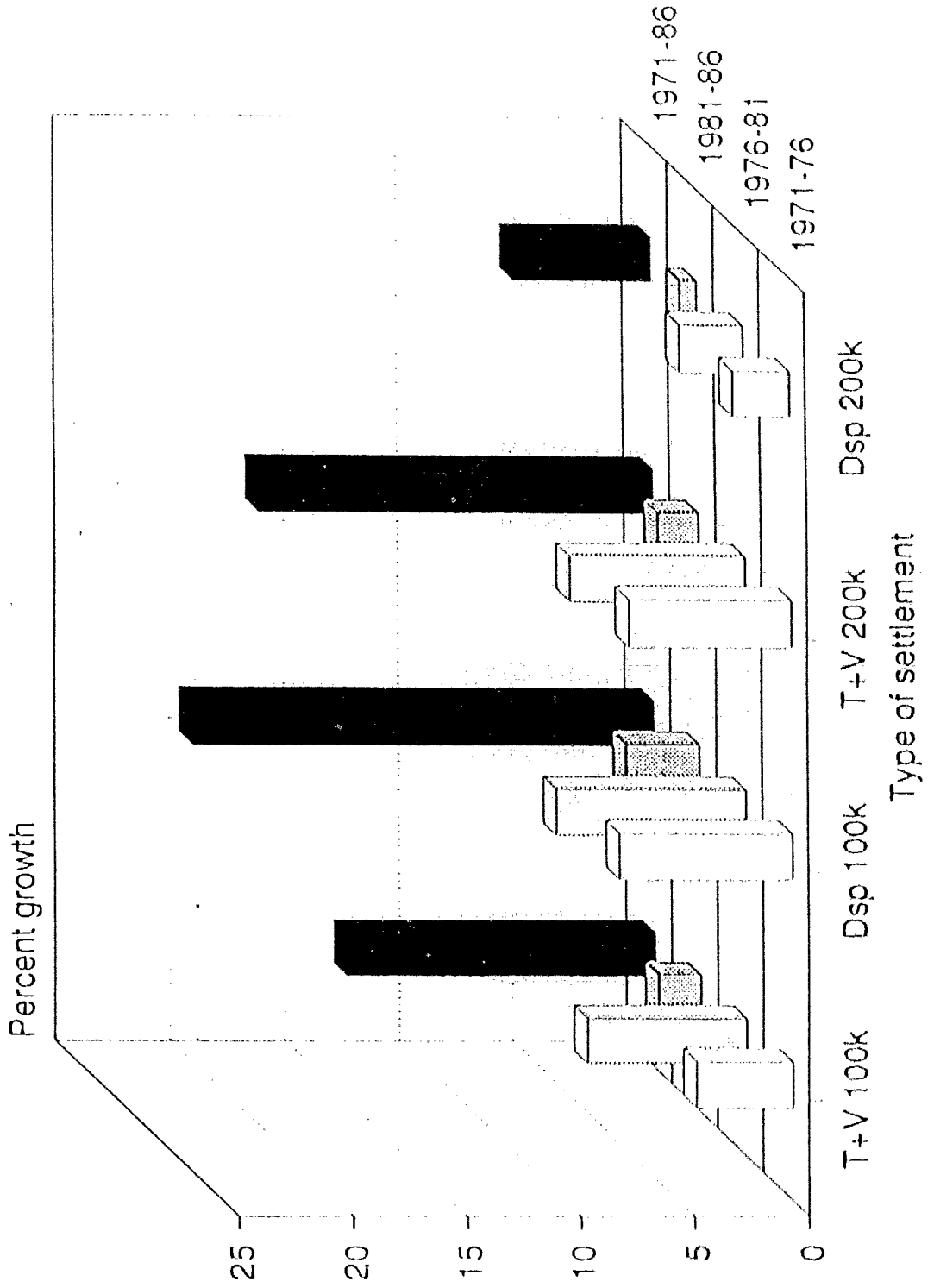
ANOVA comparison of non–metropolitan 100 km. groups

	F–Ratio		
Groups Compared	1971–76	1976–81	1981–86
New Metro v. Adjacent	7.40	18.30	1.60
New Metro v. non–adjacent	26.00	33.30	5.10
Adjacent v. non–adjacent	13.30	3.50	2.30
Average CSD Growth Rate			
New Metropolitan	27.50%	49.50%	7.20%
Adjacent	11.70%	12.40%	3.60%
Non–Adjacent	4.60%	6.90%	2.00%

the relationship of growth to distance from the metro area, this section studies the relationship of growth to CSD type. Two types of CSDs are identified - concentrated and non-concentrated. These are classified according to the settlement structure within the CSD. Concentrated settlements (i.e. towns, villages, hamlets etc.) and non-concentrated settlements (i.e. rural municipalities, townships, counties etc.) are further classified into 100 km and 200 km groups. Concentrated settlements include small (in land area) non-metro CSDs under 10,000 population. Non-concentrated settlements are large non-metro areas with no definable nucleic settlement. To illustrate the distribution of the number of these types of CSDs: 280 are classified concentrated non-metro 100 km, 510 are classified non-concentrated non-metro 100 km, 261 are classified concentrated non-metro 200 km, and 298 are classified non-concentrated non-metro 200 km. The growth rate data for these classifications are graphed in figure 4.8.

The 100 km non-concentrated group has a higher collective growth rate over the study period than the 100 km concentrated group in all census periods. The distribution of growth is relatively equal among the 100 km groups and the 200 km concentrated group. The non-concentrated 200 km group, however, grows slower than the other groups in every census period. This suggests that population growth in non-metro areas has not been equally distributed among all concentrated

Figure 4.8
Non-Metro growth rate by CSD type



T+V 100k = Towns and Villages or concentrated settlements in the 100 km area.
T+V 200k = Towns and Villages or concentrated settlements in the 200 km area.

DSP 100k = Dispersed or non-concentrated settlements in the 100 km area
DSP 200k = Dispersed or non-concentrated settlements in the 200 km area

and non-concentrated CSD types. In fact, the data show non-concentrated settlements in remote areas have been growing consistently at a lesser rate.

The data also suggest that growth from metro spillover does not occur exclusively in concentrated or non-concentrated types of non-metro settlements. The data do suggest, however, that more remote non-metro growth has occurred disproportionately in concentrated settlements. ANOVA results also indicate a difference in growth pattern between 200 km non-concentrated CSDs and the other groups. The data are shown in table 4.7. For instance, significant differences exist between the non-concentrated 200 km group when it is compared with each group in the 1971-76 period; with concentrated and non-concentrated 100 km groups in 1976-81; and with the non-concentrated 100 km group in 1981-86. No significant differences occur between the other groups, suggesting that the growth of non-metro concentrated settlements is equitable, regardless of distance from the city, and is not significantly different from the population growth rate in less remote non-concentrated settlements.

Mapping the distribution of Growth.

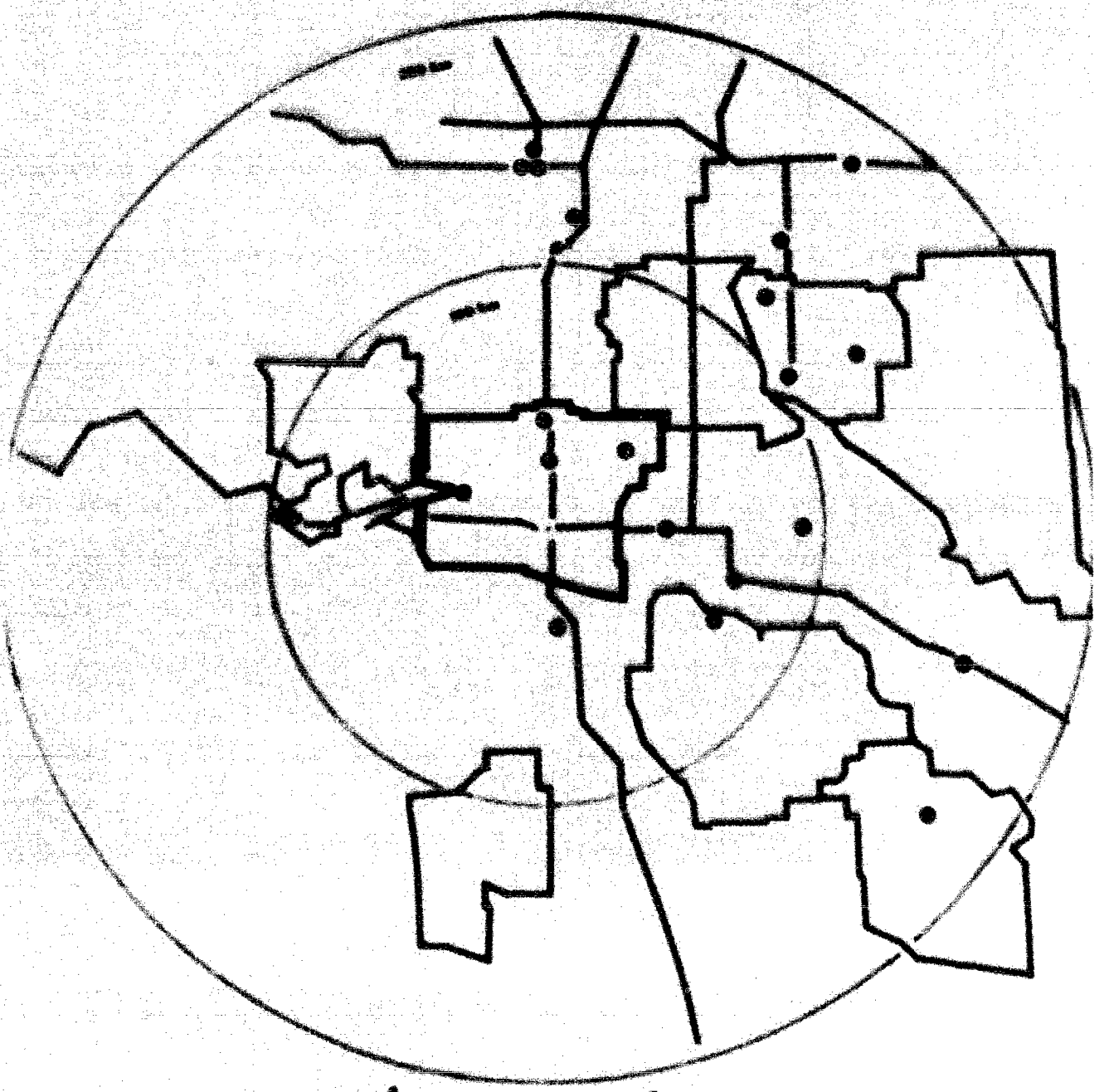
Maps of the Saskatoon, Calgary and Montreal regions (figures 4.9a, b, and c) are selected to illustrate each of the 3 types of growth patterns observed in the regional analyses. The maps show the distribution of growth within

