STRUCTURE AND PROCESS IN THE EVOLVING HUMAN GEOGRAPHY OF ONTARIO 1831–1991

To elucidate an apparent long-term propensity to spatial centralization in the Province of Ontario, a novel regional division into sixteen units is proposed for clarifying the spatial structure of and current tendencies in settlement, transportation, and urbanization. Data sets were compiled of the total population count and defined urban population for each region at each decade from 1831 through 1991. The regional system is analyzed graphically and numerically for indications of relative long-term trends in the various parts of the province. The analyses suggest that, first, the Province of Ontario can be usefully regarded as having developed into four zones or categories of regions: Core, Semi-core, Semi-periphery and Periphery, each zone displaying distinct growth records and current trends. Second, a posited centralization process has been concentrating growth primarily in the dominant Core, which is approximately Greater Toronto, since industrialization began in the 1870s, and has been accelerating since about 1961; but the four Semi-core regions have also grown, if only so as to maintain their proportional share of the total population. All other regions have been losing share, some quite rapidly. It is suggested that a dominant cause of the recent intensification of the centralization process has been the expansion of the freeway system in Ontario and North America generally.

Once upon a time the principal objective of human geographers was the comprehensive synthesis of every portion of the earth's surface, interrelating the lives of resident human populations with the natural-geographical facts of life in their respective regional settings (Hoekveld 1990). To have much hope of success—that is, to be seen as tolerably plausible—any such attempt required a very comprehensive observational and informational knowledge base of the selected area, of its developmental history, and of its broader context (which might be termed geopolitical nowadays, though not forty years ago). Even more important, such a synthesis would have to be presented in terms of some distinct organizing or analytical principle(s) by which the available masses of information might be reduced to comprehensible patterns. The masters of traditional regional geography are still read for their sweeping perspectives and sharp insight into the essential character of their subject areas, despite obsolete particulars.

The paper herewith is an attempt to follow in this regionalist tradition substantively (not necessarily ideologically), based in part upon the presumption that the author's nearly four decades of research into one or another aspect of the human geography of the Province of Ontario, as a region, might more or less adequately fulfill the knowledge base qualification. The organizing principle, that of persistent centralization, is discussed below. This paper is intended to be more suggestive than definitive, since it was not conceived with any particular end-use in mind, but rather as a contribution to a better understanding of Ontario as a dynamic geographical entity.

Would-be regional specialists have always been faced with the need to acquire near-encyclopedic substantive knowledge before decent syntheses might be undertaken; but
such information takes years to acquire. Much elapsed time is also needed for real-world empirical tests of postulated large-scale spatial processes, which may proceed at such a glacial pace as not to be readily captured by, say, one intercensal comparison. Partly in consequence of this need for time, many geographers have since 1960 tended to see the way of the future to be with innovative technical/analytical specialisms, each of which has been promoted as promising to reveal quickly the jewel in the heart of the lotus, as it were – some ultimate key to understanding human mass spatial behaviour (cf. Goodchild 1992). Beyond of course pursuing technical knowledge per se, the ulterior goal of these experts, as of most technocrats, has been predominantly that of devising some elegant method (as in the Keynesian interventionist tradition) of managing spatial behaviour for ameliorative purposes.

But if such empirically-derived spatial laws or principles are to be actually applied to real-world entities such as states and provinces and the results of such applications appropriately monitored and audited, there must however be devised some sort of disaggregation of those polities into meaningful geographical divisions: it is improbable that any single central aspatial parameter (such as the central bank rate manipulated to control the total economy, or a universal minimum wage) could manipulate spatial maldistributions so as to mitigate unacceptable spatial inequalities, or so as to modify ongoing trends in spatial change.

For disaggregation of course read regionalization, i.e., subdivision of the polity in question into spatial component parts: because commonly-used aspatial statistical categories, such as "cities over 10,000" often conceal major spatial irregularities (cf. Bollman 1992). Spatial disaggregation may of course be done expediently by means of any arbitrary regionalization, to serve a need of the moment, or to address some narrowly defined problem, or to support or refine some current and urgent issue-driven policy. On the other hand, a disinterested, comprehensive and insightful regional study and analysis such as proposed here may well turn out in the end to be more broadly helpful for politically utilitarian as well as for educational purposes.

Ontario has certainly not been ignored over the past five decades. It could hardly have failed to be the subject of many overview studies, given the nearly six decades of academic geography in the province, and just as long an official interest in planning (cf. Yeates 1963), not to mention the massive increases both of geography departments and practicing professionals, after 1960 especially. Many publications which have appeared in the past half-century have influenced the conceptual base for the present paper. One of the earliest general interpretative overviews (not counting school texts), published by Griffith Taylor half a century ago (Taylor 1945), can still, in retrospect, be quite instructive; Taylor was often spectacularly wrong, but in stimulating ways.


The specific concept of geographical "structure," presented here is an elaboration of a short paper written in 1991 (Wheell,
1992a), in which the key to regionalization is based principally on that argued by the author twenty-five years ago in an article on "Corridors" (Whebell 1969). Southern Ontario was used as the holotypic region, as it were, to support an argument for recognizing that certain routeways, together with the towns and cities engendered along them, had consistently provided the spatial basis for the greatest part of the Province’s non-farming economic activities after c.1840, through the era of canals and railroads. These pathways were posited to constitute a set of permanent and frequently-reinforced linear structures of fixed investment that continue to underpin the province’s economic and demographic evolution. The corridor alignments then presented were defined (as of 1960, actually) on the basis of then existing rail services and motor vehicle traffic on ordinary highways. The present era of freeways was just dawning, as it were.

One problem with this particular corridor concept that now emerges, thirty years into the freeway era, is a certain obsolescence from its being formulated on criteria which obtained at one particular historical time, at the end of an era, in fact. Even at that time the corridor system was undergoing structural change, quite rapid in historical terms perhaps, though not so fast as to be very readily detected in "real time." The evolution since 1960 of the provincial freeway system, and for that matter, the U. S. Interstate system with which it connects, combined with the economic restructuring that followed

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**Figure 1:** Selected Physical Features Related to the Evolving Macro-structure of Ontario

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the 1973 oil shock, seem to have amply confirmed the posited propensity for urban-economic development to reinforce at least the most efficient of the old corridor pathways. Given the very significant and far-reaching changes in the Provincial space-economy since 1960, through boom, inflation, and bust, and now with the geopolitically significant North American Free-Trade system approaching, it is certainly time that the concept be reexamined.

The narrow lines of the 1960 "corridors," even when generously interpreted, do not take in nearly enough territory properly to accommodate the functional space required by the core activities of the busy economy. To be sure, most of the social and economic interaction within the settlement system indeed does take place between and within cities along these belts; the gravitational principle would ensure this. But the influences of corridor towns and cities of course increasingly extend laterally away from narrow transport corridors, into essentially rural landscapes: consider as only one example, the increasing commuting radius around any city, especially those very active ones located at major nodes of the most efficient transportation belts (cf. Coppack and Preston 1988, 98). Quantified measurement of what has been happening in various parts of such a spatially defined system is an intricate business, to say the least: few data are made available by the collecting agencies on such a fine mesh. But generalization at the other extreme, as in the national-scale, even continental-scale concept embodied in the "Quebec-Windsor Corridor," cutting across the two major polities of Canada (Yeates 1975 and later), is here

![Map of Major Urban Centres and Selected Main Line Railroads as of 1911](image)

**Figure 2:** Major Urban Centres and Selected Main Line Railroads as of 1911
considered to afford insufficient clarity for an overview of the many important variances and disparities that exist within a large province, and which can be readily noticed from ground traverses.

Official information would normally be most easily managed on the basis of units aggregated from Census Divisions (hereafter CDs), of which in Ontario there are forty-seven counties and equivalent entities, though there have been considerably more in the past. But these present their own problems of time-series geographical interpretation in consequence of the largely *ad hoc* nineteenth-century process of their territorial formation and growth by accretion. On the other hand, to work mainly with some thousand or more Census subdivisions (CSDs) — which in Ontario consist of both urban and rural incorporated municipalities, the latter being normally coterminous with survey townships having a modal size of 100 square miles — while offering an apparent gain in precision, definitely increases "noise," in terms of any useful delineation of functional regions with long-term significance.

What seems to be needed to flesh out the skeletal structure of the corridor system is a set of areal units which would on the one hand fairly reflect the spatial-economic reality of the contained linear systems of the corridors proper, but also be of convenient help in understanding the complex ways in which the whole Provincial economic and social landscape has been undergoing change, not just within those linear structures, and not just in past decades and eras, but actively, today. Such a set of regions, by presenting a comprehensible portrait of the consistent areal contrasts in the geographical development of the province ought to help clarify the essential core-periphery dichotomies in the Province — that is, the persistent and increasingly obvious contrasts between those parts that have been and are still undergoing notable demographic and economic growth and those that are falling behind, into dependency.