Table 4.7

ANOVA comparison of CSD type groups.

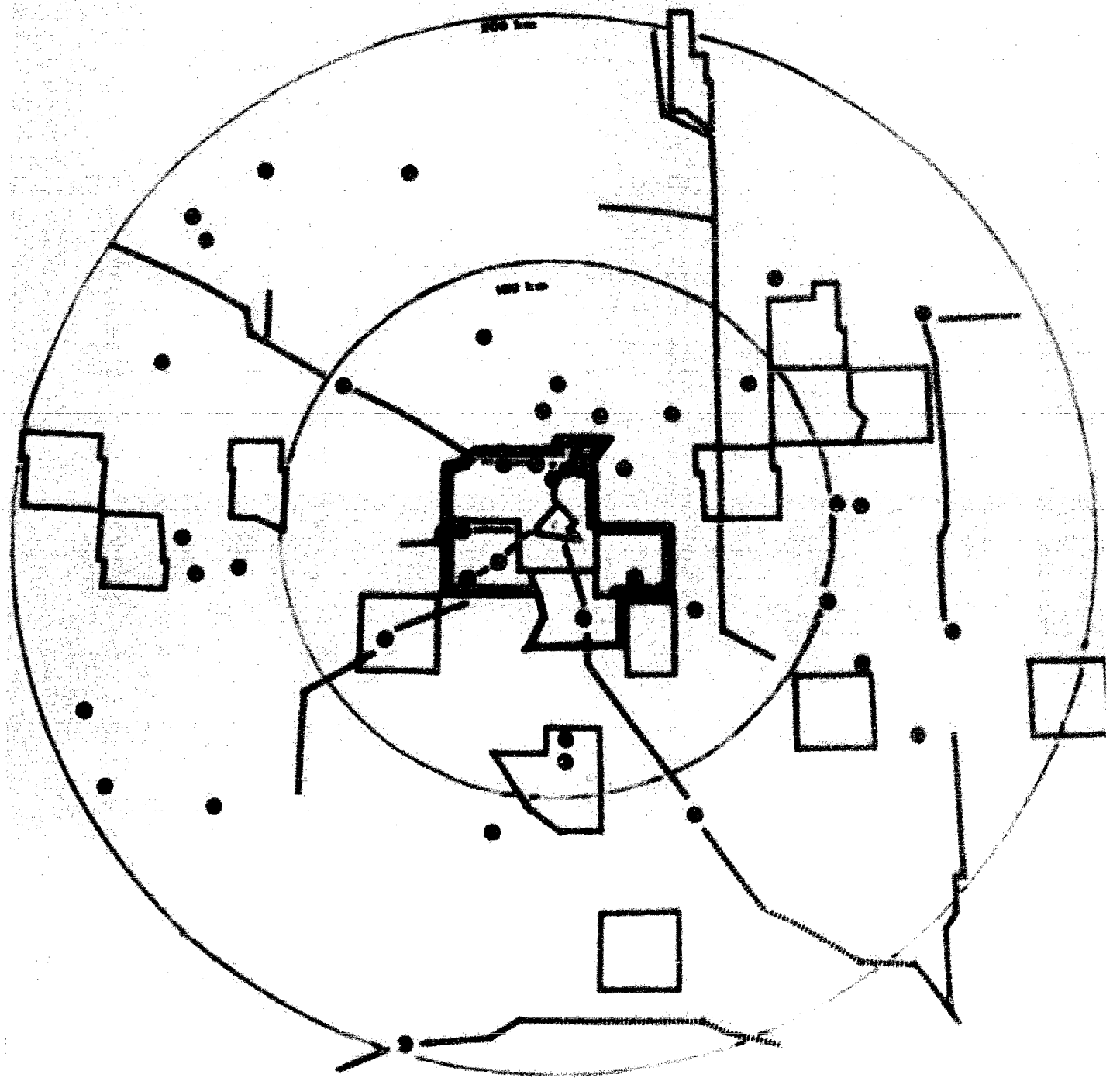
	F–Ratio		
Groups Compared	1971–76	1976–81	1981–86
conc.100 v. non–conc.200	4.29	3.91	0.62
non–conc.100 v. non–conc.200	4.13	4.30	2.89
conc.200 v. non–conc.200	3.46	1.03	0.34
conc.100 v. non–conc.100	0.11	0.04	0.61
conc.200 v. non–conc.100	0.17	0.72	0.94
conc.100 v. conc.200	0.26	0.83	0.34
Average CSD Growth Rate			
Concentrated settlements, 100km.	10.20%	8.10%	1.00%
Concentrated settlements, 200km.	4.40%	7.50%	0.30%
Non–concentrated settlements, 100km.	3.90%	8.00%	3.10%
Non–concentrated settlements, 200km.	1.40%	1.40%	–0.30%