**METHOD**

Many years of research by the present author into the origins of the Ontario county system, which has long also served as the first-order division for official statistics, has led to a fairly acute awareness as to which of these units have truly reflected a local community of interest, at the time of their creation as well as since, and which ones have not — in other words, which counties (or parts of some counties) might be construed as "organic" communities, as opposed to others whose territorial extent originated from mere administrative expediency during the nineteenth century. Some of these latter CDs (for example, Hastings and Renfrew) contain large proportions of virtually uninhabited land and consequently as chorographic mapping units conceal more than they reveal. Other CDs, such as Waterloo and Essex, were formed and continue as compact and coherent communities. Further, as a class, the CD units are rather too numerous (nearly 50) to provide the less cluttered picture which is made possible by a smaller number of regional units. In grouping CDs, then, a strict adherence to county lines was not thought to be necessarily helpful; though departure from them was not to be taken lightly, either, since it inevitably means a lot more arithmetic, and was undertaken only in order to enhance the internal coherence of regions.

In the event, the map of the entire province was divided into what is considered a meaningful set of sixteen units, based on the physiographic conditions (Figure 1) and related broad land-uses of past and present, on the establishment of transportation (corridor) systems, and on the associated locations and relative growth of urban
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In Northern Ontario proper, not dealt with in detail in this paper, the almost complete dependence of the settled population on only a few routes and nodes practically dictated four obvious divisions. One anomalous additional region is comprised of the Canadian Shield portions of five counties, and was devised largely to exclude from those counties’ agricultural ecumenes their largely unpopulated and dependent common hinterland. The resulting total number of regions, sixteen, is considered to be the smallest number of realistic divisions which can appropriately comprehend the diversity of the physiography and dynamic human settlement system of the province.

Ultimately, of course, the sixteen divisions used in this analysis were arrived at through "intuition" — or, more pedantically, a non-rigorous amalgam of information, inference and intention; the resulting disinterested judgment, however, is not an uninformed one. To a considerable extent, the mind-set brought to the problem has been cumulatively influenced by the work of Unstead (1949) and Kerridge (1993, frontispiece map) on England, Monkhouse (1959) on Europe, Tweedie and Robinson (1962) on Australia, and the USDA (1969) on the United States, as well as those authors specifically cited

![Figure 3: The Structure of Southern Ontario Expressed in Special Regional Units](image-url)
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Figure 4: Total Population Change 1831-1991 by Sets of Regions
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If there is however a single concept which pervaded the construction of this eclectic and perhaps heterodox partition of Ontario, however, it must be the perception of a "commonality of historical experience," and especially of economic experience. Though the sixteen divisions are to a substantial extent founded on physiographic factors, their present characteristics derive from myriad individual location decisions, most of them on socio-economic grounds, and not merely under initial conditions of settlement based on raw land-use possibilities (Matthews 1956). Subsequent decisions become of course, over time, increasingly dependent on preceding decisions, and therefore less directly on the background land-use capabilities: in other words, the patterns result from a cumulative causation keyed to repeated reinforcement of early routeway development. The persistence of geographical patterns thus becomes in a double sense, "path-dependent" development (cf. David 1993). But, with all this in mind, the regions are finally based on the late twentieth-century patterns into which the human geography of the Province appears to have firmly settled.

It is considered that any arbitrariness in the delimitation of the regions, being nearly all concerned with edges, does not vitiate an analysis based on populations, at any rate. Given the locations of the major and middling towns of the Province, and the fact that today Ontario’s urban population overall reaches above 84 percent of the total, the further addition or subtraction of one or two entirely rural townships here and there hardly affects the proportional relationships amongst the regions. When dividing a county seemed necessary, the line was drawn at about two townships’ distance from any major corridor town -- say 30 to 40 kilometers -- to accommodate the greater part of the presumed urban shadow and commuting zones. Dahms (1988:171) found that in western Ontario (including the northern part of the "Western Heartland" as defined here) the usual commuting range was about a half-hour’s driving time; and this author’s observations, though unsystematic, suggest that this is probably normal for most of non-metropolitan Ontario. Ignoring the urban municipal boundaries within regions, as mentioned, removes much statistical "noise," derived from the problem of defining "rural" in the context of the nearly universal phenomenon of progressive urban overspill (see Champion 1989; Garreau 1991; Teaford 1993; Bordessa and Cameron 1993). In other terms, the technique has the effect of minimizing problems of historical interpretation related to the "perimetropolitan bow wave" (Hart 1991) and its cognate around lesser cities.

This system of sixteen units, then, delineated to reflect the province’s persistent pattern of major transportation and urbanized alignments (corridors) versus (mainly by exclusion) its more marginal areas, with names applied to connote either some salient physiographic context of initial and continuing significance, or else the region’s present functional significance, constitutes the "structure" referred to in the title of this paper.

Now about "process," as respects spatial change, growth and development (and any number of synonyms one likes). Over almost its entire settlement period since perhaps 1841, Ontario has as a whole consistently exhibited a definitive tendency -- a "propensity," as Popper (1990) might put it -- towards concentration of growth into one or (at

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best) a very few geographically nodal areas. This is not in itself any new discovery: Edward Ullman some forty years ago observed that "Concentration within countries is the rule" (1958 196). Nor is such large-scale process by any means unique to Ontario; it is manifest in many if not most other present-day polities which have undergone or are undergoing modernization on the European pattern: classic examples of this process appear in Australia (Australia Parliament 1992), as well as in Africa (Ankerl 1986) and elsewhere (Findley 1993; Barker and Sutcliffe 1993). Geography and planning literature is full of discussions of this phenomenon from one standpoint or another, under various explicit or implied headings (see Anderson and Papageorgiu 1992; Santley and Alexander 1992; Hill and Negrey 1991; Coppack and Preston 1988; McCann 1982).

It is here contended however that Ullman's term "concentration," although descriptive of the result, does not carry enough depth of meaning for this inherently spatial/propensity, which though basically economic in nature has enormous social and political implications for the modern state. An adequate
suggested label would be "recursive centralization" — meaning the historically long-sustained, self-reinforcing, irreversible, and even accelerating concentration of population, wealth, and political power into only a small fraction of a polity’s geographical area. Where there is but one urban major node in the polity, this metropolitan core becomes absolutely dominant in almost every way — in spite of whatever programs or policies that may have been implemented to divert some of the increment to slower-growth portions of the polity, so as to mitigate unacceptable social and economic disadvantage. Polities not far from Ontario which, on preliminary inspection at least, also manifest this monopolar propensity include Manitoba, Minnesota, Michigan and Wisconsin.

The regional divisions presented here are intended to help sharpen the focus on this process in one particular polity — the Province of Ontario. The indicator data sets collected for the purpose are, first, that of regional population totals for each decadal census year from 1831 through 1991, with a few equally simple derived statistics. Second, an aggregate total of the urban population for each region was also prepared, for 1851–1991. A discussion of the sources of these data is offered in Appendix A, including

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**Figure 6:** Space-time Urban Dynamics, 1851-1991: Changing Regional Shares of Total Urban Population
definitions. Although more explicitly economic data, such as some indication of wealth, ought in principle to show the evolution of even sharper core-periphery contrasts, these are much more difficult to obtain on such a disaggregative basis for assembly into "longue durée" series. However, even simple population data can be in themselves highly suggestive of causes of long-term change (if somewhat indirectly); and also such data must play a necessary part in any more elaborate study. Moreover, since population totals are universally available statistics, they can provide useful baselines for inter-polity comparisons.

The data sets resulting from the compilation of official data was subjected to very simple exploratory graphic analysis (Tukey 1977, p157): semi-logarithmic and box (or 100 per cent–area) graphs. These were followed up with some equally simple tabular analysis of derived data, to determine how the Province's net growth has been distributed in each decade.

RESULTS

Initial inspection of the semi-logarithmic graph (divided into three components to minimize confusion: Figures 4a, 4b, and 4c) in which all sixteen regions are plotted over the whole time span, showed clearly that during pioneer agrarian expansion, the Core grew as fast as any region but without being numerically dominant. On the backside of this initial settlement wave, however, some pioneer regions that were acquiring secondary industries only modestly if at all, began to show sharp relative decelerations and absolute declines, while the Core not only continued to grow but accelerated.