Figure 4.9a



Scale: 1 cm = 24.7 km

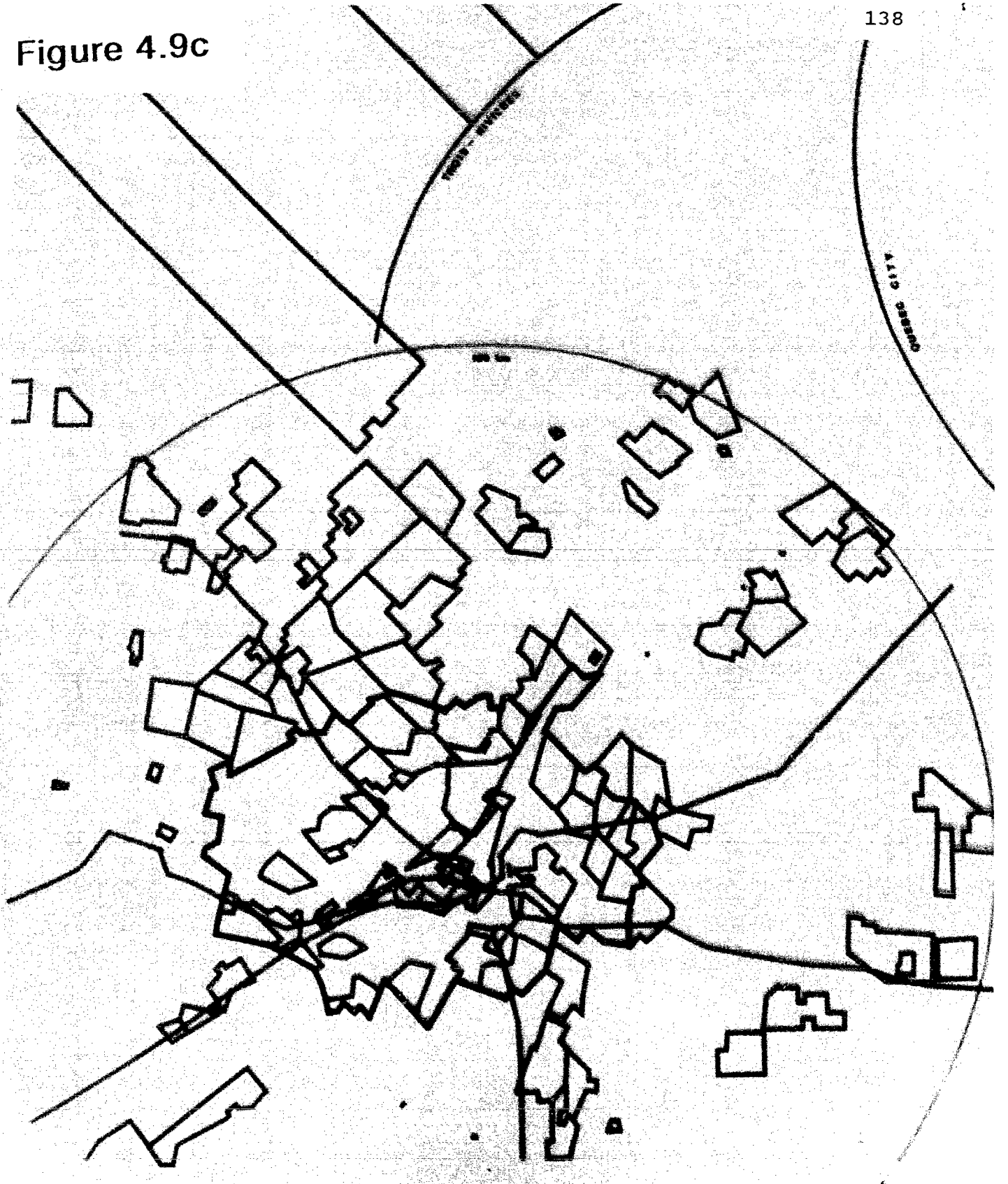
Figure 4.9b



saskatoon region

Scale: 1 cm = 23 km

Figure 4.9c



montreal region

Scale: 1 cm = 10 km

regions in relation to transportation routes, water bodies, international boundaries, and other landscape features. The maps illustrate clearly the spatial relationship between the Metro, 100k and 200k areas, the comparative size of different types of CSDs in the regions and the distribution of different types of CSDs within the regions. The Calgary and Saskatoon regional maps are drawn at a 1 to 50,000 scale and the Montreal map is drawn at a 1 to 25,000 scale. The Montreal map is a different scale because there are more smaller CSDs than in the other two regions, and the larger scale was needed to illustrate detail that otherwise would be lost if a smaller scale was used.

CSDs outlined in red (and smaller settlements marked with red dots) indicate settlements that grew one standard deviation above the regional average growth rate between 1971 and 1986. Those that are outlined in green (and smaller settlements marked with green dots) grew one standard deviation below the regional average growth rate over the same period. Each map also shows major transportation arteries, and the concentric circles which mark 100 kilometre and 200 kilometre distances from the regional core. Thus the maps make clear the spatial relationship between extremely fast and extremely slow growing (or declining) areas in the three regions.

The type 1 (Calgary) and type 2 (Saskatoon) regional maps illustrate that many of the fast growing CSDs in the Calgary

and Saskatoon regions are smaller settlements that fall within or are adjacent to the metro area. This is characteristic of the type 1 and 2 growth patterns, since growth performance in these types diminishes as distance increases from the core. Almost all of the slow growing CSDs (both smaller and larger) are located in the outer 100 km area and in the 200 km area. The distribution of growth in these two regions suggests that the metropolitan centre is the regional growth pole.

Strong population increases in smaller settlements both within the metro area and in the adjacent 100k area have been affected by the growth polarity. The red dots are almost always located on arterial roadways leading into the metro core. This suggests that small towns and villages both inside and outside the core in type 1 and type 2 regions grow because of strong links to the metro area, making peripheral communities accessible for growing numbers of commuters. Areas more remote from the core do not grow as fast or are declining, because they are not accessible to commuters who must travel to work daily in the metro area, either because they are not on an arterial road transportation link, or the distance is too great. Accessibility to the metro area seems to be the key growth influence in both the Calgary and Saskatoon regions.

The Montreal region is different in many respects. The distribution of growth illustrates the regional growth pattern characteristic of type 3. Most of the CSDs closest in the

inner city (metro core) show below average growth rates over the study period. The outer suburbs (i.e. those metro CSDs near the CMA boundary) show strong growth, which suggests that suburbanization and decentralization is a prominent process within the region. Significantly, however, many non-metro CSDs beyond the metro boundary, including adjacent and non-adjacent CSDs, are growing extremely fast. This is the distinguishing feature of type 3 regions. Of note is the north and northwestern portions of the outer 100 km area which includes a number of CSDs with extremely high growth rates compared to the regional average. These areas are not adjacent to the metro area, and are not served by an extensive arterial road system. Accessibility to the metro area cannot be as influential as with the other two regional growth types. Other factors, such as environmental amenities, the appeal of remoteness, less expensive land and taxes than in the large metro area, more "footloose" employment opportunities, must be influencing growth in these areas.

Conclusion.

The collective growth rate analysis and analysis of variance tests shows that the distribution of growth in area types is related to distance from the core and that both non-metro area type groups perform poorly compared to metro areas from 1971 to 1986. When individual census periods are studied, however, the 100 km group outpaces the metro group

during the late 1970s. At the same time the 200 km group growth rate increased, suggesting that the late seventies was a growth period for non-metro areas both nearest to the metropolis and more remote.

Separate regional analyses reveal a typology of growth distributions - two in which urbanization is dominant and a third which suggests that strong decentralization around city cores was accompanied by growth in the more distant periphery. Type three regions are typified by growth patterns which indicate a convergence of growth characteristics between fast growing suburban metro CSDs and less remote non-metro CSDs. Apart from isolated cases (i.e. Montreal) non-metro growth in type 3 regions was most often closely tied to metro growth and spillover, rather than a general deconcentrating pattern throughout the non-metro area.

Proximity to the metro area is a definite positive growth factor affecting CSDs in the 100 km group. This indicates that metro spillover has a significant upward influence on non-metro population growth rates. Also, growth analysis by CSD type confirms that concentrated settlements (towns and villages) in the non-metro area do not grow significantly faster than non-concentrated CSDs, except for those non-concentrated settlements in the 200 km area.

These data suggest that non-metro areas did experience growth rates in the 1970s which were greater in some regions than the metro growth rate, particularly in the late

seventies. Non-metro growth, however, did not occur in all regions studied, nor was it evenly distributed throughout the non-metro area. On average, those CSDs closer to the metro areas had a higher growth rate than those more remote, which suggests that decentralization has more influence on growth in non-metro CSDs than the broader process of population deconcentration. The final chapter discusses these results, and provides some possible explanations for the growth distributions and patterns seen in this study.

CHAPTER 5: DISCUSSION AND CONCLUSION

Introduction

This final chapter is structured in four sections. The first section summarizes the results of the analyses in Chapter 4. The second section discusses these results in relation to the "counterurbanization" literature reviewed in Chapter 2. Specifically, Joseph et. al.'s recent study of Canadian "counterurbanization" is discussed in light of the findings in the study. Also, the results of this study are compared to studies of "counterurbanization" in the United States, particularly those done by Beale (1976), Berry (1976), Morrison and Wheeler (1977) and others using counties as the basic areal unit of analysis.

The third section discusses this study in terms of the causes of "counterurbanization". The results are linked to possible causes of "counterurbanization", particularly those highlighted by Hugo and Smailes (1985). The fourth section summarizes and offers concluding comments to the Chapter and the thesis.

Summary of Results

One of the important findings in this study is that for the national sample the collective non-metro population growth rate is stronger during 1976-81 than the metro growth rate, due for the most part to the rapid population growth rate in

the 100 km area. Over the last census period (1981-86), the growth rate dominance switches back in favour of metro areas in the national analysis. Also during 1981 to 1986 a sharp drop occurs in the growth rate of both groups of non-metro CSDs. The ANOVA results for the collective analysis suggest that non-metro growth characteristics are similar in both non-metro area types and quite different in the metro vs. non-metro comparisons, although over time F-values have been declining.

Separate regional growth patterns often vary from the national sample's pattern and seem to conform to one of three types of population growth distribution patterns. In the type 1 distribution (e.g. Calgary) strongest population growth occurs in the CMA, and the average rates drop as distance increases from the city. This centre-dominated growth pattern in type 1 occurs in the context of growth across the whole region.

Type 2 change (e.g. Saskatoon and Quebec City) is similar to Type 1 in that the metro area displays strong population growth in all census periods. The non-metro area, in contrast, loses population during the same census periods. For example, the growth rate of the Saskatoon CMA is 44.0% over the study period (second only to Calgary). During the same period, its non-metro growth rates for the 100 km and 200 km groups respectively are -8.4% and -6.9%.

The type 3 pattern (e.g. Montreal, Toronto, Vancouver,

Thunder Bay, Winnipeg, Halifax) is characterized by strong non-metro growth. Regions conform to this distribution if they have a faster growth rate in non-metro areas than metro areas during the 1970s or early 1980s. Montreal, a typical type 3 region, has consistently higher 100 km growth rates than the metro group in all census periods, and during 1976-1981 its 200 km growth rate also exceeded the metro rate, which is rare among regions. Other regions showing type 3 growth during the 1970s are Toronto and Vancouver, which indicates that the 3 most populous regions in the sample (and in the country) all have the type 3 growth pattern at some time during the study. Of all type 3 regions, however, only Montreal's 100 km population growth rate continues to be stronger than the metro rate through the study period. Importantly, only in the Montreal and Thunder Bay regions does the 200 km group outgrow the 100 km area type group when both are growing. This indicates that the largest growth rate increases in non-metro areas take place most often in the less remote 100 km area. Situations occur in type 3 regions where the growth rate in the 100 km group outpace the metro rate, but the 200 km group lags behind the metro rate. Growth in the less remote non-metro group is mostly responsible for the non-metro growth surge during the 1970s in the regions studied.