The decadal growth rate of the Core overall has been roughly consistent from about 1871 to the present, but higher than that of the Province, with only minor fluctuations over those 120 years. Three periods of acceleration of Core growth are clearly evident after 1861, which marked the essential completion of the structural system in the south: from 1871 through 1891, 1901 through 1931, and from 1951 to 1991. This unit has held the largest regional population since 1891, and its rate of increase has been rarely matched by other units in the agrarian south, and then of course on much smaller number bases. The Core unit currently holds some 40 per cent of the total population. Its dominance is both historically deep-rooted and not only remarkably persistent, but has been in fact steadily increasing throughout the twentieth century.

It is also clear that though less buoyant than the Core, three other urbanizing regions have generally kept pace with the provincial average, and so maintained their proportional share. These (Horseshoe, Western Heartland, and Ottawa Valley) are included with the Core and the Provincial total in Figure 4a; also included is the Georgiana region, which though still mostly agrarian and of small population, has long been intimately connected with the Core by an intensively–used corridor, is heavily developed for metropolitan recreation and retirement, and very recently, has been coming under exurban residential overspill. These four are collectively termed the "Semi–core" in subsequent discussion.

A third set of six regions (Erie Shore, Southwest, Huron Upland, Trent Valley, Ontario Shore, and St. Lawrence) shown on Figure 4b is comprised of all other basically agricultural regions. The last two mentioned were the earliest to be comprehensively settled (beginning in 1784), but stopped growing once the primary land colonization had peaked (by 1861), and thereafter have remained stagnant or declined until World War II; their increases since then, as in all this group other than the Southwest, have been meager. The Huron Upland, still almost
completely agrarian, peaked in 1881 and thereafter declined quite rapidly (partly owing to the opening of the Canadian prairies to settlement). Only the Southwest has shown...
much growth tendency in the twentieth century, largely as a result of automobile manufacturing and petrochemicals; but the post-oil shock restructuring, as elsewhere in the "Rust Belt" has slowed its growth so that it now falls well behind the provincial rate, let alone that of the Core. All these units, though well-settled, are basically only holding their own: despite modest growth in the last two decades, they have still tended to lose share. These are termed the "Semi-periphery."

Penultimately there are the four northern regions, which started very late in the colonization sequence, and whose areas, being on the Canadian Shield, contain only a tiny percentage of agricultural land, mostly marginal at that. Collectively their growth curves have reflected the boom and bust periods associated with extractive industries, which in the past two decades have been declining absolutely (Figure 4c). As a consequence of the economic base, the North is highly urbanized. This set of four regions is contained in the "Periphery," used in the classic sense of the term. Last, and included with the four in this zone is an anomalous region, the Southeast Shield, which is far from remote, touching as it does on four well-settled regions, but is nearly unpopulated. The absolute dependency status of this last region is clear, despite its necessary use as a transit region, and despite also a considerable amount of recreation and tourism, functions which have not proved able to support much permanent population.

Figure 5 (a 100-per-cent area graph), which establishes a comprehensive snapshot of the space-time dynamics of the Province over the entire time period, shows each region’s population relative to the total, at each decadal census. In addition it shows, nesting within the Core Region as subtotals, the City of Toronto, incorporated as such in 1834 (though its population as an unincorpo-

rated town was reported in 1831), and Metropolitan Toronto municipality. The latter was formed under Provincial law in 1954, coercing the City of Toronto, which had ceased to expand by annexations before 1921, and the various units that had come to comprise Toronto’s suburban collar, to join in a quasi-federal structure. For this unit (not a region as such), the total population for the territorial area now Metro was compiled by aggregating at each decadal report all Census subunits which occupied that space outside the City of Toronto boundaries at the time. The Provincial total population at every alternate decadal point is indicated numerically, in millions, along the upper margin of the graph.

On this type of graphic, a widening of a region’s band indicates an increase in its proportional share of the Provincial total, while a narrowing band indicates decreasing shares, including of course those occasioned by absolute losses. The upper line of the Core (A) area, and, as nested subsets, the lines of the City and Metro, can be read against the Y-axis scale as showing their rates of gain in share; but for all other regions, only band-width is meaningful.

This graphic shows that though the Core as a whole lost share during the great agrarian settlement expansion of the nineteenth century (during which Regions D and G in particular gained substantially), the City of Toronto itself steadily if modestly gained in share of a provincial population which had increased eight-fold by 1881. These early losses in share by the Core came therefore from its rural component – see the narrowing band of the area of the Core especially outside the Metro unit – and indicates that the counties adjacent to Toronto were among the first to feel the depopulation pressures of modernization (cf. Watson 1947). Conversely, since 1951 the Core as a whole has gained more rapidly than has...
Metro Toronto, which has lost share since 1971, as had the City before it, from about 1921. This detail of course reflects boundary stabilization – first the City, which annexed very little additional area after 1912, and then, after 1954, the Metro area. With territorial satiation follows the usual land-use intensification and rural population displacement – the "bow wave," – which in the later decades of this century has begun strongly to affect adjacent regions, notably Georgiana.

Two regions contiguous to the Core – the six regions of agricultural southern Ontario (the "Semi-periphery") have all been losing share during this same time, even since their mild turnaround after 1971. The rapid expansion of the four Northern Ontario regions from late in the nineteenth century reached their combined peak share in 1941, at nearly 14 per cent; this has declined to just under 9 per cent, involving absolute losses of population in some sub-units.

The same graphic treatment was applied to the defined urban populations of the regions (Figure 6). This data series begins in 1851;

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Table 1: Distribution of Growth Quanta by Decade 1831-1991, by Core, Semi-core, Semi-periphery and Periphery: Sectional Shares of Total Population Change by Decade

Horseshoe and Western Heartland – as well as the Ottawa Valley (these three with Georgiana grouped as the "Semi-core") have shown a remarkable tendency to maintain share in the twentieth century. But the other because systematic urban incorporations began only in 1850, there are too many empty cells in the data set for it to be meaningful any earlier. Even though the Core has been some 95% urban since 1961, it nearly doubled (94.8%) its urban population.
absolutely from 1961-91, to constitute 45% of the Provincial total. The Provincial urban population increased by three-quarters (76.5%), and in the four Semi-core regions by 90%; this zone now includes almost one-third (34%) of the urban population. In the Semi-periphery and Periphery the rates were 32% and 34% respectively; these zones now hold 13.5% and 7% of the urban total.

The last data manipulation to be discussed is the derivation of the percentage share of each absolute intercensal provincial increase which went, in effect, to the four zones. These data should indicate particularly whether there is any propensity for the Core to increase its relative rate of gain. Since all figures are net changes and not actual migration counts, each number is to be understood as a change equal to that percentage of the quantum of net provincial growth for that decade; occasionally, numbers are negative, resulting from population loss. In such years the other, positive numbers are thus somewhat inflated, especially when the Provincial absolute growth is very small, as in the decade 1891–1901.

Table 1 indicates the distribution of the absolute overall growth for each decade 1831–1991, amongst Core, Semi-core, Semi-periphery, and Periphery. It is noteworthy that Ontario’s net increase mostly fell, decade on decade, during the latter half of the nineteenth century, and began to rise only after 1901. But the share garnered by the Core picked up even earlier, by 1891 and -barring the depressed 1890s, for which the Core percentage is inflated by the heavy

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Table 2: Distribution of Urban Growth Quanta by Decade 1851-1991, by Core, Semi-core, Semi-periphery and Periphery: Sectional Shares of Absolute Urban Growth by Decade
losses in the Semi-periphery- has continued to take up by far the largest portion of the available growth. Indeed, during the thirty years 1961–91, the Core twice received half of the Provincial net total. In the same thirty-year period, the Semi-core collected over one-third of the growth; so that the two categories together have consistently accounted for four-fifths of the overall increases of the Province.

Table 2 shows in similar form the regional shares of urban growth, beginning with the 1851–61 decade. As before, the Core takes the lead after 1901, exceeding a 40 per cent share in seven of the nine decades, reaching 58.2% for 1981–91. In this same century, the Semi-core has exceeded 30 per cent in six of the nine decades, and in the last three, 35 per cent; its take in 1981–91 was some 38 per cent. In 1981–91, indeed, the Core and Semi-core together accounted for some 95% of the net urban increase (the numbers shown are very slightly inflated by the absolute decline of 2.36 % in the Periphery). The Semi-periphery performed unevenly, reaching as high as 20 per cent twice, the second occasion in 1941–51; since that time it has declined steadily, to its all-time low in 1981–91 of 5.9 per cent. The Periphery performed even less robustly, its highest declining from share of 18.5 per cent at the start of the twentieth century, through an intermediate peak of 14 per cent in 1931–41, through subsequent decline to a recent absolute loss equivalent to 2.4 per cent of the provincial gain; much of this loss occurred in the Northeast region.