ANOVA results support these findings for regions, since 100 km group growth rates usually are found to be similar to

the metro group growth characteristics more often than the 200 km group. Growth rates compared between and within groups reveal that for type 3 regions, slow collective growth rates for metro areas are caused by large city core CSDs that dampen the cumulative effect of fast growing suburban CSDs. In type 3 distributions of growth, non-metro CSDs grow as fast on average as the suburban CSDs. Higher growth rate in the non-metro area than in the metro area, coupled with a low F-ratio for non-metro / metro area type group ANOVA comparisons indicates "counterurbanization".

Further disaggregation of CSD groups based on proximity to the city core, and based on CSD type reveal information about the nature of non-metro growth. Of CSDs in the 100 km metro group and CSDs that were newly incorporated into the metro area after 1981, the growth rate in the new metro group is highest between 1971 and 1986. The extremely high rate of growth over the study period for the new metro group reveals that suburban growth is still a dominant feature within regions. Also, the high growth rate within the adjacent non-metro group shows that the suburban metro influence is spreading outward. While adjacent non-metro CSDs show strong growth relative to the Canadian population growth rate, the non-adjacent group's rate is below the Canadian rate over 15 years, and in two of the three census periods. Significantly though, the non-adjacent growth rate increases above the Canadian rate for 1976-81, while both the new metro and

adjacent non-metro growth rates decrease in the same period.

The growth rate and ANOVA results for this test confirm that population growth in the metro suburbs is continuing at a rapid pace, and that non-metro areas closest to the city grow faster than areas more remote between 1971 and 1986. Despite the fact that the growth rate in non-adjacent CSDs increases between 1976 and 1981, the growth surge in non-metro areas at this time can be attributed for the most part to adjacent CSDs which are growing significantly faster than the non-adjacent group.

The growth rates in groups by CSD type reveal that the distribution of growth in non-metro areas is not appreciably different among dispersed and concentrated settlements in the 100 km area. In the 200 km area, however, concentrated settlements fair much better than dispersed areas. Distance from the city has a greater negative effect on population growth in dispersed settlements than in concentrated settlements according to these data.

The maps illustrate the distribution of extremely fast and extremely slow growing CSDs (between 1971 and 1986) in three regions each representing one of three types of growth pattern (types 1, 2 and 3). The Calgary (type 1) and Saskatoon (type 2) regions show strong metro growth in the centre and suburbs. In Saskatoon, slow growth is apparent in non-metro settlements (both dispersed and concentrated) in the agriculturally dominated periphery, although some isolated

small town growth is noticeable. Calgary's metro area also grows faster than average. This growth, however, is concentrated in small towns within and adjacent to the CMA which lie on or near transportation arteries into the CMA. For both Calgary and Saskatoon, more places in the 200 km area are growing extremely slow than extremely fast. Only one non-metro non-concentrated settlement (rural municipality) in both the Saskatoon and Calgary regions grows at an extremely fast rate between 1971-86.

Montreal is characterized by slow inner-city growth and fast outer suburban growth. In the non-metro area adjacent to the CMA, the band of fast growing CSDs is indicative of population decentralization beyond the metro boundary. In addition to the population growth in these relatively accessible areas (which are near highways and closest to established suburban road links), there is fast growth in some more remote non-metro areas within the 100 km band. Growth seems to be localized in some of these areas to the north and northwest. In contrast, decline is apparent in other CSDs south and east of the city. Destructuration in agriculture, and the resulting emigration of the excess agricultural workforce may be the cause of decline in these non-metro areas of Montreal. The Montreal region has this in common with the Saskatoon and Quebec City regions. What is different for Montreal is that growth in other relatively remote areas within the non-metro area (shown in red) may be the result of

a new settlement trend in areas beyond commuting distance of the city.

Comparison with other studies

Similarities are apparent between this study's findings and the research results from Joseph, Smit and Keddie's (1988) study. To study comprehensively growth in different area types across Canada, they used census divisions and classified them according to their "degree of settlement" and proximity to urban areas. Three types of divisions were separated: remote hinterland, rural hinterland, and urban core. Through comparative analysis of the growth rate of rural farm and rural non-farm population in these three area types, the study concluded that rural population growth occurred mainly in the urban core area type, closest to cities. Another important conclusion in the study was that reclassification from rural to urban was the dominant factor in creating a cyclical pattern of rural population growth over the last few decades. Joseph et. al. mention that rural areas susceptible to urban intrusion had large growth increases in rural non-farm population in one decade followed by small growth in the next decade after the fastest growing rural areas had ultimately been reclassified to urban. They interpreted the 1971-81 period as a high point in the rural growth cycle that would probably decline in 1981-91 if the pattern of systematic reclassification continued. They also argued, however, the

1971-81 period as a period of real rural non-farm population growth in most regions of the country due to the magnitude of rural population growth, mainly in areas near urban regions. They term the rural growth as "spillover growth" from cities, and they conclude that the rural population growth in 1971-1981 was amplified by the effect of the cyclic pattern of rural to urban reclassification.

This thesis, like Joseph et. al.'s study, is concerned with the location of non-urban population growth during the 1970s and early 1980s. Joseph et. al.'s finding that rural growth occurred in areas proximate to large urban areas is supported by the results of this analysis. This thesis shows that areas just inside or adjacent to the metro (CMA) boundary were the places most responsible for total regional population growth. These areas were identified through a finer grain or larger scale analysis using CSDs. In the Joseph analysis, large "urban core" Census Divisions (CDs) included metro and non-metro area type units used in this analysis, without comparing the growth rate performance separately for them. Consequently, it was not known which area type within the urban core CD was growing fastest. This analysis not only supported the conclusion that non-metro areas in "urban core" type census subdivisions dominated growth during the seventies it also showed that growth was greatest in the areas immediately adjacent to them. This in effect confirmed the spillover growth hypothesis.

Several analyses of U.S. population change through the 1970s and early 1980s separated areal units into metro and non-metro groups according to similar criteria used in this study. The analyses of Beale, Berry, and Morrison and Wheeler, among others, showed that there was a group of non-metro counties, located well beyond commuting range of urban centres, that collectively were growing above the metro growth rate in the 1970s. Each of these analyses, however, also indicated that among non-metro counties those adjacent to the metro area were growing fastest. Interpretations of these U.S. data concentrated on the fact that the existence of the fast growing remote non-metro counties contradicted a long term trend of growth rate decline in these areas, and to many analysts signalled a new trend. It was this interpretation that gave rise to the term "counterurbanization" to describe the new trend.

The present analysis shows the adjacent non-metro area to be growing fastest in most regions considered. There was growth in the more remote non-metro area but usually it was in CSDs within the maximum commuting distance from CMAs (the 100 km area). For example, the extremely fast growing CSDs mapped in the Montreal non-metro region, that were not adjacent to the CMA, were all within the 100 kilometre radius of the city centre. The more remote non-metro area beyond the maximum commuting range, in contrast, outpaced the metro growth rate in only a few cases during the study period. This analysis

did not reveal in the national sample, or in the regional sample analyses, that there was similarly strong growth in remote non-metro areas as there was in adjacent non-metro areas, which was noticed in the United States.

These results confirm that the majority of population growth in non-metro areas occurs proximate to CMAs as a result of spillover growth. Growth in the non-metro area occurred most often in CSDs adjacent to the CMA boundary. There were areas, however, within the non-metro zone which grew strongly in relation to the regional average that were not adjacent to the CMA, but were still within the maximum commuting range. These results differed from the U.S. analyses that pointed to a definite growth surge in places well beyond commuting range. In contrast, in the regions studied here, in almost all cases population in the most remote non-metro areas did not grow as strong as the less remote non-metro area or the metro area.

Causes of Non-metropolitan growth

Hugo and Smailes shed light on the causes of non-metro growth and the comparative strength of non-metro population growth in relation to growth in metro areas during recent decades. Hugo and Smailes' causes relate to the turnaround phenomenon, where regions which had been losing population for two previous decades begun to gain in the 1970s. This thesis seeks to explain why aggregate growth rates in some non-metro areas were higher than other areas in the study

period. While this thesis does not address the turnaround phenomenon directly (i.e. it does not discuss why migration patterns have reversed between metro and non-metro regions), it does seek to explain why non-metro areas experience growth. Many of the causes discussed by Hugo and Smailes provide clues which help with this explanation, since migration reversal involves growth in the non-metro areas. The causes can provide clues toward explaining the changing distribution patterns seen in the regional analyses over the study period. Hugo and Smailes' list of causes, along with additional causes from the literature are discussed in relation to this study's results.

Causes

a. The turnaround is only a temporary fluctuation in the general trend toward urban concentration in response to the economic recession of the 1970s.

Although the recession of the mid-1970s was accompanied by rural growth in many parts of the United States and other countries, as is shown in the literature, the next decade's recession (1982-1986) seemed to suggest the opposite. In Canada at least, the data from this study suggest that the 1981-1986 intercensal period was a time of renewed metro growth. This suggests an association between recession and metro population growth rather than non-metro growth.