CONCLUSIONS

The data set for sixteen regional divisions analyzed here offers indeed a sweeping view of the provincial socio-economic history in terms of the population as an indicator, and highlights the dominant large-scale spatial process at work. It is of course true that generalizations suppress truth as well as reveal it, and there many questions raised by this data set which cannot be answered except with reference to local conditions and contingent events. But a larger framework always adds to the depth of any explanation, even if the proximal causes of some interesting changes are more local in nature. The regional system proposed here does offer such a broader context, especially in terms of macro-scale dynamics of the human geography of the Province, and may be useful as a set of "referential" regions, perhaps to act as a foil for other pragmatic and prescriptive approaches (Guttenberg 1993, 81).

It seems quite clear that for Ontario, a single-pole model is not entirely appropriate (cf. Hoeekveld–Meijer 1990:170). The capability of the three substantial regions of the Semi-core (Georgiana, though as yet insubstantial, is included for the special reasons mentioned) to maintain their growth so as at least to keep pace with the overall rate of the Province means that they hardly qualify as dependent "twilight" regions. The sources of this growth are not historically merely overspill from the core itself; only in the past decade, during the economic boom of the eighties, has the bow-wave become noticeably stronger in the Horseshoe and the Western Heartland. In the same terms, the Ottawa–Rideau region has had relatively little daily linkage with Toronto compared with its nation-wide interaction as the federal capital city. If the growth of the Semi-core is thus largely autonomous, then, it requires explanations of its own.

On the other hand, the remaining six agrarian, or largely agrarian regions of the south, and the five Canadian Shield regions of the Periphery are clearly in eclipse, as twilight regions. The first set (the Semi–periphery), are at least holding on or growing
slightly, while the Northern Ontario regions seem to be losing substantially: even a
stagnant population means that all natural increase must be leaving. It must not be
inferred, however, that the growing regions are merely capturing the out-migration from
the relatively declining regions. Ontario, for example, in 1981-91 received over 50 per
cent of the new immigrants into Canada (Ontario Ministry of Finance 1994:8), but
generally sustained slight losses in the interprovincial migration exchanges (New-
bold 1994).

The final illustration, the map at Figure 7, attempts to sum up the regional dynamics of
the past thirty years and to suggest an underlying cause for the centralization
propensity. It is evident that both the accelerated centralization in the Core and the
relative buoyancy of the Semi-core relate to their positions on corridors. The Core is
obviously the premier node in the provincial networks of communications, as it was in the
railroad era (cf. Figure 2); and its political strength has ensured that this has been and
continues to be the case. The Horseshoe and Western Heartland lie in less nodal but
very attractive intervening-opportunity locations between the Core and nearby
metropolitan centres in the United States, not to mention the further network connections
to many other North American urban complexes. Historically, these have featured
railroad linkages; but since the freeways in the 1960s began to facilitate much wider
marketing ranges than the common roads could ever do, trucking has opened a great
many new locations for manufacturing and service industries, and at the same time
brought the railroads under great competitive pressure, forcing the closing of most lines
other than those of the major corridor routes (Bloomfield 1991). Even for eighteen-wheeler,
however, distance-efficiency is still a factor, however, and much of the
new development which can be seen occurs along and just off the freeways that link the
major cities in these two regions. It can hardly be coincidental that for both Core and
Semi-core units their relative shares of provincial growth, both urban and total,
began to increase (Tables 1 and 2) in the 1950s, with the increase in trucking generally
and the approach of the freeway era in Ontario.

It is not universally true, however, that merely if one or more freeway sections pass
through a region, it is likely to show moderate to strong growth. The growth curves for
the Ontario Shore and St. Lawrence Regions (Figure 4b) are surprisingly flat, compared to
what one might expect from the historical linkages with the sometime "lifeline of
empire," the St. Lawrence ports, let alone from the observable freeway traffic along
that corridor. Perhaps this is a clue that the historic easterly connections, to Quebec, the
Maritimes, and Europe, have lost their power to generate new growth in Ontario. The St.
Lawrence Seaway, once loudly touted to be the mother of all economic stimuli, has had
little such permanent impact in Ontario, perhaps from having been built in the 1950s
to accommodate the oceanic shipping of the 1920s (cf. Thompson 1991:96).

Regions which have never been served by either continental-level railroads, or by recent
freeways, such as the Huron Upland (G) and the Trent Lowlands (H) have incurred
absolute net outmigration or stagnation until well into the twentieth century, and are
growing only modestly now. The Erie Shore region was modestly sustained by a major
corridor (termed the "Air Line" after U.S. bridge railroads that were built in the 1870s),
but the highway component (King's Highway No.3) has now been allowed to deteriorate
badly in some sections, and the railroads are scarcely used (London Free Press 1994).
This regionalization of Ontario is, as mentioned, a retrospective one, attempting to capture the long-term dynamics of growth and decline, with the intention of illuminating current propensities (cf. Norton 1984:24–26; Haggett 1990, Chap.4). There should not be inferred from the results any historicist or deterministic subtext to the effect that the pattern now to be seen must inevitably have developed from initial settlement patterns. Too many contingent geopolitical factors have arisen in the past two centuries for such a view to be tenable (cf. Whebell 1992b). All the same, the similarity of the structural pattern of pre-Columbian Woodland occupation is intriguing (Campbell 1994:23).

The long-term process of centralization demonstrated in this paper is not only ineluctable but accelerating, and therefore the widening of disparities between the Core and the less advantaged regions of the two parts of the Periphery is likely to continue, while the Semi-core should continue to hold its own. Even if it had been possible in the 1960s, a decade in which government funds flowed as from a new artesian well, for official interventions to have effected a better spread of the coming incremental growth of the Province, such initiatives can hardly be taken now, in a time of massive public-account deficits. So long, therefore, as the freeway system continues to be improved and extended on the same basis as in the past – that is, on the calculation of traffic demand (cf. Andrey 1993; Barker and Gerhold 1993; Rimmer 1988) – significant modifications in the spatial structure and predominant recursive process shaping the Province are hardly to be expected.

APPENDIX: A NOTE ON THE STATISTICAL SOURCES

Although Ontario, in its earlier identity as Upper Canada, first received permanent European settlers well before 1800, its slow growth and low revenues meant that government data collection was sporadic and unreliable. Only from 1825 were local clerks required by law to report annually the population and other data of their townships. These data are collected by judicial districts in the annual Sessional Papers of the Legislature. In 1850–51 the first effective universal census was carried out and published by the then Province of Canada. For its reporting units it utilized the counties which had just been systematically erected by law; over half of these are still in place as Census Divisions. In 1861 the Province of Canada repeated the task, and from 1871 the decadal Census has been the responsibility of the federal Government of Canada.

Few urban places were reported separately before 1851, as it was only after mid-century that incorporations took place in any numbers. Until 1941 the definition of “Urban” was simply “incorporated settlement.” Although the lowest rank of incorporation in Ontario, the “village,” generally needed at least 750 persons to qualify, there were many exceptions; not was it compulsory that a cluster of such or any size become incorporated. Higher-order units called “towns” and “cities” normally required populations of 3000 and 15000 respectively; again there were exceptions. A city was treated as a Census Division, but lesser entities remained, like the rural townships, as subdivisions.

In 1951 a new definition of “urban” was adopted, based on a cluster threshold of 1000 persons of urban character, whether incorporated or not. Villages having fewer than this number ceased to be counted as urban. Amendments later included a density requirement of 400 persons per square mile, and there has been further fine-tuning (see Bollman 1992, p 5, for a schedule of these changes). Data for 1941 on the revised basis was also included in the 1951 report. In the data set compiled for this paper, the older definition of urban is necessarily used up to 1931 inclusive, after which the newer definition is taken. The discrepancy between the two definitions as of 1941 was in the order of a quarter-million, most of it due to urban overspill in the Core and Semi-core. The urban population fall in the other zones, though real enough because of the depression, is exaggerated because of a rather large number of the incorporated places’ merely falling below the new definitional threshold.

Most urban places during the nineteenth and earlier twentieth centuries had accommodated overspill by eventually annexing it, a practice generally condoned by the Provincial legislature and still common today. But in 1954, a new policy resulted in the creation of a federated municipality, aggregating the rapidly-growing suburbs around Toronto under a Metropolitan government; this has remained territorially stable. In the 1960s and 1970s, mergers of some large cities with their surrounding counties, together with other local restruc-
turing, have produced a number of Regional Municipalities, within which typically the older villages and small towns disappeared through being merged with township municipalities. It is obviously easier to aggregate the subdivisions of earlier censuses to fit the newer pattern than to try to disaggregate the new; though might be possible with the use of very fine-mesh Enumeration Area data, this procedure is too expensive for its perceived advantages. By relying on county and Regional Municipality units except where it has seemed both useful and feasible to detach subdivisions, the complications arising from the frequent changes of boundaries and definitions are minimized.

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