Hugo and Smailes suggest that economic hardship in cities

generates a counterurban migration stream which reverses the migration that has led many people to the city to find work. Economic hardship limits employment opportunities in cities, forcing many migrants back to where they originated. This situation was plausible in the 1970s. In the 1980s recession, however, the high metro population growth relative to growth in non-metro areas suggests that cities fared better than rural areas in their ability to retain jobs during economic slowdown, and that the recession of the 1980s had a greater adverse effect on the rural economy. The rate of job losses in primary sector activities characteristically located in rural areas, such as agriculture, oil and gas exploration, forestry and mining increased proportionally higher than losses in the types of jobs concentrated in urban areas, such as the service sector jobs and other tertiary and quaternary activities.

It is clear that the effect of economic hardship on non-metro population growth must be assessed according to the specific nature of the recession, and what sectors of the economy are most adversely effected.

b. The turnaround is a demographic effect caused by changes in the particular age and life cycle population mixes of metropolitan / non-metropolitan populations.

Lifestyle change, and people's changing residential location preferences have affected non-metro population growth. In particular, the non-metro population growth

generated by retirees has often been cited as a major contributor to the "counterurbanization" trend in the 1970s (Berry, 1976 and Long and DeAre, 1982 among others). Demographic projections in the United States, Canada and Europe have shown that as the baby boom generation ages, the average age of many developed countries will increase, as will the number of retirees. Demographic studies have shown that the propensity of retirees to live in rural areas is high. In the United States, recent studies have shown that many remote non-metro places, especially in the Sunbelt states, have had substantial growth in their retired, and thus total, population (Glasgow, 1991). Amenities such as green space, minimal crime, and minimal noise have attracted retirees to rural areas which have been made more accessible through improved communication, the portability of pension income, and the increased availability of social services such as medical care.

Besides retirees, population growth in many rural areas has been the result of increased leisure activity in general, and the business associated with this activity. In addition, Jones et. al. (1984) mention that population increase in remote areas in some parts of Scotland is not so much the result of retirement migration or population growth associated with the North Sea oil boom, but individuals who are engaged in footloose industry and who are capitalizing more and more on people's new propensity to recreate in more remote areas

than they have in the past. Also, Jones et. al.'s survey suggested that one of the main reasons for moving to these remote rural areas was the desire to get away from the "rat race" of city life.

Information about lifestyle and demographic change was beyond the scope of this thesis, and the results do not address the issue directly. Population growth in many areas, however, can be linked to the increasing propensity of the Canadian society to retire and recreate. For example the population boom in places like Whistler in B.C., Sylvan Lake in Alberta, the second home and cottage settlement on the shores of Lake Simcoe in Ontario and in the Laurentian mountains Northwest of Montreal, suggest that certain areas with environmental and recreational amenities have grown at an above average pace over the period from 1971 to 1986. Also the inclusion of the "Summer Village" and "Resort Village" categories in the settlement statistics for the census of 1986 suggest that this type of rural settlement is increasingly popular as a place to live with people who's residential preference has changed, or has been finally realized.

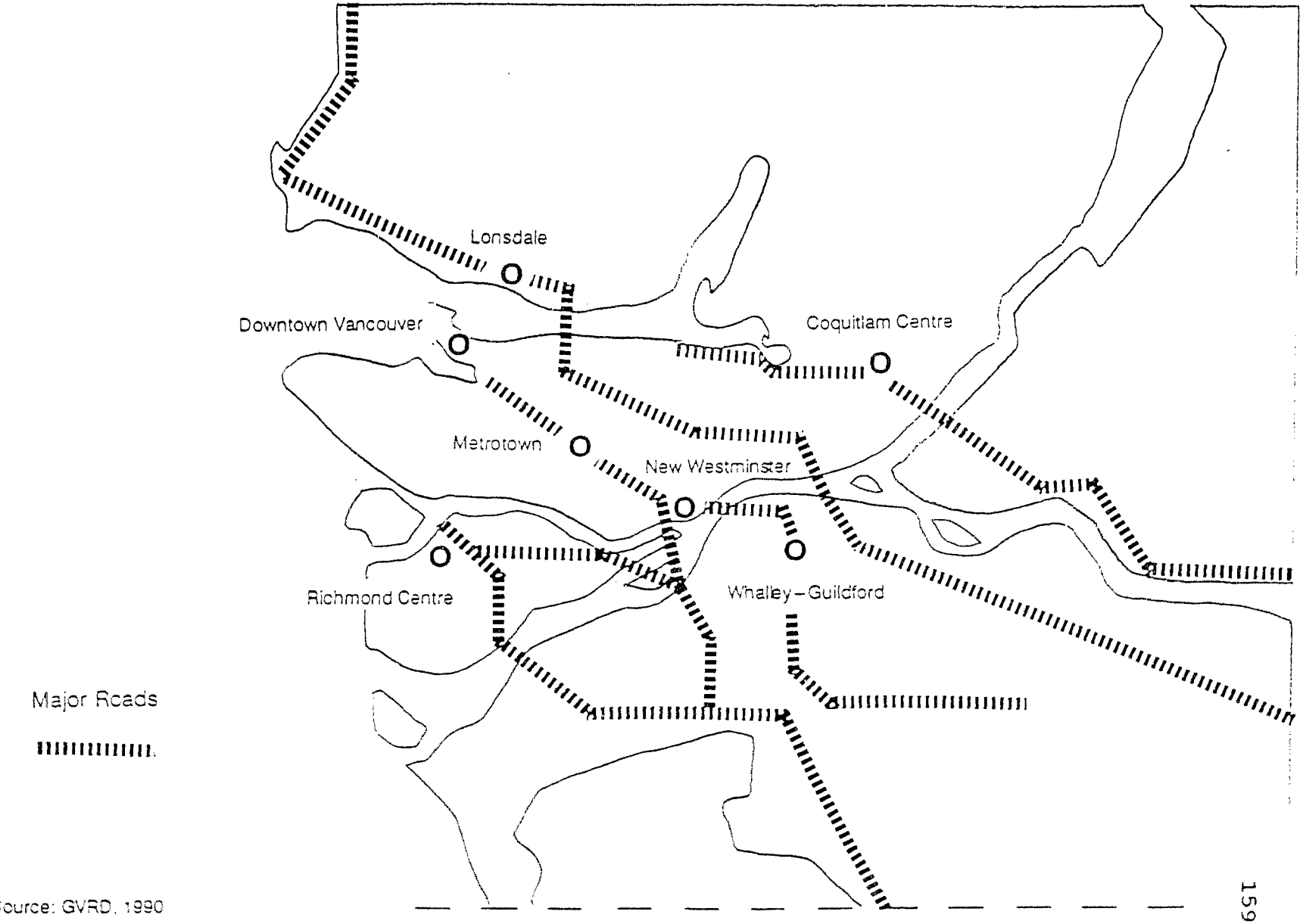
c. The turnaround is a result of successful public regional development and decentralization policies, particularly those relating to deconcentration of manufacturing industry from large cities.

Policies in many regions and at all levels of government in Canada, and often in the United States and Europe, have been directed at balancing development region-wide. In

particular, job concentration in the metro core and metro areas in general has been discouraged recently in favour of more widespread regional development in the peripheral areas. In Canada, this policy has been attempted at various scales. For example, federal programs were initiated in the 1970s which attempted to promote development in less competitive regions in the country (i.e. the Maritimes) through relocation incentives to industry. This attempted to shift the economic emphasis away from staple resource dependency in peripheral, and often rural areas which were susceptible to job and population loss, since primary industries have progressively become more capital intensive. It was hoped the success of these programs would curb job and population loss in peripheral areas, which were losing population to the job rich metro areas in central Canada.

On a smaller scale, many regional development goals over the 15 year study period have been to balance job / worker ratios within localized regions. The Greater Vancouver Regional District has stated throughout the 1970s and 1980s in its "Livable Region Strategy" that several regional town centres should be created to deconcentrate employment from the Central Business District of Vancouver. The location of these town centres is illustrated in figure 5.1. Although the stated objective is to move jobs closer to the workforce living in suburban areas, the affect would also be to widen the urban field around the core. Population expansion would

Figure 5.1
Regional Town Centres – Greater Vancouver



Source: GVRD, 1990

occur across a greater area, and create spillover growth into non-metro areas. In this way, the success of deconcentration policies in places like Vancouver would lead to an expansion of the non-metro population, especially in rural areas adjacent to the metro area. This thesis shows that the fastest growing non-metro areas most often were those closest to the metro boundary, which suggests that deconcentration policies may have been partly responsible for non-metro population growth during the boom period of the 1970s.

d. The turnaround is an area specific effect traceable to employment growth in particular, localized industries in favoured non-metropolitan regions (e.g. mining, defence), rather than a general broad-scale phenomenon.

The area specific effect of population growth in recreational areas was discussed as part of the lifestyle change explanation for non-metro population growth. Also, in Canada during the 1970s there are examples of population growth in places developed for resource exploitation. For example, Tumbler Ridge B.C. is a town that was developed exclusively as a service centre for the Northeastern B.C. coalfield. It provides housing and services for the workforce and is the local administration centre for the mine. Other mining and oil towns such as Fort MacMurray in Alberta grew as a result of the energy resource boom in Western Canada during the 1970s. Remote towns in the area near Thunder Bay grow according to Canadian shield mining and forestry activity in Northwestern Ontario. This thesis suggests, however, that the

remote localized growth was secondary to the non-metro growth in settlements most accessible to the metro area, and that despite these examples, the most remote regions continued to grow at a slower rate than the metro and adjacent regions in Canada.

e. The turnaround is a result of the gradual emergence of scale diseconomies in large urban areas, which combine with growing social problems to increase the push factor in migration streams from urban areas.

In this thesis non-metro growth was apparent in the three largest regions in the country, Toronto, Montreal and Vancouver. In light of these results, there seems to be a relationship between non-metro growth and the size of a region. In many studies in the United States in the 1970s, and in particular Berry's analysis of factors involved with metro to non-metro migration, the increasing size of a city seemed to push people out of the city in increasing numbers. Berry and Conzen cited the growing incidence of crime in the inner city and suburbs of the largest cities in the U.S., and that this pressure caused people to look for alternatives to city living. Other push factors often mentioned are pollution, noise, congestion, racial conflict and other negative features associated with the largest cities in the United States.

Canadian large cities, in comparison to those in the United States, do not have the same degree of negative features. Mercer (1975) has indicated that inner city decline

has not occurred in Canadian cities to the same extent as it has in the United States, possibly because of the lesser influence of these negative factors. Also, non-metro population growth in areas not adjacent to the city has not occurred in Canada to the same extent as it has in the United States. While non-metro growth in counties adjacent to metro areas was strongest in the turnaround period in the United States, growth in remote non-metro areas was almost as strong, perhaps in response to the push factors involved with urbanization on such a large scale. Without equally intense push factors in Canadian cities, deconcentration of population to remote non-metro areas has not occurred on such a far reaching scale as in the United States.

f. Reduced distance friction associated with new transport and communication technology has allowed a further rapid extension of urban commuting fields into widely dispersed but still metropolitan focused economic networks.

The extension of the urban field was discussed in detail by Hodge, Gertler, Blumenthal, Bryant, Russwurm and McLellan, and other analysts concerned with regional development and regional population distribution. Transportation and communication technology are key elements that determine the rate of growth and expansion of the urban field. People have argued that the urban field has expanded to the extent that all regions within Canada are included within it. This argument is based on the recognition that the far-reaching influence of regional urban centres has progressively overcome

the economy, social structure, and way of life in peripheral areas.

As can be seen in the maps in this thesis, the regions of Calgary and Saskatoon are dotted with small towns inside or just beyond the metro boundary which have been growing at a rapid rate over the past 15 years in relation to other places. This population growth is a result of commuter settlement, which increased as the towns became more accessible through highway construction, or outward population expansion within the CMA. Largely residential towns, the population growth there is driven by the economy of the city, since as the economy grows in the city commuting also grows.

Although road construction and general transportation network improvements such as rapid transit are the typical means to reduce distance friction for commuters, other commuting options such as telecommuting and microcomputer communication have become more popular in recent decades. These advances have also expanded the urban field around cities by making the urban job concentrations more accessible to a dispersed workforce.

g. There has been a basic change either in people's values and lifestyle preferences or in their ability to act on such preferences, acting in favour of residence in rural or small town environments and against large cities.

Traditionally it has been the desire of North Americans to live in a detached home with a yard, within daily commuting range. Rapid suburbanization in the 1950s and 1960s suggested

that many Americans and Canadians (as well as many Europeans) would sacrifice time commuting to work in the central city for a house in a rural-like environment in the suburbs.

Long and DeAre pointed out from an American survey that the most common American residential preference was to live in a rural environment within at least one hour's commute from the central city. Berry pointed out, however, as the suburbs increasingly expanded outward and the metro area grew it was harder to sustain low density rural-like suburbs close to work, as more workers migrated to urban areas. Berry argued that more Americans took advantage of new transportation and communication technological innovations to exercise their residential preferences during the 1970s. He said increasingly more rural areas have become accessible to people not necessarily tied to jobs in the metro regions.

These data suggest that although non-metro areas grew during 1971 to 1981 Canadian metro areas have recently attracted more residents. While it is possible that residential preferences favoured non-metro regions in the 1970s, the 1980s saw rapid growth both in the suburbs, and within the downtown core itself. Townhouse and condominium construction have dominated residential development over the last decade in Canadian cities. People have traded off rural-like environments for less commuting, and are taking advantage of lower cost housing alternatives within the metro area. Initiatives are underway in many major Canadian cities

to develop the downtown core increasingly for residential use, both with market and non-market housing (Vancouver and Toronto). The downtown district has recently become a centre of residential development or re-development. With the increased availability of both market and non-market housing in the core, an increasing number of people are taking advantage of the location of residential districts close to jobs and centrally located services and amenities. While the results of this thesis do not suggest suburbs are losing attraction as a place to live, inner city population re-growth could be responsible for the increased metro growth performance between 1981-1986.

h. The turnaround is primarily a result of structural change in modern Western economies as the proportion of tertiary and quaternary employment increases relative to secondary employment, while the decline in primary employment has almost run its course.

Although structural change has occurred in Canada over the 15 year study period, employment data suggest that metro areas have benefitted proportionately more than non-metro areas. During the recession of 1981 to 1986 manufacturing suffered higher job losses than the service sector in Canada. Job growth in the 1980s has been most rapid in tertiary and quaternary sectors compared to secondary (manufacturing) and primary employment. Metro areas in Canada have experience pronounced growth in service sector jobs, and a less rapid decentralization of total employment than was expected in the

1970s.

The downtown core of Vancouver is expected to increase its share of employment in relation to the rest of the city by 2006, mainly on the strength of new waterfront office developments in the peninsula. Also, relocation of major industrial employers to non-metro areas has not occurred in Canada as it has in the United States. Although decentralization of secondary activities has occurred within metro areas, the high growth of service sector jobs has more than compensated in large cities.

Therefore, employment led population growth in the remote non-metro area seems not to have been an important factor regulating distributional change over the study period. In fact, continuing loss of employment in agriculture in the Saskatoon region has not been replaced by other types of employment that would curb emigration of the excess workforce from non-metro to metro areas. In the Montreal area, population growth in the non-metro area during the 1970s seems more to be a result of lifestyle change, growth in recreational activity, and an increase in the retirement population than a response to structural change in employment that increased the job base in more remote areas.

i. Housing prices have increased in metropolitan areas at a far faster pace than income over the last twenty years, forcing more people to look for housing in non-metropolitan areas.

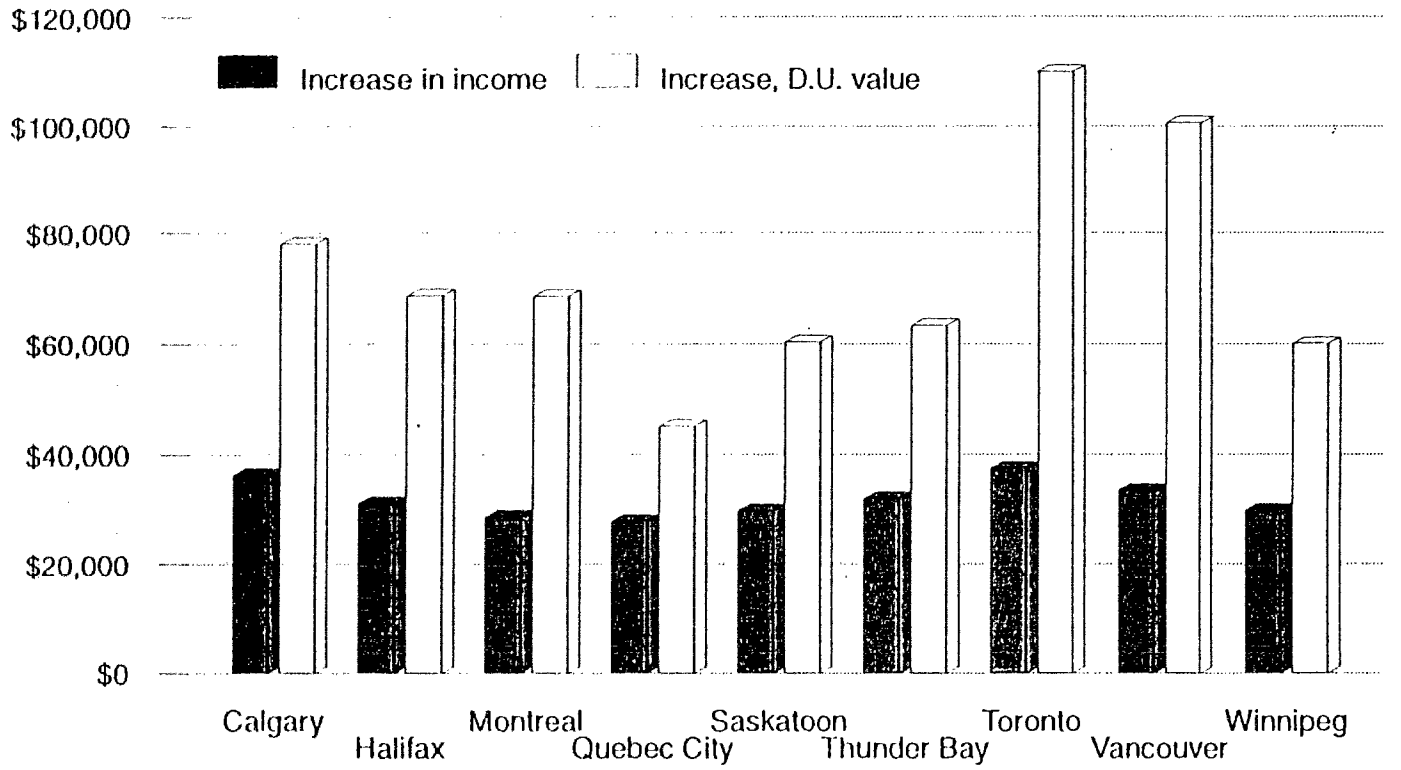
One of the most compelling pull factors in non-metro

areas is the affordability of housing compared to metro areas. Housing within cities in Canada and in many other developed countries has become an expensive commodity as the value of location has progressively increased over the past few decades, particularly in relation to job concentrations, services, and other amenities. Figure 5.2 compares the increase in average dwelling unit prices with the increase in average family income during the study period in the selected CMAs. Plainly, housing prices increased more rapidly within CMAs than income. Faced with the increased proportional cost of housing, Canadians looked for more affordable housing alternatives. Among the alternatives was to substitute a long distance commute for less costly housing in more remote areas.

Figure 5.3 shows the Canadian real new house price index for census years since 1941. This data suggest that 1976 was a high point in housing prices compared to consumer expenditures in general. As the relative costs of housing peaked in 1976, housing in non-metro areas became more attractive. Affordable housing for many people could only be obtained in places more removed from the city.

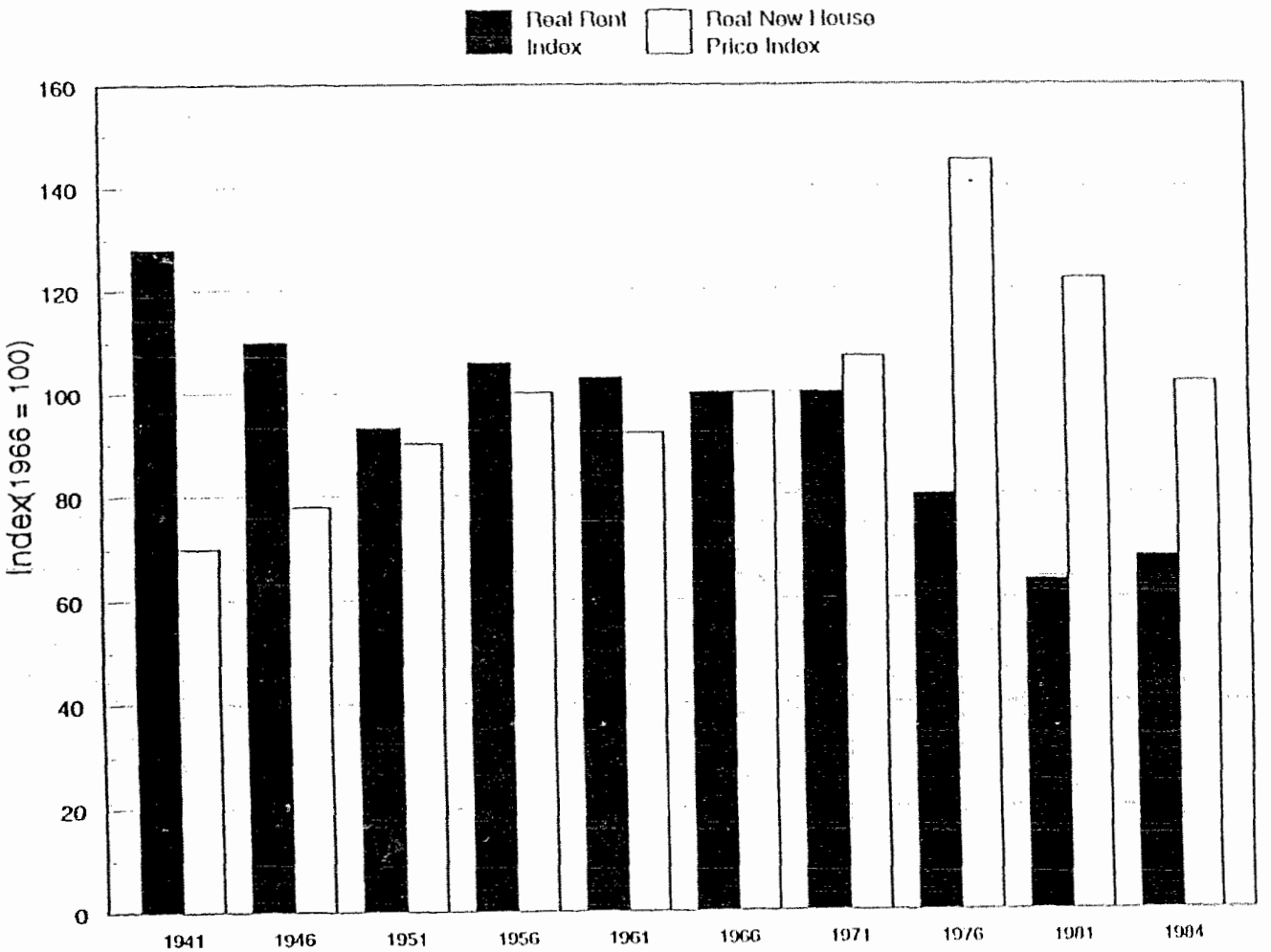
Changes in lifestyle and housing preference have changed in the early part of the 1980s. The increased popularity of townhouses and other multi-family high density housing options has become an attractive low cost alternative which can be accommodated within the land base of cities. Higher density housing has become a reality both in the city core and in the

Figure 5.2
Increase in average family household income and average dwelling unit value, 1971-86



Source: Compiled from Census data, 1971 and 1986.

Figure 5.3
Real Housing Prices and Rents
Canada, 1941-84



Notes: 1. Real rent is the rent component of the Consumer Price Index divided by the consumer expenditure deflator

2. Real new house price index is the nominal house price index divided by the consumer expenditure deflator. Nominal new house price index calculated from Statistics Canada's quarterly New House Price Index, linked at 1969 to the average cost per square foot of NHA singles and at 1952 to the Residential Building Construction Input Index.

Source: CMHC, 1989

suburbs. Thus, non-metro areas seemed to offer an alternative to high housing prices in the CMA during the 1970s, but during the 1980s the housing market in cities produced affordable housing opportunities with higher density, lower cost units closer to work.

j. Non-metropolitan growth rates have been affected by cities' or regions' planning responses to growth pressures on the periphery.

An explanation of the differing inter-regional rates of deconcentration or decentralization, particularly between Montreal and Toronto can be found in their planning responses to growth pressures on the city's periphery.

Hoffman (1982), Bryant and Russwurm (1982(b)), and in particular Furuseth and Pierce (1982), and Pierce and Furuseth (1982), have documented various strategies used to control development in North American non-metro areas. In B.C. and Quebec, and in particular the area south and southeast of Montreal, zoning practices have controlled non-farm, non-metro population growth by direct intervention in the land market. The effects have been to preserve land for agriculture and related uses, but to divert population growth to non-agricultural areas of the province. This is evident in the Montreal areas, as illustrated by figure 4.9c, where non-metro growth nodes occur in the northwest of the region, in the Laurentian mountain ski and hiking areas. Restricting non-metro development in agricultural zones has in part

promoted population growth in other remote areas, perhaps in a "leap-frog" fashion, where development has jumped over non-metro areas that were more accessible but could not be developed due to provincial preservation measures.

Generally, non-metro population growth has followed a different pattern in the area around Toronto. Although ad hoc severance controls including differential taxation programs for farmers have been instituted in an attempt to reduce haphazard development and rapid land conversion to built up uses, non-farm non-metro population growth has followed a spillover pattern as the city of Toronto grew and demand for land for residential development within commuting distance of the city grew in proportion. In the absence of restrictive zoning for agriculture, farmers faced with the rising costs of maintaining farms on the urban frontier sold land to residential and commercial developers, thus perpetuating the land conversion process. Spillover growth has been a prominent feature of the Toronto non-metro area over the study period, generally due to the less restrictive environment for development.

The two largest regions in Canada, therefore, have developed different non-metro growth patterns. Non-metro development in Montreal follows a more deconcentrated pattern due to development restrictions in the less remote agricultural area. Toronto, on the other hand, has seen most rapid non-metro growth in the adjacent periphery in the form

of spillover growth mainly because of less restrictive severance and land conversion policies adopted by provincial and municipal governments.

Although one of these causes cannot, in isolation, explain why non-metro growth occurred at times in the study regions, they can combine to explain many of the regional growth patterns seen in the results. Non-metro growth was generally the result of an extension of the urban field into the surrounding area, due to regional decentralization, changes in residential preferences, and changes in the distribution of employment between metro and non-metro areas.

Key points in this discussion can be summarized as follows:

- Economic recession seems to contribute more to urban population growth than non-urban growth, or at least metro areas seemed to show disproportionate growth during the recent recession. Population growth in the study CMAs was much stronger during the recession years than in the non-metro area.

- Lifestyle change has led to population growth in non-metro areas most amenable to recreation and/or retirement use (such as Whistler, Sylvan Lake, second home settlements along Georgian Bay and Lake Simcoe and the Laurentian mountains

northwest of Montreal), rather than universally across all remote areas.

- Decentralization policies seem to have been successful in pushing metro frontiers outward, sustaining suburban growth and promoting population growth in metro areas closest to the city. These policies, in combination with constant improvements in transportation and communication systems which have reduced the impediment of distance for commuters, have led to further growth of the functional metro region into the surrounding periphery.

- Localized industries provided the population growth impetus for some remote areas, but this growth was isolated mainly in towns servicing the resource economy. Energy resource development contributed greatly to the population growth of Alberta and B.C. during the seventies (as Bourne and Simmons and Yeates point out), but most of the impact was seen in metro areas. Calgary's metro population grew by over 60 percent between 1971 and 1986.

- Large regions, especially Montreal, seemed to have a greater incidence of non-metro growth in their periphery. Although negative aspects of city life such as crime, pollution, noise, racial conflict and others most often mentioned in the American literature are contributing push factors for urban to

rural emigrants, Canadian cities are not affected as much as the larger American cities. The cost of housing seems to be the most compelling push factor affecting the urban to rural migration flow.

- Structural change in employment seems to have adversely affected population growth in non-metro areas, except for the service sector employment associated with recreational activity. The non-metro periphery of Saskatoon, Winnipeg, Quebec City and the area south of Montreal continue to lose population due to primary sector gob loss, either through emigration of excess agricultural workforce to jobs in the city, or through loss of service sector jobs related to low growth primary sector industries. In contrast, tertiary and quaternary employment growth has been strongest recently, and those jobs are increasingly concentrated in the largest cities. Also, the decentralization of manufacturing from major cities into non-metro areas has not been as significant in Canada as it has been in the United States throughout the study period.

- The housing/income gap widened during the 1970s in Canadian CMAs, forcing people to look for affordable housing in areas farther from the city. Recently consumer preference has changed favouring higher density housing (townhouse, condominium, apartment) in both core and suburban places

within the metro area, which satisfies the need for reasonably priced housing without having to trade-off distance from work.

Conclusion

The purpose of this thesis was to examine the growth characteristics of non-metro and metro areas within regions of Canada, compare them with similar analyses in the United States and other developed countries, and understand the changes in population redistribution between metro and non-metro areas since 1971.

The results from this thesis are not directly comparable to the rural/urban change data shown in figure 1.1. While urban areas are defined by Statistics Canada as areas which have population density over 1,000 people per square kilometre, metro areas are defined functionally by commuter flow from the surrounding region. The metro/non-metro classification was used in this analysis because the metro area includes not only the densely populated urban core but also the less densely populated rural areas in the labour shed. Non-metro areas in this analysis, therefore, are not part of any urban core or its labour shed. By using this classification scheme, population growth in both urban and rural areas included in the labour shed of large cities (which is seen as continuing urbanization), can be measured against growth in more remote non-urban areas expressed as population dispersal, deconcentration or "counterurbanization".

The findings in this analysis suggest that from 1971 to 1986 population growth in non-metro areas was strongest in the late seventies. The growth typology noted in the results illustrates that growth patterns varied substantially among the selected regions. It was found, however, that many regions showed stronger non-metro growth between 1971 and 1981 than metro growth. Importantly, the three largest regions studied (Toronto, Montreal and Vancouver) had superior growth rates in their non-metro area than in their metro area during 1971-76 and/or 1976-81. This fact suggests that city size is related to non-metro growth in the city's periphery. Urban size seems to be a factor related to non-metro growth, at least in terms of the nine regions studied here.

The highest non-metro growth rates occur in the less remote category, namely the 100 km group of CSDs. This is true for the collective national sample and for almost all of the separate regions. More specifically, CSDs within the 100 km group that were adjacent to CMAs grew much faster on average than the remainder of non-adjacent CSDs in the group. Also, newly classified CSDs from non-metro to metro after 1981 had the highest growth rate on average than any other classification in the study. This fact confirms that suburbanization continued to be the dominant growth process during the study period, since fringe metro areas grew at such a rapid pace.

Regional growth patterns suggest that much of the

non-metro growth from 1971-86 results from spillover growth, or, according to Joseph et. al.'s description, growth caused by the population expansion of metro areas into surrounding areas. As the threshold for metro inclusion is reached, adjacent non-metro CSDs become part of the CMA. The spillover growth explanation, similar to the expanding urban field hypothesis, implies that the non-metro growth rate is fuelled by the continuing process of urbanization, or urban and suburban expansion, but on a broader scale.

In the United States, many analysts saw that in addition to accelerated growth in adjacent non-metro areas there was a distinct group of counties in remote areas that had reversed from population decrease to increase, and had grown faster than the metro areas during the 1970s. Growth in this group represented a new trend, which was labelled "counterurbanization".

Canadian data for 1971-81 seemed to point to a related phenomenon. For the first time since 1871 the rural share of the national total population increased. Parenteau interpreted the change as the beginning of a similar trend as noticed in the United States. Joseph et. al.'s more recent analysis, however, illustrated that a large proportion of rural growth could be attributed to reclassification effects between censuses, and that the magnifying effect of reclassification was particularly influential for the 1976 to 1981 period. They concluded that rural population growth was

strongest nation-wide in areas closest to urban centres, and that the rural growth should mostly be attributed to spillover growth from expanding urban regions.

This analysis supports Joseph et. al.'s conclusions. The results of a comparative growth rate analysis using a metro/non-metro area type classification did not reveal a strong growth rate increase in the more remote non-metro area that could be called a new long-term trend, with the exception of the Montreal region. Growth in remote areas was generally isolated and the rate did not increase on average in most regions competitively with the less remote group. In contrast, population growth in most adjacent non-metro CSDs was often higher in relation to many metro CSDs.

The exceptional case in this analysis is the Montreal region. Non-metro growth, in both 100 km and 200 km areas, is consistently higher than the metro growth rate over the study period. This is partly because inner city population decline has been such a prominent feature of metro population change in recent years. This feature stands out in the regional distribution of growth shown in figure 4.9c. The growth in the non-metro area is typically high in areas adjacent to the CMA boundary, which conforms to the pattern of spillover growth. Importantly, however, there is a distinct group of fast growing CSDs which are not adjacent to the CMA boundary, and on the fringe of the maximum commuting range. This group is prominent in terms of the overall growth increase in the

100 km area.

Analysts studying Quebec have noticed a particularly strong non-metro growth rate in the peripheral areas around Montreal (Brunet, 1983; Termote and Mongeau, 1983). They have referred to it as "peri-urban" and "ex-urban" growth, and they link the growth tc many of the causal factors mentioned in the U.S. research on "counterurbanization". For example they illustrate that the non-metro area northeast of Montreal has greater population growth than other areas because it is an area compatible with peoples' desires to recreate and retire in rural settings. Brunet suggests that agriculturally dominated areas inhibit population growth, because efforts to preserve the areas for agriculture such as restrictive zoning and land reserves work against non-farm immigration. The northern non-metro area is also accessible through an existing and improving rural road network, and studies show this is an attraction for "ex-urbanites" wanting to relocate in a more rural setting (Russwurm, Bryant, McLellan 1982(a)).

Although this type of non-metro resettlement shows up to a limited degree in the other regional analyses, the dominant settlement feature is the continuing expansion of the metro areas into the surrounding countryside. This happens within various regional contexts. For example Calgary's non-metro population growth takes place within a context of rapid population growth in the metro area in all census periods during the study. This is in contrast to Montreal, in which

non-metro growth surpasses growth with the metro area consistently. In Saskatoon metro growth is substantial, but spillover has not offset continuing population decline in agriculturally dominated peripheral areas.

This study suggests that there were elements of "counterurbanization" that occurred in the study period. Non-metro growth did outpace metro growth on a regional basis, but not on a national basis. Most often, the most remote areas grew at a lesser rate than the areas adjacent to major urban centres, suggesting that while remote growth did occur it was episodic both spatially and temporally, compared to strong growth in the fringe typical of spillover and urban expansion. The "counterurbanization" seen in the U.S. and some parts of Europe does not seem to be suited to Canada, probably because the national urban fabric is not as developed. Canada does not have a well developed network of lesser urban centres to support the service needs of a wider deconcentration of population. Therefore, non-metro growth is mainly experienced in fringe areas of established urban areas, where land is still available and increasingly accessible. The study cautions, however, that the pervasiveness of population growth in non-metro areas adjacent to large cities and their labour sheds should not be mis-interpreted as a broad scale redistribution of people from the cities to remote non-metro areas. Further, growth in remote CSDs, during the study period, is not equivalent to the remote non-urban growth

experienced in the United States during the 1970s. Rather, in Canada, the most remote places have grown at a generally lesser rate than urban places and their adjacent peripheries.

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